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INTERNATIONALISATION AND ENTREPRENEURSHIP IN GERMAN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT: Nowadays, as a consequence of globalization, there is an interpenetration in the various aspects of reality, that higher education also belongs. In fact, higher education institutions around the world are increasingly intensifying co-operation. So there is an intensification of the internationalization of higher education and of the mobility of students and academic and non-academic staff that conducts to the allocation of ideas, cultures, identities, and skills generating entrepreneurship, innovation and competitiveness. The purpose of this paper is to reflect on the internationalization of German higher education as well as entrepreneurship in higher education.

KEYWORDS: Higher Education, Germany, internationalization, entrepreneurship

RESUMO: Actualmente, como consequência da globalização, constata-se uma interpenetração nos vários carizes da realidade, de que o ensino superior não é alheio. De facto, as instituições de ensino superior, de diferentes países, intensificam cada vez mais a cooperação entre si. Verifica-se desta forma, um intensificar da internacionalização do ensino superior e da mobilidade de estudantes, bem como do pessoal académico e não académico. Esta partilha de ideias, culturas, identidades e competências levam também ao empreendedorismo, à inovação e à competitividade entre países. É objectivo deste artigo reflectir não só sobre a temática da internacionalização do ensino superior alemão mas também do empreendedorismo no ensino superior.

PALAVRAS-CHAVE: Ensino Superior, Alemanha, internacionalização, empreendedorismo

I. Introduction

The internationalization of higher education is a phenomenon that has increased in the last decades and has gained more and more notoriety and importance. Higher education institutions seek to attract more and more students not only inside but also outside frontiers. This phenomenon brings them recognition and prominence in the academic rankings and the possibility of creating competitive advantages in the surroundings where they are inserted. Students seek, through internationalization, new skills not only academic but also personal. The theme addressed in this paper, arises from an intercultural experience which results from the curricular internship that took place in Germany. It is in this perspective that this paper inserts, the role of the internationalization of higher education in a country with the economic characteristics of Germany. How German higher education and its internationalization are characterized, which factors attract students in choosing Germany and the relationship between Germany's competitiveness, entrepreneurship, and innovation.

This paper will be organized into three points: entrepreneurship, internationalization of Higher Education, and Higher Education in Germany. The first point will start with the approach to the concept of entrepreneurship, its importance, the relations established between entrepreneurship, innovation and creativity and, finally, the relationship between entrepreneurship and education. The second point will start by making the definition of the concept of internationalization of higher education as well as the problem of "brain circulation". In the third and final point will be analysed the German higher education. This point is useful to reflect on the conceptualization of internationalization and its impact in a country recognized worldwide by the high rate of competitiveness and innovation of its business.

II. Entrepreneurship

An entrepreneur is a person who voluntarily or involuntarily, takes advantage of the opportunities observed. Stoner and Freeman (1995) corroborate in affirming that the entrepreneur perceives opportunities in situations that others do not see.

The European Commission (2003) award great importance to entrepreneurship in job creation, in economic growth, in improving competitiveness, in the exploitation of the

potential of individuals and the interests of society, by protecting the environment, in the production of health, education and social security, services.

Bucha (2009) distinguishes two currents that study entrepreneurship, economic and behavioural. The economic current associates the entrepreneur to the innovation, in turn, the behavioural current associates to the creativity. For instance, Schumpeter (1982, as cited in Farah, Cavalcanti & Marcondes, 2018) mentions that economic development results from the association between entrepreneurship and innovation and, by another side, Ferreira, Santos and Serra (2008) refer that the entrepreneur is motivated by behavioural aspects that are related to organization, creation, creativity, wealth and risk.

Shane and Venkataraman (2000) present a mixture of the two currents, defining entrepreneurship as a process in which something creative and innovative is accomplished, with the goal of generating wealth and value for individuals and for society.

Davey, Plewa and Struwing (2011) point out that entrepreneurship is a factor of extreme importance for growth and economic competitiveness, it generates jobs and makes social interests progress. It creates in policy makers and academics the will of promoting the entrepreneurial mentality in society. Dolabela (2006) also agrees that entrepreneurship is a driver of the economy and it is responsible for economic growth and social development. For this author, entrepreneurship, through innovation, is one of the best ways to fight unemployment.

The European Commission/Eurostat (2012) present similar conclusions, by stating as the major social and economic objectives, associated with entrepreneurship, the job creation, the economic growth, and the poverty reduction. According to Gaspar (2007), the importance of entrepreneurship is attributed to four aspects:

1. job creation;
2. the role of young companies for innovation;
3. the role of new companies for wealth creation and for the development of the economy and of society;
4. entrepreneurship as a career option for a significant part of the workforce.

However, there are authors who do not share the same opinion, Bruce and Kirchhoff (1989) conclude that there is not always a clear relationship between business creation and economic growth, but they also conclude that the reverse is more frequent. Entrepreneurship is, according to Ferreira et al. (2008), conditioned by a vast set of factors. These factors may be factors inherent to the individual or factors of a national

and/or environmental nature. Duarte and Esperança (2012) mention that the personal reasons that motivate the entrepreneur are often the willingness to change the professional situation in which they are and may be allied with previous professional experience and training. Saraiva (2011) shares a similar opinion when referring that it is not always the monetary factors that motivate the entrepreneur, but the motives are often the personal accomplishment, the reinforcement of the autonomy and the difficulty in finding life options.

In macro terms, according to Drucker (2002), innovation is a lever of entrepreneurship and arises due to factors such as the occurrence of unforeseen events, industrial and market changes, demographic changes and/or expansion of knowledge.
Oda (2017) refers that "entrepreneurship and innovation are like two sides of the same coin […]. To undertake it is necessary to have space to create, put ideas into practice and truly innovate." In a similar sense, Lewrick, Omar, Raeside, and Sailer (2010) also associate innovation with entrepreneurship. Innovation is seen as the production, diffusion, and use of new economic knowledge, being these key factors for competitiveness and economic growth.

Cavalcanti and Gomes (2001) mention that innovation is directly reflected in productivity. The improvement of this indicator affects the profitability and competitiveness of organizations. On the other hand, the main input of innovation is knowledge, and knowledge is closely related to Higher Education Institutions (HEIs). Universities thus play a key role in this process. In the European Commission's survey (2017) is perceived that investments in education have positive and direct impacts on a country's entrepreneurship, innovation, and development.

Florida (2012) cites some studies about the national growth that find an explicit relation between the economic success of a country and its human capital, measured by its level of education.

