universität wien

MASTERARBEIT / MASTER'S THESIS

Titel der Masterarbeit / Title of the Master's Thesis

„Employing Highly Skilled Third-Country Nationals in Austrian and German Information Technology Service Companies: Realities, Challenges and Consequences"

verfasst von / submitted by

Anna Hackl, BA

angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Master of Science (MSc)

Wien, 2020 / Vienna 2020

Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet:	UA 066 914
Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet:	Masterstudium Internationale Betriebswirtschaft
Betreut von / Supervisor:	o. Univ.-Prof. Mag. Dr. Rudolf Vetschera

Acknowledgements

I would like to thank all those who supported me in the course of writing the present thesis. First and foremost, I owe a great debt of gratitude to my thesis supervisor, o. Univ.-Prof. Mag. Dr. Rudolf Vetschera, for supporting me at all times in his patient, professional and kind ways. It truly was an honour.

Special thanks also goes to Arbeitsmarktservice, Ausländerbehörde Stuttgart, Bundesagentur für Arbeit, Bundesamt für Justiz, Bundesamt für Migration und Flüchtlinge, Institut für Arbeitsmarkt- und Berufsforschung, Magistratsabteilung 35, Statistik Austria, Statistisches Bundesamt, and Wirtschaftskammer. Without their support in providing me with necessary data and related explanations, the present thesis would not have been possible.

In addition, I would like to thank the Faculty of Business, Economics and Statistics for providing the infrastructure necessary to write the present thesis. Many thanks to the team of the Faculty Library, to the team of the Department of Business Decisions and Analytics, and to my second examiner, Mag. Dr. Lola Raich, M.A. Furthermore, thanks goes to all survey participants, especially to those who directed personal words at me and those who shared their professional experiences in detail.

Lastly, I would like to thank my family and friends, near and far, for lending me their ear, for providing me with wide-ranging support, for being there through thick and thin. I dedicate the present thesis to Lara, who has been by my side during all this time.

Table of Contents

List of Abbreviations

Abbreviations Related to This Study

HS	Highly skilled
HS TCN	Highly skilled third-country national(s)
IT	Information technology
MNE	Multinational enterprise(s)
STEM	Science, technology, engineering and math
TCN	Third-country national(s)

Abbreviations Related to Austria

AMS	Arbeitsmarktservice (Employment Agency)
AuslBG	Ausländerbeschäftigungsgesetz (Law for the Employment of Foreign Nationals)
BMI	Bundesministerium für Inneres (Ministry of the Interior)
NAG	Niederlassungs- und Aufenthaltsgesetz (Law of Settlement and Residence)
OtherKW	Other Key Workers
RWR Card	Red White Red Card
ShortageW	Skilled Workers in Shortage Occupations
HighlyQW	Very Highly Qualified Workers
UBIT	Unternehmensberatung, Buchhaltung und Informationstechnologie (Professional Association for Consultancies, Accounting and Information Technology)
WKO	Wirtschaftskammer Österreich (Austrian Economic Chamber)

Abbreviations Related to Germany

AufenthG	Aufenthaltsgesetz (Law of Residence)
BAMF	Bundesamt für Migration und Flüchtlinge (Federal Office for Migration and Refugees)
BITKOM	Bundesverband Informationswirtschaft, Telekommunikation und neue Medien (Association of Information Economy, Telecommunication and New Media)
BeschV	Beschäftigungsverordnung (Employment Regulation)
BA	Bundesagentur für Arbeit (Federal Employment Agency)

Abbreviations Related to Supranational Institutions

CEDEFOP	European Centre for the Development of Vocational Training
EEA	European Economic Area
EEC	European Economic Community
EU	European Union
Council	Council of the European Union
ICT	Intra-corporate transferees
OECD	Organisation for Economic Co-operation and Development

List of Figures

List of Tables

1. Introduction

1.1. Relevance and Motivation

For the past decades, globalisation pressures, demographic developments, and other factors have led a variety of industries all over the world to struggle with the shortage of highly skilled (short: HS) workers (OECD 2002, 7ff.; Demeny 2005; Chaloff and Lemaître 2009, 10ff.; Burmann et al. 2018, 42). HS personnel is a key factor to safeguard competitiveness (Fink and Miguelez 2017, 4f.). This implies that a lack of such HS workers may seriously affect not only a company's performance and therefore its competitive advantage (Elias-Linde 2014, 24ff.) but also the comparative advantage of the respective country (Cavusgil, Knight and Riesenberger 2017, 144ff.).

The employment of HS foreign workers serves as a key instrument in combatting the mentioned shortage (European Commission n.d.a; Dunnewijk 2008; Cerna and Czaika 2016; Fink, Miguelez and Raffo 2017; Janavičiūtė, Telešienė and Barynienė 2017; Kerr 2017; Verschueren 2018). Other strategies consist of changes in education systems (Mitesser 2012; Beck 2014; Industriellenvereinigung 2019), recruitment techniques (Rechsteiner 2016), employer branding (Seifert 2015) and employee retention strategies (Balla and Danner 2015).

Both academic and non-academic actors have called for change, highlighting the need for institutional and legal frameworks to improve in order to succeed in the global competition for talents. They have ranged from international levels (e.g., OECD 2002; Dunnewijk 2008; Chaloff and Lemaître 2009) to the European level (e.g., European Commission n.d.a; European Commission n.d.a; Kahanec and Zimmermann 2010; Cerna and Czaika 2016; Burmann et al. 2018; Verschueren 2018) to the respective national levels.

Not only is the attractiveness of regional and national industrial locations on everyone's lips (e.g., European Commission n.d.b; WKO n.d.a; Fassmann 2002; BITKOM 2007; Beck 2014; Kopf et al. 2015; Industriellenvereinigung 2019). Another major concern consists of the immigration process those foreign HS workers must pass as a prerequisite for legal employment (e.g., WKO n.d.b; Mahroum 2001; BITKOM 2007; Mitesser 2012; Elias-Linde 2014, 30; Statistisches Bundesamt 2018; Industriellenvereinigung 2019).

The European Union (short: EU) has still not put a joint immigration system or framework in place, except for minor exceptions (Cerna and Czaika 2016; Verschueren 2018). This renders the immigration of third-country nationals (short: TCN) to EU member states a national

matter. Besides companies from other EU member states, the employment of highly skilled third-country nationals (short: HS TCN) as a means of counteracting the shortage of HS workers has been a growing challenge for Austrian and German firms.

Industry representatives (Bundesverband mittelständische Wirtschaft n.d.a; BITKOM 2007; BITKOM 2018; Dornmayr and Winkler 2018; Industriellenvereinigung 2019; WKO 2019a; WKO 2019b) and media in both countries (e.g., Knoblach 2018; Kleedorfer 2019; Kleine Zeitung 2019; taz 2019; Franz 2020; Haas 2020; Heunemann 2020; Krone 2020) have been warning about the economic and societal consequences of this issue.

The information technology (short: IT) service industry represents an industry that has stuck out in its struggle to find HS workers not only in both mentioned countries but also on a global scale. IT service companies and other firms have desperately been looking for software engineers and developers, IT consultants, data security specialists, and many more IT professionals (BITKOM 2007; Rechsteiner 2016, 1; migration.gv.at 2020a) in past years.

Here too, employing HS TCN has been one of the key strategies to fill personnel gaps. This strategy implies many uncertainties, waiting periods and expenses. Accordingly, the scholars Tarique, Briscoe and Schuler (2017, 172) claim: "Gaining approval of these various visas can be complicated and very time-consuming, expensive, and difficult." These difficulties are the result of the HS TCNs' immigration processes to Austria and Germany, which are defined by applicable legislation (Steinfatt 2002; Pethe 2006; Kahanec and Zimmermann 2010; Tarique, Briscoe and Schuler 2017, 271; Statistisches Bundesamt 2018).

1.2. Research Questions and Contributions

As discussed, much literature and research to this day has revolved around the global and European shortage of HS workers and the resulting global competition for talents (e.g., Mahroum 2001; Barfuß 2002; Florida 2006; Pethe 2006; Gera and Songsakul 2007; Chaloff and Lemaître 2009; Cerna and Chou 2014; Fink, Miguelez and Raffo 2017; Janavičiūtė, Telešienė and Barynienė 2017; Kerr 2017). In addition, several scholars (e.g., Dunnewijk 2008; Matthewman 2011; Krenner and Horneffer 2014; Fink and Miguelez 2017) have discussed the involved global mobility of HS workers.

Scientific attention has also been dedicated to relevant legal frameworks as well as to the social and welfare-related consequences of immigration in the EU (Mohr 2005; Penninx 2005; Morales and Giugni 2011; Reeskens and Wright 2014; Karreth, Singh and Stojek 2015;

Danaj, Lazányi and Bilan 2018; Verschueren 2018; Yanasmayan 2018). However, little respective attention has been paid to the firm-level realities brought about by the employment of HS TCN, let alone in the particularly affected IT service industry.

Several related studies have made use of comparative approaches. Many compared different EU member states' legal and institutional frameworks about immigration (Mahroum 2001; Mechtenberg and Strausz 2009; Kahanec and Zimmermann 2010; Cerna and Czaika 2016; Burmann et al. 2018). Supranational institutions have also used comparative techniques when analysing migration: the Organisation for Economic Co-operation and Development (short: OECD; n.d.), for instance, ranked its member states according to their attractiveness to HS workers. The International Organization for Migration (2018; 2019; 2020) has applied a comparative approach assessing different world regions by migration patterns and policies.

Comparative approaches not only provide a specific way of analysis by narrowing down an issue of broad scope. A comparison between selected areas (e.g., countries) also allows for the evaluation of similarities, overlaps and differences. All of that ultimately enables learning processes as it highlights respective potentials, especially in legal regards (Lasser 2003). Considering all mentioned factors, the present thesis poses the following research questions:

- How do the challenges caused by the employment of HS TCN in Austrian and German IT service companies affect those firms and the economies they are embedded in?
- How do Austria and Germany differ in their legal and institutional frameworks regarding the employment and immigration of HS TCN, and (how) may they serve as best practice examples for each other?

By answering these questions, the present thesis offers a contribution to both the scientific discourse surrounding the global competition for talents and the discussions about the shortage of HS workers in Austria and Germany, specifically in the two IT service industries. Also, it may be of relevance for decision-makers in both countries to analyse and compare the consequences for the affected firms and economies. This way, learning processes could be triggered.

The present thesis focuses on the binational comparison of the two EU member states Austria and Germany because they have many relevant characteristics in common: sociodemographic, geographic, linguistic and industry-related factors, as well as the shortage of HS workers in the respective IT service industries. At the same time, both countries still show differences in their approaches to HS TCNs' immigration, as will be analysed.

The low psychic distance between Austria and Germany (Dow and Ferencikova 2009; Huter et al. 2017; Ambos, Leicht-Deobald and Leinemann 2019) allows for relatively direct comparative results to be obtained without losing national socioeconomic peculiarities out of sight. This is especially valid for the legal comparison as both countries are bound to the EU's legal framework. Using a binational comparison, the present thesis follows in the footsteps of other comparative works between Austria and Germany[1] which have been used for many scientific issues. Examples range from business cycles (Brandner and Neusser 1992) to cross-border investments (Huter et al. 2017).

The present thesis sheds light on the IT service industry in Austria and Germany instead of focusing on all industries affected by the shortage of skilled workers. Here, too, although relevant literature exists (Steinfatt 2002; Pethe 2006; Buxmann, Diefenbach and Hess 2015), little scientific attention has been paid to the exceptional shortage of HS workers from the firm-level point of view.

In Austria, the Austrian Economic Chamber (Wirtschaftskammer Österreich; short: WKO; e.g., 2019a; 2019b) and the Federation of Industry (Industriellenvereinigung; e.g., 2019) have published several reports on how different industries and firms have experienced the shortage of skilled workers. However, these reports often merely mention the challenges brought about by the immigration of HS TCN as a side note. In Germany, the Association of Information Economy, Telecommunication and New Media (Bundesverband Informationswirtschaft, Telekommunikation und neue Medien; short: BITKOM; 2007; 2018) has acted similarly.

In 2006, Pethe evaluated many matters of relevance for the present thesis. She included employment theories regarding HS workers and analyses of the German Greencard for foreign IT workers. The author evaluated realities of both IT service companies and HS workers in her qualitative study. Nevertheless, 14 years have passed since she published her book, and many circumstances have changed in the meantime. New member states have joined the EU. Additionally, the Blue Card was introduced as a transnational work permit in 2009, complemented by the work permits for intra-corporate transferees (short: ICT) in 2014. Also, today's legal frameworks have altered. Lastly, the actual TCNs' immigration process to Germany, influenced by those legal frameworks, was only partially discussed by Pethe (2006).

[1] Switzerland is sometimes included in such studies (e.g., Hofhansel 2008) in order to cover all German-speaking countries. However, Switzerland is not an EU member state, which is why the present thesis focuses on the binational comparison between Austria and Germany.

As for the immigration process to Germany, the Federal Statistical Office (Statistisches Bundesamt; 2018) recently published a promising report which comprises affected firms' perspectives on improvement possibilities in that very process. However, the analysis did not differentiate between industries or professions. Also, Statistisches Bundesamt confirmed that this report was only intentioned to be published punctually instead of systematically[2].

In Austria, scientific research has been dedicated to the realities and challenges of the shortage of HS workers (Biffl 2011; Gächter, Manahl and Koppenberg 2015) and to the consequences of the current immigration system (Kang 2013; Krings 2013; Stiller 2018). Notwithstanding, no studies have explicitly shed a light on the firm-level consequences of the discussed shortage in the IT service industry. Concluding, a comparison between Austrian and German IT service companies counteracting the shortage of HS workers by employing HS TCN has not occurred until this day. The present thesis therefore contributes to filling this research gap.

1.3. Further Demarcations and Definitions

Apart from the described spatial focus on Austria and Germany, the present thesis emphasises IT service companies as its industrial focus. IT service companies are defined as companies offering services consisting of or related to IT. IT is in turn defined as being "dedicated to capturing, manipulating, storing, communicating, retrieving, and presenting information represented in digital form on behalf of people" (Messerschmidt and Szyperski 2003, 13).

In Germany, Statistisches Bundesamt (2019) categorises the IT service industry as the economic sector "WZ 62: Erbringung von Dienstleistungen der Informationstechnologie". In Austria, the Employment Agency (Arbeitsmarktservice; short: AMS; e.g., 2019) gives the exact same name to the national IT service industry. WKO (2020) labels it "IT-Dienstleistung" (IT Service). Accordingly, the IT service companies in a certain country comprise the national IT service industry.

In addition to those spatial and industrial foci, a temporal demarcation is made: the present thesis focalises the years 2018 and 2019. This is because data for the year 2020 will not be available until summer 2021 in most cases. Additionally, economies around the globe have seen themselves greatly affected by the COVID-19 pandemic in 2020. It is in this sense that the two years before 2020 are analysed in the present thesis.

[2] After reaching out to Statistisches Bundesamt, the author of the present thesis received this answer via email on 23.10.2019.

Furthermore, HS TCN are analysed as a specific target group. As such, it requires a clear differentiation regarding four categories: nationality, skills, form of employment, and form of immigration. In a first step, the HS TCN this paper focuses on must be distinguished from HS workers who are EU or European Economic Area (short: EEA) citizens. The European Single Market grants the latter the freedom of workers (Art. 49 Treaty on the Functioning of the EU). A Romanian intranet developer, e.g., may start to work in Austria or Germany right away while a Canadian intranet developer must first pass the respective immigration process. In this sense, only those HS TCN are analysed who do not present any personal ties to the EU/ EEA[3].

The second demarcation concerns the skill level: HS individuals in the present thesis are defined as "those who have successfully completed education at the tertiary level [in a relevant field of study] and/or those not formally qualified in this way but employed in [a relevant] occupation where such qualifications are normally required" (Auriol and Sexton 2002, 13). HS TCN thus need to possess certifiable skills and are only then eligible for certain work permits in Austria or Germany. They may be managers, technicians, or similar individuals (Biffl 2011, 16; Gächter, Manahl and Koppenberg 2015, 12). In this sense, they are contrasted by low skilled and unskilled TCN (Biffl 2011, 16).

Thirdly, as this paper focuses on the long-term employment of HS TCN in Austrian and German IT service companies, self-employment is disregarded. Lastly, the focus of the present thesis lies on the HS TCNs' voluntary immigration to Austria or Germany as opposed to forced migration patterns. The latter may be the case with asylum seekers, for instance. Both self-employed TCN and TCN in forced migration may well be HS workers, but just as low skilled and unskilled TCN, they are subject to different legal frameworks and are therefore not considered in the present thesis.

1.4. Structure

Firstly, the theoretical frame will be set. Here, a historical overview of (labour) migration in, to and from Austria and Germany will be followed by discussing relevant migration theories. Special attention will be paid to the shortage of HS workers, embedding Austria and Germany

[3] Personal ties include marriage, parenthood, and already living in and/or having obtained a university diploma in Austria or Germany. If the discussed Canadian citizen were married to a Slovakian citizen, e.g., EU law instead of national Austrian or German law would apply. The analysis of such specific personal constellations would exceed the scope of the present thesis and is thus excluded.

in both the global and the European context. The employment of HS TCN the IT service industry will be evaluated.

Consequently, applicable Austrian and German immigration and employment laws will be compared based on the functional comparative method. This will render it to possible to evaluate similarities, differences and the overall impact on employing HS TCN. Additional focus will be put on the transnational work permits that are the Blue Card and the ICT permits.

The legal comparison between Austria and Germany will be followed by a quantitative macro level analysis, mainly concerning the years 2018 and 2019. Starting with a general evaluation of immigration to and residence in both countries, the analysis will proceed to the comparison between the situation HS TCN are facing in the Austrian and German labour markets.

The reality that is the shortage of HS workers in the IT service industry will be accentuated by comparing respective vacancies and by embedding the information obtained into the context of Austrian and German IT service companies. Said analysis will also allow for an estimate of lost revenue in IT service companies of both countries that has existed as a result of the shortage of HS workers.

After the legal and macro level comparison, the last level of comparison will concern other decisive factors influencing the challenge of employing HS TCN in Austria and Germany. Among others, the information range concerning that very employment will be analysed, as well as incurring expenses. Additionally, family reunification factors will be compared. All these elements will be analysed against the background of different categories of TCN.

In order to put all comparative-theoretical findings into a practical perspective, the last chapter will discuss the results of a questionnaire answered by 40 Austrian and 34 German IT service companies. The respective quantitative analysis will provide insights into how those companies relate to the shortage of HS workers and where they see institutional and legal room for improvement. Followingly, a conclusion from all findings will be drawn. This conclusion will be complemented by a critical discussion of said findings.

2. Theoretical Insights on Highly Skilled Immigration

This chapter firstly compares the historical roots of labour migration to Austria and Germany, among others considering the crucial European dimension. Followingly, the current state of research regarding the shortage of HS workers in both those countries and the EU is summarised. Said analyses are complemented by discussing the motivations for and implications of employing HS TCN. In a last step, the IT service industry is described.

2.1. Historical overview

2.1.1 Austria

Labour migration in and to Austria is not a recent phenomenon – in fact, migration in its many facets has been a part of Austrian history for longer than the country itself exists. As early as the 18th century, domestic migration in the Habsburg Empire was complemented by the immigration of foreign elites to the imperial capital Vienna (Fassmann and Münz 1995, 13; Pelger 2009, 22f.). Both HS and non-HS labour immigration, although institutionally restricted, was regarded as a contributor to both population and economic growth. At the same time, emigration was strictly controlled (Fassmann and Münz 1995, 14; Steidl 2017, 76ff.).

Migration restrictions were then minimised in conjunction with the economic upswing of the first half of the 19th century. This upswing manifested itself in the expansion of public infra-structure and the drastic growth of the textile and other industries (Fassmann and Münz 1995, 14f.; Hahn 2007, 176ff.; Pelger 2009, 24). Especially labour immigrants from Eastern Europe entered the Empire in large numbers, rendering the Habsburg Empire "a multinational state, [displaying] high levels of social and cultural diversity" (Steidl 2017, 70).

Following the turmoil and recession of the 1850s, 1860s and 1870s, new industrial centres arose and attracted labour migrants from within and outside the Empire. At the same time, however, as many as 3.5 million individuals emigrated from the Habsburg Empire. The emigrants' main destination was the USA – a country that offered many migrants only limited residence rights, though, which resulted in many emigrants returning to the Empire (Fassmann and Münz 1995, 21ff.; Holzinger 1997, 42f.; Hahn 2007, 179ff.; Pelger 2009, 24ff.).

World War I and the following interwar years caused an increase in emigrants from the 1918 founded Republic of Austria, with emigration outweighing immigration by far (Fassmann and Münz 1995, 29ff.; Hahn 2007, 181f.; Pelger 2009, 29f.). The economically dire situation that led many to leave Austria also caused high levels of unemployment. This

development triggered the creation of Resident Protection Law (Inländerschutzgesetz*)* in 1926 which heavily restricted non-residents' labour market access (Pelger 2009, 31) and thus established the protection of resident workers as a priority over that of non-resident workers.

The *Anschluss* of 1938 then led to an economic upswing, mainly caused by industrial growth spurts. While hundreds of thousands of people prosecuted by the Nazi regime fled Austria during World War II, the immediate post-war era saw an unprecedented number of refugees entering the country (Fassmann and Münz 1995, 34; Pelger 2009, 32ff.). As a result of the Marshall Plan, the Austrian economy was revived, laying the grounds for economic growth and prosperity in the following decades (Pelger 2009, 34).

It is said economic growth that led to what is now called the guest worker (Gastarbeiter) regime which started with the 1961 signing of the Raab-Olah Agreement between the Austrian Trade Union Federation and WKO. The agreement consisted of expanding certain types of immigrant labour on yearly revised contingents. This meant that the shortage of workers was to be counteracted with temporary immigrant workers (Fassmann and Münz 1995, 41; Holzinger 1997, 55; Pelger 2009, 42ff.; Horvath 2012, 144; Bakondy 2017, 116ff.).

Consequently, treaties with Spain (in 1962), Turkey (in 1964) and Yugoslavia (in 1965) were signed (Bakondy 2017, 114f.), initiating the first phase of guest worker immigration to Austria. This first phase lasted from 1963 to 1967, mainly coined by the immigration of single male workers. The following second phase (1968 to 1973) saw the beginning of family reunification, signalling that the temporary rotation concept behind the bilateral agreements did not prove realistic. The third phase, starting in 1974, saw both an increase in remigration to the guest workers' countries of origin as well as that of family reunification in Austria (Fassmann and Münz 1995, 41; Holzinger 1997, 55f.; Pelger 2009, 42ff.).

Following the economic crisis of 1973, contingents for foreign workers were sharply cut and the 1976 Law for the Employment of Foreign Nationals (Ausländerbeschäftigungsgesetz; short: AuslBG) came into force. This new law stood for a system based on quotas instead of contingents. It restricted both HS and non-HS labour immigration with the introduction of high institutional hurdles. A decade after the creation of that very law, it was yet again an economic upswing that triggered the need for foreign workers, and thus led to an increase in the number of immigrants to Austria (Holzinger 1997, 58f.; Pelger 2009, 110ff.). To this day,

AuslBG is applicable in Austria. However, it was reformed in 2011, turning the quota-based immigration system for TCN into a scoring system.

Before 1995, a clear distinction was made between Austrian workers and non-citizen workers. The immigration of the latter depended on punctual shortages of workers and was mainly meant to fill shortages in the Austrian labour market. When Austria joined the EU, that system experienced a drastic change. The Austrian labour market now saw itself embedded into a complex of 14 additional labour markets (Gächter, Manahl, and Koppenberg 2015, 16f.).

Based on the freedom of workers (Art. 49 Treaty on the Functioning of the EU), EU and EEA citizens had to be treated equally to Austrian citizens in terms of labour market access. The previously drawn line between citizens and non-citizens was now redrawn, with EU and EEA citizens on one side, and TCN on the other side (Hahn 2007, 187; Zawrel 2016, 107f.).

Many decades have passed since the Habsburg Empire actively promoted immigration to ensure economic growth. To this day, labour immigration, especially by TCN, remains a topic that is subject to much controversy in Austria (Hahn 2007, 186f.). While some actors (e.g., industry representatives) plead for the easing of regulations in order to confront the shortage of HS workers, others (e.g., politically right-wing groups) see societal dangers in TCN immigrating to Austria (Bischof and Rupnow 2017, 13ff.). “Dealing with and accepting immigration as a continuous historical force”, as Bischof and Rupnow (2017, 15) state, thus still represents a societal, political and institutional challenge.

2.1.2 Germany

With the Austrian history of labour immigration in mind, many similarities in the respective German history can be found. As with Austria, labour migration in and to Germany is a historically grown phenomenon with its roots being hard to track. First structural migration patterns in or to regions that are now German territory started as early as in the 17th century. Tens of thousands of refugees fled religious or political prosecution, while economic, political and artistic elites migrated throughout Europe voluntarily (Schindling 1992, 287ff.; Wenning 1996, 49f.; Niggemann 2016, 185f.). These contrasting migration patterns are highly similar to those of the Habsburg Empire, as discussed.

The 18th century saw both an increase in migration regulation (Härter 2016, 65ff.) and the simultaneous intent to attract certain immigrants who should contribute to population growth and economic expansion. Religion played a major role in distinguishing between wanted and

unwanted immigrants, as did economic aspects. New factories, especially in the textile industry, called for both HS and non-HS labour. Additionally, a reciprocal relationship between immigration and the creation/expansion of cities like Ludwigsburg or Mühlheim can be observed. Immigration, just as seen with the early Habsburg Empire, was regarded as a necessary and positive means of guaranteeing stability, growth and wealth (Niggemann 2016).

The 19th century was mainly marked by socio-political unrest. It started with the pauperisation of large parts of society caused by famines in the early 1800s (Wenning 1996, 54). Had the German Confederation practically prohibited emigration before 1815, the evolving socio-political situation led to a change in regulation which allowed for emigration under special circumstances. As a result, new emigration patterns emerged, with main destinations consisting of the USA on the one hand, and large European metropolis like Rome or Paris on the other hand (Plaß 2016). These patterns show high similarities with those of the Habsburg Empire and remained stable until 1918. The same goes for remigration patterns, especially concerning overseas migration (Doerries 1987; Wenning 1996, 62ff.).

With the foundation of the German Empire in 1871, domestic migration increased. Urban centres like Frankfurt or Berlin attracted labour migrants from all over the Empire (Wenning 1996, 91; Bücher 1999). Entering the 20th century, an economic upswing showed that the aforementioned emigration patterns had left the Empire without enough workers in its rapidly growing industries. The shortage of workers was met with the recruitment of foreign workers, mostly from Eastern European countries (Bade 1992a; Bade and Oltmer 2007, 149f.).

Following World War I, the only just created Weimar Republic faced the immigration of thousands of war refugees. As was the case with the Austrian Republic, the 1920s thus saw an increase in the regulation of labour immigration. The protection of resident workers was prioritised over that of immigrant workers under the concept of Resident Primacy (Inländerprimat). This concept included a contingent of foreign workers that was to be defined on a yearly basis (Wenning 1996, 101ff.; Oltmer 2016). It is this very concept that later influenced the guest worker immigration system, just as was the case in Austria.

The prosecution of Jews and other religious and political minorities in Germany saw its beginnings earlier than in the Austrian case, starting with Hitler's seizure of power in 1933. While millions fled Nazi Germany throughout the 1930s and early 1940s, labour immigration did not halt. However, said immigration was preponderantly forced by the Nazi regime

(Bade 1987a, 138ff.; Herbert 1992; Wenning 1996, 105ff.; Schmiechen-Ackermann 2016; Spoerer 2016).

In the years immediately following World War II, just as analysed in the Austrian case, large numbers of migrants entered Germany. Most of them were refugees and displaced persons whose socio-cultural integration implied a societal challenge for the 1949 founded Federal Republic of Germany (Benz 1992; Oberpenning 1999, 31ff.; Bade and Oltmer 2007, 157ff.; Oltmer 2017a, 144ff.). Entering the 1950s, as was the case with Austria, an economic upswing began. This phenomenon was above all triggered by the Marshall Plan and has often been labelled "Wirtschaftswunder" (Bade 1992b, 393; Wenning 1996, 121; Meier-Braun 2002, 35), i.e., an economic miracle.

Here again, the prospering industrial sector, among others, called for both HS and non-HS workers in large numbers. Labour immigration from the German Democratic Republic could not counteract the incurred and continuing shortage of workers. That is why West Germany concluded temporary rotation agreements with Italy, Spain, Greece, Turkey, Portugal, Morocco, Tunisia and Yugoslavia (Bade 1987a, 151ff.; Bade 1992b; Meier-Braun 2002, 31ff.; Bade and Oltmer 2007, 159f.; Mattes 2016; Oltmer 2017a, 185ff.). In comparison with Austria, these guest worker agreements were concluded earlier (starting in 1955) and with a larger number of contracting parties/countries.

A decisive difference between the Austrian and German history of labour immigration concerns the countries' level of European integration. While Austria only joined the EEA in 1994 and the EU in 1995, West Germany entered the European Economic Community (short: EEC, the EU's predecessor) as early as 1957 as one of the six founding nations. The underlying Treaty of Rome pronounced the freedom of movement as one of its main goals. This goal was theoretically reached in 1961 when the EEC abolished visa obligations among its member states (Oltmer 2017b). However, as Bade (1987a, 156), states:

> Foreign workers not originating from a country within the European Community were placed under a highly differentiated permit system in which their status depended on the relevant recruitment treaty. A certain degree of latitude was accorded to the authorities empowered to grant residence or work permits under the Foreign Labour Act of 28 April 1965, so that they could to some extent regulate the entry of foreign workers according to the domestic labour situation.

While the millionth Gastarbeiter entered Germany in 1964 (Meier-Braun 2002, 37), it became clear that the temporary aspect of the concluded guest worker agreements would not stand up

to reality – just as observed in the Austrian case. Starting in the 1960s, family reunification largely increased. This immigration pattern lasted until the late 1970s and early 1980s (Bade 1992b, 396ff.; Meier-Braun 2002, 42f; Mattes 2016, 843ff.).

In 1965, the aforementioned Foreign Labour Act came into effect. It represented the strict legal basis for immigration until 1990 and is often regarded as the institutionalised intent to limit immigration due to societal fears of socio-cultural conflicts (Leggewie 1992; Schönwälder 1999, Meier-Braun 2002, 42; Berlinghoff 2016, 937ff.; Mattes 2016, 850f.). The 1973 recruitment stoppage drew this line further, underlining the wide legal gap between citizens of EEC members states (who, as of 1968, no longer needed work permits), and all other citizens (Meier-Braun 2002, 42ff.; Berlinghoff 2016, 964f.; Oltmer 2017b, 74).

Following the discussed first (1950s to 1973) and second (1973 to 1980) phase of West German politics concerning the immigration and residence of foreign nationals, the next phase (1981 to 1990) was marked by an aggravation of xenophobic rhetorics. Actors across the political spectrum called for tighter immigration rules and the stoppage of any further family reunification. This aggravation saw itself cemented in the reformed 1990 Foreign Labour Act (Wenning 1996, 156ff.; Meier-Braun 2002, 49ff). It further widened the gap between those pertaining to the EEC and the followingly created EU on the one side, and TCN on the other side. This gap keeps being a phenomenon until this day in Germany and Austria.

It was not until the turn of the millennium that the German government increased efforts to combat xenophobia and to change the highly restrictive immigration policies of the three previous decades. In 2000, the Greencard for foreign IT workers was introduced. It was followed by the 2005 creation of the Law of Residence (Aufenthaltsgesetz; short: AufenthG) which is valid until today (Meier-Braun 2002, 101ff.; Bade and Oltmer 2007, 169; Kolb 2016, 1030ff.; Meier-Braun 2017a) and will be discussed in chapter 3.

Just as is the case with Austria, (labour) immigration remains a topic of great controversy in Germany to this day (Meier-Braun 2002, 141ff.; Meier-Braun 2017b). Notwithstanding, it is crucial to consider that "[p]resent day migration, with its attendant problems, arises from tensions conditioned by the past" (Bade 1987b, 8f.). The following sub-chapter will thus embed the discussed historical analyses into the European context, which has undoubtedly influenced both Germany and Austria throughout the centuries (Zawrel 2016, 29).

2.1.3 The European Dimension

Today, Austria and Germany are situated in centre of the EU, with 84% of Germans and 77% of Austrians questioned in the 2018 Eurobarometer (European Commission 2018, 30) identifying themselves as EU citizens. However, as has been discussed, the countries' respective integration into the supranational European context has differed historically. While Germany was a founding member state of the EEC and thus entered the European integration process as early as in the 1950s, Austria only became an EU member state in 1995.

Apart from this difference, the previous analyses of Germany's and Austria's labour migration histories triggers the questions: Do the highly similar historical processes between Austria and Germany also represent the rule for other European countries and regions? May overlapping migration regimes[4] be found, going beyond the two analysed countries? If so, what do these insights imply for Austria's and Germany's position in Europe? Answering these questions situates Austria and Germany in a larger European context and lays the ground for the analysis of the shortage of HS workers in both countries and the EU.

As Bade (2003, 1) notes, the European continent has been a continent of migration throughout the past centuries, with migration patterns and regimes varying from era to era. Labour migration has ranged among the most prominent of those patterns since the second half of the 18th century. Seasonal, definitive and other forms of migration took place throughout the European continent. Strict borders as seen currently were not a reality (Bade 2003, 1ff.).

The following century saw many European regions facing urbanisation and industrialisation trends, among them regions now pertaining to Austria and Germany. Those trends in turn triggered labour migration to urban-industrial centres (Bade 2003, 10ff.; Oltmer 2009, 13ff.) and lasted until the early 20th century. Overall, this led to an increase in transnational labour migration "in intensity, fluctuation and range" (Bade 2003, 53).

At the same time, mass overseas emigration emerged as a lasting phenomenon, just as analysed in the Austrian and German cases above. This phenomenon occurred despite various European states actively discouraging emigration, especially in the case of HS workers and entrepreneurs (Oltmer 2009, 16). Notwithstanding, above all in times of socio-political crises, transatlantic emigration served as a means of escape for millions of Europeans (Bade 2003, 81ff.).

[4] Oltmer (2009, 5) defines migration regimes as "regimes [that] implemented and conceptualised migration options. They influenced, controlled, promoted, steered or restricted action and actors in migration processes."

Between 1815 and 1939, e.g., a total of ca. 30 million Europeans migrated overseas, most of them to the USA (Fassmann and Münz 1996a, 13).

The first half of the 20th century represented decades of forced mass migration, with millions fleeing either throughout the European continent or overseas. World War I and II also entailed the loss of millions of working men and women. The resulting labour shortages were often filled with foreign workers. Austria and Germany represent a special case in this regard, as most foreigners were forced to work. The post-war era, starting in 1945, signified the most drastic movements of mass migration in the history of the European continent. It led to major socio-political challenges and contributed to the foundation of the EEC in 1957 (Fassmann and Münz 1996a, 14ff.; Holzinger 1997, 31f.; Bade 2003, 165ff.; Zawrel 2016, 29ff.)

Just as analysed with Austria and Germany, the 1950s initiated an era of mostly inner-European labour migration movements. These were above all triggered by the economic disparities between industrialised countries like Austria and Germany, and pre-industrial regions like Spain or Portugal. Following years of economic growth, the 1973 economic crisis triggered recruitment and immigration stoppages in Western, Central and Northern European countries. Those states had previously actively recruited millions of labour immigrants – Germany and Austria included. The mentioned stoppages often resulted in the creation of highly restrictive and bureaucratised legal and institutional immigration systems (Fassmann and Münz 1996a, 22ff.; Holzinger 1997, 33; Bade 2003, 217ff.; Zawrel 2016, 32ff.).

Just as analysed above, socio-political fears were instrumentalised by certain political players. Immigration thus turned into "a central political issue in all European countries affected by it" (Bade 2003, 276). By 1986, the EEC had grown into a community of eleven member states (EU 2020) and the Schengen Agreement had been introduced (European Commission 2020). What has been analysed for Austria and Germany is thus valid for the larger European context: inner-European integration intensified throughout the years, rendering inner-European migration easier (Bade 2003, 288). Simultaneously, citizens of non-member states were subject to restrictive immigration frameworks – "defensive security policy strategies at national and European levels", as Bade (2003, 323) labels them.

With the collapse of the Iron Curtain came the reinforcement of the very fears that had led to the intensification of the mentioned frameworks. Germany as a previously divided country found itself at the centre of immigration from Eastern European countries. However, the

discussed xenophobia was not a purely German phenomenon. Other European countries like Great Britain showed similar tendencies. Simultaneously, further European integration in the form of the 1992 Treaty of Maastricht, the creation of the EU and new member states joining (among them Austria) took place. This again widened the gap between EU and EEA citizens on the one side, and TCN on the other side (Bade 2003, 276, ff.; Zawrel 2016, 35).

The turn of the millennium was marked by two major migration patterns in Europe. On the one hand, refugees fleeing armed conflicts in former Yugoslavia entered the EU in large numbers. Austria and Germany stuck out as key destinations in this regard. On the other hand, the immigration of TCN increased, most of them being refugees as well (Bade 2003, 315ff.). At the same time, the EU saw an unprecedented enlargement in 2004 when ten new member states joined the community, followed by further enlargements in 2007 and 2013 (EU 2020).

Today, the EU with its 27 member states represents a historically grown community. Despite further integration efforts as triggered by the 2007 Lisbon Treaty (Sokolska and Pavy 2020), the EU still lacks a common (labour) immigration framework. Individual member states have remained reluctant to giving up control on matters related to the Area of Freedom, Security and Justice, except for minor exceptions (Kolb 2016, 1034ff.; Große Hüttmann 2017, 266; Verschueren 2018).

Answering the questions posed in the beginning of this sub-chapter, one may thus conclude that the historical migration patterns analysed for both Austria and Germany mostly mirror European migration patterns throughout the centuries. Embedding the two countries into the European context, one needs to make a clear distinction between Germany as an EEC founding member, and Austria that only joined the EU in 1995. Today, both countries' reality is deeply influenced by the EU, although immigration remains a largely national affair in the EU.

2.2. The Shortage of Highly Skilled Workers – Backgrounds and Realities

As discussed, the IT service industries in both Austria and Germany have faced the shortage of HS workers for decades. This sub-chapter explains the backgrounds and characteristics of said shortage in a first step. It then proceeds to discuss European, Austrian and German specificities. This analysis in turn lays the foundations for chapter 2.3. where the employment of HS TCN as a means of counteracting that very shortage will be discussed.

2.2.1 Relevant Migration Theories

In order to understand the shortage of HS workers, it is worth discussing migration theories that focus on labour migration. In other words, it is of interest to ask: What triggers labour migration? Why do HS workers choose specific locations as their migration destinations?

Since the introduction of the neoclassical migration theory in the 19th century (Pelger 2009, 7; Liakova 2017, 62), many migration theories have arisen. While some of them focus explicitly on the individual migrant, others focalise the labour market(s). Examples for the latter are the dual labour market approach, or the world systems theory (Massey et al. 1993, 440ff.; Kuvik 2015, 36f.; Liakova 2017, 62f.). Those theories will not be discussed further in the present thesis as they emphasise non-HS labour migration. In any case, the two factors that are the individual migrant and the labour market(s) are interdependent (Liakova 2017, 61).

The push-pull theory ranges among the most prominent migration theories and falls into the category of neo-classical economics (Kuvik 2015, 35). Here, push (or pressure) factors are those motivating an individual to migrate based on the conditions of her/his region of origin (Holzinger 1997, 11; Pelger 2009, 8; Kuvik 2015, 35; Zawrel 2016, 17; Liakova 2017, 62). Examples are the lack of jobs (Pelger 2009, 8) or socio-political turmoil (Holzinger 1997, 11; Zawrel 2016, 17).

Pull (or attraction) factors motivate an individual to migrate based on conditions of the region/country of destination (Holzinger 1997, 11; Pelger 2009, 8; Kuvik 2015, 35; Zawrel 2016, 17; Liakova 2017, 62). Examples for those factors are higher wage levels (Pelger 2009, 8), social security (Liakova 2017, 62) or religious freedom (Zawrel 2016, 17). This theory underlines the interdependence between the individual migrant and the labour market. The latter represents the main factor determining migration because labour market characteristics serve both as a push and a pull factor.

The human capital migration theory or model is another approach that analyses labour migration. Here, it is argued that "individual rational actors decide to migrate because a cost-benefit calculation leads them to expect a positive net return, usually monetary, from movement" (Massey et al. 1993, 434). Those actors thus base "their migration decision on the conventionally measured rate of return from migration" (Chiswick 2008, 69). The aim of migrating consists of increasing one's wage and working situation (Liakova 2017, 63) in the most efficient and lasting way (Steinfatt 2002, 26ff.).

Following the thread of an economic migrant's cost-benefit analysis, network theories present insights into why individuals participate in labour migration. Massey et al. (1993, 448) state:

> Migrant networks are sets of interpersonal ties that connect migrants, former migrants, and nonmigrants in origin and destination areas through ties of kinship, friendship, and shared community origin. They increase the likelihood of international movement because they lower the costs and risks of movement and increase the expected net returns to migration. Network connections constitute a form of social capital that people can draw upon to gain access to foreign employment.

Networks thus function positively for economic migrants in several ways. They reduce migration costs (Steinfatt 2002, 32; Pelger 2009, 12) and risks (Massey et al. 1993, 448), and are useful to both those aspiring to migrate and those already having migrated. This goes for both HS and non-HS workers (Kuvik 2015, 38).

New economics of migration have partly called into question what neoclassical approaches had claimed. Instead of focusing on an individual worker contemplating migration options, migration decisions are regarded as collective ones. As the individual is embedded into a social group, mostly a family/household, this group influences migration decisions. The cost-benefit analysis is therefore extended to the household (Massey et al. 1993, 436; Steinfatt 2002, 30; Liakova 2017, 63). This is especially relevant when it comes to family reunification processes.

While this theoretical overview does not claim to portray all migration theories, it has shown that economic migration may be regarded through different lenses. What unites all mentioned approaches is the argument that the benefits of economic migration must outweigh the costs involved. It has also become clear that labour markets and the attractiveness of industrial locations must be considered when it comes to migration decisions. If, why, and where to migrate represent contemplations with many factors to consider. Labour migration, in that sense, is not uniform. This underlines the insights gained in chapter 2.1.

2.2.2 The Shortage of Highly Skilled Workers – Theoretical Considerations

Considering the theoretical insights of the last sub-chapters, the question arises: Where does the shortage of HS workers fit in? How has it emerged, why is it a reality, and what are its consequences for firms and economies likewise? The historical overview has shown that labour migration has always contained HS workers, although on a smaller scale than non-HS workers. HS migrants have contributed to economic development and innovation on a global scale throughout history (Fink and Miguelez 2017, 2). In addition, the preceding chapter has demonstrated theoretical backgrounds of labour migration.