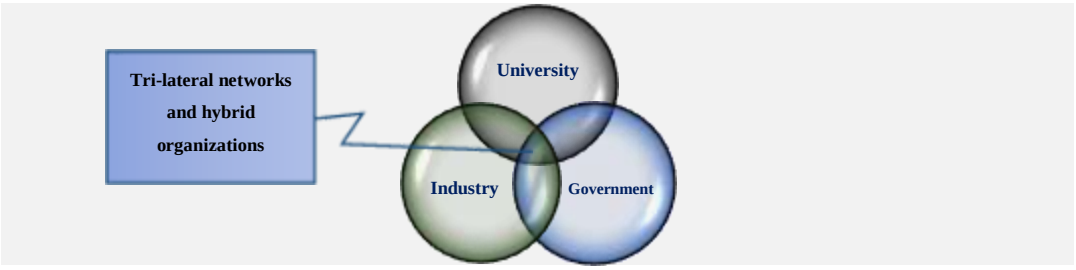
Education systems have developed in recent years, also at the level of entrepreneurship. Duarte and Esperança (2012) address this theme by pointing out that in the past, education systems were based on personal fulfillment through higher education, employability, and financial stability. Today, according to the authors, entrepreneurship is an engine of initiative development that promotes entrepreneurial culture through creativity, innovation and the ability to take risks. The authors also mention that in education one must develop attitudes and entrepreneurial skills through the development of personal qualities and one must also develop the creation and management of companies through a specific formation.

According to Ferreira et al. (2008), it is necessary that the entrepreneurs obtain competences that enable them to create value. In this way, it is the responsibility of education systems to foster entrepreneurial attitudes among students, which is a critical dimension in the education of the new generations and sustained progress.

Lamas (2017) considers that one of the functions of education is to predict and promote the interaction between academic knowledge and industrial specialization. Bucha (2009) also shares this view, stating that is essential the connection between school and extra-school life, especially with the labour market. The author considers that a strategy should be created that allows the student to have autonomy to make his choices, allowing him to control the beginning and its entrepreneurial character, depending on the learning obtained and developed.

According to Louis, Blumenthal, Gluck and Stoto (1989, as cited in Sarkar, 2010), entrepreneurship education attempts to increase individual or institutional profit, influence or prestige through the development of research or research-based products. To achieve this purpose Sarkar (2010) recommends a "Triple Helix Thesis" in which he advocates an interaction between university, industry, and government in the search for knowledge-based society (Figure 1). According to this model, the society benefits from the relationships ("trilateral networks") established between the three entities. Then, these networks create, through innovation, new products and/or processes.

Figure 1 – Triple Helix Thesis



Source: adapted and translated from Sarkar (2010, p.85)

The European Commission (2003) argues that entrepreneurship skills must be obtained throughout life, from basic education to university. Similarly, Heinonen (2007) argues that education for entrepreneurship should be focused on the acquisition of knowledge in certain phases. The educational effort must be carried out throughout the educational process and not only, as usual, in Higher Education. The European Commission (2003) adds that even in Higher education, entrepreneurship education is limited. Entrepreneurship is usually taught in management and economics courses, and it

should be extended to other areas important to competitiveness, such as engineering, science or art.

To summarize, according to Redford (2008), in addition to producing knowledge, the university plays a crucial role in the development of innovation, creativity, and economic growth, being thus a fundamental method in the prosecution of entrepreneurship and on what education creates for the country.

III. Internationalization of Higher Education

In recent years, the intensification of the globalization process promoted the growth of competitiveness among nations. Bueno (2010) considerers that with globalization, organizations look for ways to differentiate themselves and become competitive, considering the global demand through internationalization and the incentive to professional mobility.

Morosini (2006) points out that internationalization in higher education, in the form that is currently structured, is a phenomenon strictly associated with globalization and the regionalization of societies. On the other hand, for Atkinson (2001, as cited in Jofin, 2009), the internationalization of education is a way for countries to combat the impact of globalization while maintaining their individuality.

As Green, Eckel and Barblan (2002) refer, internationalization is a response to globalization, since the high flow of goods, people and ideas, leads students to acquire a set of knowledge and skills that allow them to live and work in this new global environment. Knight (2007) corroborates by saying that internationalization is the response of institutions, sectors and educational agendas to global flows.

Stallivieri (2002) in his studies refers that in the new model of the higher education internationalization, the new qualified agents are expected to develop in a way that they can practice their activities anywhere in the world and they can communicate with people of any nationality.

Higher Education Institutions (HEIs) around the world are establishing contacts and partnerships with other institutions, organizations and bodies to improve their skills in a wide range of fields. Internationalization, according to Reppold, Cardoso and Vaz (2010), is a complex and multiple-faceted social process involving diverse concepts, structures, values, cultures and meanings, with important economic, political, social and economic implications for the countries, institutions and the people involved.

According to Knight and De Wit (1995), the internationalization of HEIs can be understood as a process of introducing the international and/or intercultural dimension in the different aspects related to education, teaching, and research. It is a mean used by universities to address the challenges posed by the global context of economic production requiring new and qualified professional and cultural skills.

As Morosini (2006) points out, the characteristics of education are dependent on the guidelines of international organizations, so in addition to the definitions of researchers, there are also definitions made by international organizations. For instance, UNESCO (2009) is interpreting internationalization as the driving force behind the dissemination and transfer of knowledge between countries, especially in terms of innovation and technology.

Salmi (2009) in the publication of the World Bank defines the functions of the education system as developing workforce skills to sustain economic growth and transform education spending into educational outcomes. In addition, universities are staggered in international rankings that are based on scientific production, technological resources, professional qualification, and academic mobility.

In the Bologna Process Implementation Report (European Commission/EACEA/Eurydice, 2015), mobility flows are differentiated by their direction. The "outward mobility" assumes the perspective of the country of origin of the student. A high flow rate could be an indicator of a proactive policy for students to gain international experience (particularly for credit mobility[1]). However, it can also be an indicator of possible deficiencies in the education system of the country of origin (particularly for degree mobility[2]). The "incoming mobility" assumes the perspective of the country of study destination of the student. The high rate of mobility can be considered an indicator of the attractiveness of the country/institution, analysed proportionally to the size of the higher education system.