The shortage of HS workers must be evaluated against this backdrop. The shortage of HS workers in this sense is defined as a "skills-related labour market shortage, i.e. when there are not enough individuals with the required skills within the economy to fill existing vacancies at market-clearing wages" (CEDEFOP 2015, 26). This definition includes two decisive realities: the overall skill shortage (defined as "demand for a particular type of skill exceed[ing] the available supply of that skill at the market-clearing rate of pay" by CEDEFOP 2015, 27), and the so-called recruitment/vacancy bottleneck (defined as "[a] situation where a given vacancy (posted in a recent time period) is hard to fill by employers" by CEDEFOP 2015, 27).

To understand current discussions revolving around the shortage of HS workers, one must consider today's global economic system. "The key factor of the global economy is no longer goods, services, or flows of capital, but the competition for people. (…) It's a wide-open game, and the playing field is leveling every day", as Florida (2005, 16) explains. In a global economy where specific and thus scarce human resources range among the most crucial of resources, a global competition for talent naturally ensues (Cerna and Chou 2013, 76; Statistisches Bundesamt 2018, 8).

Labour market shortages are especially relevant in science, technology, engineering and math (short: STEM) related fields/occupations (OECD 2002, 10; Dankwart and David 2011, 2). Additionally, low-performance national education systems contribute to the shortage of HS workers. This concerns primary, secondary (Mitesser 2012, 46f.; Elias-Linde 2014, 30f.) and tertiary education (Steinfatt 2002, 2).

Although the global competition for talent has continuously been discussed by policy-makers, scholars and industry representatives, "analytic frameworks, business programs and policy guidelines for fostering positive effects are only beginning to emerge" (Kuvik 2015, 45). Governments keep lacking behind in adapting their existing institutional and legal frameworks to a global economy where development, research and other intangible assets are key factors for companies' competitive advantages (Kuvik 2015, 45; Fink and Miguelez 2017, 2). This especially concerns frameworks regarding the immigration of HS foreign nationals who may be employed by those companies in order to fill labour shortages (Mitesser 2012, 40ff.; Statistisches Bundesamt 2018, 8).

All these factors influence labour markets. Elevated global competition for HS workers influences individual migration decisions. In other words: a German software engineer may

not only consider the German labour market but may expand her/his contemplations to a global level. Her/his cost-benefit analysis as discussed in the past chapter may result in favouring Canada as a migration destination, for instance. The lack of HS workers in the German labour market may then be intensified by the low number of individuals with the needed skills.

Lastly, demographic changes in the majority of OECD countries have led to a reduction in work forces (Steinfatt 2002, Dunnewijk 2008, 6; Chaloff and Lemaître 2009, 10ff.; 77; Dankwart and David 2011, 3; Mitesser 2012, 36ff.; Kuvik 2015, 7; Burmann et al. 2018, 42). This again aggravates labour market shortages. All in all, one may thus conclude that the shortage of HS workers (especially when it comes to STEM fields/occupations) has emerged due to the interplay of several factors: the global economy that focalises scarce human resources, the ensuing global competition for the HS, the related national frameworks, faulty education systems, and demographic developments.

The many consequences of the shortage of HS workers are discussed by Elias-Linde (2014). She explains that there are three levels to be considered: the individual/employee level, the firm/organisational level, and the societal level. The individual employee in a firm may be affected by the shortage of HS workers depending on her/his personal situation. In the short term, working more in order to balance the lacking co-worker(s) may be perceived positive if overtime is remunerated accordingly. In the medium term, however, negative consequences start outweighing the positive consequences. While the shortage of HS workers may lead to better labour market opportunities on the one hand, the risk of overloading the employee increases. In the long term, this risk may lead to a severe distortion of the employee's work life balance and even to risks of falling ill (Elias-Linde 2014, 27f.).

On the organisational level, the shortage of HS workers is regarded mostly negatively. Here again, short to long term distinctions can be made. In the short term, projects may get delayed and employees may show first signs of lower productivity. In the medium term, recruitment and retention costs rise while projects get further delayed or cannot even be taken on. In the long term, the ageing firm workforce will further intensify the shortage of workers, causing a decline in company growth and in the ability to safeguard competitiveness. The only upside may consist of increased workforce flexibility (Elias-Linde 2014, 24ff.).

As discussed, the comparative advantage of a country is influenced by its firms and their respective competitive advantages (Cavusgil, Knight and Riesenberger 2017, 144ff.). In that

sense, the shortage of HS workers does not only lead to a loss of revenue for firms but also for the national economy they are embedded in (Elias-Linde 2014, 29f.; CEDEFOP 2015, 22). All those mentioned factors will consequently be specified for the EU and Austria and Germany as EU member states. In any case, it has been shown that the shortage of HS workers does not only affect firms that are looking to employ HS workers. It also influences the employees in that very firm as well as the national economies the latter are a part of.

2.2.3 The Shortage of Highly Skilled Workers in the European Union

The shortage of HS workers is a global challenge, as has been evaluated. Both Austria and Germany are embedded in the EU, not only institutionally but also legally (Papagianni 2006; Cerna and Czaika 2016). In this sense, it is crucial to discuss the supranational European level before focalising the national levels.

The EU has recognised the shortage of HS workers in its member states and has implemented several respective monitoring and forecasting mechanisms. The European Commission plays a leading role in those efforts. Examples are the European recruitment and vacancy report (e.g., Van der Ende, Walsh, and Ziminiene 2014) or the Education and training monitor (e.g., European Commission 2019). Additionally, the European Centre for the Development of Vocational Training (short: CEDEFOP) has published several reports on skill shortages in the EU in the past years (e.g., CEDEFOP 2015; 2018).

As discussed above, the reasons for the shortage of HS workers lie in a combination of factors. This goes for the EU as well as for individual member states. Demographic factors are complemented by educational ones, as well as by labour market mismatches and the increasing need for technological and digital competences (Bonin et al. 2008; Cerna and Czaika 2016; CEDEFOP 2018; McGrath 2019). "Identifying and addressing labour market shortages is a key policy tool in overcoming the expected challenges", the European Migration Network (2015, 9) argues.

Not all occupations are equally affected by the shortage of HS workers, though. As for HS labour, the European Commission's most recent report of 2019 shows that the most extensive shortages were reported for skills related to either health, engineering or software (McGrath 2019, 16). The same goes for the most severe shortages where software and/or applications developers/analysts range at the top of the list (McGrath 2019, 17). These insights underline the importance of evaluating the shortage of HS workers in IT service companies.

As for tackling the shortage of HS workers, CEDEFOP (2015; 2018) proposes adapting the EU member states' education and training systems to the new realities. Additionally, it is argued that labour market mismatches may be counteracted both by affected countries and companies, e.g., by modifying recruitment techniques (CEDEFOP 2018, 43). Lastly, one decisive means of counteracting the shortage of HS workers in the EU is the immigration of HS TCN (European Commission n.d.a; Mahroum 2001; European Migration Network 2015; Cerna and Czaika 2016; Janavičiūtė, Telešienė and Barynienė 2017; Verschueren 2018).

While the publication of data concerning shortage occupations is mandatory for EU member states (Art 30 EURES Regulation 2016/589), a common framework regarding the immigration of HS TCN to counter the respective shortages is largely missing. Exceptions consist of the Scientific Visa, the 2009 Blue Card (Cerna and Chou 2014) and the 2014 ICT permits (Costello and Freedland 2016). The former, however, only affects highly educated TCN who immigrate for research/scientific reasons (European Commission n.d.c) rather than to fill labour shortages. In that sense, it is the Blue Card and the ICT permits that represent a common approach to HS TCN immigrating to EU member states.

However, after the introduction of the Blue Card in 2009, criticism arose regarding its low effectiveness in attracting talent (Gümüs 2010; Cerna 2014; Giesing and Laurentsyeva 2017; European Parliament 2019). Thus, in 2016, a formal revision was published under ordinary legislative procedure. To this day, however, a revision of the 2009 Directive has not occurred, which means that the latter is still in force (European Parliament Legal Observatory n.d.; European Parliament 2019). Both the legal details of the Blue Card and the ICT permits will be discussed in chapter 4.

Concluding, it has been shown that the EU recognises the reasons and challenges concerning the shortage of HS labour. Despite doing so, a joint approach to tackle said challenges is missing to this day. Immigration falls under the responsibility of every individual EU member state, which also means that regulating the immigration of HS TCN to counteract the shortage of HS workers is a national rather than a supranational affair. It is in this sense that the following two sub-chapters will analyse how the EU member states Austria and Germany have confronted the challenge of the mentioned shortage.

2.2.4 The Shortage of Highly Skilled Workers in Austria

The shortage of workers in Austria represents "a low-priority topic for [national] policy-makers", according to Gächter, Manahl and Koppenberg (2015, 8). At the same time, industry representatives have continuously highlighted the shortage of HS workers in different industries, especially in STEM occupations (e.g., Industriellenvereinigung 2019; WKO 2019a; WKO 2019b). Additionally, the Institute for Research on Qualifications and Training of the Economy (Institut für Bildungsforschung der Wirtschaft) has published reports on the mentioned shortage for 2018 and 2019 and thus for the two years crucial to the present thesis (Dornmayr and Winkler 2018; Dornmayr and Rechberger 2019a; 2019b).

The authors explain that Austrian labour market shortages are existing and will further intensify due to a "sharp increase in retirements and decrease/stagnation of the number of people at career entry age" (Dornmayr and Rechberger 2019b, 1), i.e., due to demographic changes. Those shortages have effects similar to those Elias-Linde (2014) describes. Employees of all organisational ranges see themselves confronted with working overtime. Aslo, sales and product quality decrease while retention costs (higher salaries, etc.) and recruitment costs rise (Dornmayr and Winkler 2018, 4; Dornmayr and Rechberger 2019a, 3f.).

In order to counteract the effects of these developments, Dornmayr and Rechberger (2019b) and the Chancellor's Office (Bundeskanzleramt; e.g., 2019) propose educational adaptions as well as the mobilisation of national labour market potentials. In addition, they underline the need for HS and non-HS labour immigration. This proposal is underlined by industry representatives (WKO n.d.b; Industriellenvereinigung 2019; WKO 2019b) that mostly focus on HS TCN immigrating to fill labour shortages. The Austrian Ministry for Digital and Economic Affairs (Bundesministerium Digitalisierung und Wirtschaftsstandort) also recognises the need for HS labour immigration. However, it is made clear that said immigration is only meant to fill severe shortage (Bundesministerium Digitalisierung und Wirtschaftsstandort n.d.a).

2.2.5 The Shortage of Highly Skilled Workers in Germany

Germany has recognised the shortage of HS workers just as have the EU and Austria. The Ministry for Economic Affairs and Energy (Bundesministerium für Wirtschaft und Energie), e.g., dedicates an extensive article to the topic under this discussion. The authors of the website (Bundesministerium für Wirtschaft und Energie n.d.a) explain:

> [Highly skilled] professionals are the key to innovation and competitiveness, to growth and employment, and to prosperity and a good quality of life. As the demographic development progresses, securing a sufficient supply of skilled labour will be one of the most important challenges that lawmakers and the business and science communities will be facing in the decades to come.

A main reason for labour market shortages in Germany thus lies in demographic developments (Bundesministerium für Wirtschaft und Energie n.d.a; Koppel and Plünneke 2009, 5; von Loeffelholz 2017, 138). Additional factors are the decrease in dual vocational training and the lack of fully exploiting national labour market potentials, especially concerning women (Bundesministerium für Wirtschaft und Energie n.d.a; Mitesser 2012). On the firm level, those factors are complemented by the lack of digital recruitment techniques and the inability of communicating the attractiveness of the industrial location (Bundesverband mittelständische Wirtschaft n.d.a).

Just as analysed with the Austrian case, industry representatives like Bundesverband mittelständische Wirtschaft (n.d.a) or Deutscher Mittelstands-Bund (n.d.a) have continuously warned about the effects of said shortages. Similar to the Institute for Research on Qualifications and Training of the Austrian Economy, the German Economic Institute (Institut der deutschen Wirtschaft) has published multiple reports on labour market shortages, especially concerning HS workers. The STEM sectors are highlighted in those reports as ranging among the most affected economic sectors (Deutscher Mittelstands-Bund n.d.a; Informationsdienst des Instituts der deutschen Wirtschaft n.d.; Institut der deutschen Wirtschaft n.d.a; Institut der deutschen Wirtschaft n.d.b; Koppel and Plünneke 2009).

The consequences of the shortage of HS workers in German companies are highly similar to those found in the Austrian analysis. The increase in recruiting and retention costs is accompanied by the decrease in productivity as well as by employees having to work overtime (Deutscher Mittelstands-Bund n.d.a). The aforementioned shortage thus affects Germany's competitive position (Informationsdienst des Instituts der deutschen Wirtschaft n.d.; Koppel and Plünneke 2009, 7f.) and therefore its comparative advantage.

Counteracting the shortage of HS workers in Germany is an issue discussed by many actors. Propositions include modifying the educational system (Bundesministerium für Wirtschaft und Energie n.d.a; Koppel and Plünneke 2009, 39ff.), tapping into unexploited labour market potentials (Bundesministerium für Wirtschaft und Energie n.d.a; Bundesverband mittelständische Wirtschaft n.d.b; Koppel and Plünneke 2009, 57ff.), investing in vocational

training (Deutscher Mittelstands-Bund n.d.b; Institut der deutschen Wirtschaft n.d.b) and improving the frameworks for the immigration of HS TCN (Bundesministerium des Inneren, für Bau und Heimat n.d.; Bundesministerium für Wirtschaft und Energie n.d.a; Bundesverband mittelständische Wirtschaft n.d.b; Deutscher Mittelstands-Bund n.d.b; Koppel and Plünneke 2009, 46ff.; von Loeffelholz 2017, 139).

One may therefore conclude that the shortage of HS workers is not only a reality in the EU and Austria, but also in Germany. Here too, the employment of HS TCN represents a way of counteracting that shortage. Different from Austria, however, Germany passed a new law regulating the immigration of the HS in March 2020 (BGBl. I 2019, 1307). This law (Fachkräfteeinwanderungsgesetz) is meant to improve existing regulations in order to attract more HS workers from countries around the world (Bundesregierung 2020a).

As the present thesis focalises the years 2018 and 2019, the mentioned new law will not be discussed further. It is merely mentioned in this context to underline the different countries' approaches in counteracting the shortage of HS workers. The legal frameworks that applied to the immigration of HS TCN to Austria and Germany before 2020 will be discussed in chapter 3. Similarly, chapter 4 will allow for a macro level analysis of the reality of employed HS TCN in Austria in Germany.

2.3. Employing Highly Skilled Third-Country Nationals

After having discussed both the historical roots of labour migration to Austria and Germany and the shortage of HS workers in the two countries, this chapter sheds light on the employment of HS TCN. How does employing HS TCN fit into organisational structures? What reasons for employing HS TCN may firms have, besides counteracting the shortage of HS workers? What characteristics do these HS TCN possess? What consequences does their employment imply, both for the involved firms and societies? Answering these questions contributes to laying the groundwork for the quantitative analyses in chapter 4 and chapter 6.

2.3.1 Firm-Level Motivations

Companies throughout the world partake in employing HS non-citizens workers – this also goes for the EU and the EU member states Austria and Germany. As has been analysed, the reasons to do so may derive from the shortage of HS workers, especially in STEM occupations and fields. However, those may not be the only underlying reasons. International staffing

motives (Reiche and Harzing 2011; Tarique, Briscoe and Schuler 2017) may be applying as well, as will be discussed.

In fact, as Winkelmann (2002) discovered, different companies hire HS non-citizens for varying motives. Even though Austria is not featured in his study, the results still serve as a decisive starting point for this analysis. The author found that of the 340 German firms questioned, only 11.11 % employed HS non-citizens because "…there is a lack of good German applicants" (Winkelmann 2002, 139), i.e., due to a shortage of HS workers.

It rather appears that the HS non-citizens' international competencies were highly valued and served as a motive for employment (Winkelmann 2002, 139). *Table 1* shows the distribution of answers given by the respective firms. Winkelmann (2002, 139) additionally found results regarding the questioned firms' international orientation: "For instance, the estimated probability of a firm with at least 1 000 employees employing [HS TCN] is 31% higher than the corresponding probability for a firm with 99 employees or less."

Table 6. Subjective reasons for the employment of HQFE among German firms employing HQFE
Percentages

	Strongly agree	Somewhat agree	Disagree
We employ foreign workers because...			
... overall they are the best applicants.	8.87	39.52	51.61
... there is a lack of good German applicants.	11.11	43.65	45.24
... they know foreign markets.	34.92	28.57	36.51
... they speak foreign languages.	46.46	25.20	28.35
... they speak English well.	33.07	33.07	33.86
... the type of knowledge required for these jobs is not produced by the German education system	4.72	23.62	71.65
... their skills better fit our work tasks	14.96	36.22	48.82
... they demand lower wages.	0.79	9.45	89.76
... they work harder.	1.60	12.00	86.40

Source: Author's calculations based on IZA International Employer Survey 2000.

Table 1: Why do German firms employ highly skilled non-citizens? (Winkelmann 2002, 139)

When considering a firm's international orientation, one must especially take into account multinational enterprises (short: MNE) and their respective staffing policies. An MNE is in this sense defined as a "large company with substantial resources that performs various business activities through a network of subsidiaries and affiliates located in multiple countries" (Cavusgil, Knight and Riesenberger 2017, 43).

MNE are decisive for today's global economy. In 2018, they accounted for an estimated 33% of global output and an estimated 28% of world GDP. Their share of employment in the

global business sector (i.e., minus employment in the public sector) was 26% in that very year (De Backer, Miroudot and Rigo 2019). MNE are present in both the Austrian and the German economy. This goes for MNE headquartered and originated there (e.g., Wienerberger AG in Austria; BMW in Germany) as well as for MNE from other countries having subsidiaries in Austria and/or Germany (e.g., the Coca-Cola Company). Notwithstanding, those MNE's contribution to the respective GDPs has not been estimated to this day.

In terms of human resources, MNE follow certain staffing policies which influence who will be employed in which locality. Tarique, Briscoe and Schuler (2017, 221) explain: "*International workforce planning and staffing* refers to the process of estimating employment needs, recruiting, selecting and repatriating talent in [MNE]. (…) In today's talent shortage environment, staffing by MNE has become the central problem of global talent management."

While the mentioned policies used to be managed centrally by headquarters in the past, MNE today see themselves confronted with a global workforce. This workforce is dynamic, complex and often bound to different types of ownership structures. All that renders the international workforce planning and staffing a complex, multi-layered as well as challenging task (Reiche and Harzing 2011, 186ff.; Tarique, Briscoe and Schuler 2017, 222ff.).

Said task is subdivided into two parts, namely workforce planning and workforce staffing (Reiche and Harzing 2011, 186ff.; Tarique, Briscoe and Schuler 2017, 222ff.). Planning a company's workforce involves considering many factors – among them the shortage of certain (e.g., HS) workers. While the recruiting, selection, placement and repatriation aspects of workforce staffing are of importance for MNE, they will not be further discussed here. Instead, the focus is put on different international staffing approaches as they substantially influence the decision surrounding hiring a HS TCN.

There are four approaches: the ethnocentric, polycentric, regiocentric, and geocentric approach (Reiche and Harzing 2011, 186ff.; Tarique, Briscoe and Schuler 2017, 222ff.). These are especially decisive for key positions in MNE (Reiche and Harzing 2011, 187) and are thus of interest when it comes to HS TCN. Every approach has its advantages and disadvantages (Reiche and Harzing 2011, 189; Tarique, Briscoe and Schuler 2017, 229). Here, only the ones relevant for the following chapters are discussed.

The ethnocentric approach is characterised by MNE sending employees from headquarters to international subsidiaries. While this method allows for a high level of control, it is costly and

may create tension between employees. The polycentric approach consists of employing local individuals in different subsidiaries. Advantages lie in relatively low costs for the company and in the high level of access to local knowledge. Disadvantages, in turn, are the lower level of control by headquarters, and communication challenges (Reiche and Harzing 2011, 187ff.; Tarique, Briscoe and Schuler 2017, 228ff.).

The regiocentric approach comprises the employment of individuals from a certain region in which the MNE is present. While this approach implies lower costs due to sharing human resources, it may also lead to regional fragmentation and to a "[l]ack of multicultural perspective" (Tarique, Briscoe and Schuler 2017, 230).

The geocentric approach, in contrast, is characterised by not prioritising any citizens and employing "the best person, regardless of his/her nationality" (Reiche and Harzing 2011, 187) instead. This approach entails hiring the best available talent and fit for the company. At the same time, it implies high costs and the need for well-developed communication channels (Reiche and Harzing 2011, 187ff.; Tarique, Briscoe and Schuler 2017, 228ff.). Whatever approach a firm follows – it influences workforce planning and staffing in their very core.

2.3.2 Characteristics of Highly Skilled Immigrants

Having analysed the firm-level motivations of employing certain citizens when it comes to HS TCN, it is of interest to evaluate who those individuals are. The different staffing approaches discussed in chapter 2.3.1 distinguish two main types of HS TCN in Austrian and German firms, namely international assignees and self-initiated expatriates. If a company with headquarters in China, e.g., follows an ethnocentric approach, it will appoint a HS Chinese worker for a key position in their German subsidiary. This individual represents the group of expatriates and therefore the group of international assignees.

Expatriates are traditionally defined as "employees who [are] relocated from the parent company or headquarters to foreign subsidiaries" (Tarique, Briscoe and Schuler 2017, 246). As such, they form part of the larger group of international assignees. This term refers to "any employee who is relocated from one country to another for a period of more than one year, while staying in the employment of the same firm" (Tarique, Briscoe and Schuler 2017, 246). It thus also incorporates other staffing approaches, e.g., the regiocentric one.

International assignees are based on the concept of an individual staying with one and the same company and changing her/his location temporarily. According to several scholars

(Suutari and Brewster 2000, 417; Richardson and McKenna 2007, 307; Doherty, Dickmann and Mills 2011, 595), most research concerning international human resource management has revolved around international assignees. However, the phenomenon of self-initiated expatriates has seen an increase in the past years (Reiche and Harzing 2011, 202). Self-initiated expatriates are defined as "individuals' traveling abroad to find their own work" (Suutari and Brewster 2000: 419) or "those who undertake international working without the sponsorship of an organization" (Doherty, Dickmann and Mills 2011: 595).

As such, self-initiated expatriates present different characteristics from international assignees, as can be seen in *Figure 1*. Among others, self-initiated expatriates tend to be younger, in more critical financial situations, less often employed in managerial positions, more open to staying in the host country permanently, and less demanding in terms of allowances or bonuses (Suutari and Brewster 2000, 429; Reiche and Harzing 2011, 202).

Self-initiated expatriates emigrate to other countries due to different motives. While job seekers emigrate due to their poor work situation, young opportunists are interested in a career boost at early career stages. In contrast, localised professionals are driven by the aspiration to find a permanent job abroad as a result of personal location preferences. International professionals, on the other hand, are motivated by the best available job offer – regardless of the respective host country (Suutari and Brewster 2000, 430ff.; Pethe 2006, 94ff.).

In all those cases, the cost-benefit analysis discussed for companies in preceding chapters applies to the individual HS worker as well. The cost of emigrating must be outweighed by the benefits involved – this goes for both international assignments and self-initiated expatriates. Factors influencing the benefits are closely connected to the reasons of emigrating, as evaluated above.

Simultaneously, there is a multitude of aspects that impact the cost-side of the calculation, apart from the discussed monetary expenses brought about the migration processes involved. Examples are the adaptation to new socio-cultural environments and/or the possible dissatisfaction of one or several family members (Richardson and McKenna 2006, 13; Tarique, Briscoe and Schuler 2017, 262). This is of special importance when it comes to dual-career couples (Reiche and Harzing 2011, 199).

	Characteristics
Individual variables	Slightly younger More singles More females Spouses work abroad more commonly
Employer and task Variables	Work more often in Europe, although can be found in distant areas also Organization typically a foreign private company or an international organization Organizations less international Project organization more typical Temporary contracts more typical On average work in lower organizational levels with expert- status more common Work less often in managerial and marketing functions Conflicts related to job descriptions less common
Motives	Interest in internationalism more common motive Poor employment situation more common motive
Repatriation and future career	Typically the company has not promised a job after repatriation Some have no plans to return Repatriation agreement less commonly made prior to departure Less optimistic that international experience is valued More willing to accept another working period abroad More willing to accept more permanent stay abroad
Compensation	Negotiations were easier High variations in net salary levels Overseas premiums and education / housing allowances less common Performance-based bonus less common Assignment and travel insurance less common

Figure 1: Characteristics of self-initiated expatriates in comparison with international assignees (Suutari and Brewster 2000, 429)

Concludingly, it is crucial to distinguish between different types of individuals when discussing HS TCN in Austrian and German firms. As a heterogeneous group, they comprise different motives and are embedded into different institutional settings. In any case, migrating to another country implies far-reaching consequences. This is not only valid for the individual migrant but also for the firms and countries involved, as will be evaluated followingly.

2.3.3 Implications and Consequences of Highly Skilled Immigration

While the effects of migrating may vary strongly from individual to individual, the consequences of employing HS TCN for Austrian and German firms can be categorised to some extent. The same goes for the implications on the national, i.e., societal level. In any case, the three levels of influence are interdependent. Company culture may be influenced by country culture, and societal perceptions of immigrants may influence individual migration decisions.

As has been discussed, employing HS TCN in Austrian and German companies is a result of the respective companies' and migrants' cost-benefit analysis. A contract between them will only be concluded as long as actors from both sides expect the benefits involved to outweigh the costs. Winkelmann (2002, 135) explains:

> Some firms may expect costs to be so high that they never consider employing foreigners. In principle, besides wages, the costs include factors like communication problems, lack of social acceptance by colleagues, information costs, uncertainty with respect to qualifications and difficulties in obtaining a work permit.

He thus concludes that costs may not only arise ex-ante (e.g., regarding the discussed immigration process). Quite the contrary: some costs of employing a HS TCN only manifest themselves after the individual's arrival at the company. Examples for this case are social acceptance or communication issues (Winkelmann 2002, 135).

In the case of self-initiated expatriates, one may also consider the lack of screening possibilities and thus the possible increase in hidden information (Bolton and Dewatripont 2005, 99f.). While an Austrian company will likely invite an Austrian resident to a personal interview (Tarique, Briscoe and Schuler 2017, 259), e.g., the same proves to be costly and difficult in the case of a Brazilian citizen and therefore TCN. This also implies that certain characteristics the HS TCN possesses (e.g., actual productivity) may not be conveyed properly, which may in turn lead to a mismatch between employer and employee, and therefore to elevated costs (Bolton and Dewatripont 2005, 190ff.).

An additional aspect of hidden information consists of neither the employer nor the employee being fully aware of each other's intentions. The employee may, e.g., based on her/his cost-benefit analysis, primarily be interested in migrating to Austria without personally covering all the migration costs, and then look for a change of employer once arrived. In such a case where the employer covers large parts of the immigration process expenses, the high level of uncertainty implies a risk of sunk costs for employers (Bolton and Dewatripont 2005, 190ff.).

Even given that both the employer's and the HS TCN employee's intentions match, one major cost factor refers to intercultural issues. HS TCN, especially self-initiated expatriates, are most likely not familiar with company cultures in Austrian or German firms and need to integrate and to be integrated into said cultures. This integration process may take several weeks, which in turn implies lower initial productivity (Pethe 2006, 279). Organisational values as part of company culture may not be understood or shared by the TCN, especially when they cannot be recognised easily (Tarique, Briscoe and Schuler 2017, 138).

Additionally, HS TCN may not only struggle with company but with country culture[5] as well. Issues can be related to group-orientation, the expression of emotions, the involvement with others, status considerations, etc. (Trompenaars and Hampden-Turner 2004). Those issues may not only manifest themselves in a TCN's private life but also in her/his actions at the workplace (Romani 2011, 80ff.; Tarique, Briscoe and Schuler 2017, 122ff.). Resulting conflicts between TCN and their colleagues will again imply an increase in costs for the company.

The employment of TCN in Austrian and German firms does not solely affect the involved companies, though. The cities, regions and countries those TCN migrate to also see themselves influenced by immigrants. Based on the historical overview of chapter 2.1., one may infer that neither Austria nor Germany have positioned themselves as pro-immigration throughout the last two centuries. Exceptions like the guest worker agreements were concluded only with the intention of filling labour market shortages. Xenophobia and anti-immigration rhetorics in both countries have not halted (Fassmann and Münz 1996b, 209; Rudolph 1996, 179; Aigner 2008), and multicultural realities have not always been recognised (Rother 2017).

The effect that the immigration of HS TCN has on the regarding national economies is positive. Not only do those individuals fill labour market shortages – they also increase the firms' and countries' respective competitiveness and growth potential (Kahanec and Zaiceva 2009; Kahanec and Zimmermann 2010, 1). Additionally, their employment has positive effects on the social security systems (Bonin et al. 2008, 64ff.; Koppel and Plünnecke 2009, 97ff.).

Lastly, it is crucial to mention that the immigration of TCN to countries like Austria and Germany not only affects the latter but also the TCN's countries of origin. Brain drain is usually referred to as companies in developed countries "hir[ing] the educated and trained citizens of developing countries, lessening those countries' available human resources for their own development needs" (Tarique, Briscoe and Schuler 2017, 272). A Somali network developer who migrates to Austria in order to work for an Austrian IT service company might be needed in the Somali labour market. This means that this individual's migration decision triggers global consequences and affects both the Austrian and the Somali labour market.

Kabore (2017, 269) found that among all skilled Africans, "the share of skilled African citizens living in OECD countries [was] almost six times the share of skilled Africans in their home

[5] When referring to country culture, one must bear in mind that this is a highly simplified concept which must always be critically assessed. The people living in one country are neither a homogenous nor a static group (Tarique, Briscoe and Schuler 2017, 137).

countries". This showcases the brain drain for the involved African labour markets, while it also shows the brain gain (Kuvik 2015, 62, 97) for the respective OECD labour markets. While the brain drain phenomenon therefore is still valid today, one must consider circular migration aspects as well. HS TCN may return to their countries of origin or migrate to other countries (Grimpe, Edler and Fier 2011; Kuvik 2015, 97).

Summarising the findings of chapter 2.3., one may thus conclude that employing HS TCN in Austrian and German companies represents a reality with global repercussions. While firms may opt for employing those workers due to specific motives and staffing approaches, it always implies uncertainty. HS TCN are not a homogenous group and as such show different characteristics. All these mentioned factors need to be considered when analysing the employment of HS TCN, ranging from the personal to the organisational to the societal level.

2.4. The IT Service Industry

The different IT industries[6] and thus the IT service industry are relatively young industries. This is because of their dependence on the very information technologies that give them their names. Said technologies appeared in the second half of the 20th century (Slaughter 2014, 34; Buxmann, Diefenbach and Hess 2015, 4). However, since their emergence, the IT industries have developed into global industries. Messerschmidt and Szyperski (2003, 13) claim that "IT is having a dramatic effect on our personal and professional lives, and on society generally."

To this day, there is no explicit literature on the IT service industry. Nevertheless, the software industry has been portrayed by many scholars (e.g., Messerschmidt and Szyperski 2003; Slaughter 2014; Aryanto, Fontana and Afiff 2015; Buxmann, Diefenbach and Hess 2015; Jain, Celo and Kumar 2019), often including regional foci. Insights gained by this research allow for narrowing down specificities of the IT service industry, given that software is a basis for the IT service industries in Austria and Germany (Statista 2020; WKO n.d.c). Accordingly, the scholars Messerschmidt and Szyperski (2003, 23) explain:

> [Software] is not manufactured into a product. It can be bundled with a product as it is sold initially, or it can be sold separately and deployed to hardware that is already in use. It can be installed initially, or it can be added later. It can be static, or it can be changed and upgraded later. These properties make the market for software irrevocably and profoundly different from the market for material products.

[6] There are many industries related to IT. Some focus on hardware production, others on software consultations, etc. (Slaughter 2014, 22f.) Therefore, the plural form is used in the present thesis. The IT service industry in this sense represents one sub-industry of the IT industries.

Based on those characteristics, the structure of the global software industry is peculiar as well. Network effects and competition pressures have led to high company failure rates since the late 1990s. Simultaneously, constant innovation pressures and fast changing technologies have triggered the emergence of a multitude of new companies as well as of a variety of mergers and acquisitions (Slaughter 2014, 53ff.; Buxmann, Diefenbach and Hess 2015, 21ff.).

As a global industry, the software industry has shifted its development centres from the USA to Asian countries like India or China. Software MNE, among others, have expanded globally (Slaughter 2014, 79ff.; Buxmann, Diefenbach and Hess 2015, 169ff.). However, the related internationalisation pressures represent a decisive challenge for many affected companies (Jain, Celo and Kumar 2019). Additional challenges in all IT industries consist of protecting intellectual property rights (Chiu, Cheng and Yang 2010) and of a lack of standardisation, meaning that heterogeneous IT systems lead to elevated costs for all companies producing, selling and buying software (Buxmann, Diefenbach and Hess 2015, 35ff.).

Lastly, as discussed previously, the shortage of HS workers is a reality that all IT industries (including the IT service industry) have struggled with. Different approaches to tackle this issue have been found, reaching from institutional to firm-level strategies (Gayathri 2002; Werner 2002; Elias-Linde 2014, 20ff.; Buxmann, Diefenbach and Hess 2015, 132ff.; Kumari and Nirban 2018; Ge, Huang, and Kankanhalli 2020). The migration of HS workers is one of those approaches. In fact, "the IT industry seems to have been perceived as a sort of gold standard for the positive impact of skilled migration and hence adds fuel to the concept of the global competition for talent", as Kuvik (2015, 42) states.

In Austria, the IT industries are regarded as contributors to national economic growth, innovation and digitalisation (Bundesministerium Digitalisierung und Wirtschaftsstandort n.d.b; WKO n.d.c). Just as other STEM industries, they have seen themselves confronted with a severe lack of HS workers (WKO n.d.a). The IT service industry in Austria is represented by WKO, specifically by the Professional Association for Consultancies, Accounting and Information Technology (Unternehmensberatung, Buchhaltung und Informationstechnologie; short: UBIT). WKO has called for addressing the aforementioned shortage, among others by facilitating the immigration of HS TCN (WKO 2019a; 2019b).

In Germany, the situation is very similar. Here too, the country's IT industries are seen as contributing strongly to economic growth, digital security and innovation (Bundesministerium

für Wirtschaft und Energie n.d.b; BITKOM 2007). The shortage of HS workers in concerning companies has been a challenge for years, with the immigration of HS TCN as a means of counteracting that shortage (Steinfatt 2002; Pethe 2006; BITKOM 2018). Just as the Austrian professional association UBIT, German BITKOM has demanded institutional changes in counteracting the shortage of HS TCN in the IT service industry (BITKOM 2007; 2018).

Comparing Austria to Germany regarding IT industries, one major difference is noticeable, namely the mentioned German Greencard for foreign IT workers. This legal framework was initiated as a reaction to the drastic shortage of IT workers in 2000 and was valid until 2004 (Steinfatt 2002; Werner 2002; Pethe 2006; Jurgens 2010). As far as special work permits for IT workers go, no Austrian equivalent existed at that time, and none has existed until now. Although the Greencard program was not extended, it triggered significant policy changes in Germany (Jurgens 2010). The resulting adaptations of immigration laws will be discussed in chapter 3. Also, for both national IT service industries, chapter 4 will analyse and compare their situations from a macro level point of view.

2.5. A First Conclusion

Chapter 2 has provided a theoretical overview of several topics relevant for the present thesis. Firstly, historical insights have allowed for an in-depth analysis of the historical roots of labour migration in, from and to Europe/the EU, Austria and Germany. Followingly, the evaluation of the shortage of HS workers has shown that the topic under discussion is a complex one. The comparison of several theories concerning migration has facilitated analysing the shortage of HS workers in the EU, Austria and Germany.

Additionally, answers have been found to questions surrounding the employment of HS TCN in Austrian and German firms. Those individuals are not only employed to counteract the shortage of HS workers. MNE, e.g., may send expats to Austria and Germany, following their individual staffing approaches. This also leads to the conclusion that HS TCN are a heterogenous group and that the consequences of employing them may vary.

Notwithstanding, general consequences have also been evaluated, ranging from the firm to the societal level. Lastly, the IT service industry has been analysed as a part of the IT industries. The shortage of HS workers is a reality in these industries. Respective industry representatives have been calling for action on many levels, one of them consisting of facilitated immigration processes for HS TCN.

3. Legal Comparison

This chapter builds on the theoretical insights provided in chapter 2 and complements them from a legal standpoint. The Austrian and German legal frameworks regulating the employment and immigration of HS TCN and their families are analysed and compared. In a first step, the comparative methodology is introduced. Followingly, general information concerning the mentioned frameworks is presented. After that, the different work permits for HS TCN are compared, followed by the analysis of family reunification provisions.

3.1. Methodology

The present thesis analyses and compares legal frameworks from Austria and Germany. Comparative law offers the methodology to do so. However, comparative law is a complex matter – even the term "comparative law" (Gutteridge 1971, 1f.; Reitz 1998, 617) itself is controversial. Munday (2003, 26) claims: "Comparison complicates. It tests one's suppositions in unexpected ways. If one thing is clear, is that there is no single key to comparative legal studies." Comparative law in this sense must thus be understood as a legal discipline with diverse historical roots, theoretical orientations and practical claims (Gutteridge 1971, 3dff.; Munday 2003; Forster 2018). Notwithstanding, it represents a method of high applicability as it may be used in all legal fields (Gutteridge 1971, 10).

Today, comparative law is represented by a variety of sub-methods. Some of them have existed since the beginnings of comparative law while others have only recently been articulated as such (Forster 2018). The method the present thesis makes use of is the functional comparative law method[7]. It "argues that functional the legal systems of different countries should be understood basically as providing answers to similar problems" (Husa 2013, 10) or to "the same social conflicts" (Forster 2018, 104). The method has been criticised since its beginnings in the 1950s (Graziadei 2003; Husa 2013; Forster 2018) for a variety of reasons. However, "so far no alternative counter-model has established itself" (Forster 2018, 109).

The functional method proposes a series of steps. Firstly, a comparative research question is formulated. Consequently, the respective national legal positions are presented in general terms (Zweigert and Kötz 1987, 28ff.; Forster 2018, 105). In a third step, one compares and analyses concerning "similarities and differences in legal solutions" (Forster 2018, 105). After having assessed those factors, they are evaluated against the socio-political and/or socio-

[7] In German, the functional method is referred to as "Funktionale Rechtsvergleichung" (Forster 2018, 104).

economic background of the countries under discussion (Zweigert and Kötz 1987, 33ff.; Reitz 1998, 620ff.; Forster 2018, 105).

The next sub-chapters follow the mentioned steps and adapt them to the applicable Austrian and German laws. Comparative law is described as promising in the specific legal field of immigration and nationality. This is because "in the law of nationality, no principle is more firmly anchored than the ability of each State to define the characeristics of its own nationals" (Glenn 1991, 676). In that sense, national sovereignty is emphasised in all matters related to the immigration, residence and employment of non-citizens, even in times of supranational integration (as is the case with the EU).

3.2. Comparative Overview

The first step in the functional comparative law method consists of formulating a comparative research question. For the present thesis, this question is as follows: How did Austrian and German laws regulate the employment and immigration of HS TCN and their family members in 2018 and 2019? Consequently, the second step calls for presenting the national positions on the topic under discussion. Here, one must thus define the respective legal bases.

In Austria, AuslBG regulates the employment of all non-citizens while the Law of Settlement and Residence (Niederlassungs- und Aufenthaltsgesetz; short: NAG) regulates all matters related to the residence of non-citizens. NAG thus includes both working non-citizens as well as all other non-citizens. As such, it is especially relevant for HS TCN's family members immigrating to Austria. In Germany, Employment Regulation (Beschäftigungsverordnung; short: BeschV) regulates the employment of non-citizens. AufenthG in Germany regulates all matters related to the residence of non-citizens. It may thus be regarded as the equivalent of the Austrian NAG. Notwithstanding, as will be analysed, AufenthG has a much broader scope than NAG and also includes many relevant provisions for working HS TCN.

All four mentioned laws are a part of Austrian and German legislation and thus subject to EU law (Boeles et al. 2014, 21ff.). Additionally, they were all valid in 2018 and 2019 and are applicable to this day[8]. Nevertheless, they have not existed for equally long terms. AuslBG

[8] While crucial provisions of AuslBG and NAG have not changed since 2018, this is not the case for AufenthG and BeschV. As discussed, a new immigration law (Fachkräfteeinwanderungsgesetz) was introduced in spring of 2020 and immensely changed the provisions of both mentioned German laws. Therefore, when referring to AufenthG and BeschV, the present thesis refers to the versions of the two laws that were valid on 31.12.2019. Said versions are not publicly available and were provided to the author of the present thesis by German Federal Office of Justice (Bundesamt für Justiz).

came into effect in 1975, as discussed. Since its introduction, it has gone through many changes. The most relevant one for the present thesis took place in 2011 when the point system (i.e., scoring system) of immigration for HS TCN was introduced (BGBl. I Nr. 25/2011; proLIBRIS 2017). NAG, on the other hand, only came into effect in 2005. Just as is the case with AuslBG, it also underwent a variety of adaptations throughout the years.

The German AufenthG was also introduced in 2005 in its first version as a reaction to the analysed Greencard (Storr et al. 2005, XV). Far-reaching changes to the law were made in 2007, which led to the revisited version of AufenthG to be published in 2008 (Huber 2010, 1ff.). Since then, many additional adaptations have been made to the law (Bergmann, Dienelt and Röseler 2011, 2035ff.). BeschV is the most recently introduced of the four laws, having entered into force in 2013.

The third step of the functional comparative law method represents its analytical core as it compares the respective legal frameworks. For the present thesis, the Austrian AuslBG and NAG are thus compared to the German AufenthG and BeschV to answer the posed comparative research question. This comparison is divided into the several sub-topics. Firstly, general provisions are analysed. Followingly, the different work permit options for HS TCN are discussed. After comparing national work permits, the Blue Card and the ICT permits receive special attention given that they stem from EU legislation. Those analyses are then complemented by an evaluation of family members' residence permits.

3.3. General Legal Provisions

All four mentioned laws explicitly state their scope of application. § 1 NAG states that it applies to all non-Austrian citizens who wish to reside in Austria for more than six months. § 1 AufenthG states that it regulates the entry, residence, work and integration of non-German citizens. § 1 AuslBG defines its scope as regulating the employment of all non-citizens in Austria. Similarly, § 1 BeschV states that it regulates the immigration of non-citizen workers and the employability of non-citizens already residing in Germany.

All four laws define crucial terms after stating their scope of application. § 2 defines aliens ("Fremde") as non-Austrians (§ 2 pt. 1 nr. 1 NAG) and TCN as individuals who are neither Austrian nor Swiss nor EEA citizens (§ 2 pt. 1 nr. 6 NAG). Accordingly, § 2 pt. 1 AuslBG defines foreigners ("Ausländer") as non-Austrians and TCN as non-EEA citizens (§ 2 pt. 9 AuslBG). Swiss citizens are only referred to in specific provisions, e.g.,

§ 4b pt. 1 AuslBG. Employment as per § 2 pt. 1 AuslBG is defined as work in an employment relationship, a relationship that implies worker-status similarity, a training relationship, intra-corporate transfers, and employee hiring.

In German legislation, BeschV does not offer any definitions of that kind. However, AufenthG provides definitions that BeschV then refers to. In this sense, § 2 pt. 1 AufenthG defines foreigners ("Ausländer") as non-Germans. TCN are named in a variety of paragraphs but lack a formal definition. Employment is defined as self-employment, civil service and non-self-employment (§ 2 pt. 2 AufenthG).

While Austrian and German legislations are therefore highly similar regarding most of their basic definitions, the German employment definition is much wider than the Austrian one. Also, TCN are clearly defined by the Austrian laws while the German laws merely provide a definition of non-citizens. In any case, the first part of analysis has accentuated the interdependence of laws regulating the employment and those regulating the residence of TCN in both Austria and Germany.

Similarities between Austrian and German legislation can again be found when it comes to the authorities involved in the immigration process of TCN and their family members. For residence matters, the authority on the highest hierarchical level is the Ministry of the Interior in Austria (§ 3 pt. 5 NAG) and Germany (§ 73 pt. 4 AufenthG). Day to day decision-making lies in the responsibility of the state governor ("Landeshauptmann", § 3 pt. 1 NAG) in Austria, and of the Foreigners' Office ("Ausländerbehörde", § 71 pt. 1 AufenthG) in Germany.

As for the countries' representation in the TCN's countries of residence, the authority on the highest hierarchical level is the Ministry of the Exterior in both Austria (§ 5 NAG) and Germany (§ 71 pt. 2 AufenthG). Again, day to day decision-making is delegated. For both countries, the concerning foreign representations (e.g., embassies or consulates) are thus responsible (§ 3 pt. 3 NAG; § 71 pt. 2 AufenthG). In contrast to Austria, German legislation additionally appoints the Federal Office for Migration and Refugees (Bundesamt für Migration und Flüchtlinge; short: BAMF) to coordinate the cooperation of all authorities and ministries involved (§ 75 pt. 1 AufenthG). There is no such interface function in Austria.

The employment of TCN in Austria and Germany entails the participation of additional authorities. Here again, only the names vary while the competencies are highly similar. In Austria, AMS is responsible for verifying the employability of HS TCN (§ 20d pt. 1 AuslBG).

The same goes for the German Federal Employment Agency (Bundesagentur für Arbeit; short: BA) which carries the same responsibilities as AMS in Austria (§ 39 pt. 1 AufenthG; § 34 pt. 1 BeschV).

Summarising, the immigration process of a HS TCN entails the cooperation of a variety of authorities in both Austria and Germany. Competencies for residence and employment are separated in both countries. This means that for an immigration process to be successful, a HS TCN in Austria needs both the approval of AMS, that of the state governor, and that of the Austrian foreign representation.

In Germany, a HS TCN's successful immigration process entails approval from BA, from the Foreigners' Office, and from the responsible German foreign representation. All this is coordinated by BAMF. The same goes for family members immigrating, the only difference being that neither AMS nor BA are involved in their respective processes, given that those authorities are solely responsible for matters related to the employment of HS TCN.

3.4. Work Permits for Highly Skilled Third-Country Nationals

The following work permit options for HS TCN have been available in Austria since 2018: the ICT permit, the mobile ICT permit, the Blue Card, and the Red White Red Card (short: RWR Card). The RWR Card entails the sub-options for Very Highly Qualified Workers (short: HighlyQW), Skilled Workers in Shortage Occupations (short: ShortageW), and Other Key Workers (short: OtherKW). In Germany, the following permits were available in 2018 and 2019: the ICT permit, the mobile ICT permit, the Blue Card, and Aufenthaltserlaubnis (for employment purposes)[9].

Table 2 shows the legal paragraphs in which the respective permits are detailed. As can be seen in that table, some legal paragraphs are valid for all respective permits in both countries. Before analysing specific permit characteristics, these provisions must be evaluated. In Austrian legislation, § 11 NAG and § 3 AuslBG apply to all relevant permits. The same goes for § 5, § 18 and § 40 of AufenthG in German legislation.

§ 11 NAG and § 5 AufenthG list the general requirements for all the named permits concerning the TCN's side. § 11 pt. 1 NAG states that a TCN will not receive an Austrian work and/or

[9] Aufenthaltserlaubnis is used as an abbreviation for the Aufenthaltserlaubnis for employment purposes in the present thesis. When other Aufenthaltserlaubnis permits are named (e.g., for family reunification purposes), their purpose and name is always specifically stated.

residence permit if national or international visa, criminal or police regulations have been violated by the individual. Also, international relations must not be endangered by issuing a work and/or residence permit (§ 11 pt. 1 nr. 5 NAG); the same goes for public interest (§ 11 pt. 1 nr. 1 NAG) and the financial integrity of Austria (§ 11 pt. 1 nr. 4 NAG). In addition, every TCN must present appropriate housing (§ 11 pt. 2 nr. 2 NAG) and insurance coverage (§ 11 pt. 2 nr. 3 NAG) in order to obtain a work permit.

Permit	**Austria**	**Germany**
RWR Card HighlyQW	§ 11, 41 NAG; § 3, 12, 20, 20d AuslBG	-
RWR Card ShortageW	§ 11, 41 NAG; § 3, 12a, 13, 20d AuslBG	-
RWR Card OtherKW	§ 11, 41 NAG; § 3, 12b, 20d AuslBG	-
Aufenthaltserlaubnis	-	§ 5, 18, 40 AufenthG; § 2 BeschV
Blue Card	§ 11, 42 NAG; § 3, 13, 20d AuslBG	§ 5, 18, 19a, 40 AufenthG
ICT	§ 11, 58 NAG; § 3, 18a, 20f AuslBG	§ 5, 18, 19b, 40AufenthG; § 10a BeschV
Mobile ICT	§ 11, 58a NAG § 3, 20f AuslBG	§ 5, 18, 19d, 40 AufenthG; § 10a BeschV

Table 2: Legal paragraphs regarding work permits in Austria and Germany

German legislation does not detail such provisions but rather states that a TCN will not receive a work and/or residence permit if there is reason for deportation (§ 5 pt. 1 nr. 3 AufenthG). Just as stated in the Austrian provisions, TCN must not impair or endanger the interests of Germany (§ 5 pt. 1 nr. 4 AufenthG) and are expected to secure their livelihood on their own (§ 5 pt. 1 nr. 1 AufenthG). In addition to that, a TCN must be in possession of a passport (§ 5 pt. 1 nr. 4 AufenthG). German legislation also states that apart from minor exceptions, approval by BA (§ 18 pt. 2 AufenthG) and a definite offer of employment are necessary (§ 18 pt. 5 AufenthG) in order to obtain a work permit. Austrian legislation does not provide such uniform declarations and instead defines them for every work permit individually.

Both Austrian and German legislation also define prerequisites for the employer's side when it comes to employing TCN. In Austria, § 3 pt. 1 AuslBG states that an Austrian company

may only employ TCN when the latter is in possession of a valid work permit. Similarly, § 40 AufenthG states that an employer must not receive the permission to employ a TCN if the former has violated German labour law. Summarising, Austrian and German legislation provide highly similar provisions when it comes to general prerequisites for granting work permits. Minor differences mainly concern formulation matters and the level of legal detail.

3.4.1 National Work Permits

This sub-chapter compares the RWR Card as part of Austrian legislation to Aufenthaltserlaubnis as part of German legislation. They represent the work permits for HS TCN if the ICT permits and the Blue Card did not apply. *Table 3* summarises all comparative findings. German legislation is quite vague in naming the requirements for HS TCN to obtain Aufenthaltserlaubnis. Proof of qualified education is stated as the only skill-related prerequisite. Additional requirements include BA approval (§ 39 AufenthG) and priority review, a concept that will be discussed in chapter 3.4.4. Unlike Austrian AuslBG, § 18 pt. 4 AufenthG states that HS TCN may only work in a specifically defined occupational group where further provisions may apply. The latter are to be defined by BA (§ 42 AufenthG).

In contrast to the German provisions on Aufenthaltserlaubnis, Austrian legislation provides many details when it comes to the national work permit that is the RWR Card. The scoring system applied to all three relevant RWR Cards[10] in 2018 and 2019 and still applies to this day. Changes since 2018 have merely been made to one permit: the RWR Card OtherKW. The scoring tables for 2019 are included in *Annex 1* and were provided to the author of the present thesis by AMS. The scoring table for the RWR Card OtherKW for 2018 is included in *Annex 2* and was derived from Austrian legislation document 504/A XXVI. GP.

What is common to all three relevant RWR Cards is the necessity of fulfilling a certain number of points in order to be eligible for the respective work permit. For the RWR Card ShortageW and the RWR Card OtherKW in 2019, e.g., a minimum of 55 out of 90 possible points had to be obtained. Additionally, every scoring system is divided into sub-categories which contain a maximum amount of possible points. For all three relevant RWR Cards in 2019, e.g., the maximum of allowable points for relevant work experience was at 20 points. All RWR Cards

[10] The three relevant RWR Cards are the RWR Card HighlyQW, the RWR Card ShortageW, and the RWR Card OtherKW. All other RWR Cards, e.g., concerning self-employed TCN, are disregarded in the present thesis due to the demarcations defined previously.

have had the following sub-categories in common: qualification, relevant work experience, language skills, and age. For all of them, qualification were weighted most heavily (*Annex 1*).

	Permit	**Skill-related prerequisites**	**Other prerequisites**
Austria	RWR Card HighlyQW (§ 12 AuslBG)	Combination of factors: - qualified education and/or - relevant work experience and/or - German/English knowledge	Further factors: - last yearly gross salary and/or - research or innovation activities and/or - awards and/or - age and - AMS approval
	RWR Card ShortageW (§ 12a AuslBG)	Combination of factors: - qualified education in shortage occupation and/or - relevant work experience and/or - German/English knowledge	- Age as combination factor - Employment in shortage occupation - AMS approval
	RWR Card OtherKW (§ 12bAuslBG)	Combination of factors: - qualified education and/or - relevant work experience and/or - German/English knowledge	- Age as combination factor - AMS approval - Priority review - Salary threshold, dependent on age
Germany	Aufenthaltserlaubnis (§ 18 pt. 4, § 39, §42 AufenthG)	Qualified education	- BA approval - Priority review - May only work in a specific occupational group - Further provisions related to the occupational group

Table 3: Comparison between the Red White Red Cards and Aufenthaltserlaubnis

The RWR Card ShortageW and the RWR Card OtherKW show similar tables for 2018 and highly similar tables for 2019. The major decisive difference in terms of eligibility has to do with the occupation the HS TCN are supposed to work in. If the HS TCN will work in a defined shortage occupation in Austria, and/or is in possession of a qualified education

(e.g., a university diploma) in a certain shortage occupation, and/or has enough prior work experience in that same shortage occupation, and fulfils the necessary amount of points as given by the scoring table, she/he is eligible for the RWR Card ShortageW (*Annex 1*).

If, on the other hand, the HS TCN will not work in a shortage occupation, the basic requirement for the RWR Card ShortageW is not fulfilled. The same goes for cases where a TCN will work in a shortage occupation but does not obtain the necessary points. In those cases, depending on the individual's situation, another RWR Card (or the Blue Card) may be selected as a viable work permit option. From an Austrian employer's perspective, the RWR Card ShortageW is superior to the RWR Card OtherKW as the former does not entail priority review (§ 12a AuslBG) while the latter does.

Additionally, the RWR Card OtherKW represents the inferior option for some employers as it has entails a wage threshold that depends on the TCN's age, irrespective of the occupational group (§ 12b pt. 1 AuslBG). In contrast, the RWR Card ShortageW only implies the salary as defined by the mandatory collective agreement (§ 12a pt. 3 AuslBG). In some cases, the collective agreement may of course imply a higher salary than the salary threshold of the RWR Card OtherKW. In those cases, inferiority of the RWR Card OtherKW does not apply. The monthly gross salary thresholds for the RWR Cards OtherKW for 2018 and 2019 are listed in *Table 4* (chapter 3.4.2) and were provided to the author of the present thesis by the representation of the Viennese state governor (Magistratsabteilung 35).

Shortage occupations are defined on a yearly basis by the Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection (§ 13 pt. 1 AuslBG). AMS may submit recommendations for such occupations (§ 13 pt. 2 AuslBG). *Annex 3* contains the final lists of shortage occupations for 2018 and 2019 which were provided to the author of the present thesis by AMS. In both 2018 and 2019, technicians with a higher level of training for data processing ("TechnikerInnen mit höherer Ausbildung (Ing.) für Datenverarbeitung", *Annex 3*) were a part of those occupations and were relevant for Austrian IT service companies.

For both the RWR Card ShortageW and the RWR Card OtherKW in 2019, the weighting of the five sub-categories[11] was the same. The highest weighting with a maximum of 30 points regarded qualification (education). Fulfilling these 30 points by presenting proof of tertiary

[11] As can be seen in *Annex 1* and *Annex 2*, the RWR Card OtherKW in 2018 and 2019 included an additional sub-category, namely that for professional athletes and sports coaches. This, however, is not relevant to HS TCN and is therefore disregarded.

education already provided an applicant with 54.5% of the necessary 55 points. The second highest weighting referred to relevant work experience with a maximum of 20 points. German language skills as well as age represented sub-categories with a maximum of 15 points. English skills ranked lowest in terms of weighting with a maximum of 10 points (*Annex 1*).

In contrast to those provisions for 2019, the RWR Card OtherKW for the year 2018 provided fewer total points (75 points) but the same eligibility threshold of 55 points. While age accounted for a higher relative weight, relevant work experience only represented a total of 10 points, and English and German knowledge represented a joint category with a total of 15 points. The changes made from 2018 to 2019 thus stood for a weighting increase for relevant work experience and language knowledge, especially concerning German skills (*Annex 2*). Additionally, they represented a certain standardisation as they adapted the scoring system of the RWR Card OtherKW to that of the RWR Card ShortageW.

The scoring table for the RWR Card HighlyQW in 2018 and 2019 differed from the other RWR Cards. While the sub-categories carried identical or similar names, the point distribution varied. Out of a total of 100 points, an applicant could obtain 40 points in the category of special qualifications and skills ("Besondere Qualifikationen bzw. Fähig-keiten", *Annex 1*). This represents 57.1% of the necessary 70 points[12]. While this percentage is similar to that of the other RWR Cards, the sub-category not only consisted of education proof but included research and innovation activities, awards, and the last yearly salary as well (*Annex 1*).

Weighting in the RWR Card HighlyQW also differed from the other RWR Cards. Work experience had the same maximum of 20 points as the other two RWR Cards and thus carried less relative weight in comparison. Language knowledge accounted for a maximum of merely 10 points when it comes to the RWR Card HighlyQW and did not contain a higher weighting for German knowledge as was the case with the other two RWR Cards. In addition, age accounted for a much higher weight. Also, there was an additional sub-category concerning studies in Austria with a maximum of 10 points. Lastly, the RWR Card HighlyQW in 2018 and 2019 did not entail priority review, just as the RWR Card ShortageW (§ 12 AuslBG).

Summarising the comparison between the national permits Aufenthaltserlaubnis and the RWR Card, one may deduce that German legislation was more generalising than Austrian

[12] HS TCN who will work in a shortage occupation and present proof of tertiary education in a shortage occupation only need to reach 65 points (§ 13 pt. 4 AuslBG).

legislation in 2018 and 2019. Austrian AuslBG provided a high variety of details for every sort of RWR Card. If an individual in 2019 was not in possession of sufficiently qualified education, e.g., she/he was not eligible for the Aufenthaltserlaubnis. If this TCN earned a high enough salary in the year before immigrating to Austria (30 points), could prove ten years of relevant work experience (20 points) as well as a sufficient English level (10 points), and was 43 years old, e.g., she/he was eligible for the RWR Card HighlyQW. In this sense, Austrian legislation offered a wider range of options for HS TCN than German legislation, with the different scoring systems allowing for nuanced work permit possibilities.

3.4.2 The Blue Card

In June 2009, the Council of the European Union (short: Council) published Directive 2009/50/EC. The transnational Blue Card was thus introduced as a work permit for highly qualified TCN[13]. In the introduction of this Blue Card directive (Council 2009, 17), the following is stated regarding the directive's aim:

> This Directive is intended to contribute to achieving these goals and addressing labour shortages by fostering the admission and mobility – for the purposes of highly qualified employment – of third-country nationals for stays of more than three months, in order to make the Community more attractive to such workers from around the world and sustain its competitiveness and economic growth.

While national labour market decisions are not to be overridden by the directive (Council 2009, 18), the latter is binding for all EU member states except for Ireland, Denmark, and the United Kingdom (Council 2009, 20). As a directive, the Blue Card must be included into national legislations (Art. 288 Treaty on the Functioning of the EU). Additionally, every member state must report on the effectiveness of the Blue Card annually from the moment of national implementation on (Council 2009, 28).

To ensure a "minimum level of harmonisation" (Council 2009, 18), three main criteria determine Blue Card eligibility: a salary threshold, a binding job offer, and proof of high qualification. The salary threshold ranges from 1.2 times to 1.5 times the average gross annual salary of the concerning member state (Council 2009, 23). The binding job offer needs to be valid for at least one year. High qualification may either be proven by a tertiary education diploma (three years minimum study duration), or by work experience of five or more years

[13] TCN are defined as non-EU citizens (Council 2009, 21). Also, highly qualified employment is defined as paid employment for individuals with "higher professional qualifications" (Council 2009, 21). It thus equals HS employment as defined in chapter 1.3. of the present thesis.

(Council 2009, 21). Additionally, the TCN must possess a valid travel document as well as sufficient insurance coverage and must not pose a threat to the public (Council 2009, 22).

Austria introduced the Blue Card in in 2011, together with the discussed scoring system for the RWR Card. § 12c AuslGB has since then been valid, detailing the salary threshold of 1.5 times the average gross annual salary in Austria for the Blue Card. Additionally, the necessity of tertiary education proof (three years minimum study duration) is stated. The alternative of at least five years of professional experience is not included.

Germany introduced the Blue Card in 2012, one year later than Austria. § 19a pt. 1 AufenthG states that a Blue Card may be obtained by a HS TCN if a certain salary threshold is fulfilled, and if the TCN can either present proof of a recognised tertiary education or of at least five years of professional experience. The latter is only possible in certain occupations which are defined by the German Federal Ministry of Labour and Social Affairs. That very ministry also defines the salary thresholds for every year (§ 19a pt. 2 AufenthG).

When it comes to those thresholds, German legislation makes a distinction between shortage occupations and all other occupations. Shortage occupations are defined as groups 21, 221 and 25 of the ISCO-08 system (§ 2 pt. 2 BeschV; European Commission 2009). Group 21 consists of "[s]cience and engineering professionals" (European Commission 2009, 33) and group 221 of "[m]edical doctors" (European Commission 2009, 34). Group 25 is the most crucial one for the present thesis as it is represented by "[i]nformation and communications technology professionals" (European Commission 2009, 35). For Blue Cards in these occupations, priority review is not necessary (§ 2 pt. 2 BeschV).

The salary threshold for those shortage occupations lies at 52% of average contributions for statutory pension insurance in Germany (§ 2 pt. 1 nr. 2a BeschV). For all other occupations, the threshold is set at two thirds of average contributions for statutory pension insurance, and priority review is necessary (§ 2 pt. 2 BeschV). *Table 4* shows the salary thresholds for the Blue Card[14] in comparison with of all other mentioned work permits.

The lowest threshold in 2018 and 2019 was represented by the RWR Card OtherKW, both for individuals under and over the age of 30. The second lowest threshold referred to the German Blue Card for shortage occupations. The German Blue Card for other occupations and the

[14] The thresholds for the Blue Card in Germany were provided to the author of the present thesis by the immigration authority (Ausländerbehörde) Stuttgart.

Austrian Blue Card implied the highest thresholds. In 2018, the Austrian Blue Card entailed the highest threshold with 4,353 EUR. In 2019, the German Blue Card for other occupations represented the highest threshold with 4,466 EUR, although the difference to the Austrian Blue Card was only 19 EUR.

	RWR Card OtherKW < 30 years Austria	RWR Card OtherKW > 30 years Austria	Blue Card Austria	Blue Card Germany shortage occupations	Blue Card Germany other occupations
2018	2,565 EUR	3,078 EUR	4,353 EUR	3,380 EUR	3,484 EUR
2019	2,610 EUR	3,132 EUR	4,447 EUR	4,333 EUR	4,466 EUR

Table 4: Austrian and German salary thresholds for work permits in 2018 and 2019

Summarising, one may thus conclude that the Blue Card was introduced by both Austria and Germany as indicated by EU legislation. The implementation has varied, though. Unlike German AufenthG, e.g., Austrian legislation does not allow for professional experience to replace tertiary education in any case. Additionally, German legislation distinguishes between shortage occupations and all other occupations for the Blue Card. The Blue Card for shortage occupations is therefore similar to the RWR Card ShortageW. Access to a work permit is easier in Austria and Germany when working in a shortage occupation. This is because the salary threshold is lower than for other work permits and priority review is not necessary.

3.4.3 Permits for Intra-Corporate Transferees

Just like the Blue Card, the two ICT permits stem from EU legislation in form of a directive. Directive 2014/66/EU was published in June 2014 by the European Parliament and the Council. As for its objective, it is stated that "[t]his Directive aims to facilitate mobility of intra-corporate transferees within the Union ('intra-EU mobility') and to reduce the administrative burden associated with work assignments in several Member States" (European Parliament and Council 2014, 4).

Just like with the Blue Card, the ICT directive must be included into national legislations (Art. 288 Treaty on the Functioning of the EU), except by Ireland, the United Kingdom, and Denmark (European Parliament and Council 2014, 7). Other similarities to the Blue Card are that national labour markets are prioritised in terms of admission volumes, and that any illegal

activity by the TCN or the employing company in the EU represents grounds for rejection (European Parliament and Council 2014, 11).

The directive defines ICT as TCN who work as "managers, specialists or trainee employees" (European Parliament and Council 2014, 7). Specialists must prove their expertise and related professional experience while trainee employees need to present proof of tertiary education and training purposes (European Parliament and Council 2014, 8). Three additional eligibility criteria apply to all sub-categories.

Firstly, any TCN applying for an ICT permit must have worked for the company or company group in question for at least three to twelve months respectively. This decision is taken by every individual member state. For trainee employees, not more than six months of prior employment may be requested. Secondly, the TCN must present a detailed work contract which states the date of return to a third country. Lastly, any ICT applicant must present a valid travel document and sufficient insurance coverage (European Parliament and Council 2014, 10).

The holder of an ICT permit may work in a second EU member state temporarily. This concept is called "mobile ICT" (European Parliament and Council 2014, 20), which is why national legislations often distinguish between two ICT permits: the longer-term oriented ICT permit and the shorter-term oriented mobile ICT permit. Here, cooperation as well as documentation sharing between the first and the second member state are strongly emphasised in the directive (European Parliament and Council 2014, 20f.).

Austria introduced the ICT permits in 2017. In accordance with the discussed EU directive, § 58 NAG states that ICT permits may only be obtained by managers, specialists and trainee employees who have received prior AMS approval. This also goes for applicants of mobile ICT permits (§ 58a NAG). § 18a pt. 1 AuslBG adds that a TCN may only obtain an ICT permit if she/he can present proof of having worked with the same company or company group for at least nine months (six months for trainee employees).

Both the ICT and mobile ICT permit also require proof of adequate qualification, a work contract and social security coverage (§ 18a pt. 1 AuslBG). Austrian legislation emphasises that the TCN must return to a third country after the respective permit expires (§ 18a pt. 1 nr. 2 AuslBG; § 58 pt. 5 NAG). It does not specify if priority review is necessary.

Germany also introduced the ICT permits in 2017. As is the case with the applicable Austrian laws, German legislation states that managers, specialists and trainee employees are eligible for ICT permits (§10a pt.1 nr. 1 BeschV; § 19b AufenthG). § 10a BeschV emphasises that the TCN must not receive a lower salary or be subject to worse working conditions than German employees. Additionally, it states that priority review is not necessary. AufenthG details the conditions and characteristics of ICT approval and distinguishes between the ICT permit (§ 19b AufenthG) and the mobile ICT permit (§ 19d AufenthG), just like Austrian legislation.

§ 19b AufenthG states that managers, specialists and trainee employees all need to prove that they have worked for the respective company or company group for at least six months. Additionally, they must provide proof of qualification as well as a detailed work contract which indicates that the TCN will return to a third country after having worked in Germany.

§ 19d AufenthG states that an individual holding an ICT permit of a second EU member state may receive the mobile ICT permit if presenting a detailed work contract. This contract must again include the provision that the TCN will return to a third country after the ICT and/or mobile ICT permit expires. BA approval is necessary for both the ICT and the mobile ICT permit (§ 19b pt. 2 nr. 4 AufenthG; § 19d pt. 2 nr. 4 AufenthG).

Comparing Austrian and German legislations concerning both ICT permits, several conclusions may be drawn. Firstly, both countries introduced the ICT permits in 2017. Secondly, both legislations are highly similar when it comes to eligibility criteria. This may be the case because the ICT directive is very specific in this regard, especially in comparison with the Blue Card directive which remains vague in a variety of specificities.

There are only two differences between Austrian and German legislation concerning the ICT permits. One is that while German legislation exempts ICT applications from priority review, Austrian legislation does not provide any indications on this topic. The second difference is that German AufenthG names six months of prior employment as an eligibility criterion for all three ICT categories. Austrian legislation, on the other hand, requires proof of nine months of prior employment for managers and specialists, and six months for trainee employees.

3.4.4 Priority Review and Validity of Relevant Work Permits

To obtain a full picture of the similarities and differences between Austrian and German legislation, it is crucial to include two additional factors: permit validity, and priority review necessity. *Table 5* shows the comparative results for all relevant work permits for HS TCN.

Country	Permit	Skill-related prerequisites	Other prerequisites	Validity	Prior. Review
Germany	Aufenthaltserlaubnis (§ 18 AufenthG)	Qualified education	- May only work in a specific occupational group - Further provisions concerning the occupational group - BA approval	Three years	Yes
Germany	Blue Card shortage occupations (§ 19a AufenthG)	Recognised tertiary education or min. five years of professional experience	- Shortage occupation as defined by the EU - Salary threshold, 52% of average contributions for statutory pension insurance in Germany - BA approval	Four years	No
Germany	Blue Card other occupations (§ 19a AufenthG)	Recognised tertiary education or min. five years of professional experience	- Salary threshold, 66% of average contributions for statutory pension insurance in Germany - BA approval	Four years	Yes
Germany	ICT (§ 19b AufenthG)	- Suitable qualification - Min. six months prior employment with same company (group)	- Only for managers, specialists and trainees - Detailed work contract with provision that TCN returns to third country after permit expiry - BA approval	One year (trainee), three years (man. and spec.)	No
Germany	Mobile ICT (§ 19d AufenthG)	ICT permit of a second EU member state	- Only for managers, specialists and trainees - Detailed work contract with provision that TCN returns to third country after permit expiry - BA approval	Not specified	No
Austria	RWR Card HighlyQW (§ 12 AuslBG)	Combination of factors: - qualified education - work experience - German/English knowledge	- Further factors: last yearly gross salary, research or innovation activities, awards, age - AMS approval	Two years	No
Austria	RWR Card ShortageW (§ 12a AuslBG)	Combination of factors: - qualified education in shortage occupation - work experience - German/English knowledge	- Age as combination factor - Employment in shortage occupation - AMS approval	Two years	No
Austria	RWR Card OtherKW (§ 12b AuslBG)	Combination of factors: - qualified education - work experience - German/English knowledge	- Age as combination factor - Salary threshold, dependent on age - AMS approval	Two years	Yes

Austria	Blue Card (§ 12c AuslBG)	Proof of tertiary education (three years minimum study duration)	- Salary threshold, 1.5 times the average gross annual salary in Austria - AMS approval	Two years	Yes
Austria	ICT (§ 18a pt. 1 AuslBG)	- Suitable qualification - Min. nine months prior employment with same company (group) for managers and specialists - Min. six months prior employment with same company (group) for trainee employees	- Only for managers, specialists and trainees - Detailed work contract with provision that TCN returns to third country after permit expiry - Proof of social security coverage - AMS approval	One year (trainee); three years (man. and spec.)	Not specified
Austria	Mobile ICT (§ 18a pt. 2 AuslBG)	- Suitable qualification - ICT permit of a second EU member state	- Only for managers, specialists and trainees - Detailed work contract with provision that TCN returns to third country after permit expiry - Proof of social security coverage - AMS approval	Depends on transfer duration	Not specified

Table 5: Relevant work permits for highly skilled third-country nationals in comparison

Priority review is called "Arbeitsmarktprüfung" (e.g., § 12 AuslBG) in Austria and "Vorrangprüfung" (e.g., § 42 AufenthG; § 1 pt. 2 BeschV) in Germany. It consists of AMS (in Austria)/BA (in Germany) reviewing if the respective national labour market in its current and prospective state allows for a certain TCN to work in that labour market. Part of this evaluation implies checking if any job-seeking individuals are registered with AMS (§ 4 pt. 1 AuslBG) or BA (§ 39 pt. 2 AufenthG). Priority review thus represents an additional process which entails higher levels of uncertainty (an application may be denied due to the labour market forecast) and longer waiting times for HS TCN and companies.

In Austria, priority review is necessary for Blue Card and RWR OtherKW applications. For ICT permits, it is not specified, meaning that AMS may or may not conduct priority review, depending on every individual case. Out of five possible permits, two therefore require priority review, two do not, and one is not specified. In Germany, priority review is applied when it comes to Aufenthaltserlaubnis and Blue Cards, except for Blue Cards in listed shortage occupations. Out of four permit options, two thus need priority review.

As for permit validity, there are major differences to be found. In Austria, the majority of permits are valid for two years: all three relevant RWR Cards (§ 41 pt. 5 NAG) as well as the

Blue Card (§ 42 pt. 4 NAG). The only exceptions are the ICT permits. The ICT permit is valid for three years for managers and specialists, one year for trainee employees (§ 58 pt. 4 NAG), and the mobile ICT permit is valid for the duration of the transfer (§ 58a pt. 4 NAG).

In Germany, much longer validities apply. Aufenthaltserlaubnis is valid for three years (§ 18 pt. 4a AufenthG) and the Blue Card is valid for four years (§ 19a pt. 3 AufenthG). As is the case with Austrian legislation, the ICT permit is valid for one year for trainee employees, and three years for managers and specialists (§ 19b pt. 4 AufenthG). The validity of mobile ICT permits is not specified. For all mentioned Austrian and German permits, the given figures represent the maximum validity. Any of the mentioned permits may be valid for shorter periods of time if, e.g., the underlying work contract is valid for less time.

3.5. Family Reunification and Residence Permits

Having analysed and compared all relevant Austrian and German provisions that regard work permits for HS TCN in 2018 and 2019, this sub-chapter complements said analyses with the evaluation of residence permit provisions for TCN's family members. This is relevant because many HS TCN immigrate with their spouses and children, as will be observed in the macro level analysis of chapter 4.3.

In terms of basic definitions, Austrian NAG and German AufenthG are quite similar. § 2 pt. 1 nr. 9 NAG defines family members as minor children, and spouses/registered partners over the age of 21. It also details that minor children may be biological, adoptive or step-children. § 29 pt. 2 AufenthG does not include such detailed provisions. It rather states that family members are spouses (of full age) and minor unmarried children.

As for residence permits, Austrian legislation states that the RWR Plus Card applies for both family members of RWR Card holders (§ 46 pt. 1 nr. 1 NAG) and of Blue Card holders (§ 46 pt. 3 NAG). The validity of a RWR Plus Card depends on if it is connected to a RWR Card or a Blue Card. If connected to a RWR Card, the RWR Plus Card is valid for one year (§ 20 pt. 1 NAG). If connected to a Blue Card, it is valid until the expiration date of the Blue Card (§ 46 pt. 3 NAG). For family members of ICT or mobile ICT holders, a different residence permit applies, namely the "Aufenthaltsbewilligung – Familiengemeinschaft" (§ 69 pt. 1 NAG) which is valid as long as the respective ICT or mobile ICT permit.

Apart from general requirements detailed by the first part of NAG (social security coverage, housing, etc., according to § 46 pt. 1 NAG), some family members need to provide an

elementary German certificate that may not be older than one year (§ 21a pt. 1 NAG). This applies to all children over the age of 14 as well as to all spouses if the RWR Plus Card is connected to a RWR Card OtherKW or a RWR Card ShortageW. Family members of Blue Card holders, RWR Card HighlyQW holders, ICT holders, and mobile ICT holders do not need to provide a German certificate when applying for their first residence permits (§21a pt. 4 nr. 3 NAG).

While applications for all RWR Cards, the Blue Card and the ICT permits may be submitted by the employer at the responsible authority in Austria (§ 20d pt. 1 AuslBG), family members are obliged to submit their applications at the respective foreign Austrian representation (§ 21 pt. 1 NAG). This procedural difference is of relevance as it implies an extended processing time for family members' applications. While a RWR Card application may be submitted at the responsible authority from the very beginning on, a RWR Plus Card application must first pass through Austrian consulate approval, e.g., and will only then be sent to the responsible authority in Austria which decides on final approval.

German legislation defines Aufenthaltserlaubnis for family reunification purposes (§ 27 AufenthG) as the residence permit for spouses and minor children who immigrate to Germany with HS TCN. This applies for family members of Aufenthaltserlaubnis holders, Blue Card holders, ICT holders, and mobile ICT holders. The validity of Aufenthaltserlaubnis for family reunification purposes is always bound to the validity of the connected work permit (§ 27 pt. 4 AufenthG). If, e.g., a Blue Card is issued for three years, the Blue Card holder's family members will receive residence permits that are also valid for three years.

Eligibility criteria for Aufenthaltserlaubnis for family reunification purposes consist of sufficient living space for all family members (§ 29 pt. 1 nr. 1 AufenthG), and, in some cases, proof of elementary German skills. As in Austrian legislation, family members of Blue Card holders, ICT holders, and mobile ICT holders are exempt from having to provide any German certificate (§ 30 pt. 1 nr. 5 AufenthG). In this sense, merely spouses and children over the age of 16 (§ 32 pt. 2 AufenthG) of Aufenthaltserlaubnis holders need to present an elementary German certificate when applying for their residence permits.

In terms of application procedure, German legislation does not make a difference between HS TCN applying for their work permits, and family members applying for connected residence permits. In both cases (unlike in Austria), the applications must be submitted at the

responsible foreign German representation. Only when that visa is approved, a TCN may enter Germany and submit the application for the respective permit at the responsible Foreigners' Office (§ 5 AufenthG; § 6 pt. 3 AufenthG).

Concluding, family reunification provisions show some similarities and many differences when comparing Austrian NAG to German AufenthG. Both laws use the same basic definitions, require some family members to provide elementary German certificates, and exempt others from this requirement based on the related HS TCN's work permit. Also, both laws require family members to apply for residence permits in their countries of residence. However, Austrian legislation differentiates between family members of RWR Cards and Blue Cards on the one hand, and family members of ICT and mobile ICT permits on the other hand. German legislation in turn only offers one residence permit for those family members.

Another difference concerns age. In Austrian legislation, spouses need to be over the age of 21 while German legislation only requires full age of spouses. Additionally, the age threshold for German certificates provided by minor children is put at 14 in Austria and at 16 in Germany. These thresholds are due to the legally defined ages of majority. In Austria, children over 14 but under 18 are considered as minors but of the age of majority (§ 21 pt. 2 ABGB). In Germany, the same goes for children over 16 but under 18 (e.g., § 1303 BGB).

Lastly, permit validity is a decisive factor. Austrian legislation states permit validity of one year for all RWR Plus Cards except for those connected with Blue Cards. In contrast, German legislation binds all family residence permits to the HS TCN's work permit in terms of validity. In sum, German legislation implies much longer permit validities, not only for HS TCN's work permits but also for family residence permits. A Blue Card in Austria is issued for a maximum of two years, e.g. The Blue Card holder's family members thus receive RWR Plus Cards that are also valid for that period of time. In comparison, German legislation states a maximum of four years of validity for Blue Cards and therefore for the connected family residence permits.

3.6. Critical Evaluation of the Legal Comparison

Having completed the third step of the functional comparative law method with the comparative analyses between Austrian and German legislation, this sub-chapter represents the fourth methodological step. This fourth and final step implies embedding the insights from all previous sub-chapters into their societal contexts, as discussed.

The findings concerning general provisions of Austrian and German legislation have shown that the historically grown migration regimes are reflected in all four respective laws. There is a clear distinction in both legislations between EU and EEA citizens on the one hand, and TCN on the other hand. In general, both legislations show many similarities, just as the socio-historical and -economic developments of labour migration to Austria and Germany do.

Despite these similarities, the comparative insights into national work permits for HS TCN have showcased the strong national foci related to immigration matters. While Austrian legislation makes use of a detailed scoring system, e.g., German legislation focuses on certain occupational groups and only contributes one vague legal paragraph to the national work permit that is Aufenthaltserlaubnis. Even with the Blue Card as a supranational work permit, differences in national implementation have been found. Notwithstanding, those differences mainly concern detailed provisions such as salary thresholds. The ICT permits in turn show high similarities when comparing Austrian to German legislation. This fact may be due to the ICT directive being more explicit than the Blue Card directive.

In both Austrian and German legislation, the national labour market in its current and prospected state is of high importance. Priority review represents this concern in both countries. However, exceptions are made when it comes to shortage occupations in both Austria and Germany. This reflects a certain balancing act: on the one hand, the national labour market is to be protected. On the other hand, the shortage of HS workers is a reality which is counteracted with the immigration of HS TCN. Providing easier access to the national labour markets for those HS TCN therefore functions as a legal approach used in both countries.

When it comes to family reunification provisions, the basic frameworks in Austrian and German legislation are somewhat similar. However, certain provisions vary greatly. Permit validity represents a crucial factor in which the two legislations differ. Also, both legislations require elementary German skills from certain family members. This may again be interpreted as a result of the historically grown migration regimes in Austria and Germany which emphasise integration by TCN from the first moment on. It is noticeable, however, that this emphasis only lies on family members and not on working HS TCN, who are not required to present any kind of German certificate when immigrating to Austria or Germany.

Summarising this comparative legal chapter, one may firstly conclude that the Austrian and German legislations regulating the immigration of HS TCN and their family members in 2018

and 2019 are complex legal systems. Secondly, the similarities between those two systems outweigh the differences. In any case, the suitability and eligibility of certain work and residence permits depend on the individual HS TCN, her/his educational, professional background, family situation and factors such as the job she/he is offered in Austria or Germany.

4. Macro Level Analysis

So far, the present thesis has discussed the historical, theoretical and legal backgrounds of the shortage of HS workers in Austria and Germany as well as the immigration of HS TCN to the two countries. This chapter complements said discussion with a macro level analysis for the years 2018 and 2019. The underlying data is either publicly available or was provided to the author of the present thesis upon request. In a first step, a general overview is given. Followingly, data regarding HS TCN in both Austria and Germany is analysed and compared. In a third step, the same is done for those HS TCN's family members. After that, the two national IT service industries and the shortage of HS workers in the former are discussed.

4.1. Comparative Overview

Austria and Germany may be quite similar when it comes to their historical backgrounds concerning migration patterns as well as legal frameworks. However, when it comes to inhabitants, the countries are fundamentally different. On 31.12.2017, as many as 83,019,213 people lived in Germany. On 31.12.2018, the number had risen to 83,186,719 individuals (Statistisches Bundesamt 2020a, 19), which accounts for an increase of 0.2%.

In Austria, the total population was at 8,822,267 on 1.1.2018 (Statistik Austria 2018, 23) and at 8,858,775 on 1.1.2019 (Statistik Austria 2019a, 25). This accounts for an increase of 0.41%. The total Austrian population therefore represented roughly one tenth of the German population in both years. Any further comparison between the two countries therefore only makes sense when considering relative shares.

As for the relative share of non-citizens among the total population, the figures between Austria and Germany differ only slightly. Non-Austrian citizens accounted for 15.8% of the total population in Austria in 2018 (Statistik Austria 2018, 23), and for 16.2% in 2019 (Statistik Austria 2019a, 25). The share of non-citizens between 2018 and 2019 thus slightly rose. In Germany, non-German citizens accounted for 12.2% of the total population in 2018, and for 12.5% in 2019 (Statistisches Bundesamt 2020a, 19). As seen in Austria, the share of non-citizens between the two concerning years slightly increased. In any case, the share of non-citizens relative to citizens was higher in Austria than in Germany.

TCN represented ca. 50% of these non-citizens in Austria in both years, and ca. 57% in Germany. 692,000 TCN lived in Austria in 2018, accounting for 49.6% of all non-citizens (Statistik Austria 2018, 41). The number rose to 699,098 TCN in 2019, representing 48.6% of

all non-Austrian citizens (Statistik Austria 2019a, 43). In Germany, 5,971,789 TCN accounted for 55.7% of all non-German citizens in 2018 (BAMF 2018, 113). One year later, 6,176,252 TCN represented 56.2% of non-citizens (BAMF 2019, 118). *Figure 2* illustrates the given data for both Austria and Germany. Said data includes all types of registered TCN – working and non-working, children and retirees, etc.

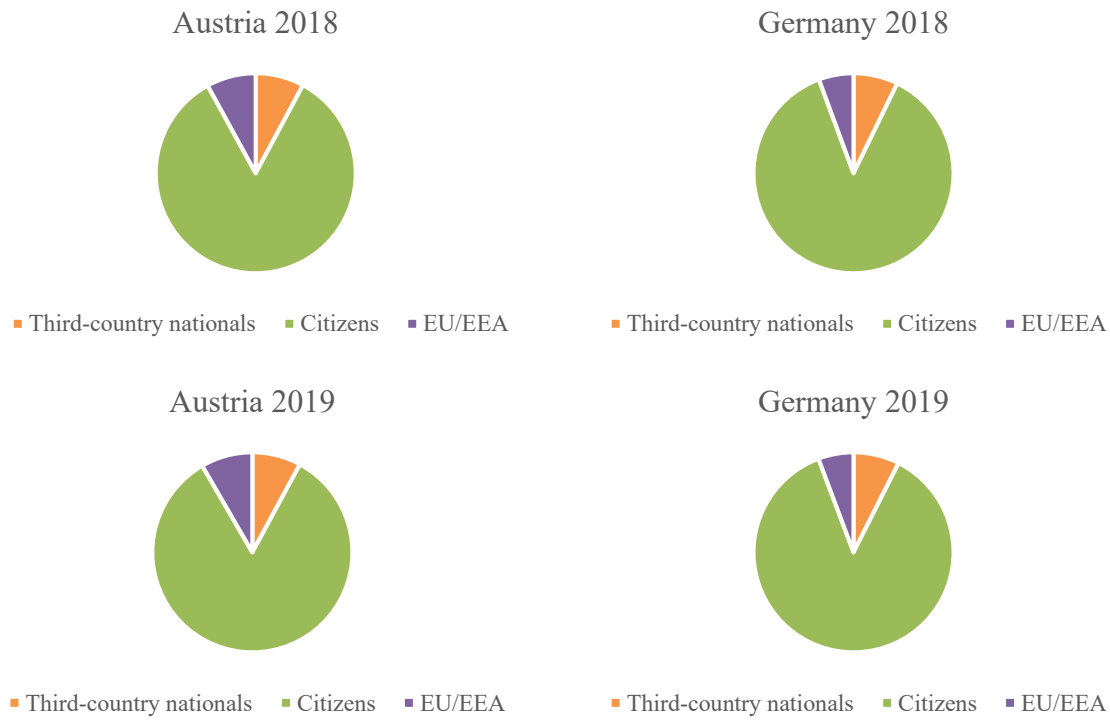

Figure 2: Citizens, EU/EEA citizens and third-country nationals in 2018 and 2019

Classifying those TCN as detailed in *Figure 2*, both similarities and differences can be observed. A first similarity between Austria and Germany is that the ranking of TCN according to their citizenship did not change between 2018 and 2019. In Austria, Serbian citizens accounted for the largest group of TCN, followed by Turkish citizens. This goes for both 2018 (Statistik Austria 2018, 9) and 2019 (Statistik Austria 2019a, 9). In 2019, e.g., 121,300 Serbian citizens lived in Austria (Statistik Austria 2019a, 9) and thus represented 17.35% of all TCN, 8.43% of all non-Austrian citizens, and 1.37% of the total Austrian population.