Qiang (2003) refers that as there are many ways to define internationalization, there are also different motivations to integrate an international dimension in higher education. The call for the internationalization of universities corresponds to motivations that are often not explicit. According to Lastres and Ferraz (1999), these motivations are gradually changing and reflect the international competitive environment of the

[1] "Credit mobility is a short-term form of mobility, usually a maximum of one year, aiming at the acquisition of credits in a foreign institution in the framework of on-going studies at the home institution." [definition given by European Commission/EACEA/Eurydice (2015, p.269)]

[2] "Degree mobility is a long-term form of mobility which aims at the acquisition of a whole degree or certificate in the country of destination." [definition given by European Commission/EACEA/Eurydice (2015, p.269)]

knowledge society. Hénard, Diamond and Roseveare (2012, as cited in Grupo de Trabalho MADR/MEC 2014, p.25) state that the main reasons driving the internationalization of HEIs can be summarized in five levels:

- "encouraging better student preparation;
- internationalization of curricula;
- affirmation of the international profile of the institution;
- strengthening research and knowledge production;
- incorporation of diversity in the teaching and administrative bodies."

Stallivieri (2002) argues that the lack of an organized and harmonized system of studies that facilitates systematic participation for international students is one of the factors that should be considered when analysing low mobility.

UNESCO (2009) states that student mobility across regions and countries is in part a mean for students to show their growing awareness of the world, as well as their interest in preparing to live in an interdependent world. At the same time, governments and organizations are aware that the future workforce must be well-trained to prosper at national, regional and individual levels. Stallivieri (2002, p.21) adds that the new model of international education should develop professionals capable of working anywhere in the world and able to communicate with people of any nationality and who realize that intercultural education is a "quick and effective way of bringing peace to nations".

Taylor (2010) argues that the states' perceived advantages go beyond the financial advantages. For the author, foreign students are seen, by states, as the solution to fill the gaps in the labour markets and to create closer trade ties from a long-term perspective. These relationships are perceived as a route by which international influence can be extended.

According to Knight and de Wit (1995), the internationalization of higher education went through three phases: from the Middle Ages to the Renaissance, from the 18th century until the World War II and from the World War II to the present day. Lima and Maranhão (2008) confirm that from the 1990s until today there has been an enormous increase in international mobility, as well as policies, strategies, and programs that have stimulated the idea of internationalization in higher education.

Brooks and Waters (2011) believe that technological and transport innovation have had a major impact on people's drive and their ability to move. These movements had implications in education, mainly because of the decrease of geographical boundaries. These authors also point out that recent mobility is associated with policies

at the global level, considering several highly influential organizations. The role played by the World Bank, the OECD, UNESCO and the European Commission are major examples.

The Report "Education at a Glance 2017" by OECD (2017) states that the global population of international students has expanded tremendously in the last four decades. This report highpoint the growth of global student mobility, particularly from 1975 to 2025. The total number of students enrolled outside their home countries began to rise from around one million in 1975 to almost five million nowadays. The total number of higher education students is projected by OECD (2017) to reach eight million by 2025. According to UNESCO (2013, as cited in OECD, 2017), the increase in an abroad country enrolment has been driven by a variety of domestic and external reasons, encouraging outward/inward factors.

> The skills' needs of increasingly knowledge-based and innovation-driven economies have spurred demand for tertiary education worldwide […] Rising wealth in emerging economies has further prompted the children in a growing middle class to look for educational opportunities abroad. At the same time, factors such as economic (e.g. costs of international flights), technological (e.g. the spread of the Internet and social media to maintain contacts across borders) and cultural (e.g. use of English as a common working and teaching language) have contributed to making international mobility substantially more affordable and less irreversible than in the past. (OECD 2017, p.295)

Some countries experience an outward flow of students, measured by the percentage of all national students studying abroad (Figure 2).

Figure 2 – Mobility balances in major host countries and countries of origin, in 2015

(number and in % of all incoming and outgoing students)

	Outgoing	Internationally mobile students in %	Incoming
Country	Number		Number
Vietnam	63,702	96 4	2,874
India	253,926	86 14	41,993
China[3]	837,849	83 17	167,295
South Korea	108,033	67 33	54,540
Germany[9]	137,700	37 63	235,858
France[7]	80,714	25 75	235,123
South Africa[7]	7,451	15 85	42,594
United Kingdom	31,075	7 93	428,724
USA	67,670	7 93	907,251
Australia	12,027	4 96	294,438

Notes: 3 Includes Hongkong and Macao; 7 The Academic year 2014; 9 Source: Destatis Statistisches Bundesamt., student statistics includes doctoral students

Source: DAAD/DZHW (2018, p.15)

The respective mobility flows result in different mobility balances for the various countries. With high percentages are Vietnam (96%), India (86%), China (83%) and South Korea (67%). In these countries, the percentage of national students enrolled abroad significantly exceeds the share of international students enrolled in national institutions.

The top destination countries for international students are the English-speaking countries: the USA, the United Kingdom (UK) and Australia. According to Deutscher Akademischer Austauschdienst[3]/Deutsches Zentrum für Hochschul und Wissenschaftsforschung[4] [DAAD/DZHW] (2018), this last group of countries places greater value on attracting foreign students than on mobilising their own students.

Hobsons EMEA (2017, as cited in DAAD/DZHW,2018) conducted a survey to 19,000 prospective students to understand which reasons were more important for them on the choice of host country. So, when deciding on a host country, the quality of teaching (compared to the home country) was considered the most important (49%). Positive attitude toward international students, Visa regulations and affordability of the academic studies and costs of living are rated next.

Nowadays, there is growing international mobility of young qualified persons, that seek to invest in their academic and professional education. This international mobility creates what is usually called of "brain drain". The term "brain drain" is used by Brooks and Waters (2011, p.143), to "losses suffered by nations that send a considerable number of students abroad." However, according to the authors, there is no substantial evidence to support the argument that this situation causes problems for developing countries. In fact, Meyer (2001) emphasizes the positive impacts that highly qualified human resources can generate in the countries of origin, the so-called "brain gain". These benefits can occur through the creation of networks that promote exchanges and programs that foster cooperation or the circulation of knowledge.

In addition to the concept of "brain gain", Salt (1997) approaches the concept of "brain circulation". According to this author, the new migratory flows of qualified agents have changed from a permanent to a temporary status. This new conceptual framework addresses mobility as a complex and multidimensional phenomenon of knowledge circulation.

[3] German Academic Exchange Service.
[4] German Centre for Higher Education Research and Science Studies.

Kritz and Caces (1992) believe that mobility of students, teachers, and researchers in higher education, besides promoting the exchange and circulation of brains, science, and technology, could be important not only for the creation of networks in society but also for the strengthening of multilateral relations between institutions/nations.