While Turkish citizens ranked second in Austria, they were the largest group of TCN in Germany in 2018 and 2019, followed by Syrian citizens (BAMF 2018, 113; BAMF 2019, 118). In 2019, e.g., 1,474,223 Turkish citizens lived in Germany (BAMF 2019, 118). They represented 23.87% of all TCN, 13.51% of all non-German citizens, and 1.78% of the total German population in that year.

The migration balance of non-citizens in Austria and Germany was positive in 2018 and 2019. In Austria, the migration balance was at +40,017 in 2018 (Statistik Austria 2019b) and at +44,956 in 2019 (Statistik Austria 2020), implying an increase of 12.34%. In Germany, however, a decrease of 13.32% may be observed: while the migration balance was at +521,639 in 2018, it dropped to +452,172 in 2019 (BAMF 2020, 80).

One may categorise the TCN who immigrated to Austria and Germany in both years by citizenship. Similar to the TCN who resided in Austria in 2018 and 2019, the biggest TCN immigrant group in both years consisted of Serbian citizens, followed by citizens of Bosnia and Herzegovina, Turkey, and the Russian Federation in both years (Statistik Austria 2019b; 2020). The fifth largest group in 2018 consisted of Syrian citizens (Statistik Austria 2019b), and of Chinese citizens in 2019 (Statistik Austria 2020). *Figure 3* illustrates these numbers.

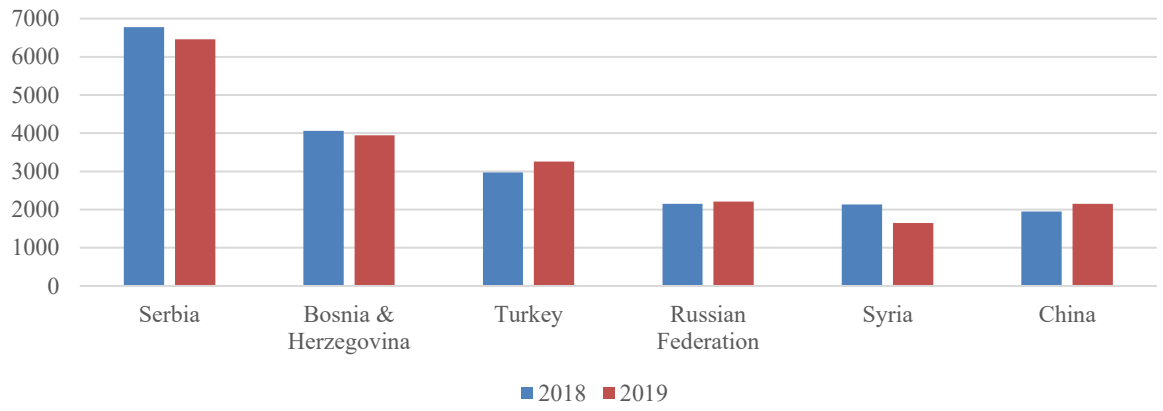

Figure 3: Top five third-country national groups immigrating to Austria

In Germany, the distribution was slightly different. In both 2018 and 2019, the largest TCN immigrant group was represented by Syrian citizens (BAMF 2019, 81; BAMF 2020, 81). In 2018, Turkish citizens accounted for the second largest and Indian citizens for the third largest TCN immigrant group (BAMF 2019, 81).

In 2019, this was vice versa, with Indian citizens representing the second largest and Turkish citizens accounting for the third largest group (BAMF 2020, 81). The fourth rank was represented by Chinese citizens, and the fifth by Serbian citizens in both years (BAMF 2019, 81; BAMF 2020, 81). Here too, one may observe similarities between shares of TCN residents and TCN immigrants. *Figure 4* illustrates the discussed distribution.

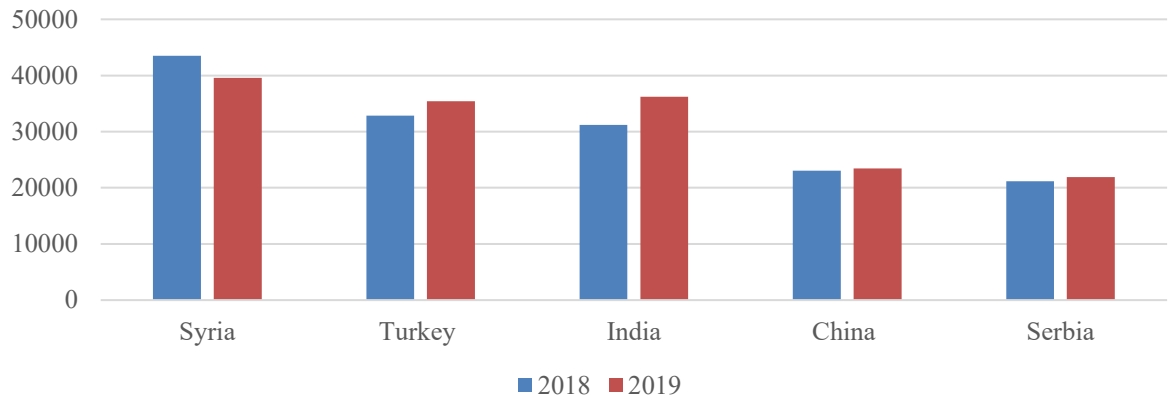

Figure 4: Top five third-country national groups immigrating to Germany

Both Statistik Austria (2020) and BAMF (2019; 2020) detail the reasons why those TCN immigrated to Austria and Germany. However, data for Austria is only available for the year of 2018 (Statistik Austria 2020). The ca. 43,500 TCN immigrating to Austria in 2018 were distributed as follows: 31.49% immigrated as asylum seekers; 30.11% for family reunification purposes; 14.94% for various other reasons; 12.87% for temporary residence reasons (e.g., university students); 6.2% immigrated as seasonal workers; and 4.37% as key workers, i.e., as HS TCN (Statistik Austria 2020, 43). HS TCN thus represented the smallest group of TCN immigrating to Austria. *Figure 5* illustrates this distribution.

In Germany, BAMF details the distribution for both 2018 and 2019. The 526,329 TCN immigrating to Germany in 2018 did so for the following reasons: 38.5% immigrated for various other reasons; 20.3% for reasons related to humanitarian and asylum grounds; 18.5% for family reunification purposes; 11.6% for employment purposes; and 11.1% for educational purposes (BAMF 2019, 87). In 2019, the figures only changed slightly: 41.1% of the 533,997 TCN immigrated for various other reasons; 18.1% for family reunification purposes; 18.0% for reasons related to humanitarian and asylum grounds; 12.0% for employment purposes; and 10.8% for educational purposes (BAMF 2020, 87).

Of the total of 60,857 TCN immigrating to Germany for employment purposes in 2018, 35,652 individuals were HS TCN and thus as holders of the discussed relevant work permits Aufenthaltserlaubnis, Blue Card, ICT permit and mobile ICT permit (BAMF 2020, 90). They thus represented 58.58% of all TCN immigrating for employment purposes, and 6.77% of all TCN immigrating to Germany in 2018. One year later, 64,219 TCN immigrated to Germany for employment reasons. Of these, 35,916 immigrated as holders of Aufenthaltserlaubnis, Blue Card or ICT permits (BAMF 2020, 90). They thus accounted for 55.92% of all TCN

immigrating for employment purposes, and for 6.73% of all TCN immigrating to Germany in 2019. *Figure 5* showcases this distribution in comparison with the Austrian case of 2018.

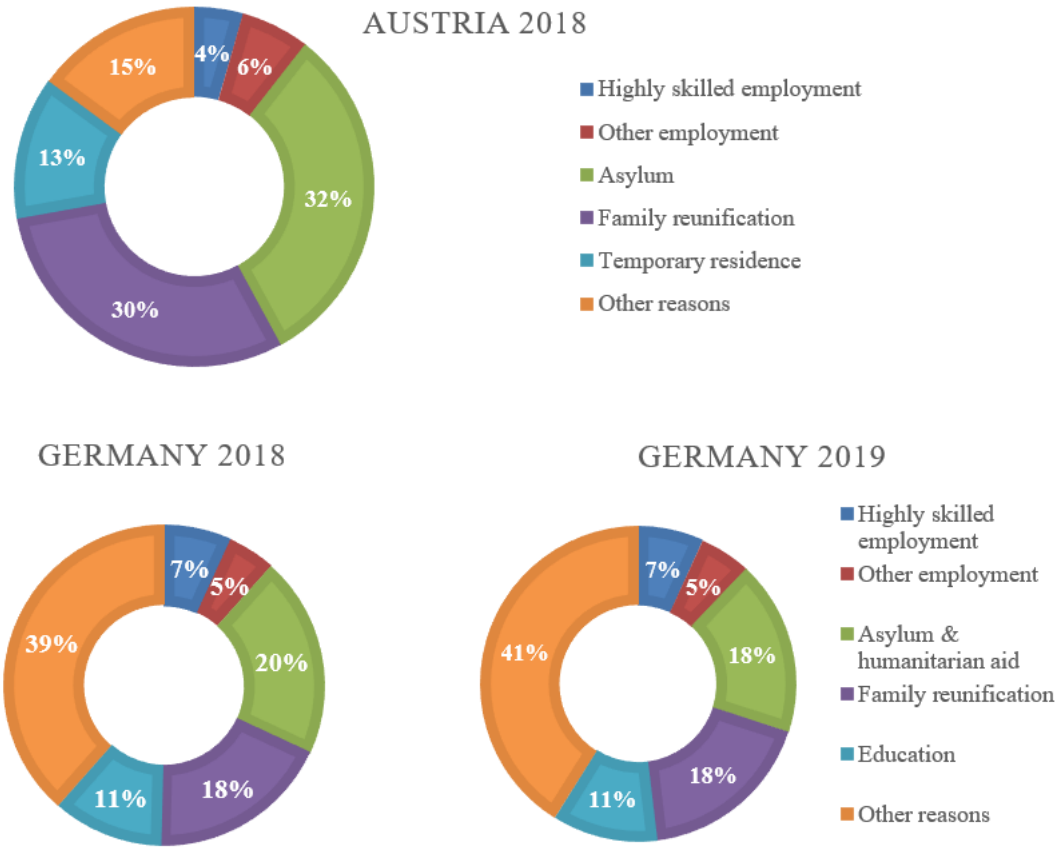

Figure 5: Immigration reasons of third-country nationals to Austria and Germany

Apart from an overall increase in TCN immigrating to Germany as well as an in TCN doing so for employment purposes, the relative shares between the two years differed only slightly. Comparing Austria to Germany, though, several differences are to be found. Firstly, categorisation differs. While education is one sub-category defined by BAMF, e.g., university students are comprised in the category of temporary residence by Statistik Austria.

This also explains why the category *Other reasons* corresponded to such a large share in Germany (ca. 40% in both years) and to such a moderate share in Austria (ca. 15% in both years). Neither one of the authorities defines which individuals are comprised in this category. Despite these definitory challenges, some comparisons can be drawn. The share of TCN immigrating due to asylum and humanitarian reasons was much larger in Austria (ca. 32%) than it was in Germany (ca. 19%). The same goes for family reunification purposes.

The most relevant category for the present thesis is that of HS employment. Here, Austrian and German data are quite similar. HS und other employment permits together made up ca.one tenth of the permits issued by either Austria or Germany. The two skill groups represented shares of similar sizes. However, the share of HS employment permits in Austria was slightly lower than that of other employment permits, while it was the other way around in Germany.

Concluding, one may thus deduce that the HS TCN immigrating to Austria and Germany in 2018 and 2019 for employment purposes accounted for minor shares of TCN and non-citizens immigrating. In 2018, e.g., only about 1,900 HS TCN immigrated to Austria while about 87,700 EU/EEA citizens did so as well (Statistik Austria 2020, 43).

4.2. Highly Skilled Third-Country Nationals

Having analysed background data concerning TCN residents in Austria and Germany as well as TCN immigrants to both countries in 2018 and 2019, this sub-chapter focuses on HS TCN and their respective work permits, as listed and compared in the preceding chapters. In both countries, the Blue Card, the ICT permit and the mobile ICT permit are of interest. Additionally, the Austrian RWR Card and the German Aufenthaltserlaubnis are relevant.

4.2.1 Methodology Issues

Before comparing detailed data, it is crucial to discuss a methodological issue. In both Austria and Germany, different authorities provide information concerning work permits. This information may differ for a legal reason. As discussed in chapter 3.3., a HS TCN needs approval from several authorities before being allowed to start working in Austria or Germany. One authority (AMS in Austria; BA in Germany) approves the HS TCN's application from a labour market perspective. Other authorities (Landeshauptmann in Austria; Foreigners' Office and BAMF in Germany; and both countries' foreign representation) provide final approval.

In this sense, approval numbers by AMS and BA may be higher than the approval numbers provided by other authorities involved. This is because AMS/BA approval is one prerequisite for final approval, but not the only one. An HS TCN may, e.g., receive BA approval for her Blue Card application, but is then denied final approval because she cannot provide additional required documentation (e.g., proof of adequate housing). Additionally, it may be possible that BA approval was given in 2018 while final approval was only provided in 2019.

This sub-chapter together with the following sub-chapters relies on data provided by AMS and the Austrian Ministry of the Interior[15] (Bundesministerium für Inneres; short: BMI) for numbers concerning Austria. For Germany, the present thesis makes use of data published by BA and BAMF. *Table 6* illustrates work permit approvals in 2018 and 2019 in both Austria and Germany by the four mentioned authorities (BMI 2018; AMS 2019; BAMF 2019; BMI 2019a; AMS 2020a; AMS 2020b; BA 2020a; BAMF 2020).

Permit	**Year**	**Germany**		**Austria**	
		BA approval	**BAMF approval**	**AMS approval**	**BMI approval**
ICT permit	2018	5,117	1,080	181	101
	2019	4,458	1,474	245	101
Mobile ICT permit	2018	-	-	-	-
	2019	-	-	-	2
Blue Card Other Occ.	2018	6,839	7,039	337	246
	2019	8,952	7,759	384	309
Blue Card Short. Occ.	2018	6,859	4,985	-	-
	2019	8,973	5,378	-	-
Aufenthalts-erlaubnis	2018	55,605	22,577	-	-
	2019	61,039	21,305	-	-
RWR Card HighylQW	2018	-	-	212	78
	2019	-	-	259	159
RWR Card ShortageW	2018	-	-	668	368
	2019	-	-	979	647
RWR Card OtherKW	2018	-	-	2,372	1,152
	2019	-	-	1,552	1,018
Total	**2018**	**74,420**	**35,681**	**3,770**	**1,945**
	2019	**83,422**	**35,916**	**3,419**	**2,236**

Table 6: Permit approval by BA/BAMF and AMS/BMI in 2018 and 2019

4.2.2 Citizenships of Highly Skilled Third-Country Nationals

Data concerning the HS TCN's citizenship cannot be compared in a simple manner. This is because in Austria, merely AMS (2019; 2020a) provides said data itemised by work permit. Austrian BMI (2018; 2019), in turn, does not offer such categorised data. In Germany, the opposite applies. While BA (2020) offers a list of the top 40 citizenships regarding approved permits, the list does not distinguish between different work permits. BAMF (2019, 2020), on the other hand, details the HS TCN's citizenships by work permit but excludes ICT permits.

[15] Data by BMI is similar to that of Statistik Austria as both centre on final approval instead of partial approval.

For the latter, only data from AMS is thus available. This makes a comparison of any kind impossible, which is why both ICT permits are disregarded in this sub-chapter.

Table 7 illustrates the top five citizenships of HS TCN receiving relevant Austrian or German work permits in 2018 and 2019. It is noticeable that Indian citizens range among those top five in every sub-category for both countries and years. The Blue Card in Austria and Germany was most often approved for Indian citizens in both years. Other very present citizenships are China, Turkey, the Russian Federation, Brazil and the USA (AMS 2019; BAMF 2019, 93ff.; AMS 2020a; BAMF 2020, 93ff.).

Permit	**Year**	**Rank**				
		1	**2**	**3**	**4**	**5**
RWR Card HighlyQW	2018	India	Russian F.	Iran	China / Brazil	China / Brazil
	2019	Iran	India / Russian F.	India / Russian F.	Serbia	Brazil
RWR Card ShortageW	2018	Bosnia H.	Serbia	India	Ukraine / Kosovo	Ukraine / Kosovo
	2019	Bosnia H.	Serbia	India	Iran	Russian F.
RWR Card OtherKW	2018	Bosnia H.	India	Serbia	China	USA / Russian F.
	2019	India	USA	Bosnia H.	Serbia	Russian F.
Blue Card Austria	2018	India / Russian F.	India / Russian F.	Turkey	USA / Brazil	USA / Brazil
	2019	India	Russian F.	Turkey / China	Turkey / China	Ukraine
Blue Card Germany Shortage Occ.	2018	India	Russian F.	Turkey	Brazil	Iran
	2019	India	Turkey	Russian F.	Brazil	China
Blue Card Germany Other Occ.	2018	India	Turkey	Russian F.	USA	China
	2019	India	Turkey	Russian F.	USA	China
Aufenthalts-erlaubnis	2018	Serbia	Bosnia	India	USA	Japan
	2019	Bosnia H.	Serbia	India	Turkey	USA

Table 7: Immigrating highly skilled third-country nationals by citizenship rank

When it comes to national work permits, though, the distribution is different. In Austria, the RWR Cards OtherKW and the RWR Cards ShortageW were often approved for citizens from Bosnia Herzegovina and Serbia (AMS 2019; 2020a), which is also the case for the German Aufenthaltserlaubnis (BAMF 2019, 93; BAMF 2020, 93). Additionally, Iranian citizens

ranked high on RWR Card HighlyQW approvals (AMS 2019; 2020a). However, none of these citizenships range among the top five of approved permits for the Blue Card (AMS 2019; AMS 2020a; BAMF 2019, 95; BAMF 2020, 95).

This allows for several conclusions. Firstly, it has become clear that the HS TCN who received AMS (Austria) or BAMF (Germany) approval in 2018 and 2019 are not a uniform group. Notwithstanding, some nationalities are more present than others. Indian citizens accounted for an especially large group of HS TCN. From a cost-benefit analysis standpoint, this could imply that Austria and Germany were especially attractive to HS Indian citizens in terms of labour immigration destinations in 2018 and 2019. From that same standpoint, it could also mean that the employment of HS Indian citizens was less costly in terms of salary and other personnel expenditures than other citizens.

From a labour market standpoint, one could also hypothesise that HS Indian citizens provided the highest qualifications and skill levels for the positions to be filled in Austria and Germany. Lastly, it could also mirror a tendency of HS Indian citizens to leave India in larger numbers than other TCN. This may well be due to the high number of university graduates from Indian universities. A mix of those assumptions is possible as well.

Citizens of Serbia and Bosnia Herzegovina ranked among the top five of HS nationalities for national work permits while citizens of countries like the Russian Federation or China were more present regarding the Blue Card. The reason for this is again a matter of speculation. One hypothesis could be that certain TCN groups (e.g., Chinese or Brazilian citizens) were better paid and/or higher qualified than others and thus opted for the Blue Card more often than other TCN groups.

Another reason could be that Austrian or German firms relied on positive experiences with certain nationalities and/or work permits. When it comes to citizens from Serbia as well as Bosnia and Herzegovina, one may also consider that in both Austria and Germany, those citizens are highly present as TCN resident groups. A network theory standpoint would thus imply reduced migration costs for those HS TCN. Again, a mix of these hypotheses could apply.

4.2.3 Approval Shares

What is striking is that the aforementioned gap in approval numbers by AMS and BA on the one hand, and BAMF and BMI on the other hand, is extensive in most cases (*Table 6*). This can be observed analysing the total approval numbers in a first step. Of the 72,420 approved

applications by BA in 2018 (BA 2020a), only 47.95% received final approval by BAMF (BAMF 2020, 90ff.). In 2019, it even dropped to 43.05% (BA 2020a; BAMF 2020, 90ff.).

In Austria, final BMI approval shares were not as low as in Germany but still ranged below 66%. In 2018, of the 3,770 AMS approvals (AMS 2019), 51.59% received final BMI approval (BMI 2018, 27ff.). In contrast to Germany, this share increased between 2018 and 2019 with 65.4% of final BMI approvals (BMI 2019a, 32ff.; AMS 2020). Averaging both years, 58.4% of AMS approvals in Austria thus received final BMI approval. Similarly, in Germany, 45.5% of BA approvals received final BAMF approval. This share is higher than the aforementioned shares of total yearly approvals due to the special situation of the Blue Card. In 2018, BAMF approved more Blue Cards in non-shortage occupations than BA (*Table 2*, column 3, row 7; BA 2020a; BAMF 2020, 95), which is likely due to many BA approvals originating in 2017.

In 2019, 86.67% of BA approvals regarding those Blue Cards received final BAMF approval (BA 2020a; BAMF 2020, 95), representing the second highest approval rate. Both Blue Cards (shortage and other occupations) in fact show much higher approval shares than Aufenthaltserlaubnis or the ICT permits (BA 2020a; BAMF 2020, 90ff.). In Austria, the Blue Card also shows the highest shares between AMS and final BMI approval for both 2018 (73.0%; BMI 2018, 27; AMS 2019) and 2019 (80.47%; BMI 2019a, 32; AMS 2020a). This could be a sign of faster total processing for Blue Cards as the approval shares were relatively high.

It could also, however, be an indicator for the overall higher attractiveness of the Blue Card in comparison with other work permits. This would be the case if one assumed that the difference between AMS/BA and final BMI/BAMF approvals was due to bureaucratic difficulties or long waiting periods, which in the end kept HS TCN from immigrating despite AMS/BA approval. The Blue Card in this assumption posed lower hurdles and/or offered certain incentives, e.g., easier family reunification, which could explain the relatively high approval shares.

Additionally, it could well be the case that the TCN receiving final Blue Card approval were especially skilled and/or qualified in many ways, which may have made the immigration processes easier for them. Considering the high salary of a Blue Card holder, e.g., finding adequate housing in Austria or Germany may have been easier for Blue Cards holders than for RWR Card OtherKW holders whose minimum salary was much lower.

4.2.4 Distribution of Work Permits

Comparing the total numbers of approval, it is noticeable that in both countries, final approval increased from to 2018 to 2019. BMI approvals increased by 14.96% (BMI 2018, 27ff.; BMI 2019a, 32ff.) while BAMF approvals increased by 0.66% (BAMF 2019; 90ff.; BAMF 2020, 90ff.). Given that those final approvals are the ones implying the immigration of HS TCN, they are of special importance here. This increase in approval numbers shows that both Austria and Germany attracted more HS TCN in 2019 than in 2018. The distribution of the work permits involved in those approvals varied, though.

Considering that the ICT permits only applied in the specific circumstance of intra-corporate transfers, they will later be discussed separately. Here, the comparison centres on national permits and the Blue Card as work permit options for HS TCN looking to stay in Austria or Germany long-term. As discussed in the preceding sub-chapter, the Blue Card sticks out in terms of high shares between AMS/BA and BMI/BAMF approvals, which has led to the assumption that the Blue Card may have been of higher overall attractivity. This assumption must however be questioned when comparing total approval numbers.

In both Austria and Germany, the national work permits for HS TCN accounted for more than half of all permits approved by any of the four authorities involved. This goes for both 2018 and 2019. In Germany, Aufenthaltserlaubnis made up ca. 74% of all permits approved by BA (BA 2020a) and ca. 61% of permits receiving final approval by BAMF (BAMF 2019; 90ff.; BAMF 2020, 90ff.). In Austria, the different RWR Cards represented ca. 84% of all permits approved by AMS (AMS 2019; 2020a) and ca. 82% of permits receiving final approval by BMI (BMI 2018, 28; BMI 2019a, 32). The Blue Card, in turn, accounted for ca. 10% of all permits approved by AMS (AMS 2019; 2020a), and for ca. 13% of all final BMI approvals (BMI 2018, 27; BMI 2019a, 32).

In Germany, the two types of Blue Cards could not reach the levels of Aufenthaltserlaubnis in 2018 and 2019 either. The Blue Card in shortage occupations made up ca. 9% of all permits approved by BA (BA 2020a), and ca. 14.5% of all permits receiving final BAMF approval (BAMF 2019, 95; BAMF 2020, 95). The Blue Card in all other occupations represented ca. 10% of BA approvals (BA 2020a) and ca. 20% of final BAMF approvals (BAMF 2019, 95; BAMF 2020, 95). Together, the two Blue Cards thus accounted for ca. 19% of all permits approved by BA, and for ca. 35.5% of all permits receiving final approval from BAMF.

It is thus difficult to say if the posed assumption regarding Blue Card attractivity is valid or not. On the one hand, the Blue Card in both Austria and Germany is the permit with the highest share of AMS/BA approvals translating into BMI/BAMF approvals. This could be a signal of higher attractivity. On the other hand, national work permits seem to be more attractive when it comes to total absolute numbers. The reason for this discrepancy most likely has to do with one key prerequisite of the Blue Card, namely the discussed salary threshold. In other words: while the Blue Card may be attractive as a work permit in theory, it is simply not attainable for a large number of HS TCN. This would furthermore imply that a certain level of self-selection takes place with Blue Cards in Austria and Germany.

When breaking down the RWR Cards into sub-categories, several findings are to be made. Firstly, it is noticeable that in both 2018 and 2019, the RWR Card OtherKW ranked highest in terms of approval numbers, with 72.09% (55.81%) of all 1,598 (1,824) relevant RWR Cards, and 59.23% (45.53%) of all approved 1,945 (2,236) work permits in 2018 (2019). The RWR Card ShortageW ranked second, representing 23.03% (35.47%) of all relevant RWR Cards, and 18.92% (28.94%) of all relevant work permits in 2018 (2019). The RWR Card HighlyQW ranked lowest and accounted for 4.88% (8.72%) of all relevant RWR Cards, and for 4.01% (7.11%) of all relevant work permits in 2018 (2019).

Table 8 showcases this distribution based on data provided by BMI (BMI 2018, 28; BMI 2019a, 32). It includes approval numbers by AMS (2019; 2020a) in order to visualise the discrepancy between AMS and BMI approvals again. However, as discussed, one must take into account that not all AMS approvals for RWR Cards in 2018 resulted in BMI approvals in that same year. A certain proportion of AMS approvals never led to final BMI approval, and an additional share led to final BMI approvals in the following year. In that sense, some of the final BMI approvals listed for the year 2018 originated in AMS approvals of 2017.

The reason for said distribution of RWR Cards likely lies with the prerequisites the different options imply. In order to obtain a RWR Card ShortageW, a HS TCN must have worked in a shortage occupation and present proof of tertiary education in this occupation. One may thus assume that although the RWR Card ShortageW is more attractive than the RWR Card OtherKW as discussed previously, many TCN are not eligible for it and thus apply for a RWR Card OtherKW as this permit does not specify certain occupations. The same goes for the RWR Card HighlyQW where different foci apply than with the RWR Card OtherKW.

Permit	Year	AMS approval	Final BMI approval	Share of all RWR Cards (BMI)	Share of all work permits (BMI)
RWR Card HighlyQW	2018	212	78	4.88%	4.01%
	2019	259	159	8.72%	7.11%
RWR Card ShortageW	2018	668	368	23.03%	18.92%
	2019	979	647	35.47%	28.94%
RWR Card OtherKW	2018	2,372	1,152	72.09%	59.23%
	2019	1,552	1,018	55.81%	45.53%

Table 8: Austrian Red White Red Cards in 2018 and 2019

Nevertheless, the situation regarding RWR Cards receiving final approval changed between 2018 and 2019. While the general number of approved RWR Cards increased by 14.41% from 1,598 RWR Cards in 2018 to 1,824 RWR Cards in 2019, not every RWR Card did so as well. In fact, final approvals for RWR Cards OtherKW decreased by 13.13% while those for RWR Cards ShortageW increased by 75.81%, and those for RWR Cards HighlyQW increased by 103.85%. The overall increase in RWR Cards receiving final approval is thus mainly due to a rise in RWR Cards ShortageW. Had they accounted for 23.03% of all relevant RWR Cards in 2018, they represented 35.47% of all relevant RWR Cards in 2019 (BMI 2018, 28; BMI 2019a, 32).

The reasons for this change may be due to several factors. Firstly, it is possible that there were simply more TCN applying for RWR Cards ShortageW and RWR Cards HighlyQW in 2019 than in 2018. This may have been the case, e.g., if more TCN working in shortage occupations wanted to immigrate to Austria in 2019 than in 2018. A second possibility is that awareness about the different RWR Card options increased with HS TCN and/or Austrian firms. An Austrian firm that may have chosen the seemingly easy RWR Card OtherKW in 2018 may have learned from the immigration process and adapted to it in 2019, for instance.

In Germany, Aufenthaltserlaubnis does not contain any sub-categories, as discussed in chapter 3. Notwithstanding, it is of interest to analyse the evolution of approved Aufenthalts-erlaubnis between 2018 and 2019. Unlike the RWR Cards in Austria, final Aufenthalts-erlaubnis approvals decreased by 5.97% from 22,577 approvals in 2018 to 21,305 approvals in 2019 (BAMF 2020. 90). As analysed previously, final Blue Card approvals in turn increased. This explains why the total number of approved work permits still increased despite Aufenthaltserlaubnis approvals decreasing.

Lastly, ICT permits in both countries represent the smallest shares of all work permits. In Austria, 101 ICT permits were approved in 2018 and 2019 (BMI 2018, 35; BMI 2019a, 43), representing ca. 5% of all relevant work permits issued. In Germany, 1,080 ICT permits represented 3.03% of all relevant work permits in 2018 while 1,474 ICT permits accounted for 4.01% of the relevant work permits in 2019 (BAMF 2020, 97). As for mobile ICT permits, BAMF does not include them as a separate category. It is thus unclear how many of all the ICT permits, if any, were mobile ICT permits. In Austria, 0 mobile ICT permits received final approval in 2018 (BMI 2018, 35) and only 2 did so in 2019 (BMI 2019a, 43).

This could have two reasons which could well be intertwined. Firstly, it is possible that there were simply not that many intra-corporate transfers involving TCN in Austria and Germany in 2018 and 2019. Secondly, one could hypothesise that while the necessity for such transfers was there, the cost-benefit analysis by the TCN and/or the companies involved was negative. While all other permits such as the Blue Card are defined as permits that imply the option to be extended and may thus turn into long-term residence permits, the ICT permits are clearly defined as short-term permits only issued for a specific purpose. Especially considering that trainee employees receive ICT permits with a maximum validity of one year, a cost-benefit analysis may have resulted negative. Lastly, it is possible that Austrian and German firms lacked awareness that the ICT permits existed, given that they were just introduced in 2017.

Summarising the macro level comparison of all relevant work permits for HS TCN in Austria and Germany in 2018 and 2019, one may draw several conclusions. Firstly, both Austria and Germany attracted more HS TCN in 2019 than they did in 2018. In relative shares, Austria attracted ca. 15% more HS TCN while Germany did so by merely 1%. Secondly, despite the Blue Card having entered into effect several years ago in both Austria and Germany, national work permits still accounted for more than 50% of all work permits for HS TCN approved in 2018 and 2019.

Notwithstanding, an increase in the share of Blue Cards can be observed, especially in Germany where the Blue Card seems to have been more attractive than in Austria. This may be due to the Austrian RWR Card offering three sub-options with different foci while the alternative in Germany merely consisted of one type of Aufenthaltserlaubnis. Finally, the ICT permits represented the smallest shares of relevant work permits. Explaining the changes in approved work permits for HS TCN remains a matter of speculation.

4.3. Family reunification

Data regarding family reunification is derived from BMI in Austria and from BAMF in Germany, given that family residence permits do not imply AMS/BA involvement. While BMI (2018, 28ff.; 2019, 32ff.) details different sub-categories of family permits, it does not always categorise the latter by the work permit they were connected to. Data provided by BAMF (2020a, 103) is even more general as it does not distinguish between the exact family permits. It merely distinguishes between TCN family members who reunited with TCN, and TCN family members who reunited with German citizens. The only exception is that BAMF (2020a, 103) details data regarding family members of Blue Card holders.

In Austria, the RWR Plus Card is the family residence permit for family members of RWR Card and Blue Card holders, as discussed in chapter 3.5. In 2018, 3,670 spouses and minor children obtained final RWR Plus Card approvals (BMI 2018, 28). In 2019, this number increased by 4.39% to a total of 3,831 approvals (BMI 2019a, 32). It is not possible to relate those numbers directly to the approval numbers for Blue Cards and RWR Cards, though. This is the case because RWR Plus Cards may have also been approved for family members of certain TCN already residing in Austria. Considering, however, that many families immigrate together, the rising number of RWR Plus Card approvals matches the aforementioned increase in Blue Card and RWR Card approvals between 2018 and 2019.

Family members of ICT or mobile ICT permit holders in Austria are detailed as a separate category (BMI 2018, 35; BMI 2019a, 43). This makes an analysis between approval numbers of 2018 and 2019 easier. In 2018, 67 family members of ICT permit holders and 5 family members of mobile ICT holders received approval for their residence permits (BMI 2018, 35). In 2019, those numbers decreased minimally, with 66 family members of ICT permit holders and 4 family members of mobile ICT holders receiving permit approval (BMI 2019a, 43).

These figures match the approval numbers of both ICT permits in Austria. In 2018 and 2019, as observed before, 101 TCN received ICT permit approvals. In 2018, not a single mobile ICT permit was approved while 2 were approved in 2019 (BMI 2018, 35; BMI 2019a, 43). One may ask how it is possible that 0 mobile ICT permits implied 5 related family permits in 2018. As is the case with the discrepancy between AMS and BAMF approvals for Aufenthalts-erlaubnis, this situation is likely due to delays in approvals. The mobile ICT permits those 5 family permits related to were thus most probably not approved in 2018 but in 2017. This

situation once again illustrates the difficulty of interpreting data relating to immigration, given that immigration processes may be a matter of several months.

In Germany, approval numbers for family members increased as well. In 2018, 67,406 family residence permits received final approval. Among those, 8,556 were family members of Blue Card holders (BAMF 2019, 103). In 2019, of the 68,870 family permits, 12,080 concerned family members of Blue Cards (BAMF 2020a, 103). While the increase in total approvals thus merely increased by 2.17%, approvals for family members of Blue Card holders increased by a considerable 41.19%. This rise in approvals matches that of the Blue Card, which was 30.86% between 2018 and 2019 (BAMF 2020a, 95).

One cannot simply deduce that Blue Card holders are more likely to immigrate with family members, though. This is because general approval numbers include family member permits for all types of Aufenthaltserlaubnis and other permits like ICT permits. Additionally, some Blue Card holders may have immigrated with larger families than others. However, none of this detailed information is provided by BAMF or any other authority. Summarising, one can thus merely state that residence permit approvals for family members increased between 2018 and 2019 in both Austria and Germany.

4.4. The Austrian and German IT Service Industries

Based on the general insights gained in chapter 2.4., this chapter describes the Austrian and German IT service industries on numerical grounds. It builds on data provided by WKO and AMS in Austria, and Statistisches Bundesamt in Germany. Given that data by the latter is only available for the year 2018, this comparison will thus centre on said year. Crucial questions to be answered are the following: How are the IT service industries in Austria and Germany categorised and characterised? How many firms and employees did they comprise in 2018? What were their contributions to the respective national economies?

Both countries classify the IT service industries as a separate industry. In Austria, WKO (2018a) labelled the category *IT service* (IT-Dienstleistung) as a part of the larger industry called *Consultancies, Accounting and Information Technology* (Unternehmensberatung, Buchhaltung und Informationstechnologie; short: UBIT; WKO 2019c, 8). This in turn belonged to the larger industry *Information and Consulting* (WKO 2018b). In Germany, Statistisches Bundesamt classified the national IT service industry in a similar manner. The industry labelled *IT services* (Dienstleistungen der Informationstechnologie; Statistisches

Bundesamt 2008, 57) was part of the larger industry labelled *Information and Communication* (Statistisches Bundesamt 2008, 57).

Table 9 assembles all available data for the IT service industries in Austria and Germany in 2018 as well as for the larger industries they were embedded in. Said data is derived from WKO (2018a; 2018b; 2019c) and Statistisches Bundesamt (2020a; 2020b). As can be seen, the Austrian IT service industry comprised 5,116 firms in 2018 (WKO 2018a) while the German IT service industry consisted of 102,500 companies (Statistisches Bundesamt 2020a). A methodological issue is the reason for this big difference. In Austria, WKO only registers firms that employ personnel whereas Statistisches Bundesamt counts all legal units registered within the industry. WKO thus excludes one-person businesses while Statistisches Bundesamt includes them. This renders a comparison of employees per company one of little value.

Additionally, the definition of employees varies. Whereas Statistisches Bundesamt (2020a) includes all types of employees in their definition (ranging from non-paid individuals to paid full-time employees), WKO (2019c, 8ff.) makes a clear distinction between employees subject to social insurance contributions and all other employees. In order to render the numbers as comparable as possible, the number of employees for Austria also includes employees not subject to social insurance. The data presented in *Table 9* must however be critically evaluated.

		Revenue in mio.	**Firms**	**Employees**	**Personnel costs in mio.**	**Revenue p. cap.**	**Personnel costs p. cap.**
Austria	IT service industry	14,119	5,116	72,698	4,742	194,214	65,229
	UBIT	17,477	8,584	94,724	5,770	184,504	60,914
Germany	IT service industry	152,400	102,500	861,100	52,300	176,983	60,736
	Information and Commu-nication	301,800	141,800	1,398,900	79,900	215,741	57,116

Table 9: IT service industry characteristics 2018

Despite this methodological difference, several insights can be gained. Firstly, it is noticeable that the Austrian IT service industry accounted of more than two thirds of the revenue, firms, employee s and personnel costs of the UBIT industry (WKO 2018a; 2018b; 2019c, 8b). The German IT service industry accounted for more than half of the revenue, firms, employees and personnel costs of the larger Information and Communication industry it was embedded in (Statistisches Bundesamt 2020a; 2020b). In this sense, both national IT service industries were highly present in their respective industries.

Given the large gap between Austrian and German figures regarding all indicators listed above, it is worth comparing the revenue and personnel costs per capita. Here, it is noticeable that the revenue per capita was highest in the German Information and Communication industry, while it was lowest in the German IT service industry. This can only be explained with the high revenue per capita in other sub-industries of the Information and Communication industry, such as the telecommunication industry[16]. The revenue per capita was ca. 10% higher in the Austrian IT service industry than in the German IT service industry. This analysis, however, must be critically viewed, given the definitory discrepancy of employees as stated above.

The personnel costs per capita in 2018 were highest in the Austrian IT service industry (WKO 2018a; 2018b; 2019c, 8b). This may imply that average salaries and/or other costs (e.g., recruiting costs) were especially high in this industry. This assumption would make sense regarding the discussed severe shortage of HS workers in the IT service industries. In Austria, the personnel costs per capita of the IT service industry were 7.1% higher than those of UBIT (WKO 2018a; 2018b; 2019c). In Germany, the IT service industry accounted for personnel costs per capita that were 6.34% higher than those of the larger Information and Communication industry (Statistisches Bundesamt 2020a; 2020b). This may again underline the shortage of HS workers in the two IT service industries.

Before analysing that shortage in a more detailed manner, it is relevant to discuss data provided to the author of the present thesis by AMS (2019; 2020a) that concerns HS TCN in the Austrian IT service industry[17]. *Table 10* summarises the provided data for 2018 and 2019.

	Valid permits Dec 2018	**AMS approvals 2018**	**Valid permits Dec 2019**	**AMS approvals 2019**
RWR Card HighlyQW	25 of 210	71 of 212	45 of 321	39 of 259
RWR Card ShortageW	107 of 588	312 of 668	213 of 1,182	180 of 979
RWR Card OtherKW	193 of 2,233	501 of 2,372	293 of 2,559	204 of 1,552
Blue Card	37 of 417	92 of 337	50 of 543	45 of 384
SUM	**362 of 3,448**	**976 of 3,589**	**601 of 4,605**	**468 of 3,174**

Table 10: Work permits in the Austrian IT service industry 2018 and 2019

[16] While the German telecommunications industry is part of the larger Information and Communication industry, the Austrian telecommunications industry is not part of the larger industry UBIT.
[17] German BA does not provide this type of data, as the author of the present thesis was informed by BA.

Table 10 shows the valid permits in category 62, which relates to the IT service industry ("Erbringung von Dienstleistungen der Informationstechnologie"; AMS 2019; AMS 2020a) for December 2018 and 2019. It relates them to all valid permits in the respective category. In December of 2018, e.g., out of the 210 valid RWR Cards HighlyQW in all industries, 25 were held by individuals working in the IT service industry (AMS 2019). The table does not include data concerning ICT permits because those are not categorised for the IT service industry, as explained to the author of the present thesis by AMS.

Table 10 also details how many applications for the four permit options were approved in 2018 and 2019, including total AMS approval numbers for all industries. As discussed above, the discrepancy between the high approval numbers and the much lower numbers of valid permits is due to the necessity of approval by various Austrian authorities. While the number of valid permits in all Austrian industries increased by 33.56% between 2018 and 2019, the number of AMS approvals in all industries decreased by 13.07% (AMS 2019; 2020a). This has already been observed in chapter 4.2. For the Austrian IT service industry, the numbers follow this tendency in a pronounced way. Between 2018 and 2019, the number of valid work permits for HS TCN increased by 66.02% while AMS approvals decreased by 51.6% (AMS 2019; 2020a).

As discussed, this is because AMS approvals in one year do not necessarily translate into valid permits in that same year. AMS approvals of 2018 could well have translated into valid permits in 2019, or to no final approval and thus no valid permit at all. This explains the high numbers of valid permits in 2019. Notwithstanding, it does not explain the drop in AMS approvals between 2018 and 2019. It could be the case that there were simply less applications for the relevant work permits in 2019 than in 2018. One reason for this could be that Austrian IT service companies did not need to employ as many HS TCN in 2019 as they did in 2018, or that mentioned learning processes discouraged them from hiring HS TCN again. Another possibility could be that AMS rejected a larger share of applications in 2019 than in 2018.

Apart from these considerations, it is striking that the Austrian IT service industry as one out of a multitude of Austrian industries accounted for a substantial share of valid permits and AMS approvals for HS TCN. On average, 11.90% (13.17%) of all valid Blue Cards and relevant RWR Cards in 2018 (2019) pertained to HS TCN in the IT service industry. These shares are even more considerable when it comes to AMS approvals. In 2018 (2019), HS TCN in the IT service industry accounted for 32.15% (14.58%) of all AMS approvals relating to Blue Cards and the relevant RWR Cards (AMS 2019; 2020a).

Certain work permits seem to have been especially attractive for HS TCN in the Austrian IT service industry in 2018 and 2019. They approximately match the distribution of work permits as discussed in chapter 4.2.4. In terms of ranking, the RWR Card OtherKW ranked first, followed by the RWR Card ShortageW, then the Blue Card, and the RWR Card HighlyQW. This goes for both valid permits and AMS approvals in both the IT service industry and the other industries on average (AMS 2019; 2020a).

It is somewhat surprising that the distribution of work permits in the Austrian IT service industry matches that of all other industries. One could have expected a larger share of RWR Cards ShortageW in the IT service industry given that many IT professions were listed as shortage occupations (*Annex 3*). One may therefore ask: Why was the RWR Card OtherKW still the most attractive one in the Austrian IT service industry in both 2018 and 2019?

One reason could be the discussed lack of legal understanding by HS TCN and/or the related Austrian IT service companies. They could have been unaware of the advantages the RWR Card ShortageW presented, or sceptical about AMS approval going through. Another reason could be that certain HS TCN were not in possession of tertiary education in those IT occupations. If a Serbian software engineer, e.g., had studied chemistry and then obtained her software engineering skills afterwards without studying at university, she would not have received AMS approval if applying for the RWR Card ShortageW. The Blue Card ranking third and the RWR Card HighlyQW ranking last were likely issues of eligibility as well.

4.5. The Shortage of Highly Skilled Workers in the IT Service Industries

The shortage of HS workers has been a reality in Austria and Germany for many years. In both countries, the IT service industries as well as other industries relying mainly on STEM occupations have seen themselves especially affected by that shortage. This chapter analyses the shortage of HS workers for the years 2018 and 2019, based on data provided by Austrian AMS (2020c) and German BA (2020b)[18]. This analysis is based on two key factors: vacancies (i.e., open positions) and vacancy duration[19]. *Table 11* illustrates these numbers.

[18] Both documents (AMS 2020c; BA 2020b) were provided to the author of the present thesis upon request as neither of them are publicly available.

[19] In order to avoid definitory discrepancies, vacancy duration here refers to the average duration a position has been vacant. It does not refer to finished vacancy durations as these may be defined differently by Austria and Germany. In both countries, vacancy duration starts when the position is listed as vacant in the national database, as the author of the present thesis was informed by AMS and BA.

As the table shows, the ca. one (Austria) to ten (Germany) relation that has been analysed for the total population is mirrored in vacancies as well. This not only applies to the total number of vacancies but also to the number of vacancies in the IT service industries and in the larger industries they were embedded in[20] (AMS 2020c; BA 2020b).

	Year	Vacancies Austria	Vacancy duration Austria (in days)	Vacancies Germany	Vacancy duration Germany (in days)
Total labour market	2018	71,544	61	771,744	138
	2019	77,093	71	751,225	152
Information and Communication	2018	1,317	64	15,675	152
	2019	1,525	78	15,613	160
IT service industry	2018	934	68	11,604	155
	2019	1,010	84	11,599	163

Table 11: Vacancies and vacancy duration 2018 and 2019

Considering the average number of vacancies, it is noticeable that while the Austrian labour market saw an increase in vacancies from 2018 to 2019, the contrary was the case for the German labour market. This is valid for all three levels of analysis: the IT service industries, the larger industries, and total labour market figures (AMS 2020c; BA 2020b). The reasons for this difference remain a matter of speculation. One reason could consist of the German labour market not needing as many employees in 2019 as in 2018, based on macroeconomic factors. Another reason could be that less vacancies were reported to BA in 2019 than in 2018.

As for the share of vacancies, clear similarities can be observed. In both countries and years, the vacancies of the IT service industries accounted for a share between 1% and 2% of all registered vacancies. Additionally, they represented more than 60% of the vacancies in the respective Information and Communication industries. In Germany, they even accounted for more than 70% of those industry vacancies. This underlines previous insights, namely that the IT service industries represented key industries in their respective larger industries.

Unlike those similarities, vacancy duration differed immensely between Austria and Germany. In both 2018 and 2019, vacancies on all three levels were open about twice as long in Germany than in Austria. Vacancies in the Austrian IT service industry were on average open for 76 days (AMS 2020c) while the ones in the German IT service industry were open for an

[20] AMS categorises industries in a different manner than WKO. While there are overlaps between the WKO category *Information and Consulting* and the AMS category *Information and Communication*, they should be regarded as separate types of categories. Unlike in Germany, there is not one sole authority collecting all relevant information. Therefore, even though two different typologies apply, they both need to be taken into consideration in the present thesis.

average of 159 days (BA 2020b). This striking difference does not match any of the analysed data so far and can only be explained by labour market differences. In any case, it clearly shows that an open position in Germany remained vacant for a much longer time than in Austria. This applies not only to the IT industries but to other industries as well.

Despite this difference, one common trend regarding vacancy duration may be observed. In both countries and years, vacancy duration for the IT service industries was the highest compared to their respective larger industries as well as with all vacancies in the concerning labour markets. In fact, vacancy duration for the IT service industries ranged among the highest in comparison with all other industries in Austria and Germany and in both years (AMS 2020c; BA 2020b). This underlines the reality that has been the shortage of HS workers in the Austrian and German IT service industries once again.

4.6. Conclusion of the Macro Level Analysis

As has been analysed in the preceding sub-chapters, the macro level analysis between Austria and Germany has shown many similarities but also several differences. Firstly, it is crucial to keep in mind that the German total population was about ten times as large as the Austrian one in both 2018 and 2019. Any fruitful comparison must thus be based on relative instead of absolute figures. Secondly, one must consider that the Austrian and German authorities providing relevant data categorise said data in different ways. The comparisons between provided numbers therefore always imply certain limitations.

Despite these limitations, several conclusions can be drawn. In a first step, it has been analysed that the immigration of HS TCN to Austria and Germany only accounted for a relatively small share of all immigration purposes in 2018 and 2019. This matches the findings regarding the non-citizen and TCN population in Austria and Germany. The latter accounted for less than one fifth of the overall populations respectively. In both countries, ca. 50% of the non-citizen population were comprised of TCN. The relative distribution of citizenships among those TCN was quite similar in many regards, with exceptions still applying.

Both similarities and differences in citizenship also applied when it comes to HS TCN immigrating to Austria and Germany in 2018 and 2019. Indian citizens represented the largest group of HS TCN for certain work permits, and ranked among the top five of nationalities for every relevant work permit in both countries and years. Differences regarded national work permits. In any case, Austria and Germany attracted HS TCN from about the same countries.

Matching the findings of chapter 3, it has been shown that the involvement of several authorities in the work permit approval process implied varying approval numbers. In both countries, the authority responsible for approving work permit applications from a labour market standpoint (AMS in Austria; BA in Germany) in most cases published much higher approval numbers than the authority registering final approval (BMI in Austria; BAMF in Germany). This points to the complexity of fulfilling all necessary requirements in order to immigrate as well as to the reality of uncertain and prolonged process duration.

As for the attractivity of certain relevant work permits for HS TCN, conclusions may only be drawn in a speculative manner. In any case, national work permits seem to have been the most attractive and/or attainable permits for many HS TCN immigrating to Austria and Germany in 2018 and 2019. Eligibility criteria such as high salary thresholds may well be reasons for this. The Blue Card seems to have been more attractive and/or attainable in Germany than in Austria, which could be influenced by the sub-category of shortage occupations implying a lower salary threshold.

The comparative analysis of data regarding HS TCN's family members is difficult due to said data being quite general. Nevertheless, it can be confirmed that just as seen with work permits, residence permit approvals for family members increased from 2018 to 2019. Both Austria and Germany thus attracted more HS TCN with their families in 2019 than they did in 2018.

The IT service industries in Austria and Germany presented a few similarities (e.g., similar importance for their respective larger industries) but differed concerning personnel costs and revenue per capita. Higher personnel costs per capita in the Austrian IT service industry could point to a more severe shortage of HS workers in Austria, given that past analyses have shown an increase in recruitment and retention costs for companies affected by that shortage.

Considering that that the average vacancy duration was about twice as long for German than for Austrian firms in 2018 and 2019, it could also be argued that Austrian firms tackled the shortage of HS workers by investing more in the recruitment and retention of employees than German firms. In this sense, Austrian IT service companies had higher personnel costs per capita but also experienced shorter vacancy periods. In any case, it has been shown that vacancy duration in the two national IT service industries ranges among the highest ones compared to all other industries.

The combination of the provided data allows for an approximation of the loss of revenue. As detailed, the average annual revenue per capita was 194,214 EUR in the Austrian IT service industry in 2018, meaning that the average monthly revenue per capita was ca. 16,185 EUR. Additionally, an average of 934 open positions were vacant for an average of 68 days (AMS 2020c), i.e., for slightly more than two months. Combining these numbers, the average loss of revenue for the whole Austrian IT service industry equalled ca. 30,233,580 EUR. Per IT service company, this equalled an average loss of revenue of ca. 5,910 EUR.

As detailed, the annual revenue per capita was 176,983 EUR in the German IT service industry, which translates into an average monthly revenue per capita of ca. 14,749 EUR. In addition, an average of 11,604 open positions were vacant for an average of 155 days (BA 2020b), i.e., for slightly more than five months. Combining these numbers, the average loss of revenue for the whole German IT service industry equalled ca. 855,736,980 EUR. Per IT service company, this equalled an average loss of revenue of ca. 8,349 EUR – a loss considerably higher than for Austrian IT service companies on average.

5. Additional Factors

The previous chapters have analysed main factors that influenced the immigration of HS TCN to Austria and Germany in 2018 and 2019. Notwithstanding, there are additional factors to be considered when it comes to HS TCN making migration decisions. This chapter sheds light on said factors. *Figure 6* illustrates both the discussed influencing factors (legal provisions, TCN motivation(s), firm motivation(s), and the shortage of HS workers) as well as the additional ones to be evaluated in this chapter: visa freedom, costs, and information availability.

Figure 6: Factors influencing the immigration of highly skilled third-country nationals to Austria and Germany

5.1. Visa Freedom

Until now, the present analysis has not distinguished between the citizenships of HS TCN and their family members immigrating to Austria and Germany. Nevertheless, a TCN's citizenship influences the respective immigration process considerably. Due to visa freedom regulations, some TCN may enter Austria or Germany without any visa while others need a special visa. Austrian BMI (2019b) provided the author of the present thesis with the visa list that was valid on 31.12.2019. For data concerning Germany, the visa list valid in late 2019 was published by Germany's Foreign Office (Auswärtiges Amt 2019). While it is of little relevance to compare visa regulations for all citizenships, *Table 12* compares them for the most present citizenships as discussed in chapter 4.2.2.

Citizenship	Visa Freedom for Austria	Visa Freedom for Germany
Bosnia H.	Yes	Yes
Brazil	Yes	Yes
China	No	No
India	No	No
Iran	No	No
Kosovo	No	No
Russian F.	No	No
Serbia	Yes	Yes
Turkey	No	No
Ukraine	Yes	Yes
USA	Yes	Yes

Table 12: Visa freedom for selected third-country nationals

Austria and Germany had the exact same regulations in place concerning visa freedom for TCN from the selected countries in 2019. This is due to common Schengen area regulations (European Parliament and Council 2016). Among the eleven citizenships, TCN from five countries could enter Austria and Germany without a special visa while citizens of the other six countries could not. The latter group needed a specific visa to enter both countries in order to finalise their immigration processes. In Germany, this visa carries the name *National Visa* (§ 6 pt. 3 AufenthG). In Austria, it is called *Visa D* (§ 21 pt. 1 Fremdenpolizeigesetz).

TCN privileged by visa freedom do not have to acquire any special visa in order to finalise their immigration processes. They can enter Austria and Germany as visitors. This shows that apart from the discussed historically grown legal contrast between EU/EEA citizens and TCN, the TCN themselves are again sub-categorised. On the one side, there are TCN privileged by visa freedom. On the other side, there are TCN who have to provide an additional effort in their immigration processes to Austria and Germany by obtaining a Visa D/National Visa.

Those special visa fall under the responsibility of Austrian/German foreign representations in the TCN's country of residence (§ 11 Fremdenpolizeigesetz; § 71 pt. 2 AufenthG). They must be applied for by the TCN and approved by the responsible foreign representation. However fast this process may be, it always implies additional waiting times and costs for the TCN. An Austrian IT service company must in this sense wait longer for an Indian database administrator than for a Brazilian one.

5.2. Costs

In any immigration process of TCN to Austria and Germany, certain costs must be considered. In this sense, this sub-chapter compares application and visa costs, costs for apostilles and diplomatic legislations, and other expenses. In some cases, that comparison is rather easy due to clear information being publicly available. In other cases, for instance concerning additional costs, those expenses vary a lot from case to case. Therefore, the last part of this sub-chapter exemplifies two cost scenarios in order to visualise the difference between HS TCN.

5.2.1 Application and Visa Costs

Both Austria and Germany charge processing fees for work and residence permit applications. *Table 13* summarises these processing fees as detailed by Austrian (§ 8 Gebührengesetz) and German legislation (§ 69 pt. 5 AufenthG). A few exceptions apply. § 69 pt. 5 nr. 1c AufenthG states that the processing fee for a mobile ICT permit in Germany is 100 EUR. Additionally, both laws attribute varying costs to certain minor family members. Austrian legislation states that the Visa D fee for minors under the age of 6 is 75 EUR (§ 8 pt. 1a Gebührengesetz). German legislation states that only half of all detailed fees need to be paid for all minor children (§ 69 pt. 5 nr. 7 AufenthG).

	Austria	**Germany**
Work permits	140 EUR	140 EUR
Residence permits	140 EUR	140 EUR
Visa D / National Visa	150 EUR	100 EUR

Table 13: Application and visa costs for third-country nationals

The discussed distinction between TCN subject to visa freedom and those having to obtain a Visa D/National Visa is underlined when it comes to implied costs. Not only is the immigration process of an Iranian citizen longer than that of a Serbian citizen; it is also more costly. An immigration process to Austria is slightly more expensive for those TCN not privileged by visa freedom than to Germany, because Visa D costs are higher than National Visa costs. In all other cases, Austrian and German authorities charge the same fees.

5.2.2 Translations, Apostilles and Diplomatic Recognitions

In any immigration process by a TCN to Austria or Germany, personal documents must be presented to the responsible authorities. In order for a spouse to immigrate with a HS TCN, e.g., the marriage certificate must be submitted. The same goes for birth certificates, etc.

All those personal documents need to carry a certified translation if they are not redacted in German (e.g., Deutsche Vertretungen in Russland n.d.; migration.gv.at 2020b).

Depending on the country said personal documents were issued in, they may also need to carry a verification of some kind. There are three scenarios: the first is that no verification is necessary; the second is that an apostille is needed; the third is that a diplomatic legalisation is necessary. While an apostille is processed by the country and authority that issued the concerning document itself, a diplomatic legalisation requires several pre-verification processes that culminate in the respective Austrian/German foreign representation issuing a final diplomatic legalisation. In this sense, it is least expensive not having to provide any type of verification while it is most expensive having to provide diplomatic legalisations.

Table 14 summarises which kind of verification is needed for documents from countries listed in chapter 4.2.2, based on Austrian (wien.gv.at n.d.) and German (Auswärtiges Amt 2020) official data[21]. It is important to make a clear distinction between citizenship and issuing country. Just because someone is a Serbian citizen, e.g., does not necessarily imply that this person was born in Serbia. If this person was born in Kosovo, e.g., the birth certificate must carry a diplomatic legalisation from the Austrian/German foreign representation in Kosovo.

Issuing country	Verification type required for Austria	Verification type required for Germany
Bosnia H.	No verification	Apostille
Brazil	Apostille	Apostille
China	Diplomatic legalisation	Diplomatic legalisation
India	Apostille	Diplomatic legalisation
Iran	Diplomatic legalisation	Diplomatic legalisation
Kosovo	Diplomatic legalisation	Diplomatic legalisation
Russian F.	Apostille	Apostille
Serbia	No verification	Apostille
Turkey	No verification	Apostille
Ukraine	Apostille	Apostille
USA	Apostille	Apostille

Table 14: Verification type for personal documents issued by selected third countries

[21] Despite the author of the present thesis having requested relevant verification data for 2018 and/or 2019 with different Austrian and German authorities, not a single authority was able to provide said data. Therefore, current data is used for the comparison. Given that verification types depend on bilateral treaties, it may be assumed that there are many similarities between the lists of 2018, 2019 and 2020, though.

As can be seen in *Table 14*, an immigration process to Austria implies less bureaucratic and monetary effort than one to Germany when it comes to required verification types. Firstly, Austria does not require any type of verification for three (Bosnia and Herzegovina, Serbia, Turkey) of the listed countries (wien.gv.at n.d.). This means that any personal document issued by one of these countries only needs to carry a certified translation, if applies, but nothing else.

Germany does not offer this option for any of the selected countries. For all documents issued by countries that Austria exempts from any type of verification, Germany requires an apostille (Auswärtiges Amt 2020). Additionally, Germany requires diplomatic legalisations for documents issued by India (Auswärtiges Amt 2020). Austria, in contrast, merely states the necessity of an apostille for those documents (wien.gv.at n.d.). This is especially relevant considering that Indian citizens represented a large group of HS TCN immigrating to both Austria and especially Germany in 2018 and 2019.

While the costs for apostilles and national legislations vary from issuing country to country, it is possible to compare the processing costs for diplomatic legalisations by Austrian and German foreign representations. Austrian representations charge 80 EUR per document (e.g., Österreichische Botschaft Teheran n.d.). In contrast, German representations charge 25 EUR for every document that is part of the civil registry (e.g., birth certificates), and 45 EUR for all other documents (e.g., criminal histories) that are necessary for immigration processes (e.g., Deutsche Botschaft Teheran 2020). It is in this sense more costly to obtain diplomatic legalisations for an immigration process to Austria than for one to Germany.

5.2.3 Other Costs

Apart from processing costs by authorities, there are additional costs involved in a TCN's immigration process to Austria or Germany. These costs depend on the individual's situation and can therefore only be listed but not assigned monetary equivalents. There are three stages to be considered: pre-immigration, immigration, and post-immigration. Immigration here means the physical relocation from the TCN's country of residence to Austria or Germany.

In the pre-immigration phase, incurring expenses are the discussed application and document verification fees. If an application is submitted at a foreign representation, it may be necessary for a TCN to travel to a different city. This implies travel expenditures that vary according to distance and other factors. It may be necessary for a TCN to travel to the responsible foreign representation more than once, e.g., if certain documents are missing, or in order to apply for

and receive a Visa D/National Visa. Additional costs may incur if family members are legally required to present a German certificate, as discussed in chapter 3.5.

The immigration phase itself implies travelling costs to Austria or Germany. These may again vary depending on the TCN's country of residence. A TCN residing in India will likely pay a higher price for a plane ticket than a TCN residing in Serbia. In the post-immigration phase, the TCN must adapt to the new surroundings. Housing prices may be higher than in the previous country of residence. A deposit and/or brokerage fee may have to be paid. New furniture may have to be bought. Family reunification may also lead to higher costs for child-care or educational institutions. Whether the TCN or the involved Austrian/German company is responsible for covering these costs – they may add up quickly.

5.2.4 Cost Differences Exemplified

In order to visualise how the costs for a HS TCN immigrating to Austria or Germany may vary, this sub-chapter calculates the costs for two fictional HS TCN in an exemplified manner. *Table 15* summarises those exemplified expenses.

	Person A	**Person B**
Translation of university diploma	100 EUR	100 EUR
Translation of certificates of employment	150 EUR	150 EUR
English certificate	150 EUR	150 EUR
Work permit application	140 EUR	140 EUR
Criminal history/histories	600 EUR	70 EUR
Birth certificate(s)	720 EUR	50 EUR
Marriage certificate	180 EUR	/
Family members' German certificates	400 EUR	/
Family members' applications	620 EUR	/
Visa D	800 EUR	/
Travel to Austria	2,400 EUR	200 EUR
TOTAL	**6,260 EUR**	**860 EUR**

Table 15: Immigration cost differences exemplified

Person A is an Iranian citizen, residing in the Iranian city of Isfahan, who aimed at immigrating to Vienna, Austria, with her husband and her two children (13 and 15 years old) in 2019. Person B is a single Serbian citizen residing in Belgrade who also wanted to immigrate to Austria in 2019. He did not plan on immigrating with any family members. Both person A and person B aimed at working for an Austrian IT service company situated in Vienna as software

developers. Both individuals signed the binding work offer in January of 2019. Given that their salary was below the Blue Card threshold, they both applied for RWR Cards ShortageW.

In the pre-immigration phase, both individuals obtained necessary documents, both of professional and personal nature. The documents proving their RWR Card ShortageW eligibility implied the same costs. They both had to have their university diplomas translated, which accounted for translation costs of ca. 100 EUR. The same goes for the translation of certificates of employment, incurring costs of ca. 150 EUR. Additionally, they both needed to present a certified English certificate which accounted for an additional 150 EUR.

While those costs as well as the work permit application costs (140 EUR) were the same in both cases, expenditures for personal documents varied considerably. Person B did not have to obtain any type of verification for his birth certificate and criminal history. The only incurring costs thus consisted of obtaining the criminal history (ca. 20 EUR) and having both documents translated (50 EUR per document).

The costs for person A were much higher. This is firstly due to four family members having to present personal documents. As one child was over the age of 14 at the time of application, both this child and person A's husband needed to present a criminal history and German certificate. All personal documents (four birth certificates, three criminal histories, one marriage certificate) had to be translated (50 EUR per document) and carry diplomatic legalisations (80 EUR per document, plus 20 EUR for obtaining each criminal history, plus 50 EU for obtaining Iranian pre-legalisation).

The German certificates accounted for 200 EUR each. Additionally, the family needed to travel from Isfahan to Teheran several times. The first time was to submit all personal documents for diplomatic legalisations, and the second to submit their RWR Plus Card applications (140 EUR per person). The car drive of ten hours per round trip costed the family 100 EUR. While all pre-immigration costs for person B accounted for 660 EUR, person A and her family paid 3,060 EUR in total.

This large discrepancy continued in the immigration phase. While person B paid 200 EUR for the flight from Belgrade to Vienna and did not need any Visa D to enter Austria, person A paid 600 EUR per person per flight ticket. Additionally, all family members needed a Visa D. This firstly implied two more journeys (100 EUR per journey) to Teheran: one to submit the Visa D applications, and one to pick the Visa D up. It also implied processing fees by the

Austrian Embassy in Teheran of 150 EUR per person. Summing up all costs, person A paid 6,260 EUR for the pre-immigration and the immigration phase while person B paid 860 EUR.

As discussed, these merely represent the monetary expenses that are somewhat possible to estimate. Additional costs depend on each individual case. Furthermore, one must consider the company's cost of creating the binding work offer and/or work contract, adapting the latter to changing dates, waiting for the HS TCN to arrive, assisting the TCN in the post-immigration phase, etc. It may also be the case that an Austrian company hires specialised support to assist with the HS TNC's immigration process. This would account for further costs.

5.3. Information Availability

Information availability is crucial when it comes to employing HS TCN in Austria and Germany. Supposing a TCN receives an employment offer from a German IT service company. In this case, it is likely that the TCN looks for information not only on the company, the city the company is situated in, and facts about life in Germany. The individual will also search for information regarding the immigration process. The company also needs information in order to even create their offer, to know how long an immigration process may take, etc.

While chapter 3 has discussed the legal frameworks that regulate such topics of interest, it is unlikely for every Austrian/German company looking to hire HS TCN to be informed about those frameworks in a detailed manner. For the HS TCN themselves, it is highly unlikely to understand the legal context given that the applicable laws only exist in German. It is in this sense that concise and multilingual information provided by public institutions is an important influencing factor on the immigration process of HS TCN to Austria or Germany. Nevertheless, it is not possible to measure information availability on a numerical scale. Instead, one may compare information provided online, given that the internet will likely be the relevant source of information for both HS TCN and Austrian and German companies.

Official information in German can be assumed to be understood by Austrian and German companies that aim at employing HS TCN. Supposing the responsible person in such a company is confronted with hiring a HS TCN for the first time, employment matters are likely of the highest relevance. In Austria, this person may rely on information by WKO (given that it represents Austrian companies) and by AMS (because it is known to be the authority in charge of Austrian employment matters).

WKO offers detailed information concerning the employment of foreign nationals. It dedicates a separate online thread to this topic (WKO 2016). Additionally, it provides employers with a thread concerning migration (WKO n.d.d.) that in turn offers further information on sub-topics like the RWR Cards (WKO n.d.e.). Said information mainly consists of summaries of the different work permits. It is accompanied by links to the main government site migration.gv.at. Lastly, WKO offers an online brochure (WKO 2017) which is not up to date, though.

AMS, on the other hand, only offers one online thread dedicated to the employment of foreign nationals (AMS 2020d). It does not provide any detailed information but merely lists which work permit options exist and recommends looking for further information concerning the employment of HS TCN. AMS itself does not provide any of this further information nor does it offer any connecting links to government or other sites.

In this sense, information availability for employers in Austria is not ideal. While WKO provides information on various relevant topics, it mainly summarises different work permit options. It does not go into detail concerning the actual immigration process (e.g., estimated process duration, related expenses, etc.) nor is all its information up to date. AMS does not offer any detailed information at all.

A website that does go into details (scoring tables, applying costs, necessary documents, etc.) is the government site migration.gv.at (n.d.a). Despite doing so, it is mainly directed at HS TCN and not at Austrian companies. Lastly, it is noticeable that both WKO and migration.gv.at heavily rely on links to other internal and external websites. While this allows for a quick overview, it renders a thorough search of work permit options a dispersed one.

When it comes to information availability for employers, the reality in Germany is different than the one in Austria. Firstly, there is no national equivalent to Austrian WKO. The only broad-ranging sources of information are the government website make-it-in-germany.com (similar to the Austrian migration.gv.at), and BA (equivalent to AMS). Both German sources offer highly detailed and accessible information.

This is especially striking when comparing the discussed AMS website (AMS 2020d) to the 27 pages BA brochure (BA 2020c). While the former only lists relevant work permits, the latter is explicitly directed at employers and their possible questions concerning the employment and immigration of TCN. The BA brochure (BA 2020c) is thus comparable to the mentioned WKO brochure (WKO 2017), but, unlike the latter, the BA brochure is up to date.

Comparing the two government websites, a key difference consists of the German site (Bundesregierung n.d.a) offering a clear distinction between its two target groups, namely employees and HS TCN. Employers can choose the section "Looking for foreign professionals" (Bundesregierung n.d.a) where they are offered diverse information, ranging from recruiting options to legal explanations to advice concerning company culture. The Austrian site (migration.gv.at n.d.a), in turn, is directed more at HS TCN. In this sense, it can be concluded that Germany offers a more structured, accessible and broader range of relevant information to German companies looking to employ HS TCN than Austria does.

When it comes to information availability for HS TCN, one must consider language as a key factor. However insightful an official website may be in German, it will not be of any use to the large majority of HS TCN looking to immigrate to Austria or Germany. This is because it cannot be assumed that HS TCN possess any level of German proficiency. In Austria, neither WKO nor AMS offer any relevant information in English or in any other language. The same goes for German BA. This makes sense given that their efforts are directed at employers.

In both Austria and Germany, the government websites are the ones providing information for HS TCN. The Austrian site (migration.gv.at n.d.a) only offers its information in German or English whereas the German site (Bundesregierung n.d.a) allows its users to choose between German, English, French and Spanish. Also, it offers short summaries in 14 other languages, among them the languages of the majority of relevant countries as discussed in chapter 4.2.2.

Both government websites invite their users to follow a short questionnaire in order to determine which type of work permit(s) could theoretically apply (Bundesregierung n.d.a; migration.gv.at n.d.a). Additionally, they both provide information on what the different work permits entail (Bundesregierung n.d.b; migration.gv.at n.d.b) and what living in the respective country implies (Bundesregierung n.d.c; migration.gv.at n.d.c). They also provide answers to frequently asked questions (Bundesregierung n.d.d; migration.gv.at n.d.d).

A difference lies in the German site providing much more detailed information without using as many links to other websites as the Austrian site does. In addition, the German site shows actual job listings (Bundesregierung 2020b). Concluding, Germany offers clearer, more structured and more accessible information for both employers and HS TCN than Austria.

5.4. Conclusion of the Analysis of Additional Factors

As has been evaluated, several additional factors influence the employment and immigration of HS TCN and their family members to Austria and Germany. Both national legislations make distinctions between different TCN based on their citizenship. These distinctions have far-reaching consequences, e.g., concerning waiting periods and expenses.

The necessity of a special visa (Visa D/National Visa) to enter Austria or Germany matches the requirements of presenting certain types of document verification, which imply higher costs and longer process durations. However, there are differences found between Austrian and German provisions, especially concerning document verification necessity. The processing costs are slightly higher in Austria than in Germany. Other costs highly depend on the HS TCN's citizenship, country of residence, family, etc.

Information availability/accessibility is a key influencing factor as well. As has been shown, German public institutions/authorities offer more structured, detailed and accessible information than Austrian ones. This goes both for HS TCN and for companies that aim at hiring HS TCN. In this sense, the German range of information could serve as a best practice example for Austrian institutions – especially when it comes to BA in comparison with AMS.

6. Company Survey

So far, the present thesis has analysed the employment of HS TCN in Austrian and German IT service companies from a theoretical and legal perspective, complemented by the analyses of macro level data and of additional influencing factors. This chapter adds a last perspective to the matter under discussion by evaluating the results of a survey that was sent to Austrian and German IT service companies by the author of the present thesis in September 2020.

This chapter is structured as follows: in a first step, the underlying methodology is explained. In a second step, the company context is evaluated, followed by the analysis of the responses concerning the shortage of HS workers. In a last step, answers regarding the employment of HS TCN are analysed and compared, complemented by a conclusion of all survey findings. This allows for a reality check of the insights gained thus far.

6.1. Methodology

Using the online survey programme *soscisurvey*, a survey was sent to 250 Austrian and 250 German IT service companies on 22.09.2020 via email. After two email reminders, the survey ended on 28.10.2020 with 40 Austrian and 34 German firms having participated. Of them, the answers of 20 Austrian and 17 German firms can be used for data analysis, given that all other companies only filled in the very first question of the survey. The companies and their respective contact data had previously been extracted from official industry websites.

In Austria, WKO (2020) lists IT firms according to the previously discussed industries, one of them being the IT service industry. Here, only those firms were included that show to have employees and are not one-person businesses. In Germany, there is no national equivalent to WKO. Instead, the member list of the German federal association of medium-sized IT companies (Bundesverband IT-Mittelstand 2020) served as the basis for IT service companies to be contacted. In order not to exclusively concentrate on middle-sized companies, an additional 25 large German companies were contacted. Their contact data was derived from the listing of the largest IT service companies as published by the consulting firm Lünendonk (2020).

The survey tackled two main topics: the shortage of HS workers and the employment of HS TCN in Austrian and German IT services companies. In order to better understand those companies' characteristics, the first part of the survey consisted of context-related questions. It was preceded by a short introduction guaranteeing the anonymous handling of all provided data as well as the information of the survey being available in both English and German.

The survey was designed following Bell, Bryman and Harley's (2019) considerations for self-completion questionnaires. The scholars explain that information as well as indications must be clearly presented for the participant in order to avoid confusion. The scholars also see many advantages in using online surveys, ranging from accurate data to attractive formats to lower costs as compared to other research methods (Bell, Bryman and Harley 2019, 237ff.).

The company survey included open and closed questions. Both categories of questions have certain advantages and disadvantages – e.g., closed questions allow for easy completion on the one hand, while impeding any spontaneity by the participant in completing it on the other hand. Among the mentioned questions, several question types were represented: questions regarding facts, knowledge, and attitudes. Depending on those question types, answer formats ranged from binary formats to numerical responses, verbal formats, and frequency formats (Bell, Bryman and Harley 2019, 253ff.). Additionally, several questions related to each other.

6.2. Company Context

After a short introduction of the survey and the choice between filling in the survey in German or English, the first block of questions related to company context. In order to know more about the participants, they were asked to state their level in the hierarchy. *Figure 7* illustrates the participants' answers.

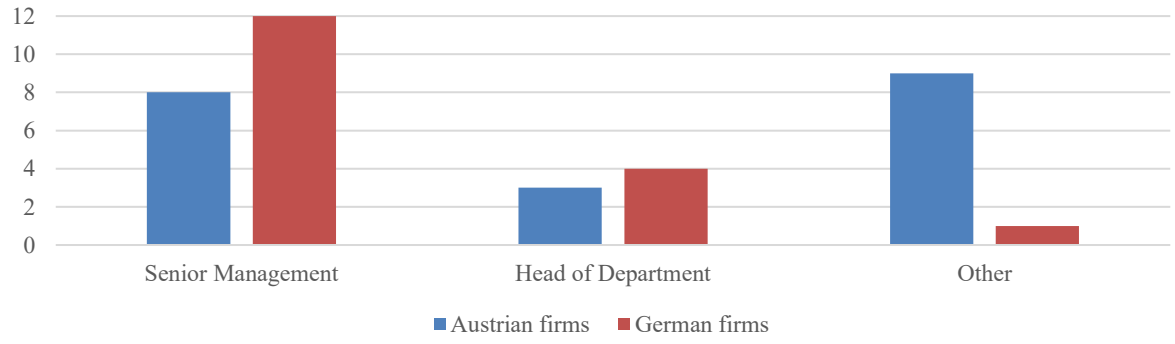

Figure 7: Participants' level in the firm hierarchy

The participants could choose between four categories: *Senior Management*, *Head of Department*, *Team Lead*, and *Other*. Out of 20 Austrian participants, 9 hold positions in the last category, mainly in Human Resources departments. The 1 German participant choosing the category *Other* labelled her/his position as administrative. Not a single participant chose the category *Team Lead*. Ca. 50% of all participants are situated in senior management positions, complemented by ca. 19% of participants holding head of department positions.

Consequently, the participants were asked about their companies' founding years. As *Figure 8* illustrates, the majority of the analysed firms were founded in the 21st century, 13 of them having been founded in the last decade. Of the 17 German companies evaluated, a majority of 9 companies were founded between 2011 and 2020. Among the analysed Austrian firms, the oldest one was founded in 1969 and the two youngest ones in 2015. Among the German firms, the oldest one was founded in 1971 and the two youngest ones in 2016. This small sample of Austrian and German IT service companies thus underlines the theoretical insights of chapter 2.4., namely the IT service industry being a relatively young industry.

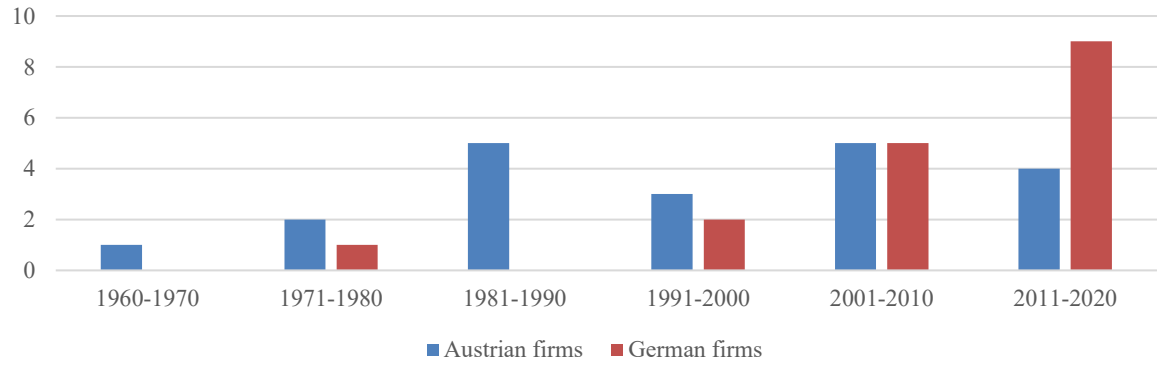

Figure 8: Founding years of the companies

The following questions enquired the number of the companies' locations, both on a national and international level. *Figure 9* illustrates the respective answers. The vast majority of the evaluated firms have 1 national location, and 1 to 5 locations worldwide. In both countries, ca. one fourth of all analysed firms have 2 locations in their respective countries. Firms with more than 5 national and more than 20 global locations represent a minority. Of the German firms, only one firm has more than 5 national and more than 20 global locations. This firm may thus be considered an MNE, supposing that not all of its locations are located in Germany.

Among the Austrian firms, the situation is slightly different. One participant answered that the respective company had more than 5 national locations but only 1 to 5 international locations. This implies a logical mistake, given that national locations were defined to be included in the number of locations worldwide. The second firm with more than 5 Austrian locations seems to be a company with a strong domestic focus, given that the firm only has 6 to 10 international locations in total. The two Austrian firms that have more than 20 locations worldwide may also be considered MNE, given that they have merely 1 and 2 locations in Austria. It is in this sense that the analysed sample of Austrian and German IT service companies seems to

preponderantly consist of small and medium-sized enterprises. However, among firms of both countries, MNE are present as well, even though in small numbers.

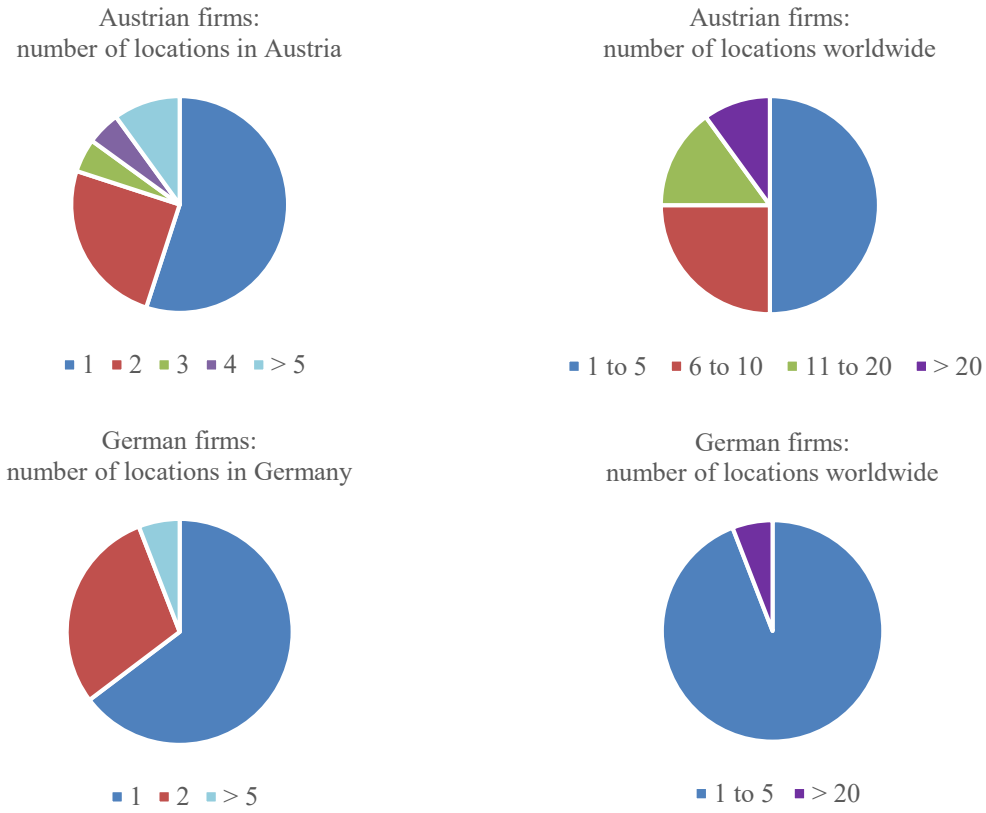

Figure 9: Number of national and worldwide locations

Bearing these insights in mind, one may evaluate the participants' answers regarding the distribution of employees according to citizenship. The survey asked for an estimation of the number of total employees, the number of non-national (i.e., non-Austrian/non-German) employees, and the number of TCN employees in their respective subsidiary. *Table 16* summarises the combination of answers, relating said numbers to each other.

Among the 17 German analysed companies, 16 firms have 0 to 49 employees in total, and 0 to 9 non-German and TCN employees. The remaining firm is the suspected MNE as mentioned above, which employs 250 or more individuals in total, 50 to 74 non-Germans, and 10 to 24 TCN. 16 out of 17 German analysed IT service companies thus indeed seem to be small and medium-sized firms while 1 company out of 17 is a large firm with more than 250 employees and various national and international locations.

Total number of employees	Number of non-national employees	Number of third-country national employees	Austrian firms	German firms
0 to 9	0 to 9	0 to 9	6	6
10 to 49	0 to 9	0 to 9	2	10
	10 to 24	0 to 9	1	
50 to 249	10 to 24	0 to 9	1	
	25 to 49	10 to 24	3	
		25 to 49	1	
250 or more	10 to 24	0 to 9	1	
	25 to 49	0 to 9	1	
	50 to 74	10 to 24		1
		25 to 49	1	
	100 or more	50 to 74	1	
		100 or more	1	
	Uncertain	Uncertain	1	

Table 16: Distribution of employees by citizenship categories

Just as seen with the analysis of national and international locations, the situation for the analysed Austrian IT service companies somewhat differs from that of the German ones. In fact, the Austrian firms show a more diverse distribution of employees. Six firms have 0 to 9 employees, three firms have 10 to 49 employees, five firms have 50 to 249 employees, and six firms have 250 or more employees in their subsidiary. The number of employed non-Austrians and TCN varies as well.

Nine Austrian companies have 0 to 49 overall employees, and of them, eight firms have 0 to 9 non-Austrian and TCN employees. Of the five companies that have 50 to 249 employees in total, four firms employ 25 to 49 non-Austrians, and three of those firms in turn employ 10 to 24 TCN. Among the six companies that have 250 or more employees, every company shows a specific combination of employees. These combinations range from one firm employing 10 to 24 non-Austrians and 0 to 9 TCN, to one firm employing more than 100 non-Austrians and more than 100 TCN as well. One participant indicated a total number of more than 250 employees but was uncertain about the number of non-Austrian and TCN employees.

Summarising those numbers, several insights can be gained. Firstly, it has become apparent that the analysed Austrian and German IT service companies represent different types of companies. The sample of German companies consists of a majority of small and medium-sized firms that employ a low number of non-Germans and TCN. One German company sticks

out, representing a large company with more than 250 employees, among them 10 to 24 TCN employees. The sample of Austrian companies is more diverse, ranging from companies with 0 to 9 employees and TCN, to firms that employ more than 250 employees in total and more than 50 TCN in some cases.