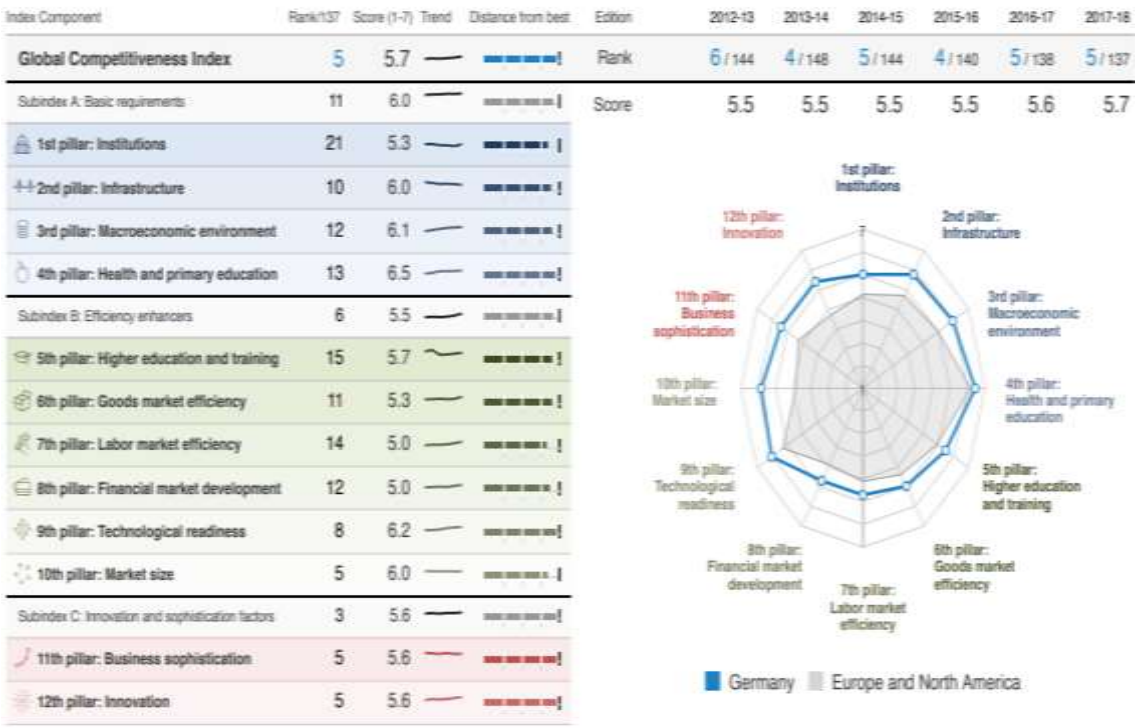
IV. Germany's Higher Education

At the beginning of the 21st century, Germany was faced with the innovation, a key issue for the competitiveness and maintenance of its industry. Nowadays, being a country extremely dependent on its industry gives it the position of the third largest exporter in the world (Observatory of Economic Complexity, 2018), which the research and development process is extremely important for the maintenance of its competitiveness indexes. From this point of view, Germany is a country dependent on its export industry, it also depends on the innovation generated at universities to maintain its competitiveness.

According to the Report of the World Economic Forum [WEF] (2017), Germany was considered the fifth most competitive economy in the world and the third in terms of Europe, with a ranking of 5.7 points (figure 3). This ranking results from the WEF's analysis of the twelve pillars of competitiveness in 137 countries. Germany is in an innovation-driven status of development, the most competitive possible. Of the 12 pillars evaluated and compared to the other economies in Europe and North-America, it has a rating above the average on the 12 pillars.

It is important to highlight the position occupied by Germany, which, when competing with the most advanced economies in the world, has a better competitive performance than countries such as Hong Kong, Sweden, the UK, Japan, and Finland. As stated in WEF (2017, p. 126), referring to Germany, "The excellent performance of its innovation and business ecosystem is particularly noteworthy […] innovation capacity and business sophistication are assessed" as one of best in the world, "supported by high levels of technological readiness and high-quality infrastructure".

Figure 3 – Index Component Germany, 2017-2018



Index Component	Rank/137	Score (1-7)	Trend	Distance from best
Global Competitiveness Index	5	5.7		
Subindex A: Basic requirements	11	6.0		
1st pillar: Institutions	21	5.3		
2nd pillar: Infrastructure	10	6.0		
3rd pillar: Macroeconomic environment	12	6.1		
4th pillar: Health and primary education	13	6.5		
Subindex B: Efficiency enhancers	6	5.5		
5th pillar: Higher education and training	15	5.7		
6th pillar: Goods market efficiency	11	5.3		
7th pillar: Labor market efficiency	14	5.0		
8th pillar: Financial market development	12	5.0		
9th pillar: Technological readiness	8	6.2		
10th pillar: Market size	5	6.0		
Subindex C: Innovation and sophistication factors	3	5.6		
11th pillar: Business sophistication	5	5.6		
12th pillar: Innovation	5	5.6		

Edition	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Rank	6/144	4/148	5/144	4/140	5/138	5/137
Score	5.5	5.5	5.5	5.5	5.6	5.7

Source: World Economic Forum (2018, p.126)

Hübner (2009) points out that Germany presents a variation of typical liberal capitalism since the process of innovation is determined by public universities, research organizations, a homogenous population, and a legalized wage system. From this characterization, the matrix established between the German institutions in the formulation of the national economic development policy and that is reflected in the country's external relations in the field of international cooperation becomes clear.

Germany's Research & Development (R&D) system is composed of the education system and the scientific system. In the top 100 of the most innovative European Universities, conducted by Reuters, Ewalt (2018) lists three German universities in the top ten and twenty-three in the entire study. The author also mentions that on this year's list the German universities cumulatively rose spots, more than any other country. According to Moreira (2015), there are five main institutes for progress, innovation and economic development. These are divided between Universities, State Institutes (*Helmholtz Gemeinschaft*), Associated Institutes (*Leibniz Gemeinschaft*), *Max-Planck Gessellschaft* and *Frauhofer Gessellschaft*.

The German Federal Government's strategy for the internationalization of science and research, according to *Bundesministeriums für Bildung und Forschung* [BMBF][5] (2016), addresses fundamental issues for the country to develop its technological

[5] Federal Ministry of Education and Research.

competitiveness through the process of deepening and progress of scientific cooperation with other countries. The governmental strategy aims to achieve the following key points: strengthening research cooperation with world leaders in research and development, developing country's strength in innovation on the international stage, internationalising vocational training and qualification, working with emerging and developing countries to shape the global knowledge-based society, overcoming international responsibility and control global challenges.

According to the BMBF publication (2016), global competition requires greater efforts and, mainly, investments. Thus, Germany's R&D investment is defined as 3% of the country's gross domestic product (GDP), as are the rest of the EU. Although the percentage is not normally reached, in recent years the country's effort has increased, from 2.4% in 2005 to 2.9% in 2014. According to an analysis made by Schiermeier (2017), researchers are "flocking to the country", in part due to the country's investment in R&D, known as "Excellence Initiative," which has helped to attract foreign scientists to Germany.

In this way, the BMBF (2016) refers to the need to offer German researchers the opportunity to cooperate with the best scientists from all over the world, to internationalize the country's training centres, promoting higher education and the country's research and innovation processes. It is recognized that while students seek out institutions of excellence, institutions also seek them out.

Students mobility is a relevant issue and one that is of the utmost importance in international cooperation. Germany seeking to maintain its development and considering the economic and political leadership's status creates an institutional system of cooperation organized by the state, operated by higher education, aimed the industry, and international actors.

The impact of international mobility on the success of graduate careers was investigated in Germany. Biemann and Braakmann (2013) analysed the results of their study and concluded that there is a positive relationship between international mobility and professional success, both in terms of salary and professional achievement. This benefit was felt both for the graduates who continued to live in Germany after the end of the degree and for those who returned to their country of origin.

In an article from Coelho (2014), a similar conclusion was reached about a study on the impact of EU student mobility. In this study, it was concluded that mobility students are more successful in the labour market, this is because the unemployment rate is lower and because the time they spend in unemployment is also lower. The same study also reveals

that the trainees in mobility also show rates of entrepreneurship superior to those that do not participate in the program. In this way, an international experience can be an asset not only at the level of knowledge but also conveys added value for the professional future of the person who undertakes it.

As Redford (2008) mentions, the entrepreneurship starts to be a strategy followed by many countries to near HEIs and the labour market. The author continues by saying that HEIs usually prepare students for the world of work, entrepreneurship allows the student to feel supported, with the knowledge that facilitates the creation or exploration of new ideas. If students learn entrepreneurship in a mobility program, beyond these competences given by the courses, they can add all the benefits of this international mobility.

The origins of the German higher education system lie, according to King (2004), in the model developed by Wilhelm von Humboldt in the early 19th century. The aim of which was the exploration of the political value-added of the higher education system by increasing its competitiveness and establishing its recognition by other nations. One of the characteristics of the "Humboldt model" was that it ceased the education control by the Church and becomes the State to have a relatively high control over education combined with the financing responsibility. Another characteristic was the combination of research and education.

Nowadays, according to Hüther and Krücken (2018), the model in use in most research universities worldwide is based on the model of the German university implemented by the "Humboldt model". Rothblatt and Wittrock (2006, as cited in Hüther & Krücken, 2018) mention that in international comparative research on national higher education systems the worldwide importance of German universities in the nineteenth and early twentieth centuries was unquestionable.

The higher level of education in Germany is established in different kinds of advanced colleges or universities: University (*Universität)*, University of Applied Sciences *(Fachhochschule* or simply *Hochschule)* and Colleges of Art, Music, and Film (*Kunst-, Musik- und Filmhochschulen).*

According to the Goethe Institut (2018), in the University are offered different kinds of subjects. Some of the universities specialize in certain subject areas, for example, medical schools, technical universities, and colleges of education. The University of Applied Sciences conceals the scientific and social subjects but have the strongest emphasis on practical work and application. Wolfsteiner and Self (2012) differentiate traditional Universities as very theoretically oriented and Universities of Applied

Sciences as having a more practical outlook and focus on teaching professional skills. Both types of the institution can issue Bachelor's and Master's degrees, but Universities of Applied sciences cannot confer doctorates. The College of Art, Music, and Film offer practical education in the arts subjects and it has the equivalent status to universities.

According to *Hochschulrektorenkonferenz* [6] [HRK] (2018), due to the federal system in Germany, responsibility for education, including higher education, belongs to the federal states (*Länder*). In this way, states are responsible for the basic funding, for the organization of HEIs, and each state also has its own laws on education. So, the real structure and organization of the various higher education systems may differ from state to state. In Germany, according to HRK (2018), the HEIs officially recognised totalize 399 institutions, divided into 110 Universities and Technical Universities, 231 Universities of Applied Sciences and 58 Colleges of Art, Music, and Film.

In Germany, as referred by Hancké, Rhodes and Thatcher (2007), there is a university-state relationship characterized by a legal framework in which universities only enjoy institutional autonomy in teaching and research matters. According to Hanh (2004), the private sector has remained insignificant, for instance, in 2004, in Germany 96.9% of all students were enrolled in state-owned universities.

Another characteristic is the strong relationship between universities and coordinating bodies (even here the State has a significant influence through funding or membership). According to Graf (2008), the coordinating bodies have a substantial role in the internationalization of universities. In this way, there are several coordination bodies with a very strong degree of importance, such as the *Gemeinsame Wissenschaftskonferenz* (GWK)[7], the *Kultusminister Konferenz* (KMK)[8] and the *Wissenschaftskonferenz* [9]. As well, there are several research promotion agencies, such as the *Deutsche Forchungsgemeinschaft* (DFG)[10], the *Stifterverband für die Deutsche Wissenschaft* and the Alexander von Humboldt Foundation. Furthermore, there are four large networks of independent research centres, namely the, already mentioned, Max-Planck Society, the Fraunhofer Association, the Leibniz Association, and the Helmholz Association. Also, very active in internationalisation is the HRK an umbrella organisation serving as a coordinating and representative body of almost all higher education institutions in Germany. On the intermediary level, the *Deutscher Akademischer*

[6] German Rector's Conference.
[7] Joint Science Conference of Federal and *Länder* Ministers of Science.
[8] Standing Conference of the Ministers of Education and Cultural Affairs.
[9] Science Council.
[10] German Research Foundation.

Austauschdienst [DAAD], an independent association self-administered by the universities and mainly funded by State, is the most important player in internationalisation. Moreover, as De Wit (2002, as cited in Graf, 2008) states, the internationalization of universities is a way to rebuild national prestige.

Hanh (2004) points out that these bodies support the dissemination of information and the creation of opinion and provide channels for guiding policy formulation. In addition, they coordinate collaborative activities with international institutions.