The employment of TCN thus represents a reality for many of the analysed firms, even though the share of employed TCN varies. While the workforce of some companies seems to rely heavily on employed TCN, other firms mainly employ national or EU/EEA citizens. Despite low numbers of employed TCN in many cases, this does not imply that the employment of HS TCN is not relevant to those firms. Even if a firm only employs a single HS TCN, the above-discussed challenges still apply.

As discussed in chapter 2.3.2, HS TCN are not a homogenous group. To find out more about the shares of international assignees versus self-initiated expatriates, the survey participants were asked to indicate the share of international assignees among the TCN they employ. *Figure 10* illustrates their answers.

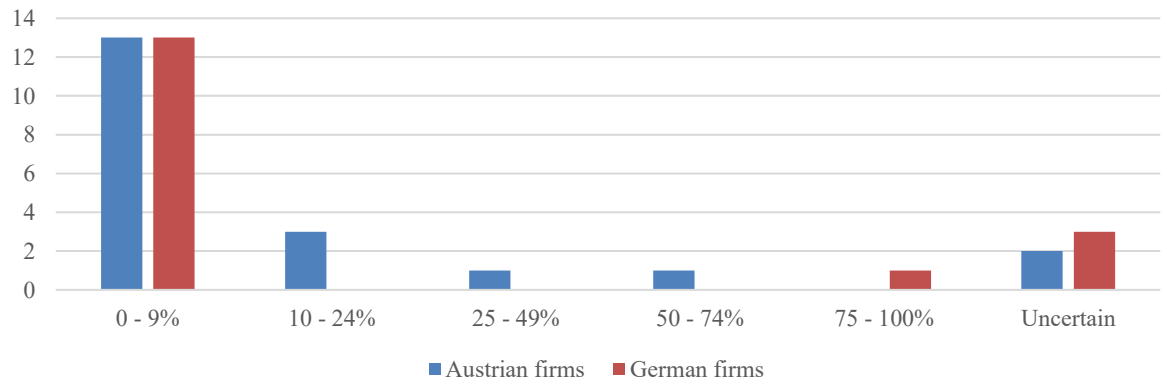

Figure 10: Percentage of international assignees among employed third-country nationals

The vast majority (26 out of 37) of all analysed companies show a percentage of international assignees below 10%. Apart from the 13 out of 17 German participants that chose the option *0 to 9%* in the survey, 3 participants were uncertain about the share of international assignees. The remaining participant chose the option *75 to 100%*. This participant corresponds to the suspected MNE. It therefore seems that there is once again a difference between the analysed German small and medium-sized firms on the one hand, and the MNE on the other hand.

Once again, the reality of the analysed Austrian firms differs from that of the German firms. A considerable similarity between companies of both countries consists of most participants

indicating that 0 to 9% of their employed TCN are international assignees. Notwithstanding, differences apply. Just as seen with other factors such as the number of locations or employees, the analysed Austrian firms are not as homogenous as the German ones. Three Austrian firms indicated a share of international assignees between 10 and 24%. Another firm indicated a respective share of 25 to 49%, and yet another one assigned a share of 50 to 74%. Two participants were not certain about the share of international assignees among their TCN employees. Unlike among the analysed German firms, not one Austrian firm's TCN employees are made up by 75 to 100% of international assignees.

However, all participating Austrian firms indicating a share of international assignees of 10% or higher are firms that have at least 50 employees. While this shows a certain tendency matched by the German MNE, it does not imply that all firms with at least 50 employees have a higher share of international assignees than smaller firms. Among the analysed Austrian firms, five companies with more than 50 employees have an international assignee share of 0 to 9%, four of those firms having more than 250 employees. It is in this sense that the sample of Austrian and German firms mainly underlines a trend as described in chapter 2.3.2, namely that self-initiated expatriates are an important group among HS TCN employees today. Certain trends regarding the connection between firm size and the share of international assignees are visible but cannot be generalised.

Chapter 3.4. has evaluated and compared work permits for HS TCN in Austria and Germany, complemented by the macro level analysis of said permits in chapter 4.2. In order to set those insights into perspective, the survey participants were asked to rank the work permits their employed HS TCN possess according to frequency. They could assign several options to a total of four ranks, rank 1 indicating the work permit that most employed HS TCN have. The options, if applied, were: *Blue Card*, *ICT permit*, *Other permits*, and *RWR Card* (Austria)/ *Aufenthaltserlaubnis* (Germany). The participants could also choose not to rank certain work permits. *Figure 11* and *Figure 12* illustrate all related answers.

Just as seen in the macro level analysis, the permits RWR Card and Aufenthaltserlaubnis were preponderantly (12 out of 20 Austrian firms; 11 out of 17 German firms) ranked first, meaning that most of the HS TCN employed by the analysed firms are in possession of those national work permits. Of the 11 German firms ranking Aufenthaltserlaubnis first, 6 ranked it as the only work permit their employed TCN hold. Additionally, 6 out of 20 Austrian companies ranked the RWR Card second. With 5 out of those 6 firms, the RWR Card was only outranked

by other permit options (e.g., permanent residence permit). The same goes for the 2 out of 17 German companies that ranked Aufenthaltserlaubnis second – in both cases, other permit options were ranked first.

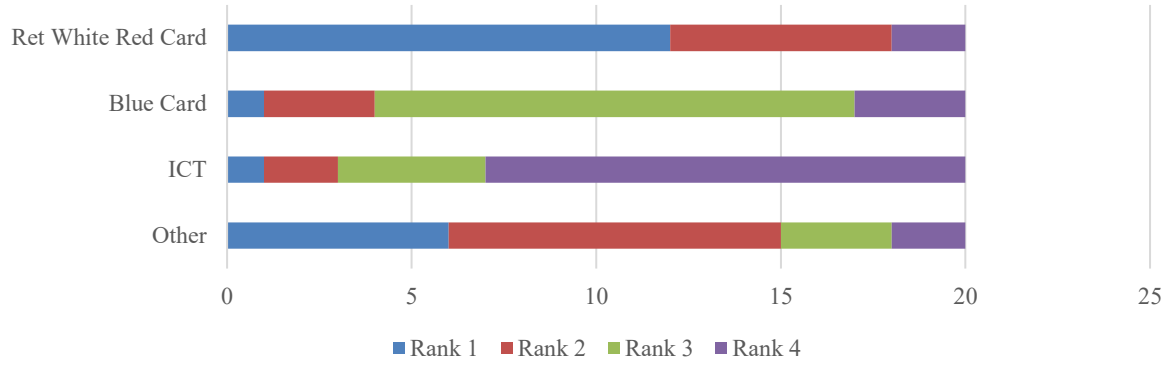

Figure 11: Ranks of different work permits in Austrian firms

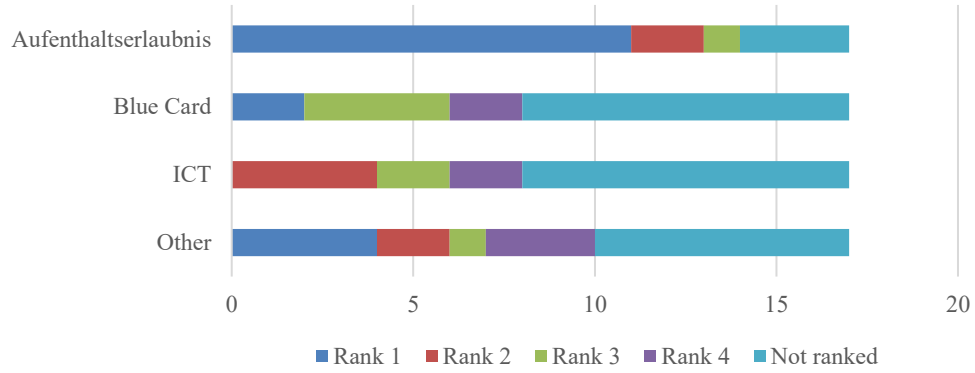

Figure 12: Ranks of different work permits in German firms

Among the Austrian participants, the Blue Card was ranked first by 1 firm, second by 3 firms, third by 13 firms, and fourth by 3 firms. Among the German participants, it was ranked first by 2 companies, second by 0 companies, third by 4 companies, and fourth by 2 companies. The Blue Card was not ranked at all by 9 German participants, meaning that they were either uncertain about the ranking or that none of their HS TCN employees has a Blue Card. One German company only ranked the Blue Card and did not rank any other permits, meaning that the Blue Card is the only permit that the employed HS TCN have.

Here, one must underline that all the German companies that chose just one type of permit (Aufenthaltserlaubnis, Blue Card, other permits) are companies that only employ 0 to 9 TCN. In other words: the company that chose the Blue Card as the only applying work permit may

only have 2 HS TCN employees, who may happen to be Blue Card holders. It could also be the case, however, that said company employs 9 HS TCN who all have Blue Cards.

Previous chapters have found a higher attractivity and/or feasibility for the Blue Card in Germany than in Austria. The sample of 20 Austrian and 17 German IT service companies does not match these findings. For firms from both countries, the Blue Card ranks third or fourth in many cases, or is not ranked at all. Despite the German Blue Card presenting the option for shortage occupations, the analysed firms still seem to prefer Aufenthaltserlaubnis.

When it comes to ICT permits, it is striking that many of the analysed firms listed some of their TCN as ICT permit holders at all. If listed, the ICT permits were ranked third or fourth by most participants. Out of 20 Austrian firms, 1 firm assigned the first rank to the ICT permits, and 2 firms assigned them the second rank. However, all 3 of those companies only have 0 to 9 employees in total and 0 to 9 employed TCN. Out of 17 German firms, 9 did not rank the ICT permits at all. However, 4 German companies ranked the ICT permits second. Those companies, unlike their Austrian counterparts, are not only companies with 0 to 9 employees in total; one of them is the only German MNE. This, together with the small overall sample of firms, renders any generalisation regarding correlating factors one of little value.

These findings are underlined by evaluating the average rank of the different work permit options. Among the analysed Austrian firms, the RWR Cards account for an average ranking of 1.6, other permits for an average ranking of 2.0, the Blue Card for an average ranking of 2.9, and the ICT permits for an average ranking of 3.45. Among the analysed German firms, Aufenthaltserlaubnis holds rank 1.3 on average, other permits hold the average rank of 2.3, and the Blue Card and the ICT permits rank 2.75 each on average.

It is also relevant to evaluate certain patterns in ranking. For German firms, one clear pattern is one work permit option being the only listed one. While this may depend on company size, as discussed, it also shows a certain tendency of companies' learning processes. In other words: once a company has acquired positive experiences with a certain work permit (e.g., Aufenthaltserlaubnis), it may choose the same permit option for the next HS TCN to be employed, despite other (potentially more favourable) options existing.

Among the analysed Austrian companies, two rating patterns can be observed. The first one, chosen by seven firms, ranks the RWR Cards first, other permits second, the Blue Card third, and the ICT permits fourth. The second pattern as listed by three firms ranks the RWR Cards

first, the Blue Card second, other permits third, and the ICT permits fourth. In both groups, all company sizes are represented. It is thus not possible to deduce any correlation between company size and permit ranking for these firms. Nevertheless, the two rating patterns accentuate the importance of the RWR Cards and the relative unimportance of the ICT permits.

In conclusion, the survey answers regarding company context largely match the findings of the previous chapters, underlining that Austrian and German IT service companies are not a homogenous group. The participating firms vary in company size, employee and TCN numbers, international assignee shares, and current work permits of their HS TCN. However, certain characteristics are shared, and several trends can be observed, especially when it comes to the firms' HS TCN employees.

6.3. The Shortage of Highly Skilled Workers

Bearing the insights of the preceding chapter in mind, one may evaluate the participants' answers regarding the shortage of HS workers. In a first step, they were asked to indicate how strongly, if at all, they have been affected by the shortage of HS workers since 2018 or earlier. They could choose between the options *Not at all*, *Barely*, *Somewhat*, and *Very much*. The results are illustrated in *Figure 13*.

Participants indicating that they have not been affected by the aforementioned shortage at all did not have to answer any of the following five questions pertaining to details of the shortage of HS workers. Among the 20 analysed Austrian IT service companies, 3 companies chose the option *Not at all*, as did 1 firm out of 17 analysed German firms. This means that for all remaining questions, the answers of 17 Austrian and 16 German companies will be analysed.

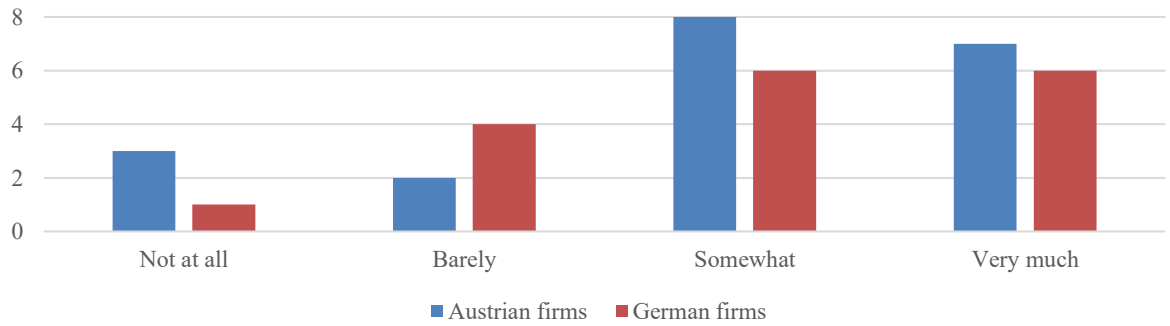

Figure 13: Degree of affectedness by the shortage of highly skilled workers

As shown in *Figure 13*, most analysed firms have either been somewhat (14 out of 37 firms) or very much (13 out of 37 firms) affected by the shortage of HS workers since 2018 or earlier.

There does not seem to be a correlation between company size and the degree of affectedness. For every category as detailed in *Figure 13*, firms of different sizes are represented. This accentuates that the shortage of HS workers has indeed been a reality for many Austrian and German IT service companies since 2018 or earlier. Larger firms do not seem to be more or less affected than smaller firms.

As analysed in chapter 2.2., the shortage of HS workers can entail a large number of mostly negative consequences for affected firms. In this sense, the survey participants were asked to choose which consequences they have experienced. *Figure 14* illustrates which options were chosen by how many of the analysed 17 Austrian and 16 German IT service companies.

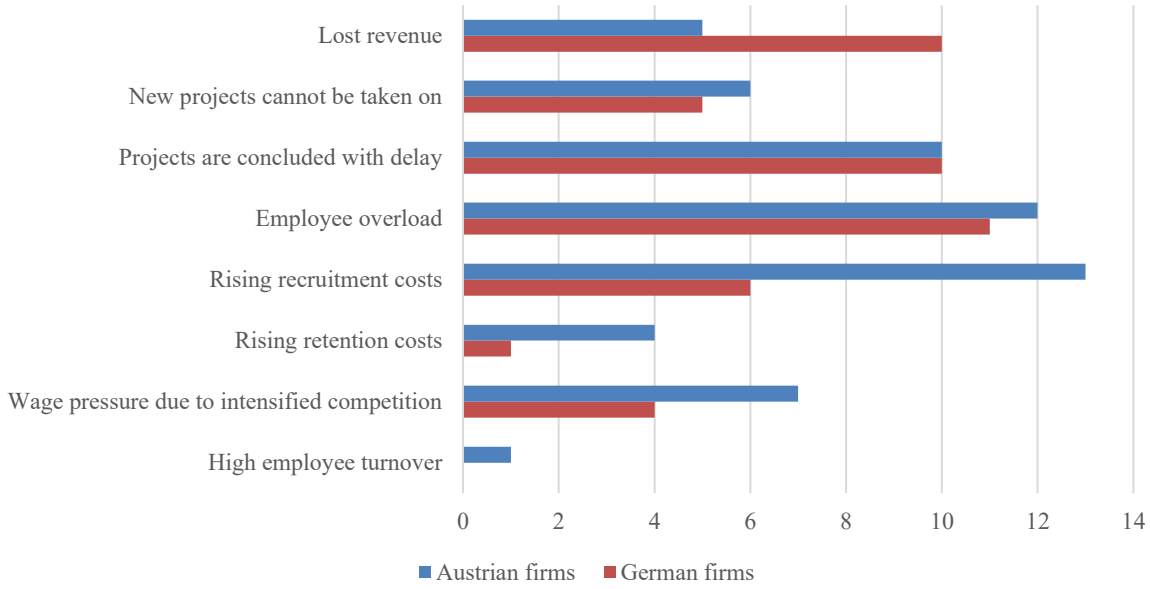

Figure 14: Consequences of the shortage of highly skilled workers

On average, each firm chose three consequences out of nine options[22]. The most frequently options chosen by Austrian and German companies were *Employee overload* (12 Austrian firms; 11 German firms) and *Projects are concluded with delay* (10 Austrian firms; 10 German firms). Furthermore, *Lost revenue* was an often-selected option (5 Austrian firms; 10 German firms). Additionally, the option *Rising recruitment costs* was chosen by 13 Austrian and 6 German companies. In comparison, the option *Rising retention costs* was only selected by 4 Austrian firms and 1 German firm.

[22] The ninth option not listed in *Figure 13* is the category *Other* which was chosen by one single German firm. The respective participant answered that the main consequence had been a change of company culture but did not specify the characteristics of that change.

Other options were chosen as well, even though by slightly fewer companies than the consequences listed above: *Wage pressure due to intensified competition* (7 Austrian companies; 4 German companies) and *New projects cannot be taken on* (6 Austrian companies; 5 German companies). Only 1 Austrian company chose the option *High employee turnover*; other firms do not seem to have experienced this consequence. These answers confirm prior theoretical findings and show that in most cases, not only one negative consequence results from the shortage of HS workers, but various. This makes sense considering that many of the options are intertwined. A lack of personnel may cause employee overload in a first step and project delays in a second step. Rising recruiting costs may cause a loss of revenue, etc.

What is striking is that all analysed 17 Austrian and 16 German IT service companies have experienced negative consequences, regardless of their degree of affectedness by the shortage of HS workers. It also seems that there is a difference in consequences between Austrian and German firms. While Austrian firms tend to be especially affected on the employee level (employee overload, higher retention costs, etc.), German firms rather tend to see their output and revenue reduced. This matches the previous assumption of chapter 5, namely that Austrian IT service companies have higher average retention costs than their German counterparts, which in turn has an impact on average vacancy duration.

In this sense, the participants were invited to choose the applying counteracting strategies among the four provided options *Special recruitment strategies*, *Special retention strategies*, *Hiring third-country nationals*, and *Other strategies*. These options were adopted from previous theoretical insights gained in chapter 2.2. Answers were provided by 16 Austrian and 15 German firms. *Figure 15* shows the respective results.

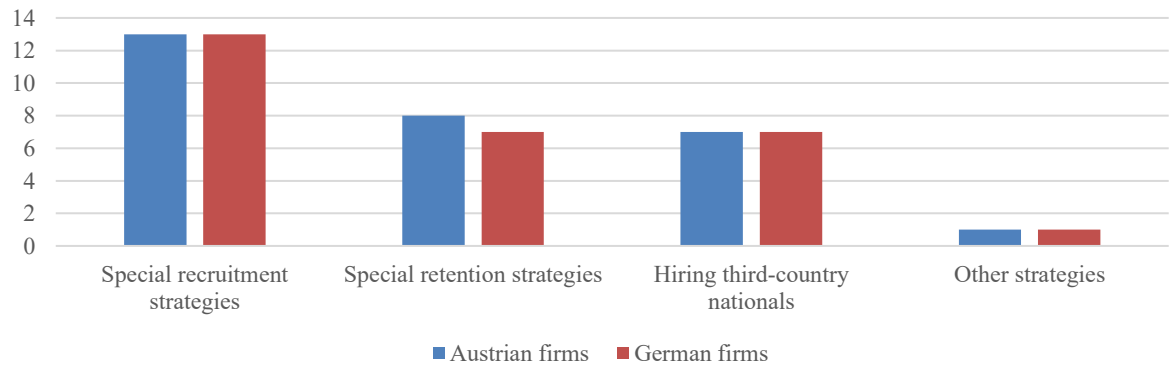

Figure 15: Strategies of counteracting the shortage of highly skilled workers

Firstly, it is remarkable that the Austrian and German participants gave such similar answers. On average, each firm chose two of the four given options. The vast majority (26 firms) of both groups uses special recruitment strategies to counteract the shortage of HS workers. This matches the previous findings of rising recruitment costs for many of the analysed firms. In addition, 8 Austrian and 7 German firms use special retention strategies. This, however, does not really match the previous insights as only 4 Austrian firms and 1 German firm claim to be affected by rising retention costs. This discrepancy may either be explained by assuming that those special retention strategies do not entail any additional costs or by supposing that the questions were not fully understood by some participants.

Merely 1 Austrian and 1 German participant chose the option *Other strategies* and elaborated on their choice. The Austrian participant indicated that nearshoring is used as a means of tackling the shortage of HS workers. The German participant detailed that a strong focus on internships and other ways of youth development are used to counteract said shortage. Most importantly for the present thesis, 7 Austrian and 7 German firms indicated that they hire TCN as a means of confronting the shortage of HS workers. This matches both the insights about rising recruiting costs and the theoretical findings regarding the employment of HS TCN in Austrian and German IT service companies. The following sub-chapter will thus analyse the specificities related to the employment and immigration of those individuals.

Before doing so, it is worth evaluating which (*Figure 16*) and how many (*Figure 17*) positions the analysed firms list as vacancies on average. Additionally, one may consider the respective vacancy duration (*Figure 18*), given that the analysis of chapter 4.5. has concentrated on the relationship between vacancies and vacancy duration. When asked to provide examples of which professional positions the analysed firms deem as shortage occupations (i.e., which vacancies they usually have), the results are quite similar.

Figure 16 illustrates that the most searched for position is that of Software Developers, followed by IT professions such as Data Centre Engineers or User Experience Designers. Other in this sense are Software Engineers, IT Project Managers, IT Consultants or IT Architects. These findings underline previous insights regarding the shortage of HS workers in Austrian and German IT service companies. Specialised IT professions are searched for by a multitude of firms. This is also reflected in those professions being listed as shortage occupations for both the Austrian RWR Card ShortageW and the German Blue Card in shortage occupations.

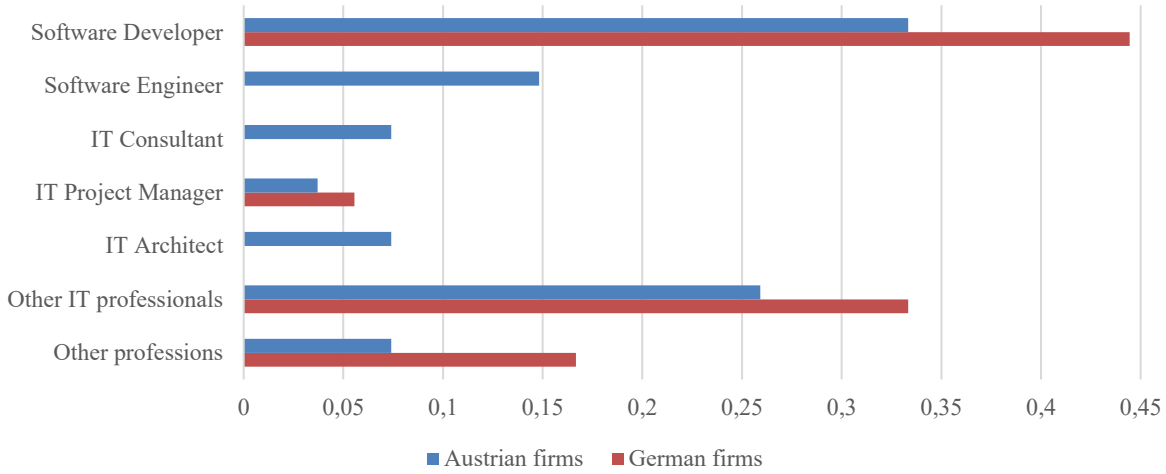

Figure 16: Shortage occupations in percentages

Keeping these types of vacancies in mind, one may take a closer look at how many of the mentioned positions are usually vacant in the analysed firms. Most companies indicated that they have 0 to 9 professional vacancies on average. Three Austrian firms indicated that they usually have 10 to 24 open professional positions while one Austrian company stated to have 25 to 49 professional vacancies on average. Lastly, one Austrian and one German company indicated an average of 50 or more professional vacancies.

The number of vacancies can to some extent be linked with firm size. Among the 15 German firms answering questions about vacancies, the 14 indicating an average of 0 to 9 professional vacancies are firms with 0 to 49 employees in total. The 1 German company with 50 or more open professional positions is the discussed large company with more than 250 employees, i.e., the only participating German MNE. In contrast, the 1 Austrian company indicating an average of 50 or more professional vacancies only employs 50 to 249 employees. An explanation for this high share of open professional positions may be a planned expansion.

The 4 out of 16 Austrian firms indicating 10 to 49 professional vacancies on average in turn match the findings from the analysed German companies, given that they all employ more than 250 employees in total. It is in this sense that firm size and the number of professional vacancies are closely related for the given sample of companies. *Figure 17* illustrates the approximated share of vacancies as percentages of the total work forces in the participants' locations. It shows that for most firms, the share of vacancies is under one fifth of the total workforce. The companies with vacancy shares of up to 100% of their total workforces are the discussed small companies with 0 to 9 employees in total.

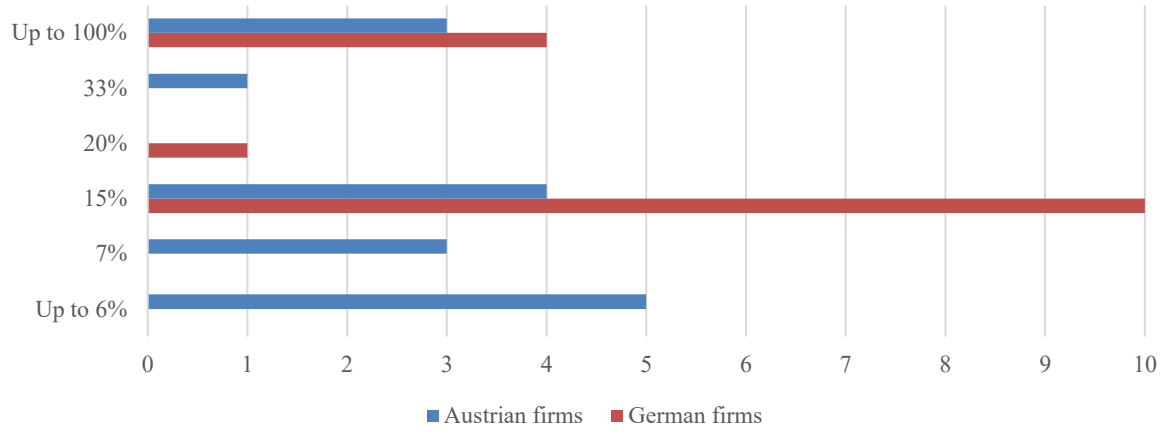

Figure 17: Approximated vacancy share as a percentage of the total work force

Lastly, it is relevant to evaluate the participants' answers on the average vacancy duration for said professional vacancies. As *Figure 18* shows, the answers given by Austrian and German firms vary considerably. Among the 16 Austrian firms answering the question, 7 chose the option *Up to 3 months*, and 7 more chose the option *Up to 6 months*. The vast majority of the Austrian firms is thus affected by an average vacancy duration of under half a year. Merely 1 Austrian company indicated positions being vacant for up to one year, complemented by another company stating that the average vacancy duration is longer than one year.

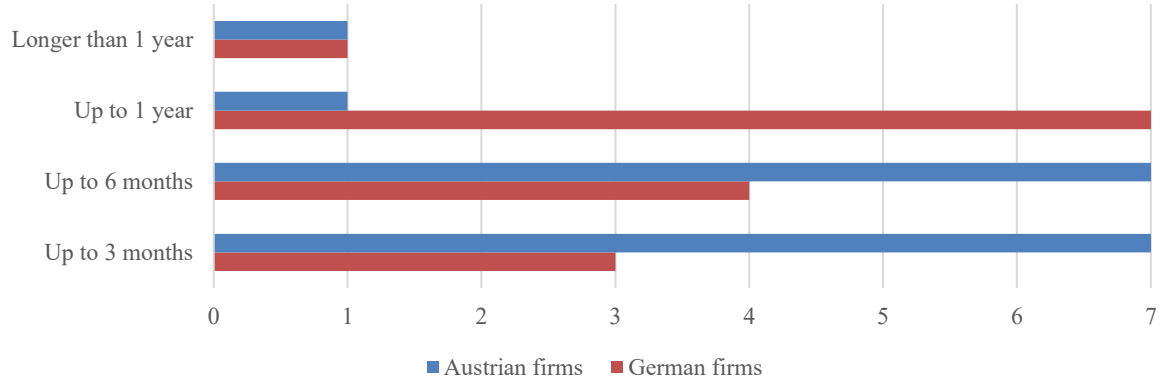

Figure 18: Average vacancy duration

The participating 15 German firms show a different reality as close to 50% of them (7 firms) indicated an average vacancy duration of up to one year. In contrast to their 14 Austrian counterparts, merely 7 German firms stated the average duration of a vacant position to stay below six months. Just as with the Austrian firms, though, only 1 German firm indicated an average vacancy duration of more than one year. These findings strongly underline the insights gained in chapter 4.5., namely that German positions remain vacant for a considerably longer time than Austrian ones, even in the same industry.

Summarising, the findings regarding the sample of Austrian and German IT service companies match the theoretical and macro level insights gained in previous chapters. The shortage of HS workers in those firms is indeed a reality, although the degrees of affectedness vary. The majority of analysed firms have suffered negative consequences as a result of said shortage. In order to counteract and/or prevent these consequences, different techniques are used by the companies that participated in the survey – one of them being the employment of HS TCN.

6.4. Employing Highly Skilled Third-Country Nationals

The last block of questions in the survey related to the employment and immigration process of HS TCN. Many of those questions were directed at evaluating the participants' attitudes towards certain aspects of said immigration process. This allows for an analysis going beyond comparing relevant figures. 19 Austrian and 16 German firms answered the given questions.

In order to determine the firms' realities when it comes to the immigration of HS TCN, the participants were firstly invited to state how often, if at all, they work with external service providers (e.g., relocation and immigration agencies). As can be seen in *Figure 19*, the vast majority of the analysed Austrian (14 out of 19) and German (11 out of 16) firms never work with external service providers. The remaining 5 Austrian companies in turn always work with external service providers when employing HS TCN. The picture for the analysed German companies is less extreme. Of the 16 firms, 3 firms sometimes work with external service providers and 2 firms do so seldomly.

Figure 19: Frequency of working with external service providers

This distribution allows for several conclusions. Firstly, most participating firms organise the immigration process of HS TCN themselves. This also means that they are directly confronted with the discussed legal provisions and challenges this process implies. Secondly, it has been shown that a minority of the analysed Austrian and German IT service companies work with

external service providers. In Austria, it is especially companies with 50 to 249 or more employees (and more than 10 TCN employees) that use such services. In Germany, in turn, the only MNE never works with external service providers. The same goes for one large Austrian company. This could be due to certain large companies with many TCN employees having specialised personnel dealing with the immigration process of HS TCN and their families.

Building on previous insights regarding the involvement of public authorities in the immigration process of HS TCN and their family members, the survey participants were asked to rate the performance of said authorities on a scale from *Very poor* to *Very good*. As can be seen in *Figure 20*, most Austrian (11 out of 19) and German (8 out of 16) firms rated the performance as neither poor nor good. Notwithstanding, a certain tendency of rating the authorities' performance poorly can be observed as 6 Austrian and 5 German participants chose the options *Poor* and *Very poor*. In contrast, merely 2 Austrian and 3 German companies chose positive ratings.

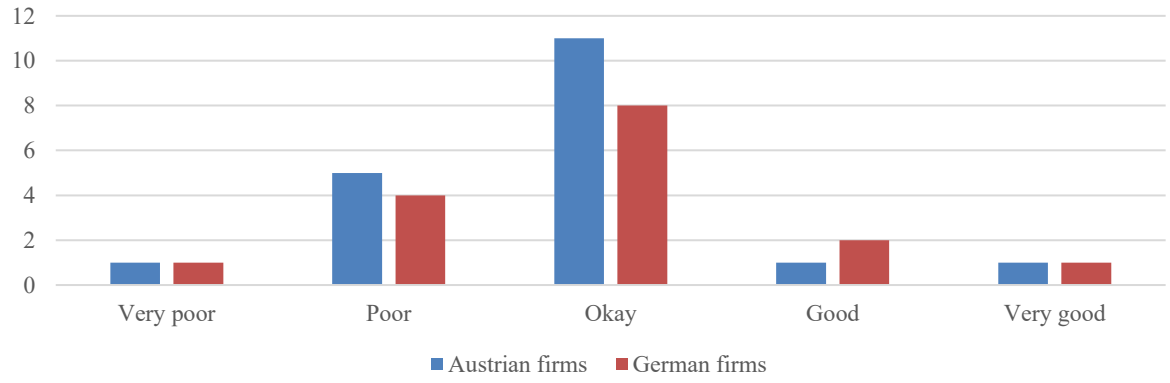

Figure 20: Performance rating for the public authorities involved in the immigration of highly skilled third-country nationals

In order to analyse the overall performance rating, one may assign the available options with figures. The option *Okay* equals 0, the option *Poor* equals -1, the option *Good* equals 1, the option *Very Poor* equals -2, and the option *Very good* equals 2. Among the participating Austrian firms, the average rating is -0.21, representing a slightly negative rating tendency. Among the German firms, the average rating is -0.12. This shows that the German participants rated the performance of public authorities slightly better than their Austrian counterparts.

Related to that performance, the participants were invited to rate the average bureaucratic expenditure entailed by the immigration and employment process of HS TCN. *Figure 21* illustrates the given answers. As can be seen, the rating distribution is quite similar among Austrian and German firms. The categories *Okay* and *Too high* were chosen by similar shares of the

analysed companies. Merely the category *Way too high* was chosen by a bigger share of Austrian firms than German firms. In any case, a tendency towards a negative rating can be seen.

Figure 21: Rating of the average bureaucratic expenditure in the immigration process of highly skilled third-country nationals

Once again building on the theoretical and macro level insights gained in previous chapters, the survey participants were asked to indicate the average duration of their employed TCN's immigration processes[23]. As can be seen in *Figure 22*, the answers varied quite a lot between the Austrian and the German firms. Out of 19 Austrian participants, 9 indicated an average of nine to twelve weeks while only 2 out of 16 German participants chose that answer. The largest share among the German firms (8 out of 16) detailed an average of three to six months. This statement was shared by five Austrian firms.

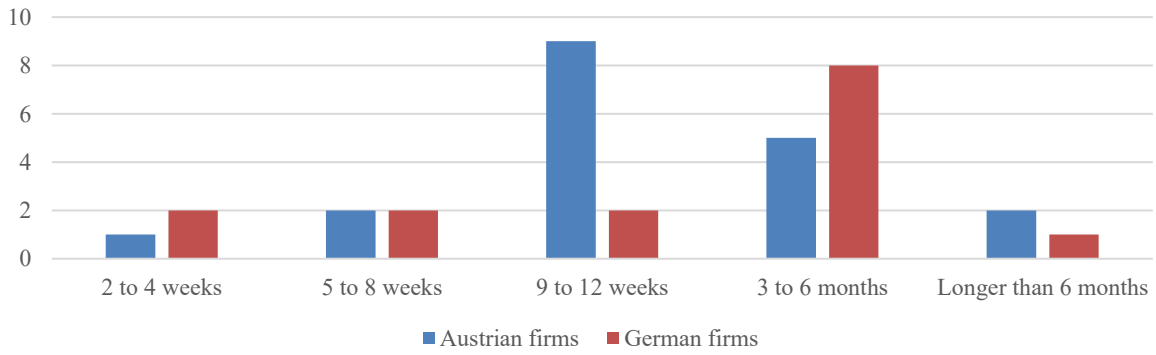

Figure 22: Average duration of the immigration process of highly skilled third-country nationals

Smaller shares of both Austrian and German companies chose an average duration of less than nine weeks, and an even smaller share indicated that their employed TCN's immigration

[23] The starting point was defined as the signing of the work offer/contract, and the ending point as the HS TCN starting to work for the company.

processes take longer than six months. It thus seems that the average duration of a HS TCN's immigration process to Germany is slightly longer than to Austria. When evaluating the relation between average vacancy duration and the average duration of HS TCN's immigration processes, no clear relation can be observed. Neither do firms with a relatively short average immigration process duration have a short average vacancy duration nor vice versa.

The relation between the average duration of HS TCN's immigration processes and the firms' attitudes towards that duration is illustrated in *Figure 23* and *Figure 24*. As can be seen, most Austrian and German companies chose a negative rating, stating that an average TCN's immigration process lasts too long or even far too long. In contrast, most of the firms experiencing an average process duration of less than nine weeks rated said duration as neither good nor bad. It may therefore be concluded that the vast majority of analysed firms wishes for shorter immigration processes. This matches both the theoretical findings and the insights regarding the participants' answers on the consequences of the shortage of HS workers.

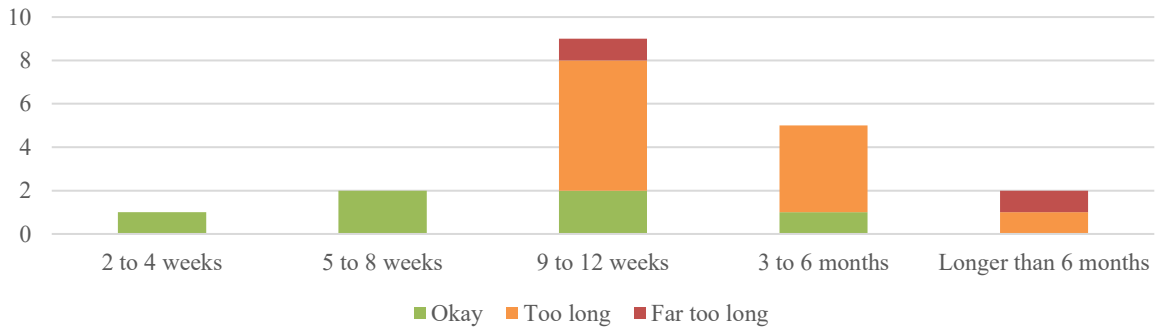

Figure 23: Rating of the average duration of immigration processes by Austrian firms

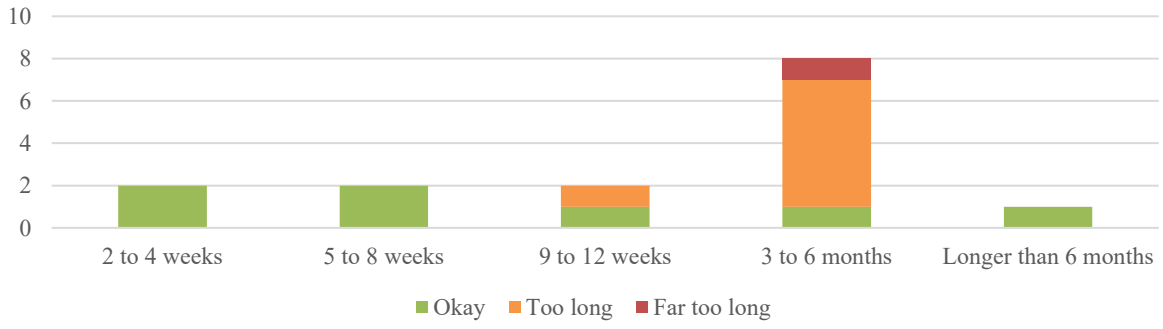

Figure 24: Rating of the average duration of immigration processes by German firms

As discussed in chapter 5.2., the immigration process of HS TCN and their family members entails different types of costs. It is in this sense that the survey participants were asked to indicate their average expenditure per immigrating HS TCN. As can be seen in *Figure 25*, four

Austrian and four German participants are uncertain about the company costs. Apart from this similarity, the distribution of chosen options varies quite a lot between the analysed firms.

While the largest share of German participants indicated an average firm expenditure of 0 to 500 EUR per immigrating HS TCN, the largest share of Austrian participants stated an average respective expenditure of 501 to 1,000 EUR. However, when combining categories, a different picture can be observed. Out of 19 Austrian firms, 10 indicated average costs of 0 to 1,000 EUR whereas 9 out of 15 German firms stated those costs as starting at 1,001 EUR and exceeding 5,000 EUR. In a first step, one can thus summarise that the average company expenditure for every HS TCN is higher for the analysed German than for the Austrian firms.

Figure 25: Average firm costs per immigrating highly skilled third-country employee

These costs may well be related to other factors, though. Firstly, it is worth evaluating the relationship between the mentioned costs and the share of international assignees. It can be observed that most firms with said share being equal to or higher than 25% have average costs of more than 1,000 EUR per HS TCN. As discussed, theory suggests that international assignees entail higher costs for companies than self-initiated expatriates. The survey findings underline these insights, although in rather small numbers.

Secondly, a relationship between costs and the cooperation with external service providers can be observed to some extent. While no such relationship can be found among the sample of German IT service companies, the analysed Austrian companies show a tendency of higher costs for those companies cooperating with external service providers. All five Austrian participants who detailed that they always work with external service providers indicated average

company costs of more than 1,000 EUR per HS TCN. This seems logical, given that said service providers do not offer their services for free.

Lastly, a certain relation between costs and frequently used work permits can be observed for the analysed Austrian firms. Out of the seven Austrian firms with average costs ranging between 1,001 EUR and 5,000 EUR, five firms rank the RWR Card first. Similarly, the one German firm with costs higher than 1,000 EUR ranks the national permit Aufenthaltserlaubnis first. In this sense, a tendency of elevated costs for the national work permits RWR Card and Aufenthaltserlaubnis can be observed.

To put the detailed expenditures into perspective, the survey participants were again invited to provide a related rating. The majority of both Austrian and German participants indicated that the company costs per immigrating HS TCN are neither too high nor too low. All remaining firms rated the expenditures as too high – regardless of their level of expenditures. In summary, one may therefore conclude that the analysed firms have varying expenditures per immigrating HS TCN and rate said expenditures differently. In any case, it seems that the average expenditure is higher for German firms than for their Austrian counterparts.

Based on the insights gained in chapter 5.3., the survey participants rated the information range provided by national public authorities such as the responsible ministries or AMS/BA. Once again, as seen in *Figure 26*, the majority of both Austrian and German firms rated the information range to be neither sufficient nor insufficient. Among both groups, a minority (two Austrian firms and one German firm) rated the provided information range as sufficient. In turn, five Austrian and five German companies chose the option *Insufficient*, and two Austrian firms even selected the option *Very insufficient*.

The analysis of chapter 5.3. has shown that the information range provided by German authorities is broader, more structured and more accessible than that of their Austrian counterparts. The survey results do not match these findings, given that both groups display a somewhat similar distribution of answers. Considering that the information range provided by German authorities is considerably more extensive and structured, it is striking that the German firms' respective rating remains similar to the Austrian firms' rating. This may be due to German firms being used to said high level of information availability/accessibility.

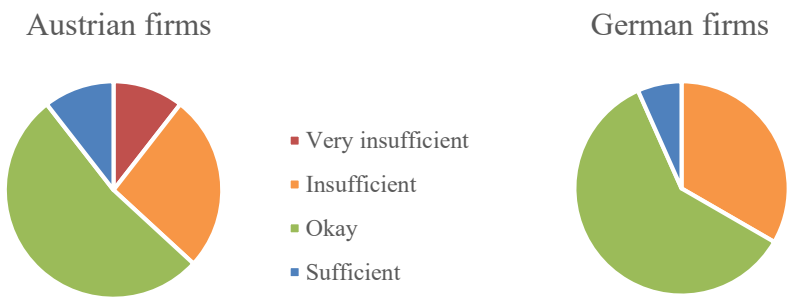

Figure 26: Rating of the information range provided by public authorities regarding the immigration process of highly skilled third-country nationals

Another factor influencing the employment and immigration of HS TCN is family reunification. The survey participants were therefore asked to rate the immigration process of HS TCN's family members. As can be seen in *Figure 27*, more than 50% of both Austrian and German participants rated said process as neither complicated nor uncomplicated. A minority of participants rated the immigration process of HS TCN's family members as uncomplicated. In addition, six Austrian and four German firms chose the option *Complicated*, and two Austrian firms selected the option *Very complicated*. This means that while most analysed companies neither have a positive nor a negative attitude towards the immigration process of HS TCN's family members, most of the remaining companies rate this process as complicated.

Figure 27: Rating of the immigration process for third-country nationals' family members

Consequently, the participants were asked to give an overall rating of the immigration process of HS TCN and their family members to Austria or Germany. *Figure 28* illustrates their answers. Matching the distribution of answers to previous questions, most participants gave ratings that neither indicated said process to be complicated nor uncomplicated. A minority of firms chose the option *Clear* while various firms chose the options *Unclear* and *Very unclear*.

Figure 28: Overall rating of the immigration process of highly skilled third-country nationals

In a last step, the survey participants were asked to answer questions regarding the different work permits for HS TCN. Firms from both countries were firstly asked to rate the existing work permit options in terms of comprehensibility (*Figure 29*) and then to rate the eligibility criteria for said options (*Figure 30*). Additionally, the Austrian companies were questioned about their attitudes regarding the weighting of those criteria (*Figure 31*). This is because among all relevant work permits, only the Austrian RWR Card entails criteria weighting.

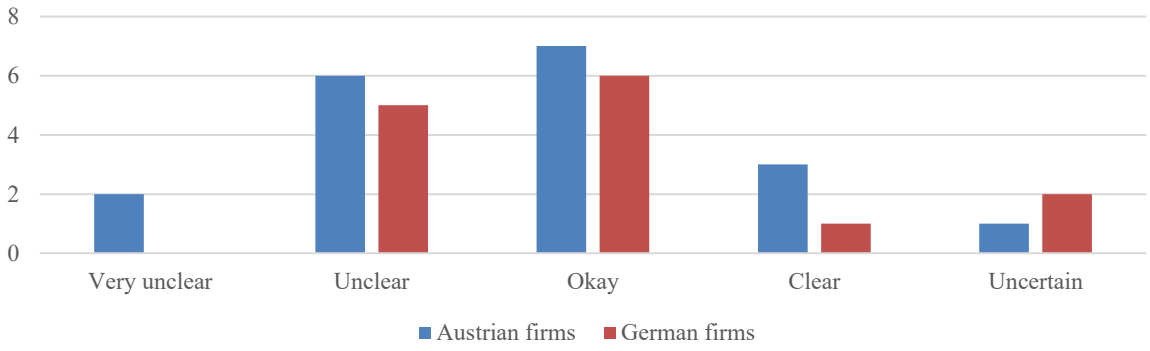

Figure 29: Rating of the comprehensibility of different work permit options

Figure 30: Rating of the criteria for the different work permits

As can be seen in *Figure 29* and *Figure 30*, the distribution of answers is quite similar when it comes to rating the work permit options and their respective criteria. It also matches the rating patterns for previously discussed factors. A large share of participants neither provided a good nor a bad rating. The second largest share is represented by firms that chose a negative rating. However, there are also firms providing a positive rating, although their share is smaller than that of the former group. Lastly, certain participants indicated that they were uncertain about how to rate the permit options and related criteria. It therefore seems that there is no uniform attitude towards the available work permits. Nevertheless, most firms either have a negative or a neutral opinion towards those permits and the respective eligibility criteria.

When evaluating the Austrian firms' answers regarding the criteria weighting (*Figure 31*), a similar picture may be observed. A difference to the previous rating patterns is that the share of firms choosing *Okay* and those choosing *Bad* are the same size (six firms each). It therefore seems that criteria weighting is rated slightly more negatively than the other factors.

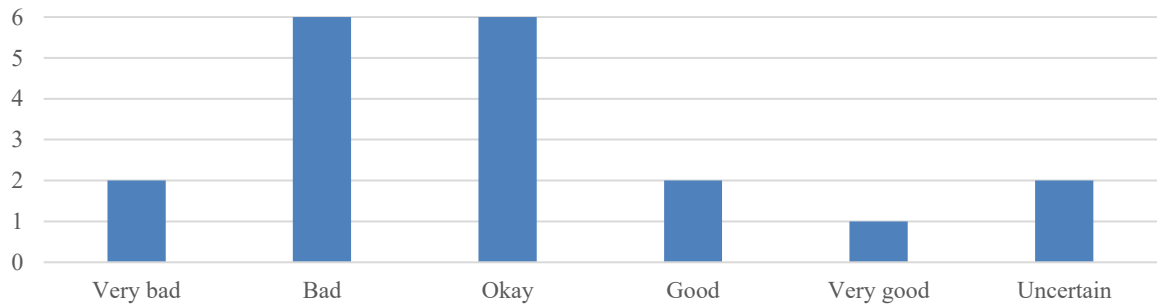

Figure 31: Rating of the criteria weighting for the different work permits by Austrian firms

In the last survey question, the participants were invited to share opinions or experiences that had not been covered by previous questions. Four Austrian and two German firms made use of this opportunity. One firm claimed that it only employs HS TCN who are already in possession of valid work permits. The other German firm as well as one Austrian firm pointed out that the eligibility criteria impose a lot of pressure on both HS TCN and on involved firms.

A second Austrian company detailed that employing HS TCN university students may serve as an additional way of counteracting the shortage of HS workers. The remaining two Austrian companies criticised the information range provided by Austrian authorities, stating that the lack of (multilingual) information is not helpful for either themselves as companies or for interested HS TCN. In this sense, they underlined previous findings, namely the lack of publicly available information regarding the employment and immigration process of HS TCN.

6.5. Conclusion of the Company Survey

Summarising the findings of the company survey, several insights can be gained. Firstly, it has been observed that the sample of participating Austrian and German IT service companies are mostly small and medium-sized firms, complemented by a smaller share of large firms. Most of the analysed companies thus employ a small number of non-national citizens and an even smaller number of TCN. However, this does not apply to all participating firms, given that some of them seem to rely heavily on TCN employees.

Additionally, it has been found that most employed HS TCN are self-initiated expatriates. When it comes to the distribution of work permits for HS TCN, the findings of previous chapters can be underlined to some extent. The national work permits RWR Card (Austria) and Aufenthaltserlaubnis (Germany) are used most frequently. The survey findings do not match the previous insights concerning the higher attractivity and/or feasibility for the Blue Card in Germany than in Austria.

The shortage of HS workers has been a reality for the vast majority of the analysed Austrian and German firms, regardless of company size. Most of them state to have experienced multiple negative consequences as a result of said shortage, with vacancies in many specialised IT professions (i.e., shortage professions). Just as analysed previously, vacancy duration is longer for German firms than for Austrian firms. The same goes for the average duration of a HS TCN's immigration process to Germany, which is slightly longer than that to Austria.

When it comes to the rating of said immigration process and all factors related to it (expenditures, information range, family members, work permits, etc.), a similar pattern can be observed. Most participants either have a neutral or negative opinion towards all mentioned factors. Only a minority of participants show positive, very positive, or very negative attitudes. In sum, the immigration process of HS TCN and all influencing and/or underlying factors are rated rather negatively than positively. Room for improvement thus applies for both countries.

7. Discussion

Concluding the present thesis, this last chapter summarises all findings. Furthermore, contributions and implications are discussed, ranging from a theoretical to a practical level. Lastly, the analysis of limitations is complemented by an outlook of topics for further research.

7.1. Results

The present thesis has found answers to the posed research questions as detailed in chapter 1.2. In a first step, it has been evaluated that both Austria and Germany have attracted immigrants throughout their modern history. Labour immigration thus must be regarded as a historically grown phenomenon. In recent years, the shortage of HS workers has not only been a reality in Austrian and German firms but in companies all over the EU and beyond. This is due to a combination of factors, ranging from demographic developments to faulty education systems.

This shortage has proven to be especially severe in the IT service industries where HS workers are key for further growth and the realisation of innovation potentials. Both the macro level analysis and the company survey have underlined the negative consequences of the mentioned shortage in Austrian and German IT service companies. Based on data for the year 2018, it has been found that the loss of revenue on the firm level equalled ca. 6,000 EUR per Austrian IT service company and ca. 8,350 EUR per German IT service company. This loss is further intertwined with negative consequences such as rising recruitment and retention costs.

The employment of HS TCN represents one means of counteracting the shortage of HS workers. In any case, the HS TCN working in IT service Austrian and German companies are a heterogenous group. As the company survey has accentuated, international assignees (i.e., individuals with existing ties to the respective companies) no longer account for the majority of employed HS TCN in Austrian and German IT service companies. In turn, self-initiated expatriates (i.e., individuals with no previous ties to the respective companies) represent a large group of HS TCN employed in the participating firms.

The employment of HS TCN from all over the world implies the immigration process of those individuals and their family member. Said process is in turn influenced by a number of factors, including firm motivations, TCN motivations, information availability, costs, and applicable legal provisions. The latter presents many challenges both to the concerning HS TCN and the Austrian and German firms looking to employ them.

It has been found that those legal provisions are the result of the aforementioned historically grown migration regimes in Austria and Germany. Just as the sociohistorical and socio-economic developments concerning labour migration present many similarities, both legal frameworks in regard to the immigration and employment of HS TCN do so as well. Most importantly, legislation in both countries clearly distinguishes between EU and EEA citizens on the one hand, and TCN on the other hand.

Additionally, the functional comparative law method has allowed for a variety of insights concerning the different work permits for HS TCN and residence permits for their family members. Firstly, quite some similarities can be observed between applicable Austrian and German legislation. In both countries, e.g., several public authorities need to give their approval on work permit applications. Secondly, the strong national focus on immigration is reflected in both legal frameworks.

Despite efforts by the EU to create a common legal framework regulating HS labour immigration, the national work permits (RWR Card in Austria; Aufenthaltserlaubnis in German) are still the work permits most frequently used by HS TCN. This is not only true for the macro level analysis but also for the survey participants. Comparing both legal frameworks, it has been analysed that Austrian legislation provides a more nuanced system with its RWR Card options than German legislation does.

In both countries' legal frameworks, a balancing act between protecting the national labour market and counteracting the shortage of HS workers can be observed. Favourable conditions for HS TCN working in defined shortage occupations are the most noticeable sign of this balancing act. In both Austria and Germany, a large variety of IT professions are in this sense defined as shortage occupations.

The macro level analysis has allowed for additional conclusions on the immigration and employment of HS TCN. Firstly, it has been found that among all individuals immigrating to Austria and Germany in 2018 and 2019, HS TCN represented a somewhat small group. Notwithstanding, both countries attracted more HS TCN with their families in 2019 than they did in 2018. Additionally, they attracted HS TCN from approximately the same countries in both years, with Indian citizens representing one of the largest groups of HS TCN immigrating.

Apart from challenges concerning professional eligibility criteria, the fulfilment of additional prerequisites as well as the uncertain duration of the immigration process represent challenges

for HS TCN wishing to immigrate to either Austria or Germany. The Blue Card represents a favourable work permit option in this regard. Due to its high salary threshold, it however raises the bar in terms of eligibility.

Lastly, the online survey conducted with a small number of Austrian and German IT service companies has allowed for additional insights. It has accentuated that both the average vacancy duration and the average duration of HS TCN's immigration processes are longer for German companies than for their Austrian counterparts. In terms of attitude, the survey participants gave quite similar answers. The immigration process of HS TCN and all influencing factors (range of information, work permit options, etc.) were rated rather negatively than positively.

Summarising, it can thus be stated that the employment of HS TCN entails a variety of challenges for Austrian and German IT service companies. The effects of said challenges range from negative firm level consequences such as employee overload, to macro level consequences such as loss of revenue. Counteracting the shortage of HS workers via the employment of HS TCN is a complex process subject to intensifying global pressure. While both Austrian and German public and non-public actors have called for improved legal and institutional immigration frameworks, both countries barely live up to this claim.

7.2. Best Practice Examples

The findings of the present thesis entail various implications, both on a theoretical and practical level. The theoretical implications and contributions have been discussed in the previous sub-chapter. The practical ones may be analysed both on a micro (firm) level and macro (socio-political) level. On the firm level, the discussed findings imply that while employing HS TCN is a frequently used means of counteracting the shortage of HS workers, the underlying processes of realising said employment imply many challenges.

As both Austrian and German IT service companies are affected by the mentioned shortage in highly similar ways, best practice examples for the micro level cannot be set. However, when it comes to the macro level, a different picture emerges. This is due to most differences in the discussed realities, challenges and consequences of employing HS TCN being built on varying political, institutional and legal frameworks. Firstly, the Austrian framework regarding the nuanced work permit options for HS TCN could serve as best practice examples for German policy makers. This is because in the current German system, certain HS TCN do not fulfil the eligibility criteria of existing permit options despite presenting a binding work offer.

On the other hand, the German framework regarding family members' residence permits may serve as a positive example for Austrian legislators, given that it implies lower hurdles while guaranteeing longer permit validity. The range of necessary information as presented by German authorities could also serve as a best practice example for Austria and other countries. This is especially true for the information provided for companies looking to hire HS TCN. It is in this sense that the comparison between the realities, challenges and consequences of employing HS TCN in Austrian and German IT service companies has shown that room for improvement exists in both countries' institutional and legal frameworks.

7.3. Limitations and Directions for Future Research

While the present thesis offers many contributions, its results must be critically evaluated as a number of limitations apply. Firstly, due to the limited scope of the present thesis, many relevant topics could only be discussed to a certain extent. One could, e.g., calculate the fictive migration costs for a high variety of HS TCN in order to accentuate applying nuances. The present thesis has in turn merely used two highly contrasting examples.

When it comes to the macro level analysis as well as to the company survey, further limitations must be considered. The macro level analysis has merely assembled and discussed available data for the years 2018 and 2019. In some cases, only data for one of these years has been available. The conclusions drawn from said data must thus be regarded as time sections instead of a full picture covering developments over decades (e.g., since Austria joining the EU in 1995). In addition, Austrian and German statistical and other authorities do not always use the same categorisation systems.

The company survey also must be critically assessed. Although 500 firms had been contacted in total, the answers of merely 20 Austrian and 17 German IT service companies could be used for data analysis. The findings can therefore not be generalised but rather represent realities and attitudes of a specific sample of firms. Lastly, one must consider that the survey was conducted in midst of the COVID-19 pandemic. Even though most survey questions specifically treated the companies' situations in the years 2018 and 2019, attitudes reflect a current state of mind, which may have been influenced by the extraordinary circumstances.

Future research could in this sense address the vulnerabilities of the present thesis. Firstly, large scale and long-term company surveys could be conducted for the Austrian and German IT service industries, leading to representative results. In addition, it is worth analysing the

consequences of the new German legal framework that entered into force in March 2020. Furthermore, macroeconomic factors such as labour market stability could be included into comparative analyses of Austrian and German IT service companies. In addition, it would be of high value to compare different EU member states' abilities to attract HS TCN and their family members, going beyond binational comparisons. This would not only highlight respective strengths and weaknesses but could also contribute to developing the unified approach to HS labour migration that both public and non-public actors have called for.

References

Aigner, Petra. 2008. *Migration and Politics. Leadership and Legitimacy in Austria*. Bern: Peter Lang.

Ambos, Bjoern, Ulrich Leicht-Deobald, and Alexander Leinemann. 2019. "Understanding the formation of psychic distance perceptions: Are country-level or individual-level factors more important?" *International Business Review* 28, no. 4: 660-671.

Arbeitsmarktservice. 2019. *Sonderauswertung DWH-abv (21.10.2019, ME)*. Vienna: Arbeitsmarktservice Österreich, Arbeitsmarktforschung und Berufsinformation.

Arbeitsmarktservice. 2020a. *Sonderauswertung DWH-ADG (03.02.2020, IW)*. Vienna: Arbeitsmarktservice Österreich, Arbeitsmarktforschung und Berufsinformation.

Arbeitsmarktservice. 2020b. *Sonderauswertung DWH-abv (22.09.2020, ME)*. Vienna: Arbeitsmarktservice Österreich, Arbeitsmarktforschung und Berufsinformation.

Arbeitsmarktservice. 2020c. *Sonderauswertung DWH-ADG (03.02.2020, IW)*. Vienna: Arbeitsmarktservice Österreich, Arbeitsmarktforschung und Berufsinformation.

Arbeitsmarktservice. 2020d. "Beschäftigung ausländischer Arbeitskräfte." Accessed October 25, 2020. https://www.ams.at/unternehmen/service-zur-personalsuche/beschaeftigung-auslaendischer-arbeitskraefte.

Aryanto, Riza, Avanti Fontana, and Adi Zakaria Afiff. 2015. "Strategic human resource management, innovation capability and performance: An empirical study in Indonesia software industry." *Procedia – Social and Behavioral Sciences* 211: 874-879.

Auriol, Laudeline, and Jerry Sexton. 2002. "Human resources in science and technology: measurement issues and international mobility." In *International mobility of the highly skilled*, 13-38. OECD.

Auswärtiges Amt. 2019. "Übersicht zur Visumpflicht bzw. -freiheit bei Einreise in die Bundesrepublik Deutschland." Accessed October 18, 2020. https://www.auswaertiges-amt.de/de/service/visa-und-aufenthalt/staatenliste-zur-visumpflicht/207820.

Auswärtiges Amt. 2020. "Internationaler Urkundenverkehr." Accessed October 19, 2020. https://www.auswaertiges-amt.de/de/service/konsularinfo/internationaler-urkundenverkehr?openAccordionId=item-2086468-1-panel.

Bade, Klaus J. 1987a. "Transatlantic and Continental Immigration: The German Experience Past and Present." In: *Population, Labour and Migration in 19th- and 20th-Century Germany*, edited by Klaus J. Bade, 135-162. Leamington Spa / Hamburg / New York: Berg Publishers Limited.

Bade, Klaus J. 1987b. "Introduction: Population, Labour, Migration. Historical Studies and Issues of Current Debate." In: *Population, Labour and Migration in 19th- and 20th-Century Germany*, edited by Klaus J. Bade, 1-14. Leamington Spa / Hamburg / New York: Berg Publishers Limited.

Bade, Klaus J. 1992a. "'Billig und willig' – die 'ausländischen Wanderarbeiter' im kaiserlichen Deutschland." In: *Deutsche im Ausland – Fremde in Deutschland. Migration in Geschichte und Gegenwart*, edited by Klaus J. Bade, 303-310. Munich: C.H. Beck'sche Verlagsbuchhandlung.

Bade, Klaus J. 1992b. "Einheimische Ausländer: 'Gastarbeiter' – Dauergäste – Einwanderer." In: *Deutsche im Ausland – Fremde in Deutschland. Migration in Geschichte und Gegenwart*, edited by Klaus J. Bade, 393-401. Munich: C.H. Beck'sche Verlagsbuchhandlung.

Bade, Klaus J. 2003. *Migration in European History,* translated by Allison Brown. Malden: Blackwell Publishing.

Bade, Klaus J., and Jochen Oltmer. 2007. "Deutschland." In: *Enzyklopädie Migration in Europa. Vom 17. Jahrhundert bis zur Gegenwart*, edited by Klaus J. Bade, Pieter C. Emmer, Leo Lucassen, and Jochen Oltmer, 141-170. Paderborn: Verlag Ferdinand Schöningh.

Bakondy, Vida. 2017. "'Austria Attractive for Guest Workers?' Recruitment of Immigrant Labor in Austria in the 1960s and 1970s." In: *Migration in Austria*, edited by Günter Bischof, and Dirk Rupnow, 113-138. Innsbruck: Innsbruck University Press.

Balla, Ernst, and Wolfgang Danner. 2015. "Mitarbeiter schulen Mitarbeiter – Ein Projekt der Voestalpine AG." In *Erfolgreiches Personalmanagement im demografischen Wandel – Die Praxisbeispiele*, edited by Dagmar Preißing, and Katrin Kolb, 87-98. Oldenburg: De Gruyter.

Barfuß, Karl Marten. 2002. "Globale Migration: Triebkräfte, Wirkungen und Szenarien aus ökonomischer Sicht." *IMIS-Beiträge* 19: 43-64.

Beck, Rafael. 2014. *Der Beitrag von Bildungspolitik und Bildungsoffensiven bei der Vermeidung von Fachkräftemangel in MINT-Berufen*. Hamburg: Diplomica Verlag.

Bell, Emma, Alan Bryman, and Bill Harley. 2019. *Business research methods*, 5th edition. Oxford: Oxford University Press.

Benz, Wolfgang. 1992. "Fremde in der Heimat: Flucht-Vertreibung-Integration." In: *Deutsche im Ausland – Fremde in Deutschland. Migration in Geschichte und Gegenwart*, edited by Klaus J. Bade, 374-385. Munich: C.H. Beck'sche Verlagsbuchhandlung.

Bergmann, Jan, Klaus Dienelt, and Sybille Röseler. 2011. *Ausländerrecht. Kommentar*, 9th edition. Munich: Verlag H.C. Beck.

Berlinghoff, Marcel. 2016. "Die Bundesrepublik und die Europäisierung der Migrationspolitik seit den späten 1960er Jahren." In*: Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 931-966. Oldenburg: De Gruyter.

Biffl, Gudrun. 2011. *Deckung des Arbeitskräftebedarfs durch Migration in Österreich: Studie des Nationalen Kontaktpunkts Österreich im Europäischen Migrationsnetzwerk*. Vienna: IOM.

Bischof, Günter, and Dirk Rupnow. 2017. "Preface." In: *Migration in Austria*, edited by Günter Bischof, and Dirk Rupnow, 13-24. Innsbruck: Innsbruck University Press.

Boeles, Pieter, Maarten den Heijer, Gerrie Lodder, and Kees Wouters. 2014. *European Migration Law*, 2nd edition. Cambridge: intersentia.

Bolton, Patrick, and Mathias Dewatripont. 2005. *Contract Theory*. Cambridge / London: The MIT Press.

Bonin, Holger, Werner Eichhorst, Christer Florman, Mette Okkels Hansen, Lena Skiöld, Jan Stuler, Konstantinos Tatsiramos, Henrik Thomasen, and Klaus F. Zimmermann. 2008. *Geographic Mobility in the European Union: Optimising its Economic and Social Benefits. IZA Research Report, no. 19.* Bonn: IZA.

Brandner, Peter, and Klaus Neusser. 1992. "Business cycles in open economies: Stylized facts for Austria and Germany." *Review of World Economics* 128, no. 1: 67-87.

Bücher, Karl. 1999. "Urban Mobility Trends in Germany, 1830-1914." In: *Mobility and Modernity. Migration in Germany,1820-1989*, edited by Steve Hochstadt, 107-134. Michigan: The University of Michigan Press.

Bundesagentur für Arbeit. 2020a. *Zustimmungen und Ablehnungen zur Arbeitsaufnahme von Drittstaatsangehörigen. Deutschland Berichtsjahr 2019*. Nürnberg: Bundesagentur für Arbeit, Statistik.

Bundesagentur für Arbeit. 2020b. *Bestand an gemeldeten sozialversicherungspflichtigen Arbeitsstellen. Deutschland (Gebietsstand September 2020)*. Nürnberg: Bundesagentur für Arbeit, Statistik.

Bundesagentur für Arbeit. 2020c. *Beschäftigung ausländischer Arbeitnehmerinnen und Arbeitnehmer in Deutschland*. Nürnberg: Bundesagentur für Arbeit INT 24.

Bundesamt für Migration und Flüchtlinge. 2018. *Das Bundesamt in Zahlen 2017. Asyl, Migration und Integration*. Nürnberg: Bundesamt für Migration und Flüchtlinge.

Bundesamt für Migration und Flüchtlinge. 2019. *Das Bundesamt in Zahlen 2018. Asyl, Migration und Integration*. Nürnberg: Bundesamt für Migration und Flüchtlinge.

Bundesamt für Migration und Flüchtlinge. 2020. *Das Bundesamt in Zahlen 2019. Asyl, Migration und Integration*. Nürnberg: Bundesamt für Migration und Flüchtlinge.

Bundeskanzleramt. 2019. *Zukunftsoffensive MINT-Fachkräfte & Internationaler Frauentag. Mehr Frauen für MINT-Fächer begeistern*. Vienna: Bundeskanzleramt / Bundesministerium Bildung, Wissenschaft und Forschung.

Bundesministerium des Innern, für Bau und Heimat. n.d. “Arbeitsmigration.” Accessed August 7, 2020. https://www.bmi.bund.de/DE/themen/migration/zuwanderung/arbeitsmigration/arbeitsmigration-node.html.

Bundesministerium Digitalisierung und Wirtschaftsstandort. n.d.a. “Fachkräftebedarf.” Accessed August 6, 2020. https://www.bmdw.gv.at/Themen/Lehre-und-Berufsausbildung/Fachkr%C3%A4ftebedarf.html.

Bundesministerium Digitalisierung und Wirtschaftsstandort. n.d.b. “Digitalisierung.” Accessed August 26, 2020. https://www.bmdw.gv.at/Themen/Digitalisierung.html.

Bundesministerium für Inneres. 2018. *Niederlassungs- und Aufenthaltsstatistik 2018*. Vienna: BM.I Referat V/8/a.

Bundesministerium für Inneres. 2019a. *Niederlassungs- und Aufenthaltsstatistik 2019*. Vienna: BM.I Referat V/8/a.

Bundesministerium für Inneres. 2019b. *Fremdenpolizei und Grenzkontrollwesen. Visumpflichten.* Vienna: BM.I Referat V/7.

Bundesministerium für Wirtschaft und Energie. n.d.a. “Skilled professionals for Germany.” Accessed August 7, 2020. https://www.bmwi.de/Redaktion/EN/Dossier/skilled-professionals.html.

Bundesministerium für Wirtschaft und Energie. n.d.b. “IT-Sicherheit.” Accessed August 26, 2020. https://www.bmwi.de/Redaktion/DE/Artikel/Digitale-Welt/it-sicherheit.html.

Bundesregierung. n.d.a. “Make it in Germany.” Accessed October 25, 2020. https://www.make-it-in-germany.com/en/.

Bundesregierung. n.d.b. “Kinds of visa.” Accessed October 25, 2020. https://www.make-it-in-germany.com/en/visa/kinds-of-visa/work-qualified-professionals/.

Bundesregierung. n.d.c. “Living in Germany.” Accessed October 25, 2020. https://www.make-it-in-germany.com/en/living-in-germany/german/german-knowledge/.

Bundesregierung. n.d.d. “FAQ.” Accessed October 25, 2020. https://www.make-it-in-germany.com/en/about-the-portal/contact/faq/.

Bundesregierung. 2020a. “Fachkräfteeinwanderungsgesetz. Mehr Fachkräfte für Deutschland.” Accessed August 7, 2020. https://www.bundesregierung.de/breg-de/aktuelles/fachkraeteeinwanderungsgesetz-1563122.

Bundesregierung. 2020b. “Job listings.” Accessed October 25, 2020. https://www.make-it-in-germany.com/en/jobs/job-listings/.

Bundesverband Informationswirtschaft, Telekommunikation und neue Medien. 2007. *Standortnachteil Fachkräftemangel: Fakten und Lösungsansätze. Wie Politik, Wirtschaft und Wissenschaft den Hightech-Standort Deutschland nachhaltig stärken könnten*. Berlin: BITKOM.

Bundesverband Informationswirtschaft, Telekommunikation und neue Medien. 2018. “82.000 freie Jobs: IT-Fachkräftemangel spitzt sich zu.” Accessed July 9, 2020. https://www.bitkom.org/Presse/Presseinformation/82000-freie-Jobs-IT-Fachkraeftemangel-spitzt-sich-zu.

Bundesverband IT-Mittelstand. 2020. “Mitgliederliste.” Accessed October 27, 2020. https://www.bitmi.de/mitglieder/mitgliederliste/.

Bundesverband mittelständische Wirtschaft. n.d.a. “Fachkräfte.” Accessed July 9, 2020. https://www.bvmw.de/themen/fachkraefte/.

Bundesverband mittelständische Wirtschaft. n.d.b. “BVMW Forderungen zur Fachkräftesicherung.” Accessed August 7, 2020. https://www.bvmw.de/themen/fachkraefte/unsere-forderungen/.

Burmann, Martina, Maria Hofbauer Perez, Vanessa Hoffmann, Carla Rhode, and Sebastian Schworm. 2018. “Highly Skilled Labour Migration in Europe.” *ifo DICE Report* 16, no. 1: 42-52.

Buxmann, Peter, Heiner Diefenbach, and Thomas Hess. 2015. *Die Softwareindustrie: Ökonomische Prinzipien, Strategien, Perspektiven*. Berlin, Heidelberg: Springer-Verlag.

Cavusgil, S. Tamer, Gary Knight, and John R. Riesenberger. 2017. *International Business: The New Realities*, 4th edition. Harlow: Pearson.

Cerna, Lucie. 2014. "The EU Blue Card: Preferences, Policies, and Negotiations between Member States." *Migration Studies* 2, no. 1: 73-96.

Cerna, Lucie, and Meng-Hsuan Chou. 2014. "The regional dimension in the global competition for talent: Lessons from framing the European Scientific Visa and Blue Card." *Journal of European Public Policy* 21, no. 1: 76-95.

Cerna, Lucie, and Mathias Czaika. 2016. "European policies to attract talent: The crisis and highly skilled migration policy changes." In: *High-Skill Migration and Recession. Gendered Perspectives*, edited by Anna Triandafyllidou, and Irina Isaakyan, 22-43. London: Palgrave Macmillan.

Chaloff, Jonathan, and George Lemaître. 2009. *Managing Highly-Skilled Labour Migration: A Comparative Analysis of Migration Policies and Challenges in OECD Countries*. *OECD Social, Employment and Migration Working Papers no. 79*. Paris: OECD.

Chiswick, Barry R. 2008. "Are Immigrants Favorably Self-Selected?" In: *Migration Theory. Talking across Disciplines*, edited by Caroline B. Brettel, and James F. Hollifield, 63-82. New York: Routledge.

Chiu, Yung-ho, Cheng-ping Cheng, and Wen-Ju Yang. 2010. "Intellectual property rights and information technology industry development." *Journal of Statistics and Management Systems* 13, no. 2: 409-428.

Costello, Cathryn, and Mark Freedland. 2016. "Seasonal Workers and Intra-corporate Transferees in EU Law. Capital's Handmaidens?" In: *Temporary Labour Migration in the Global Era,* edited by Joanna Howe, and Rosemary Owens, 43-64. Oxford: Bloomsbury Publishing.

Council of the European Union. 2009. "Council Directive 2009/50/EC of 25 May 2009 on the conditions of entry and residence of third-country nationals for the purposes of highly qualified employment." *Official Journal of the European Union,* L 155: 17-29.

Danaj, Adela, Kornélia Lazányi, and Yuriy Bilan. 2018. "Perceptions and implications of immigration in France – economic, social, political and cultural perspectives." *Economics & Sociology* 11, no. 3: 226-247.

Dankwart, Saskia, and Alexandra David. 2011. "Die Rolle von Netzwerken bei der Sicherung und Gewinnung von Fachkräften." *Forschung Aktuell* 9, 1-13.

De Backer, Koen, Sébastien Miroudot, and Davide Rigo. 2019. "Multinational enterprises in the global economy: Heavily discussed, hardly measured." *Vox EU*, September 25, 2019. https://voxeu.org/article/multinational-enterprises-global-economy.

Demeny, Paul. 2005. "Policy Challenges of Europe's Demographic Changes: From Past Perspectives to Future Prospects." In: *The New Demographic Regime. Population Challenges and Policy Responses*, edited by Miroslav Macura, Alphonse L. MacDonald, and Werner Haug, 1-10. New York / Geneva: United Nations Publication.

Deutsche Botschaft Teheran. 2020. "Legalisationen und Beglaubigungen." Accessed October 20, 2020. https://teheran.diplo.de/ir-de/service/-/1906214.

Deutscher Mittelstands-Bund. n.d.a. "Fachkräftemangel im Mittelstand." Accessed August 7, 2020. https://www.mittelstandsbund.de/themen/arbeit/themenschwerpunkt-fachkraeftemangel/ursachen-folgen/.

Deutscher Mittelstands-Bund. n.d.b. "Handlungsempfehlungen für Politik und Unternehmen." Accessed August 7, 2020. https://www.mittelstandsbund.de/themen/arbeit/themenschwerpunkt-fachkraeftemangel/handlungsempfehlungen/.

Deutsche Vertretungen in Russland. n.d. " FAQ / Wissenswertes. " Accessed October 19, 2020. https://germania.diplo.de/ru-de/service/05-VisaEinreise/LangfristigeAufenthalt/-/1623726.

Doerries, Reinhard R. 1987. "German Transatlantic Migration the Early 19th Century to the Outbreak of World War II." In: *Population, Labour and Migration in 19th- and 20th-Century Germany*, edited by Klaus J. Bade, 115-134. Leamington Spa / Hamburg / New York: Berg Publishers Limited.

Doherty, Noleen, Michael Dickmann, and Timothy Mills. 2011. "Exploring the motives of company-backed and self-initiated expatriates." *The International Journal of Human Resource Management* 22, no. 3: 595-611.

Dornmayer, Helmut, and Marlis Rechberger. 2019a. *Company Survey on Demand for/Lack of Skilled Labour in Austria in 2019*. Vienna: ibw research brief.

Dornmayer, Helmut, and Marlis Rechberger. 2019b. *Key Indicators of Demand for/Lack of Skilled Labour in Austria in 2019*. Vienna: ibw research brief.

Dornmayr, Helmut, and Birgit Winkler. 2018. *Skilled Labour Shortage in Austria*. Vienna: ibw research brief.

Dow, Douglas, and Sona Ferencikova. 2009. "The Measurement of Psychic Distance: Case of Foreign Investors in Slovakia." *Ekonomický časopis (Journal of Economics)* 57, no. 9: 837-856.

Dunnewijk, Theo. 2008. *Global Migration of the Highly Skilled: A Tentative and Quantitative Approach*. Maastricht: United Nations University.

Elias-Linde, Sabine. 2014. *Personalknappheit als betriebswirtschaftliches Problem*. Wiesbaden: Springer-Gabler.

European Centre for the Development of Vocational Training. 2015. *Skill shortages and gaps in European enterprises: striking a balance between vocational education and training and the labour market.* Luxembourg: Publications Office of the European Union.

European Centre for the Development of Vocational Training. 2018. *Insights into skill shortages and skill mismatch: learning from Cedefop's European skills and jobs survey*. Luxembourg: Publications Office of the European Union.

European Commission n.d.a. "Work." Accessed July 10, 2020. https://ec.europa.eu/home-affairs/what-we-do/policies/legal-migration/work_en.

European Commission n.d.b. "Legal Migration." Accessed July 10, 2020. https://ec.europa.eu/home-affairs/what-we-do/policies/legal-migration_en.

European Commission. n.d.c. “Study and Research.” Accessed August 5, 2020. https://ec.europa.eu/home-affairs/what-we-do/policies/legal-migration/study-research-or-training_en.

European Commission. 2009. “Commission Recommendation of 29 October 2009 on the use of the International Standard Classification of Occupations (ISCO-08).” *Official Journal of the European Union,* L 292: 31-47.

European Commission. 2018. *Standard Eurobarometer 89. Spring 2018. Report: European citizenship*. Brussels: Directorate-General for Communication.

European Commission. 2019. *Education and Training Monitor 2019*. Luxembourg: Publications Office of the European Union.

European Commission. 2020. “Schengen Area.” Accessed July 16, 2020. https://ec.europa.eu/home-affairs/what-we-do/policies/borders-and-visas/schengen_en.

European Migration Network. 2015. *Determining labour shortages and the need for labour migration from third countries in the EU. Synthesis Report for the EMN Focussed Study 2015*. Brussels: EC/EMN.

European Parliament, and Council of the European Union. 2014. “Directive 2014/66/EU of the European Parliament and of the Council of 15 May 2014 on the conditions of entry and residence of third-country nationals in the framework of an intra-corporate transfer.” *Official Journal of the European Union,* L 157: 1-22.

European Parliament, and Council of the European Union. 2016. “Regulation (EU) 2016/399 of the European Parliament and of the Council of 9 March 2016 on a Union Code on the rules governing the movement of persons across borders (Schengen Borders Code).” *Official Journal of the European Union,* L 77: 1-52.

European Parliament. 2019. “Legislative train Schedule towards a new policy on migration.” Accessed August 5, 2020. https://www.europarl.europa.eu/legislative-train/theme-towards-a-new-policy-on-migration/file-jd-revision-of-the-blue-card-directive.

European Parliament Legal Observatory. n.d. "2016/0176(COD)." Accessed August 5, 2020. https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2016/0176%28COD%29&l=en.

European Union. 2020. "Countries." Accessed July 16, 2020. https://europa.eu/european-union/about-eu/countries_de#die-27-mitgliedstaaten-der-eu.

Fassmann, Heinz. 2002. "EU-Erweiterung und Arbeitsmigration nach Deutschland und Österreich. Quantitative Vorhersagen und aktuelle Entwicklungstendenzen." *IMIS-Beiträge* 19: 65-88.

Fassmann, Heinz, and Rainer Münz. 1995. *Einwanderungsland Österreich? Historische Migrationsmuster, aktuelle Trends und politische Maßnahmen*. Vienna: Dachs.

Fassmann, Heinz, and Rainer Münz. 1996a. „Europäische Migration – ein Überblick." In: *Migration in Europa. Historische Entwicklung, aktuelle Trends und politische Reaktionen*, edited by Heinz Fassmann, and Rainer Münz, 13-52. Frankfurt / New York: Campus Verlag.

Fassmann, Heinz, and Rainer Münz. 1996b. „Österreich – Einwanderungsland wider Willen." In: *Migration in Europa. Historische Entwicklung, aktuelle Trends und politische Reaktionen*, edited by Heinz Fassmann, and Rainer Münz, 209-230. Frankfurt / New York: Campus Verlag.

Fink, Carsten, and Ernest Miguelez. 2017. "Introduction: The International Mobility of Talent and Innovation – New Evidence and Policy Implications." In: *The International Mobility of Talent and Innovation – New Evidence and Policy Implications*, edited by Carsten Fink, and Ernest Miguelez, 1-25. Cambridge: Cambridge University Press.

Fink, Carsten, Ernest Miguelez, and Julio Raffo. 2017. "Determinants of the International Mobility of Knowledge Workers." In: *The International Mobility of Talent and Innovation – New Evidence and Policy Implications*, edited by Carsten Fink, and Ernest Miguelez, 162-191. Cambridge: Cambridge University Press.

Florida, Richard. 2006. "The flight of the creative class: The new global competition for talent." *Liberal Education* 92, no. 3: 22-29.

Franz, Wolfgang. 2020. “IT-Fachkräftemangel: Hohes Risiko für CIOs – Chance für Bewerber.” *Computerwelt*, February 26, 2020. https://computerwelt.at/news/it-fachkraeftemangel-hohes-risiko-fuer-cios-chance-fuer-bewerber/.

Forster, Doris. 2018. “Zur Methode des Rechtsvergleichs in der Rechtswissenschaft / On the Methods for Comparative Law Research in Legal Studies.” *Ancilla Iuris* 1, 98-109.

Gächter, August, Caroline Manahl, and Saskia Koppenberg. 2015. *Identifizierung von Arbeitskräftemangel und Bedarf an Arbeitsmigration aus Drittstaaten in Österreich*. Vienna: IOM.

Gayathri, V. 2002. “Rethinking High-skilled International Migration: Research and Policy Issues for India’s Information Economy.” In: *International Mobility of the Highly Skilled*, 201-212. Paris: OECD.

Ge, Chunmian, Ke-Wei Huang, and Atreyi Kankanhalli. 2020. “Platform skills and the value of new hires in the software industry.” *Research Policy* 49, no. 1: 1-15.

Gera, Surendra, and Thitima Songsakul. 2007. “Benchmarking Canada's performance in the global competition for mobile talent.” *Canadian Public Policy* 33, no.1: 63-84.

Giesing, Yvone, and Nadzeya Laurentsyeva. 2017. “The EU Blue Card – Time To Reform?” *ifo DICE Report* 15, no. 2: pp. 38-43.

Glenn, H. Patrick. 1991. “Comparative Law, Immigration and Human Rights.” *African Journal of International and Comparative Law* 3, no. 4: 668-679.

Graziadei, Michele. 2003. “The functionalist heritage.” In*: Comparative Legal Studies: Traditions and Transitions*, edited by Pierre Legrand, and Roderick Munday, 100-130. Cambridge: University of Cambridge.

Grimpe, Christoph, Jakob Edler, and Heide Fier. 2011. “International scientist mobility and the locus of knowledge and technology transfer.” *Research Policy* 40, no. 6: 791-805.

Große Hüttmann, Martin. 2017. "Die Migrations- und Asylpolitik der Europäischen Union." In: *Deutschland Einwanderungsland. Begriffe – Fakten – Kontroversen*, 3rd edition, edited by Karl-Heinz Meier-Braun, and Reinhold Weber, 255-266. Stuttgart: Kohlhammer.

Gümüs, Yasin Kerem. 2010. "EU Blue Card Scheme: The Right Step in the Right Direction?" *European Journal of Migration and Law* 12, no. 4: 435-53.

Gutteridge, Harold Cooke. 1971. *Comparative Law. An Introduction to the Comparative Method of Legal Study & Research*, 2nd edition. Cambridge: Cambridge University Press.

Hahn, Sylvia. 2007. "Österreich." In: *Enzyklopädie Migration in Europa. Vom 17. Jahrhundert bis zur Gegenwart*, edited by Klaus J. Bade, Pieter C. Emmer, Leo Lucassen, and Jochen Oltmer, 171-188. Paderborn: Verlag Ferdinand Schöningh.

Haas, Christine. 2020. "'IT-Führungskräfte verdienen fast durchgehend sechsstellig'." *Welt,* January 27, 2020. https://www.welt.de/wirtschaft/karriere/article205372397/Fachkraeftemangel-IT-Fuehrungskraefte-verdienen-fast-durcgehend-sechsstellig.html.

Härter, Karl. 2016. "Grenzen, Streifen, Pässe und Gesetze. Die Steuerung von Migration im frühneuzeitlichen Territorialstaat des Alten Reiches (1648-1806)." In*: Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 45-86. Oldenburg: De Gruyter.