According to the study of Ilieva and Peak (2016), the commitment to the internationalization of higher education is evidenced by the strategies adopted by the countries, namely in the reformed laws for higher education. The reforms are strong signs of interest in international participation and in supporting the global positioning of their higher education systems. As a result of the Europe 2020 Strategy[11], Germany proposed the "Strategy of the Federal and *Länder* Ministers of Science for the Internationalisation of Higher Education Institutions in Germany" (Strategy of the *Gemeinsame Wissenschaftskonferenz*). In their study Ilieva and Peak (2016, p.14) mention this Strategy as an example of the "heightened profile of International Higher Education (…) which focuses on student mobility, research collaborations, and enhanced structures to support intensified internationalisation in Germany and abroad." And they continue by saying that Germany is one of the countries that stands out for presenting, apparently, one of the most complete and well-adjusted international strategies.

The strategy of the Gemeinsame Wissenschaftskonferenz (2013) established nine major fields of action for the internationalization of German higher education institutions:

1. individual internationalization strategies respecting the objectives and the profile of each HEI;
2. improvements in the legal and bureaucratic aspects of validation of credits and documents, recognition of titles;
3. establishment of a welcoming culture, strengthening the social integration of students, teachers, and researchers;
4. establishment of an international campus, through the promotion of intercultural programs, internationalization of the curriculum, courses taught in English;
5. the increase of student mobility programs;

[11] "The Europe 2020 Strategy is the European Union's agenda for growth and jobs for the current decade. It emphasises smart, sustainable and inclusive growth as a way to overcome the structural weaknesses in Europe's economy, improve its competitiveness and productivity and underpin a sustainable social market economy." (European Commission, 2018)

6. the expansion of the institutions' capacity to make Germany one of the four best countries to attract students from all over the world;
7. the attraction of talents for temporary studies in German higher education institutions;
8. the expansion of international cooperation capacity for research;
9. the establishment of transnational courses, to give greater visibility to institutions and attracting highly qualified graduates to undertake studies in Germany.

With these guidelines, German universities understood the country's positioning and expectations regarding the internationalization of higher education systems and worked together in that direction. Ilieva and Peak (2016) conducted a study with 37 indicators, analysing the policies and measures of 26 countries to judge how each state encourages internationalization. It evidenced the excellence of the internationalization measures of Germany's higher education system.

Germany according to the study, alongside Malaysia, is the only country that has achieved the "Very high" evaluation in all categories of the study, which measured the German portfolio of national policies related to the theme as one of the most balanced.

Foreign Students

One of the goals set in "Strategy of the Federal and *Länder* Ministers of Science for the Internationalisation of Higher Education Institutions in Germany" was to reach 350,000 foreign students[12] in 2020, which was, according to Kennedy (2018), already exceeded in 2016/17 academic year, with 358,895 foreign students.

According to the Survey Report of QS Enrolment Solutions (2018), as seen in Figure 4, Germany is a very popular study destination standing alongside the USA, the UK, Canada, and Australia.

12 "Foreign students are those who are not citizens of the country in which they are enrolled. Although they are counted as internationally mobile, they may be long-term residents or even be born in the 'host' country (definition given by OECD 2017, p.296).

Figure 4 – The top ten countries preferred as study destinations 2016/17

(in %)

Source: QS Enrolment Solutions (2018

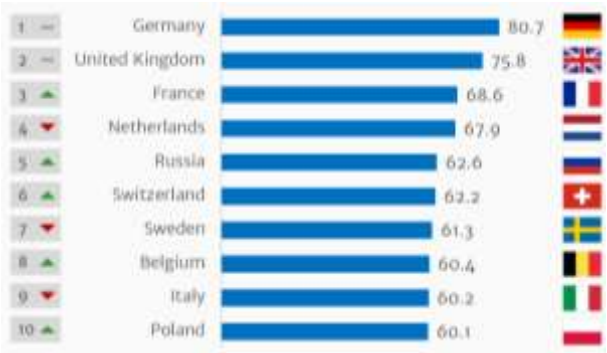
However, the Report also shows that the USA and the UK remain the top choices of foreign study candidates, those destinations are losing attractiveness. QS Enrolment Solutions (2018) suggests that many changes will happen in international student mobility patterns and now it is probably the beginning of a more competitive landscape.

As Blöss (2017, as cited in Rodriguez, 2017, para.3-4) points out, there are two political situations that could influence the choices of students: "first there is the Trump presidency driving students away […] and then there is the upcoming Brexit, of which neither the timeline nor the consequences are foreseeable".

Slightly different are the results of the report prepared by Study.EU (2018). This report scores annually thirty European countries as a study destination by international students in a range of factors. In the last report, Germany ranks in first place, as seen in Figure 5. The factors are divided into three categories, presenting different weights in the general score, namely schooling (45%), cost of living (30%) and career and quality of life (25%).

Figure 5 – The top ten European country preferred as study destinations 2016/17

(in %)

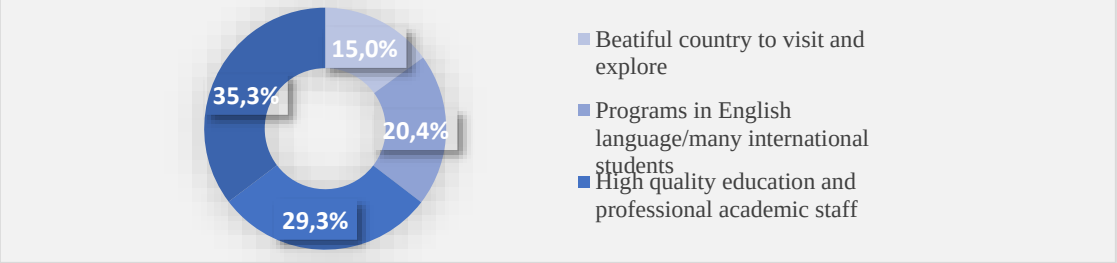


Source: Study.EU (2018, p.1)

This marks the second consecutive year in which Germany appears at the top, according to the Figure 5, that can be explained by the country's remarkable mix of world-class education at almost no/low fees and by the considerable number of programmes offered in English, as seen in Figure 6.

Figure 6 – Top reasons why International Students choose Germany

(in %)



Source: adapted from Studying-in-Germany.org (2018, para.6)

Many reports and statistics (BMBF, 2016, 2018; Deutscher Akademischer Austauschienst /Deutsches Zentrum für Hochschul und Wissenschaftsforschung [DAAD/DZHW], 2018; Hochschulrektorenkonferenz, 2015; Institute of International Education [IIE], 2018; UNESCO UIS, 2018) show the role of internationalization on higher education in Germany. The most important points are:

- since 2009/10 the foreign students' amount has grown by 53% (244,775 to 374,951);
- during the academic year 2018,[13] there were 374.951 foreign students enrolled at German universities. That means that the number of foreign students increased by 4.5% as compared to 358,895 students in the academic year 2017;
- foreign students shared 13% of the total number of the student population in Germany;
- foreign students in Germany more likely to choose a University (70% in 2017) over a University of Applied Sciences;
- international students at German universities are mostly, in order of number, from the following countries: China (13.2%), India (5.8%), Russia (4.3%), Austria (4.0%), Italy (3.2%), Cameroon (2.8%), France (2.8%), Iran (2.7%), Ukraine (2.6%), Turkey (2.6%) and Bulgaria (2.6%);

[13] The academic year is taken as the basis for determining the number of students. Using this method, students of the winter semester 2017/18 plus the students of the summer semester 2018, are defined of the academic year 2018.