Herbert, Ulrich. 1992. "'Ausländer-Einsatz' in der deutschen Kriegswirtschaft, 1939-1945." In: *Deutsche im Ausland – Fremde in Deutschland. Migration in Geschichte und Gegenwart*, edited by Klaus J. Bade, 345-353. Munich: C.H. Beck'sche Verlagsbuchhandlung.

Heunemann, Falk. 2020. "60 Prozent der Firmen fehlen Fachkräfte." *Frankfurter Allgemeine Zeitung*, February 5, 2020. https://www.faz.net/aktuell/rhein-main/betriebe-beklagen-fachkraeftemangel-16619065.html.

Hofhansel, Claus. 2008. "Citizenship in Austria, Germany, and Switzerland: Courts, legislatures, and administrators." *International Migration Review* 42, no. 1: 163-192.

Holzinger, Walter. 1997. “Österreich als Einwanderungsland? Migration und Migrationspolitik in Geschichte und Gegenwart.” Dissertation, University of Vienna.

Horvath, Kenneth. 2012. “Von der Gastarbeit zum Migrationsmanagement: Sekuritisierung und Öknomisierung in der politischen Regulation der Arbeitsmigration in Österreich.” Dissertation, University of Vienna.

Huber, Bertold. 2010. *Aufenthaltsgesetz*. Munich: Verlag H.C. Beck.

Husa, Jaakko. 2013. “Functional Method in Comparative Law – Much Ado About Nothing?” *European Property Law Journal* 2, no. 1: 4-21.

Huter, Lucas, Mai Anh Dao, Daniel Degischer, Florian Bauer, Yvonne Stockhammer, and Manuel Erlacher. 2017. “Asymmetric Effects of Cultural Distance. A Comparison of German and Austrian Inbound and Outbound Cross-border Transactions and the Diverging Effect of Integration of Wholly Owned Target Firms.” In: *Managing Culture and Interspace in Cross-border Investments. Building a Global Company*, edited by Martina Fuchs, Sebastian Henn, Martin Franz, and Ram Mudambi, 70-87. New York: Routledge.

Industriellenvereinigung. 2019. “Industrie: Österreich im Wettbewerb um die größten Talente bestmöglich positionieren.” Accessed July 11, 2020. https://www.iv.at/de/themen/bildung-und-gesellschaft/2019/industrie-osterreich-im-wettbewerb-um-die-grossten-talente-bestm.

Informationsdienst des Instituts der deutschen Wirtschaft. n.d. “ Dossier: Fachkräftemangel – Deutschlands Konjunkturrisiko Nummer eins.” Accessed August 7, 2020. https://www.iwd.de/dossiers/fachkraeftemangel/.

Institut der deutschen Wirtschaft. n.d.a. “Fachkräfte.” Accessed August 7, 2020. https://www.iwkoeln.de/themen/bildung-und-fachkraefte/fachkraefte.html.

Institut der deutschen Wirtschaft. n.d.b. “Berufliche Qualifizierung und Fachkräfte.” Accessed August 7, 2020. https://www.iwkoeln.de/institut/kompetenzfelder/berufliche-qualifizierung-und-fachkraefte.html.

International Organisation for Migration. 2018. *World Migration Report 2018*. Geneva: IOM.

International Organisation for Migration. 2019. *World Migration Report 2019*. Geneva: IOM.

International Organisation for Migration. 2020. *World Migration Report 2020*. Geneva: IOM.

Jain, Naveen Kumar, Sokol Celo, and Vikas Kumar. 2019. "Internationalization speed, resources and performance: Evidence from Indian software industry." *Journal of Business Research* 95: 26-37.

Janavičiūtė, Laura, Audronė Telešienė, and Jurgita Barynienė. 2017. "Migration of highly qualified workers and policies to ensure labour market sustainability in the European Union in 2013-2014." *Viešoji politika ir administravimas (Public Policy and Administration)* 16, no. 3: 502-519.

Jurgens, Jeffrey. 2010. "The legacies of labor recruitment: The guest worker and green card programs in the Federal Republic of Germany." *Policy and Society* 29, no. 4: 345-355.

Kabore, François Pazisnewende. 2017. "Brain Drain, Intellectual Property Rights, and Innovation in Africa." In: *The International Mobility of Talent and Innovation – New Evidence and Policy Implications*, edited by Carsten Fink, and Ernest Miguelez, 266-293. Cambridge: Cambridge University Press.

Kahanec, Martin, and Anzelika. Zaiceva. 2009. "Labor Market Outcomes of Immigrants and Non-citizens in the EU: An East-West Comparison." *International Journal of Manpower* 30, no. 1-2: 97–115.

Kahanec, Martin, and Klaus F. Zimmermann. 2010. *High-skilled immigration policy in Europe. IZA Discussion Papers, no. 5399.* Bonn: IZA.

Kang, H. 2013. "The Red-White-Red Card: A new labour migration policy in Austria: Analysis of the role of the actors and their ideas." Master Thesis, University of Vienna.

Karreth, Johannes, Shane P. Singh, and Szymon M. Stojek. 2015. "Explaining attitudes toward immigration: The role of regional context and individual predispositions." *West European Politics* 38, no. 6: 1174-1202.

Kerr, William R. 2017. "US High-Skilled Immigration, Innovation, and Entrepreneurship: Empirical Approaches and Evidence." In: *The International Mobility of Talent and*

Innovation – New Evidence and Policy Implications, edited by Carsten Fink, and Ernest Miguelez, 193-221. Cambridge: Cambridge University Press.

Kleedorfer, Robert. 2019. "Fachkräftemangel wird für Mittelstand immer bedrohlicher." *Kurier*, March 12, 2019. https://kurier.at/wirtschaft/fachkraeftemangel-wird-fuer-mittelstand-immer-bedrohlicher/400431847.

Kleine Zeitung. 2019. "Fachkräftemangel steigt. IV: Österreich braucht qualifizierte Zuwanderung". *Kleine Zeitung*, October 17, 2019. https://www.kleinezeitung.at/wirtschaft/5707820/Fachkraeftemangel-steigt_IV_Oesterreich-braucht-qualifizierte.

Kolb, Holger. 2016. "Migrationsverhältnisse, nationale Souveränität und europäische Integration: Deutschland zwischen Normalisierung und Europäisierung." In*: Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 1021-1040. Oldenburg: De Gruyter.

Kopf, Hartmut, Susan Müller, Dominik Rüede, Kathrin Lurtz, and Peter Russo. 2015. "Einführung: Made in Germany? Fachkräftemangel gefährdet den Wirtschaftsstandort Deutschland." In: *Soziale Innovationen in Deutschland: Von der Idee zur gesellschaftlichen Wirkung*, edited by Hartmut Kopf, Susan Müller, Dominik Rüede, Kathrin Lurtz, and Peter Russo, 61-63. Wiesbaden: Springer VS.

Koppel, Oliver, and Axel Plünneke. 2009. *Fachkräftemangel in Deutschland. Bildungsökonomische Analyse, politische Handlungsempfehlungen, Wachstums- und Fiskaleffekte*. Cologne: Deutscher Institutsverlag.

Knoblach, Jochen. 2018. "Fachkräftemangel: Fachkräfte-Engpässe bereiten vielen Branchen immer größere Probleme." *Berliner Zeitung*, May 11, 2018. https://www.berliner-zeitung.de/wirtschaft-verantwortung/fachkraeftemangel-fachkraefte-engpaesse-bereiten-vielen-branchen-immer-groessere-probleme-li.71801.

Krenner, Daniela, and Birgit Horneffer. 2014. *Erhebung zu Karriereverläufen und internationaler Mobilität von Hochqualifizierten*. Wiesbaden: Statistisches Bundesamt.

Krings, Torben. 2013. "From 'foreign employment' to the Red-White-Red-Card: Social partnership and migration policy in Austria." *Österreichische Zeitschrift Für Politikwissenschaft* 42, no.3: 263-278.

Krone. 2020. “EU-Statistikamt: IT-Fachkräftemangel in Österreich besonders hoch.” *Krone*, February 21, 2020. https://www.krone.at/2102577.

Kumari, Priyanka, and Virendra Singh Nirban. 2018. “Intercultural communication competencies in the Indian Information Technology industry.” *International Journal of Cross Cultural Management* 18, no. 3: 327-347.

Kuvik, Aimee. 2015. “The global competition for talent: Life science and biotech careers, international mobility, and competitiveness.” Dissertation, University of Amsterdam.

Lasser, Mitchel de S.-O.-l'E. 2003. “The question of understanding.” In*: Comparative Legal Studies: Traditions and Transitions*, edited by Pierre Legrand, and Roderick Munday, 197-239. Cambridge: University of Cambridge.

Leggewie, Claus. 1992. “‘Stolz, ein Deutscher zu sein…’ – die neue Angst vor den Fremden.” In: *Deutsche im Ausland – Fremde in Deutschland. Migration in Geschichte und Gegenwart*, edited by Klaus J. Bade, 423-430. Munich: C.H. Beck’sche Verlagsbuchhandlung.

Liakova, Marina. 2017. “Migrationstheorien.” In: *Deutschland Einwanderungsland. Begriffe – Fakten – Kontroversen*, 3rd edition, edited by Karl-Heinz Meier-Braun, and Reinhold Weber, 61-65. Stuttgart: Kohlhammer.

Lünendonk. 2020. “Lünendonk-Listen 2020: Führende IT-Dienstleister in Deutschland.” Accessed October 27, 2020. https://www.luenendonk.de/aktuelles/presseinformationen/luenendonk-listen-2020-fuehrende-it-dienstleister-in-deutschland/.

Mahroum, Sami. 2001. “Europe and the immigration of highly skilled labour.” *International Migration* 39, no. 5: 27-43.

Massey, Douglas S., Joaquin Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegrino and J. Edward Taylor. 1993. “Theories of International Migration: A Review and Appraisal.” *Population and Development Review* 19, no. 3: 431-466.

Mattes, Monika. 2016. “Wirtschaftliche Rekonstruktion in der Bundesrepublik Deutschland und grenzüberschreitende Arbeitsmigration von den 1950er bis zu den 1970er Jahren.” In*: Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 815-852. Oldenburg: De Gruyter.

Matthewman, Jim. 2011. *The rise of the global nomad: How to manage the new professional in order to gain recovery and maximize future growth*. London: Kogan Page.

McGrath, John. 2019. *Analysis of shortage and surplus occupations based on national and Eurostat Labour Force Survey data. Shortages and surpluses 2019*. Brussels: European Commission.

McKenna, Steve, and Julia Richardson. 2007. “The increasing complexity of the internationally mobile professional.” *Cross Cultural Management: An International Journal* 14, no. 4: 307-320.

Mechtenberg, Lydia, and Roland Strausz. 2009. *Migration of the Highly Skilled: Can Europe catch up with the US? SFB 649 Discussion Paper, No. 2009,048*. Berlin: Humboldt University of Berlin.

Meier-Braun, Karl-Heinz. 2002. *Deutschland, Einwanderungsland*. Frankfurt: Suhrkamp.

Meier-Braun, Karl-Heinz. 2017a. “Zuwanderungsgesetz.” In: *Deutschland Einwanderungsland. Begriffe – Fakten – Kontroversen*, 3rd edition, edited by Karl-Heinz Meier-Braun, and Reinhold Weber, 158-160. Stuttgart: Kohlhammer.

Meier-Braun, Karl-Heinz. 2017b. “Einleitung: Deutschland Einwanderungsland.” In: *Deutschland Einwanderungsland. Begriffe – Fakten – Kontroversen*, 3rd edition, edited by Karl-Heinz Meier-Braun, and Reinhold Weber, 12-26. Stuttgart: Kohlhammer.

Messerschmitt, David G., and Clemens Szyperski. 2003. *Software ecosystem: Understanding an Indispensable Technology and Industry*. Cambridge / London: The MIT Press.

Migration.gv.at. n.d.a. “Welcome!” Accessed October 25, 2020. https://www.migration.gv.at/en/welcome/.

Migration.gv.at. n.d.b. “Types of immigration.” Accessed October 25, 2020. https://www.migration.gv.at/en/types-of-immigration/.

Migration.gv.at. n.d.c. “Living and working in Austria.” Accessed October 25, 2020. https://www.migration.gv.at/en/living-and-working-in-austria/.

Migration.gv.at. n.d.d. “FAQ.” Accessed October 25, 2020. https://www.migration.gv.at/en/faq/.

Migration.gv.at. 2020a. “Bundesweite Mangelberufe.” Accessed July 11, 2020. https://www.migration.gv.at/de/formen-der-zuwanderung/dauerhafte-zuwanderung/bundesweite-mangelberufe/.

Migration.gv.at. 2020b. “Skilled Workers in Shortage Occupations.” Accessed October 19, 2020. https://www.migration.gv.at/en/types-of-immigration/permanent-immigration/skilled-workers-in-shortage-occupations/.

Mitesser, Mariana. 2012. *Fachkräftemangel in Deutschland. Ausmaß, Ursachen und Lösungsstrategien*. Hamburg: Diplomica.

Mohr, Katrin. 2005. “Stratifizierte Rechte und soziale Exklusion von Migranten im Wohlfahrtsstaat/Stratified Rights and Social Exclusion of Migrants in the Welfare State.” *Zeitschrift für Soziologie* 34, no. 5: 383-398.

Morales Laura, and Marco Giugni. 2011. “Political Opportunities, Social Capital and the Political Inclusion of Immigrants in European Cities.” In: *Social Capital, Political Participation and Migration in Europe. Migration, Minorities and Citizenship*, edited by Laura Morales, and Marco Giugni, 1-18. London: Palgrave Macmillan.

Munday, Roderick. 2003. “Accounting for an encounter.. In*: Comparative Legal Studies: Traditions and Transitions*, edited by Pierre Legrand, and Roderick Munday, 3-30. Cambridge: University of Cambridge.

Niggemann, Ulrich. 2016. “‘Peuplierung’ als merkantilistisches Instrument: Privilegierung von Einwanderern und staatlich gelenkte Ansiedlungen.” In*: Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 171-218. Oldenburg: De Gruyter.

Oberpenning, Hannelore. 1999. “Das ‘Modell Eskamp’ Zur Geschichte der sozialen und kulturellen Eingliederung von Flüchtlingen, Vertriebenen und Aussiedlern.” In*: 50 Jahre Bundesrepublik – 50 Jahre Einwanderung. Nachkriegsgeschichte als Migrationsgeschichte*, edited by Jan Motte, Rainer Ohlinger, and Anne von Oswald, 31-55. Frankfurt / New York: Campus Verlag.

Österreichische Botschaft Teheran. n.d. “Beglaubigung.” Accessed October 20, 2020. https://www.bmeia.gv.at/oeb-teheran/service-fuer-buergerinnen/beglaubigung/.

Oltmer, Jochen. 2009. “Einführung: Europäische Migrationsverhältnisse und Migrationsregime in der Neuzeit.” *Geschichte und Gesellschaft* 35, no. 1: 5-27.

Oltmer, Jochen. 2016. “‘Schutz des nationalen Arbeitsmarktes’: grenzüberschreitende Arbeitsmigration und Protektionismus in der Weimarer Republik.” In*: Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 503-533. Oldenburg: De Gruyter.

Oltmer, Jochen. 2017a. *Migration. Geschichte und Zukunft der Gegenwart*. Darmstadt: Theiss.

Oltmer, Jochen. 2017b. “Einwanderungsland Bundesrepublik Deutschland.” In: *Deutschland Einwanderungsland. Begriffe – Fakten – Kontroversen*, 3rd edition, edited by Karl-Heinz Meier-Braun, and Reinhold Weber, 73-75. Stuttgart: Kohlhammer.

Organisation for Economic Co-operation and Development. n.d. “Talent Attractiveness.” Accessed July 11, 2020. https://www.oecd.org/migration/talent-attractiveness/.

Organisation for Economic Co-operation and Development. 2002. “Introduction”. In*: International Mobility of the Highly Skilled*, 1-12. Paris: OECD.

Papagianni, Giorgia. 2006. *Institutional and Policy Dynamics of EU Migration Law*. Leiden / Boston: Martinus Nijhoff Publishers.

Pelger, Gerald. 2009. *Die Arbeitsmigration in Österreich*. Saarbrücken: Südwestdeutscher Verlag für Hochschulschriften.

Penninx, Rinus. 2005. “Integration of Migrants: Economic, Social, Cultural and Political Dimensions.” In: *The New Demographic Regime. Population Challenges and*

Policy Responses, edited by Miroslav Macura, Alphonse L. MacDonald, and Werner Haug, 137-152. New York / Geneva: United Nations Publication.

Pethe, Heike. 2006. *Internationale Migration hoch qualifizierter Arbeitskräfte. Die Greencard-Regelung in Deutschland*. Berlin: Deutscher Universitäts-Verlag.

Plaß, Uwe. 2016. "Überseeische Massenmigration zwischen politischem Desinteresse und Staatsintervention." In*: Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 291-315. Oldenburg: De Gruyter.

proLIBRIS. 2017. *Ausländerbeschäftigungsgesetz. Texte, Materialen, Judikatur*, 3rd edition. Linz: proLIBRIS.

Rechsteiner, Frank. 2016. *Erfolgreiches IT-Recruiting trotz Fachkräftemangel. Methoden zur Personalbeschaffung und -bindung*. Wiesbaden: Springer Gabler.

Reeskens, Tim, and Matthew Wright. 2014. "Host-country patriotism among European immigrants: A comparative study of its individual and societal roots." *Ethnic and Racial Studies* 37, no. 14: 2493-2511.

Reiche, B. Sebastian, and Anne-Wil Harzing. 2011. "International Assignments." In: *International Human Resource Management*, 3rd edition, edited by Anne-Wil Harzing, and Ashly H. Pinnington, 186-226. London: SAGE.

Reitz, John C. 1998. "How to Do Comparative Law." *American Journal of Comparative Law* 46, no. 4: 617-636.

Richardson, Julia, and Steve McKenna. 2006. "Exploring Relationships with Home and Host Countries." *Cross Cultural Management: An International Journal* 13, no. 1: 6-22.

Romani, Laurence. 2011. "Culture in International Human Resource Managment." In: *International Human Resource Management*, 3rd edition, edited by Anne-Wil Harzing, and Ashly H. Pinnington, 80-118. London: SAGE.

Rother, Stefan. 2017. "Multikulturelle Gesellschaft und Leitkultur." In: *Deutschland Einwanderungsland. Begriffe – Fakten – Kontroversen*, 3rd edition, edited by Karl-Heinz Meier-Braun, and Reinhold Weber, 173-176. Stuttgart: Kohlhammer.

Rudolph, Hedwig. 1996. „Die Dynamik im Nichteinwanderungsland Deutschland." In: *Migration in Europa. Historische Entwicklung, aktuelle Trends und politische Reaktionen*, edited by Heinz Fassmann, and Rainer Münz, 161-182. Frankfurt / New York: Campus Verlag.

Schindling, Anton. 1992. "Bei Hofe und als Pomeranzenhändler: Italiener im Deutschland der Frühen Neuzeit." In: *Deutsche im Ausland – Fremde in Deutschland. Migration in Geschichte und Gegenwart*, edited by Klaus J. Bade, 287-294. Munich: C.H. Beck'sche Verlagsbuchhandlung.

Schmiechen-Ackermann, Detlef. 2016. "Rassismus, politische Verfolgung und Migration: Ausgrenzung und Austreibung 'unerwünschter' Gruppen aus dem nationalsozialistischen Deutschland." In: *Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 573-642. Oldenburg: De Gruyter.

Schönwälder, Karen. 1999. "'Ist nur Liberalisierung Fortschritt?' Zur Entstehung des ersten Ausländergesetzes der Bundesrepublik." In*: 50 Jahre Bundesrepublik – 50 Jahre Einwanderung. Nachkriegsgeschichte als Migrationsgeschichte*, edited by Jan Motte, Rainer Ohlinger, and Anne von Oswald, 127-144. Frankfurt / New York: Campus Verlag.

Seifert, Jürgen. 2015. "Entwicklung einer einzigartigen Arbeitgebermarke auf Basis gelebter Markenwerte bei der TNT Express GmbH." In: *Erfolgreiches Personalmanagement im demografischen Wandel – Die Praxisbeispiele*, edited by Dagmar Preißing, and Katrin Kolb, 39-52. Oldenburg: De Gruyter.

Slaughter, Sandra A. 2014. *A Profile of the Software Industry. Emergence, Ascendance, Risks, and Rewards*. New York: Business Expert Press.

Sokolsa, Ina, and Eeva Pavy. 2020. "The Treaty of Lisbon." Accessed July 16, 2020. https://www.europarl.europa.eu/factsheets/en/sheet/5/the-treaty-of-lisbon.

Spoerer, Mark. 2016. "Kriegswirtschaft, Arbeitskräftemigration, Kriegsgesellschaft." In: *Handbuch Staat und Migration in Deutschland seit dem 17. Jahrhundert*, edited by Jochen Oltmer, 643-690. Oldenburg: De Gruyter.

Statista. 2020. “Anzahl der Unternehmen in der IT-Branche in Deutschland von 2008 bis 2018.” Accessed August 26, 2020. https://de.statista.com/statistik/daten/studie/189870/umfrage/anzahl-der-unternehmen-in-der-it-branche-in-deutschland/.

Statistik Austria. 2018. *migration & integration. zahlen. daten. indikatoren. 2018*. Vienna: Statistik Austria – Bundesanstalt Statistik Österreich.

Statistik Austria. 2019a. *migration & integration. zahlen. daten. indikatoren. 2019*. Vienna: Statistik Austria – Bundesanstalt Statistik Österreich.

Statistik Austria. 2019b. *Wanderungsstatistik 2018*. Vienna: Statistik Austria – Bundesanstalt Statistik Österreich.

Statistik Austria. 2020. *Wanderungsstatistik 2019*. Vienna: Statistik Austria – Bundesanstalt Statistik Österreich.

Statistisches Bundesamt. 2008. *Klassifikation der Wirtschaftszweige*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. 2018. *Einfacher beschäftigen. Beschäftigung ausländischer Fachkräfte / Optimierung der Einreise zur Arbeitsaufnahme*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. 2019. *Dienstleistungen. Strukturerhebung im Dienstleistungsbereich Information und Kommunikation 2017*. Wiesbaden: Statistisches Bundesamt.

Statistisches Bundesamt. 2020a. “Rechtliche Einheiten nach wirtschaftlichem Schwerpunkt, tätigen Personen, Gesamtumsatz und Bruttoanlageinvestitionen im Jahr 2018.” Accessed October 7, 2020. https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Dienstleistungen/Tabellen/sid-01-unternehmen-taet-personen-umsatz-bruttoinvestitionen-wirtschaftszweig.html.

Statistisches Bundesamt. 2020b. “Rechtliche Einheiten nach wirtschaftlichem Schwerpunkt und Aufwendungen im Jahr 2018.” Accessed October 7, 2020. https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Dienstleistungen/Tabellen/sid-02-aufwendungen-wirtschaftszweig.html.

Steidl, Annemarie. 2017. “Migration Patterns in the Late Habsburg Empire.” In: *Migration in Austria*, edited by Günter Bischof, und Dirk Rupnow, 69-86. Innsbruck: Contemporary Austrian Studies.

Steinfatt, Birgit. 2002. “Die Green Card für IT-Fachkräfte: Bestandsaufnahme und Entwicklungsperspektive arbeitsmarktbedingter Zuwanderung in Deutschland.” Dissertation, University of Konstanz.

Stiller, Martin. 2018. *Die Auswirkungen der Visaliberalisierungen auf Österreich*. Vienna: IOM.

Storr, Christian, Frank Wegner, Simone Eberle, Rainer Albrecht, and Annette Zimmermann-Kreher. 2005. *Kommentar zum Zuwanderungsgesetz*. Stuttgart: Richard Boorberg.

Suutari, Vesa, and Chris Brewster. 2000. “Making Their Own Way: International Experience through Self-initiated Foreign Assignments.” *Journal of World Business* 35, no. 4: 417-436.

Tarique, Ibraiz, Dennis Briscoe, and Randall Schuler. 2017. *International Human Resource Management. Policies and Practices for Multinational Enterprises*, 5th edition. New York / London: Routledge.

Taz. 2019. “Debatte um fehlende Spezialist*innen: Heil fordert ‘Anwerbestrategie’”. *Taz*, December 16, 2019. https://taz.de/Debatte-um-fehlende-Spezialistinnen/!5650621/.

Trompenaars, Fons, and Charles Hampden-Turner. 2004. *Managing people across cultures*. Chichester: Capstone.

Van der Ende, Martin, Kenneth Walsh, and Natalija Ziminiene. 2014. *European Vacancy and Recruitment Report 2014*. Cologne / Rotterdam: EC/ICON/ECORYS.

Verschueren, Herwig. 2018. “Employment and social security rights of third-country nationals under the EU labour migration directives.” *European Journal of Social Security* 20, no. 2: 100-115.

Von Loeffelholz, Hans Dietrich. 2017. “Arbeitsmarkt, Fachkräftemangel und Anerkennungsgesetz.” In: *Deutschland Einwanderungsland. Begriffe – Fakten – Kontroversen*, 3rd edition, edited by Karl-Heinz Meier-Braun, and Reinhold Weber, 137-143. Stuttgart: Kohlhammer.

Wenning, Norbert. 1996. *Migration in Deutschland. Ein Überblick*. Münster / New York: Waxmann Verlag.

Werner, Heinz. 2002. “The Current ‘Green Card’ Initiative for Foreign IT Specialists in Germany.” In: *International Mobility of the Highly Skilled*, 321-326. Paris: OECD.

Wien.gv.at. n.d. “Apostille oder diplomatische Beglaubigung von ausländischen Urkunden zur Vorlage in Österreich – Länderliste.” Accessed October 19, 2020. https://www.wien.gv.at/verwaltung/personenwesen/ahs-info/beglaubigungen.html#undefined.

Winkelmann, Rainer. 2002. “Why Do Firms Recruit Internationally? Results from the IZA International Employer Survey 2000.” In: *International Mobility of the Highly Skilled*, 133-150. Paris: OECD.

Wirtschaftskammer Österreich. n.d.a. “IT-Fachkräftemangel: Akuter Handlungsbedarf in der Ausbildung.” Accessed July 11, 2020. https://www.wko.at/branchen/k/information-consulting/unternehmensberatung-buchhaltung-informationstechnologie/ikt-statusreport-kaernten.html.

Wirtschaftskammer Österreich. n.d.b. “Migration als Chance für Österreich.” Accessed July 11, 2020. https://www.wko.at/site/Migration/Migration_als_Chance_fuer_Oesterreich.html.

Wirtschaftskammer Österreich. n.d.c. “Software & IT: Struktur, Zukunft und Trends der Branche.” Accessed August 26, 2020. https://www.wko.at/service/aussenwirtschaft/software-it-branche-struktur-zukunft-trends.html.

Wirtschaftskammer Österreich. n.d.d. "Migration." Accessed October 25, 2020. https://www.wko.at/site/Migration/migration.html.

Wirtschaftskammer Österreich. n.d.e. "Die Rot-Weiß-Rot-Karte." Accessed October 25, 2020. https://www.wko.at/site/Migration/RWR_Karte.html.

Wirtschaftskammer Österreich. 2016. "Ausländerbeschäftigung." Accessed October 25, 2020. https://www.wko.at/service/arbeitsrecht-sozialrecht/auslaenderbeschaeftigung.html.

Wirtschaftskammer Österreich. 2017. *Unselbständig Tätigkeit von Ausländern in Österreich.* Vienna: WKO Arbeit und Soziales.

Wirtschaftskammer Österreich. 2018a. *Unselbständig Beschäftigte Jahr 2018 nach Fachverbänden, Stellung im Unternehmen und Geschlecht*. Vienna: WKO Statistik.

Wirtschaftskammer Österreich. 2018b. *Unselbständig Beschäftigte Jahr 2018 nach Sparten, Stellung im Unternehmen und Geschlecht*. Vienna: WKO Statistik.

Wirtschaftskammer Österreich. 2019a. "Wie sehen die Betriebe den Fachkräftebedarf?" Accessed July 11, 2020. https://news.wko.at/news/oesterreich/wie-sehen-die-betriebe-den-fachkraeftebedarf.html.

Wirtschaftskammer Österreich. 2019b. "WKO Analyse: Fachkräfte." Accessed July 11, 2020. https://www.wko.at/site/WirtschaftspolitischeBlaetter/wko-analyse-fach-kraefte.html.

Wirtschaftskammer Österreich. 2019c. *Unternehmensberatung, Buchhaltung und Informationstechnologie. Branchendaten September 2019*. Vienna: WKO Abteilung für Statistik.

Wirtschaftskammer Österreich. 2020. "WKO Firmen A-Z." Accessed October 27, 2020. https://firmen.wko.at/.

Yanasmayan, Zeynep. 2018. *The Migration of Highly Educated Turkish Citizens to Europe: From Guestworkers to Global Talent*. London / New York: Routledge.

Zawrel, Christoph. 2016. “Migrationsgeschehen der Zweiten Republik Österreichs: Von der Gastarbeiterzuwanderung in den 1960er Jahren bis zum EU-Beitritt 1995.” Dissertation, University of Vienna.

Zweigert, Konrad, and Hein Kötz. 1987. *Introduction to Comparative Law*, 2nd edition. Oxford: Clarendon Press.

Annex

Abstract (English)

For the past decades, the shortage of highly skilled workers has been a reality in IT service industries worldwide – a reality entailing negative macro- and microeconomic consequences. One means of counteracting this shortage consists of employing highly skilled third-country nationals. The present thesis extends existing research by evaluating not only the realities and consequences but also the challenges implied by the employment and immigration of highly skilled third-country nationals in Austrian and German IT service companies. Various comparative methods are combined, ranging from the comparative law method concerning the two countries' applicable legislations, to quantitative analyses regarding macro level data and results obtained in a survey among Austrian and German IT service companies. The findings demonstrate that both the institutional and legal frameworks concerning the immigration and employment of highly skilled third-country nationals in Austria and Germany show many similarities. The same goes for the consequences of the shortage of highly skilled workers in both IT service industries. The immigration process of highly skilled third-country nationals represents a major obstacle for Austrian and German IT service companies. Best practice examples exist in both countries, regarding factors like work permit variety, family reunification provisions, and publicly available information.

Abstract (German)

Seit einigen Jahrzehnten ist der Fachkräftemangel weltweit zur Realität in IT-Dienstleistungs-Industrien geworden – eine Realität, die negative makro- und mikroökonomische Folgen mit sich bringt. Die Anstellung hochqualifizierter Drittstaatsangehöriger ist eine Methode, um diesem Mangel entgegenzuwirken. Die vorliegende Masterarbeit schließt an vorhergehende Forschung an, indem nicht nur besagte Realitäten und Folgen analysiert werden, sondern auch die Herausforderungen, die die Anstellung und Einwanderung von hochqualifizierten Drittstaatsangehörigen in österreichischen und deutschen IT-Dienstleistungs-Unternehmen implizieren. Mehrere vergleichende Methoden werden kombiniert. Diese reichen von der Funktionalen Rechtsvergleichung, die das geltende Recht beider Länder behandelt, bis hin zur quantitativen Analyse von Daten der Makroebene und einer Befragung, die mit österreichischen und deutschen IT-Dienstleistungs-Unternehmen durchgeführt wurde. Die Ergebnisse zeigen, dass die institutionellen und rechtlichen Rahmenbedingungen bezüglich der Anstellung und Einwanderung von hochqualifizierten Drittstaatsangehörigen in Österreich und Deutschland viele Ähnlichkeiten aufweisen. Selbiges gilt für die Folgen des Fachkräftemangels in beiden IT-Dienstleistungs-Industrien. Der Einwanderungsprozess hochqualifizierter Drittstaatsangehöriger stellt für viele österreichische und deutsche IT-Dienstleistungs-Unternehmen ein bedeutendes Hindernis dar. Best-Practice-Beispiele sind in beiden Ländern zu finden und beziehen sich auf Faktoren wie Arbeitsgenehmigungen, Familienzusammenführung und das öffentlich verfügbare Informationsangebot.

Annex 1: Scoring Tables for 2019 Red White Red Cards

(Provided by Arbeitsmarktservice upon request)

Anlage A

Zulassungskriterien für besonders Hochqualifizierte gemäß § 12

Kriterien	Punkte
Besondere Qualifikationen bzw. Fähigkeiten	**maximal anrechenbare Punkte: 40**
Abschluss eines Studiums an einer tertiären Bildungseinrichtung mit vierjähriger Mindestdauer	20
– im Fachgebiet Mathematik, Informatik, Naturwissenschaften oder Technik (MINT-Fächer).	30
– mit Habilitation oder gleichwertiger Qualifikation (z. B. PhD)	40
Letztjähriges Bruttojahresgehalt in einer Führungsposition eines börsennotierten Unternehmens oder eines Unternehmens, für dessen Aktivitäten bzw. Geschäftsfeld eine positive Stellungnahme der zuständigen Außenhandelsstelle vorliegt: 50 000 bis 60 000 Euro 60 000 bis 70 000 Euro über 70 000 Euro	 20 25 30
Forschungs- oder Innovationstätigkeit (Patentanmeldungen, Publikationen)	20
Auszeichnungen (anerkannte Preisträgerschaft)	20
Berufserfahrung (ausbildungsadäquat oder in Führungsposition)	**maximal anrechenbare Punkte: 20**
Berufserfahrung (pro Jahr) sechsmonatige Berufserfahrung in Österreich	2 10
Sprachkenntnisse	**maximal anrechenbare Punkte: 10**
Deutsch- oder Englischkenntnisse zur elementaren Sprachverwendung auf einfachstem Niveau (A 1) oder zur vertieften elementaren Sprachverwendung (A 2)	 5 10
Alter	**maximal anrechenbare Punkte: 20**
bis 35 Jahre bis 40 Jahre bis 45 Jahre	20 15 10
Studium in Österreich	**maximal anrechenbare Punkte: 10**
zweiter Studienabschnitt bzw. Hälfte der vorgeschriebenen ECTS-Anrechnungspunkte	5
gesamtes Diplom- oder Bachelor- und Masterstudium	10
Summe der maximal anrechenbaren Punkte	**100**
erforderliche Mindestpunkteanzahl	**70**

Anlage B

Zulassungskriterien für Fachkräfte in Mangelberufen gemäß § 12a

Kriterien	Punkte
Qualifikation	maximal anrechenbare Punkte: 30
abgeschlossene Berufsausbildung im Mangelberuf	20
allgemeine Universitätsreife im Sinne des § 64 Abs. 1 des Universitätsgesetzes 2002, BGBl. I Nr. 120	25
Abschluss eines Studiums an einer tertiären Bildungseinrichtung mit dreijähriger Mindestdauer	30
ausbildungsadäquate Berufserfahrung	maximal anrechenbare Punkte: 20
Berufserfahrung (pro Jahr) Berufserfahrung in Österreich (pro Jahr)	2 4
Sprachkenntnisse Deutsch	maximal anrechenbare Punkte: 15
Deutschkenntnisse zur elementaren Sprachverwendung auf einfachstem Niveau (A 1) Deutschkenntnisse zur vertieften elementaren Sprachverwendung (A 2) Deutschkenntnisse zur selbständigen Sprachverwendung (B 1)	5 10 15
Sprachkenntnisse Englisch	maximal anrechenbare Punkte: 10
Englischkenntnisse zur vertieften elementaren Sprachverwendung (A 2) Englischkenntnisse zur selbständigen Sprachverwendung (B 1)	5 10
Alter	maximal anrechenbare Punkte: 15
bis 30 Jahre bis 40 Jahre	15 10
Summe der maximal anrechenbaren Punkte	90
erforderliche Mindestpunkteanzahl	**55**

Anlage C

Zulassungskriterien für sonstige Schlüsselkräfte gemäß § 12b Z 1

Kriterien	Punkte
Qualifikation	**maximal anrechenbare Punkte: 30**
abgeschlossene Berufsausbildung oder spezielle Kenntnisse oder Fertigkeiten in beabsichtigter Beschäftigung	20
allgemeine Universitätsreife im Sinne des § 64 Abs. 1 des Universitätsgesetzes 2002, BGBl. I Nr. 120	25
Abschluss eines Studiums an einer tertiären Bildungseinrichtung mit dreijähriger Mindestdauer	30
ausbildungsadäquate Berufserfahrung	**maximal anrechenbare Punkte: 20**
Berufserfahrung (pro Jahr) Berufserfahrung in Österreich (pro Jahr)	2 4
Sprachkenntnisse Deutsch	**maximal anrechenbare Punkte: 15**
Deutschkenntnisse zur elementaren Sprachverwendung auf einfachstem Niveau (A 1) Deutschkenntnisse zur vertieften elementaren Sprachverwendung (A 2) Deutschkenntnisse zur selbständigen Sprachverwendung (B 1)	5 10 15
Sprachkenntnisse Englisch	**maximal anrechenbare Punkte: 10**
Englischkenntnisse zur vertieften elementaren Sprachverwendung (A 2) Englischkenntnisse zur selbständigen Sprachverwendung (B 1)	5 10
Alter	**maximal anrechenbare Punkte: 15**
bis 30 Jahre bis 40 Jahre	15 10
Summe der maximal anrechenbaren Punkte Zusatzpunkte für Profisportler/innen und Profisporttrainer/innen	**90** 20
erforderliche Mindestpunkteanzahl	**55**

Annex 2: Scoring Table for 2018 Red White Red Card Other Key Workers (Extracted from 504/A XXVI. GP)

Geltende Fassung lt. BKA/RIS (Bundesrecht konsolidiert) mit Stichtag 22.11.2018

Kriterien	Punkte
Qualifikation	**maximal anrechenbare Punkte: 30**
abgeschlossene Berufsausbildung oder spezielle Kenntnisse oder Fertigkeiten in beabsichtigter Beschäftigung	20
allgemeine Universitätsreife im Sinne des § 64 Abs. 1 des Universitätsgesetzes 2002, BGBl. I Nr. 120	25
Abschluss eines Studiums an einer tertiären Bildungseinrichtung mit dreijähriger Mindestdauer	30
ausbildungsadäquate Berufserfahrung	**maximal anrechenbare Punkte: 10**
Berufserfahrung (pro Jahr) Berufserfahrung in Österreich (pro Jahr)	2 4
Sprachkenntnisse	**maximal anrechenbare Punkte: 15**
Deutschkenntnisse zur elementaren Sprachverwendung auf einfachstem Niveau oder Englischkenntnisse zur selbständigen Sprachverwendung Deutschkenntnisse zur vertieften elementaren Sprachverwendung oder Englischkenntnisse zur vertieften selbständigen Sprachverwendung	10 15
Alter	**maximal anrechenbare Punkte: 20**
bis 30 Jahre bis 40 Jahre	20 15
Summe der maximal anrechenbaren Punkte Zusatzpunkte für Profisportler/ innen und Profisporttrainer/innen	**75** 20
erforderliche Mindestpunkteanzahl	**50**

Annex 3: List of 2018 and 2019 Austrian Shortage Occupations (Provided by Arbeitsmarktservice upon request)

Mangelberufsliste 2018

1. SchwarzdeckerInnen
2. FräserInnen
3. TechnikerInnen mit höherer Ausbildung (Ing.) für Maschinenbau
4. TechnikerInnen mit höherer Ausbildung (Ing.) für Starkstromtechnik
5. DreherInnen
6. Sonstige TechnikerInnen für Starkstromtechnik
7. TechnikerInnen mit höherer Ausbildung (Ing.) für Datenverarbeitung
8. LandmaschinenbauerInnen
9. Diplomingenieur(e)Innen für Maschinenbau
10. Diplomingenieur(e)Innen für Starkstromtechnik
11. Werkzeug-, Schnitt- und StanzenmacherInnen
12. Diplomingenieur(e)Innen für Datenverarbeitung
13. DachdeckerInnen
14. TechnikerInnen mit höherer Ausbildung soweit nicht anderweitig eingeordnet
15. SchweißerInnen, SchneidbrennerInnen
16. Sonstige TechnikerInnen für Maschinenbau
17. Elektroinstallateur(e)Innen, -Monteur(e)Innen
18. BautischlerInnen
19. Diplomingenieur(e)Innen für Schwachstrom- und Nachrichtentechnik
20. Sonstige SpenglerInnen
21. BetonbauerInnen
22. ZimmererInnen
23. Sonstige SpenglerInnen
24. Platten-, FliesenlegerInnen
25. KraftfahrzeugmechanikerInnen
26. Rohrinstallateur(e)Innen, -monteur(e)Innen
27. Diplomierte/r Gesundheits- und KrankenpflegerIn

Mangelberufsliste 2019

1. FräserInnen
2. TechnikerInnen mit höherer Ausbildung (Ing.) für Maschinenbau
3. SchwarzdeckerInnen
4. TechnikerInnen mit höherer Ausbildung (Ing.) für Starkstromtechnik
5. LandmaschinenbauerInnen
6. DreherInnen
7. Spezielle TechnikerInnen für Starkstromtechnik
8. TechnikerInnen mit höherer Ausbildung (Ing.) für Datenverarbeitung
9. DachdeckerInnen
10. SchweißerInnen, SchneidbrennerInnen
11. TechnikerInnen mit höherer Ausbildung soweit nicht anderweitig eingeordnet
12. Sonstige TechnikerInnen für Maschinenbau
13. Sonstige SchlosserInnen
14. BetonbauerInnen
15. ZimmererInnen
16. ElektroinstallateurInnen, ElektromonteurInnen
17. Sonstige SpenglerInnen
18. KraftfahrzeugmechanikerInnen
19. Werkzeug-, Schnitt- und StanzenmacherInnen
20. RohrinstallateurInnen, RohrmonteurInnen
21. LackiererInnen
22. BautischlerInnen
23. PlattenlegerInnen, FliesenlegerInnen
24. HufschmiedInnen und WagenschmiedInnen
25. Sonstige TechnikerInnen für Schwachstrom- u. Nachrichtentechnik
26. PflastererInnen
27. HolzmaschinenarbeiterInnen
28. Diplomierte Gesundheits- und KrankenpflegerInnen, die ihre im Anerkennungsbescheid vorgeschriebene Ergänzungsausbildung bzw. Ausgleichsmaßnahme bis Ende 2018 begonnen haben.
29. BauspenglerInnen
30. TechnikerInnen mit höherer Ausbildung (Ing.) für Wirtschaftswesen
31. KarosseriespenglerInnen, KühlerspenglerInnen
32. AugenoptikerInnen
33. Bau- und MöbeltischlerInnen
34. GaststättenköchInnen
35. Sonstige BodenlegerInnen
36. MaschinenschlosserInnen
37. BauschlosserInnen, BlechschlosserInnen, KonstruktionsschlosserInnen
38. TechnikerInnen mit höherer Ausbildung für Schwachstrom und Nachrichtentechnik
39. Sonstige TechnikerInnen soweit nicht anderweitig eingeordnet
40. Spezielle TechnikerInnen für Wirtschaftswesen
41. Sonstige GrobmechanikerInnen
42. KunststoffverarbeiterInnen
43. TechnikerInnen mit höherer Ausbildung (Ing.) für Bauwesen
44. Lohn-, GehaltsverrechnerInnen
45. Sonstige TiefbauerInnen