- in the academic year 2017, 36.5% international students in Germany were attending a Bachelor's degree, 35.7%% a Master's degree, 9.9% Ph.D., 7.7% other degrees and 10.2% weren't studying for a degree;
- in the academic year 2017, most international students were enrolled in Engineering (37%) at German HIEs. The second most preferred study was Law, Economics and Social Sciences with (27%).

Foreign Academic and Non- academic Staff

In 2016 worked, in German universities, with foreign nationalities, a total of about 46,000 employees (Professors and other academic staff). Approximately 3,200 of them were Professors. According to DAAD/DZHW (2018), the number of foreign academic staff increased by 6% compared to 2015 and compared to 2007, increased by 84%. The number of foreign professors has grown by 3% since 2015 and 49% since 2007. It should also be noted that the proportion of foreign academic staff among all academic staff is different, in Colleges of Art and Music is 18%, 15% in Technical Universities and 12% in small Universities. The Universities of Applied Sciences are those that employ a smaller proportion of foreign academic staff (5% each in large and small universities). While most foreign staff come from Italy, China, and Austria, in terms of Professors the key countries are Austria, Switzerland and the USA (Table 1).

Table 1 – Total number of foreign staff and Professors at German higher education institutions, in 2016

(key countries of origin)

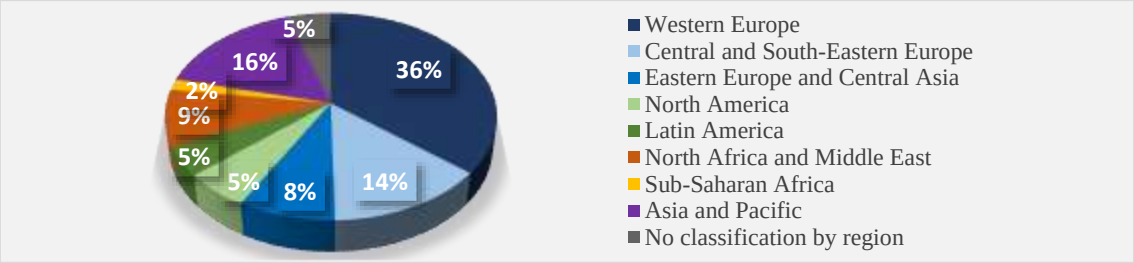
Total Number of foreign staff		**Professors**	
Country of origin	**Number**	**Country of origin**	**Number**
Italy	3,185	**Austria**	621
China	2,615	**Switzerland**	299
Austria	2,481	**USA**	263
India	2,257	**Italy**	251
USA	2,187	**Netherlands**	233
Russia	2,090	**UK**	184
Spain	2,010	**France**	137
France	1,765	**Spain**	107
UK	1,604	**Russia**	83
Iran	1,507	**Greece**	74

Source: adapted from DAAD/DZHW (2018, p.17)

In 2016, the largest group of foreign academic staff came from Western Europe, with a ratio of 36%. Asia and the Pacific (16%) and Central and South Eastern Europe (14%) were the second and third place among the regions of origin (Figure 7).

Figure 7 – Total foreign staff in German HEIs, in 2016, by region of origin

(in %)



Source: adapted from Destatis Statistisches Bundesamt (2018)

German Students abroad

The European Commission (2009) established four common objectives in education and training systems. One of the following benchmarks set, for education by 2020, "at least 20% of higher education graduates […] should have spent some time studying or training abroad."

Germany exceeded the mentioned objective by setting, in "Strategy of the Federal and *Länder* Ministers of Science for the Internationalisation of Higher Education Institutions in Germany", as national goal half of all German graduates to gain study-related experience abroad and for at least one in three to complete a visit abroad, lasting at least three months, and/or eliciting at least 15 European Credit Transfer System (ECTS) points.

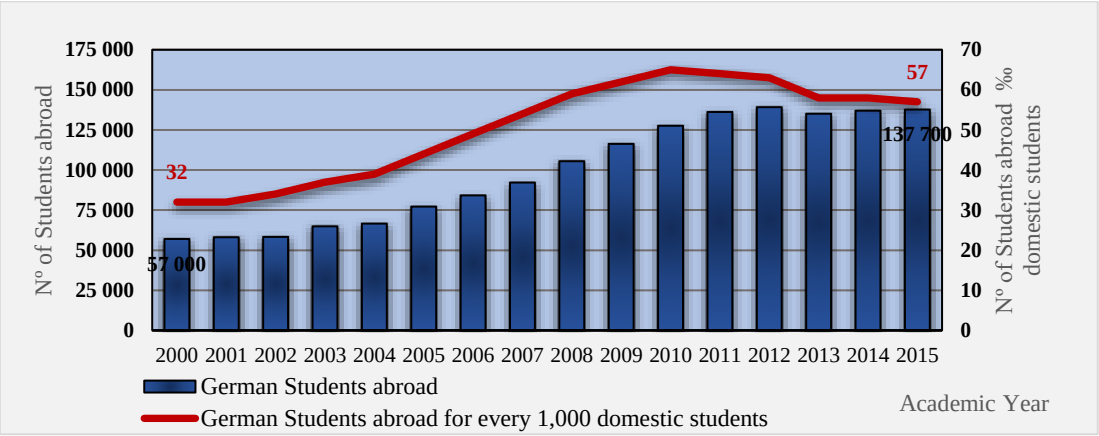
The number and proportion of international mobility German students (degree-related international mobility[14] plus temporary study-related visits abroad[15]) have increased steadily since the 2000s, in both absolute and relative terms (Figure 8).

[14] Study with the aim of taking a degree abroad, e.g. complete Bachelor's or Master's programmes abroad (DAAD/DZHW, 2018).

[15] Temporary study-related visits abroad, e.g. semester or placement abroad (DAAD/DZHW, 2018).

Figure 8 – German students abroad, since 2000

(number and in % of domestic students)



Source: adapted from DAAD/DZHW (2018, p.87)

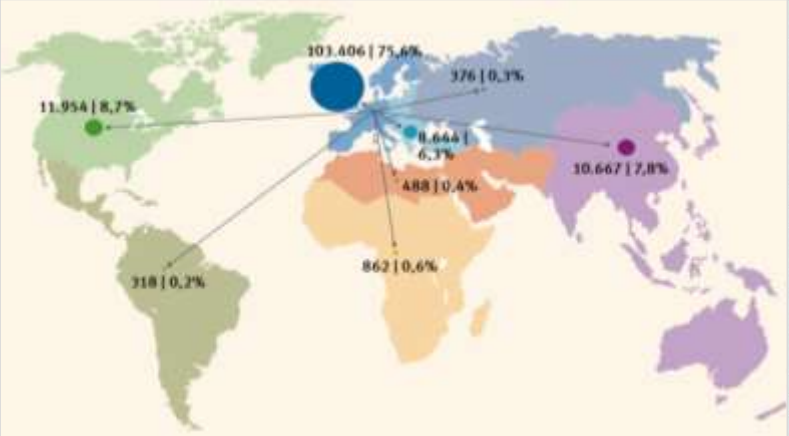
The number of Germans enrolled abroad increased from 57,000 in 2000 to 137,700 in 2015. The increase has accelerated sharply during the last fifteen years, a growth of nearly 242%. Between 2000 and 2015, the number of internationally mobile students rose by 9.4% on annual average. However, from 2000 until 2008, the growth was of 10.6% and from 2009 until 2015, the growth was only 2.6%. German students abroad, in 2015, made up 5.7% of all German students, a slight decreased caused by the simultaneous increase in the number of students (from 5.8% and 137,000 in 2014).

ICEF Monitor (2014) explains that this policy already allowed that the Europe-wide target of 20% been already accomplished (30% of all graduates in 2010 spent at least three months studying abroad). However, the national target of 50% remains to be fulfilled.

In 2015, according to data from DAAD/DZHW (2018), Austria, the Netherlands, the UK, and Switzerland were the four most popular host countries (Figure 9). However, it's interesting to see, that the major host countries for study-related visits abroad are slightly different. In data related to 2017, the four major countries, in order of importance, were the UK, the USA, France, and Spain.

Figure 9 – German students abroad by host regions and by major host countries, in 2015

(number and in % of all students abroad)



	Number	in %
Austria	27,563	20.2
Netherlands	21,530	15.8
United Kingdom	15,410	11.3
Switzerland	14,647	10.7
USA	10,145	7.4
China	7,536	5.5
France	6,406	4.7
Sweden	4,422	3.2
Denmark	3,316	2.4
Hungary	3,106	2.3
Spain	2,497	1.8
Canada	1,809	1.3
Italy	1,507	1.1
Portugal	1,422	1.0
Norway	1,306	1.0
Australia	1,147	0.8
Poland	1,090	0.8
New Zealand	983	0.7
Belgium (fläm.)	930	0.7
Romania	898	0.7

Source: DAAD/DZHW (2018, p.86)

According to the same publication, the biggest share of German students pursuing a degree abroad, in 2015, were enrolled in Law and Social Sciences programmes (23%) and Economics (20%). Compared to German students at German universities, the subject groups Language and Cultural Studies, Mathematics and particularly Engineering are underrepresented abroad. However, the subject groups differ by country, for instance, Economics is most popular in the UK and in the USA and Medicine in Hungary and the Czech Republic.

The type of HEI chosen by the German bachelor's students abroad isn't a very important factor, because the difference is very slight. In 2017, according to DAAD/DZHW (2018), 35% of students selected University and 32% UAS. However, when the type of degree is the Master's, the gap between percentages is bigger, 52% of students, in 2017, selected University and 43% selected UAS.

> The nature of short-term study visits abroad has shifted in the last ten years. The Placements and Language courses have decreased (from 50% in 2007 to 39% in 2017), on the other hand, Studies and Summer schools become more prominent (from 50% in 2007 to 64% in 2017).

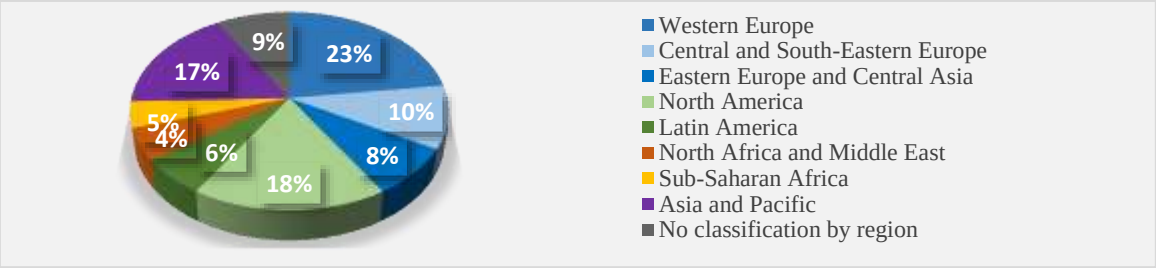
Academics and researchers abroad

In 2016, according to DAAD/DZHW (2018), most funded international visits (55%) were undertaken by academics and researchers with doctorates, including professors and experienced academics and researchers. In the ranking of key host countries, the USA (17%) were followed by the UK, Russia, Japan, China, and France.

By regions, Western Europe (23%) and North America (18%) were the major host regions (Figure 10).

Figure 10 – German academics and researchers abroad, by host region, in 2016

(in %)



Source: adapted from DAAD/DZHW (2018)

V. Conclusion

The topics addressed throughout this paper relate, as already mentioned, with entrepreneurship and the internationalization of higher education. Entrepreneurship is a key element in the competitiveness of companies and innovation is its main feature. The process and the evolution of internationalization of HEIs are now gaining new contours due to intensified exchanges and institutionalization. The HEIs decide to invest in internationalization for political, cultural, economic or educational reasons.

Nowadays, Germany is a country extremely dependent on its industry, it gives it the position of the third largest exporter in the world. From this point of view, Germany is a country dependent on its export industry, it also depends on the innovation generated at universities to maintain its competitiveness.

In conclusion, student's mobility is a relevant issue and one that is of the utmost importance in international cooperation. Germany seeking to maintain its development and considering the economic and political leadership's status creates an institutional system of cooperation organized by the state, operated by higher education, aimed the industry, and international actors. As already mentioned, this paper emerged from an internship at one German HEI and it proved to be an enriching challenge by allowing the author to gain a different perspective on the job market, as well as to create new skills and professional practices in a new work area.

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