

The structure of the patent attorney service market in the EU Member States

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1 Summary

- This report uses a match of PATSTAT and ESPACE data to analyse the structure and the role of legal representatives that represent the patent applicant before the EPO.
- Though about 10,000 European patent attorneys are registered at the EPO, only about 6,000 different representatives are responsible for the more than 100,000 EPO filings per year. And not all of them are registered European patent attorneys, as also other attorneys might act as legal representatives.
- The majority of patents are filed by representatives from Germany and the UK. Highest patent attorney density (per 1 million inhabitants) can be found in Luxembourg, Germany, Sweden, Denmark and the UK.
- The most experienced (measured by the number of cumulated filings) representatives can be found in Ireland and the UK followed by Germany and Luxembourg. Especially in the UK the relation between filings by national applicants and by national representatives is very high, suggesting that a large number of subsequent filings (e.g. from the US) are represented by UK attorneys. To some extent this argument also holds for Germany and Ireland. Explanations are language reasons in the case of UK and Ireland, as well as geographical proximity and economies of scale in the case of Germany.
- Large enterprises are responsible for the majority of filings represented by German, UK, Dutch, Swedish, French and also Belgian attorneys. In Southern and Central-Eastern Europe the representatives almost only work for SMEs and individual inventors as well as public research organisations or universities.
- In some countries the shares of patents processed by internal (to the applicant company or institution) attorneys/representatives reach more than 30% (e.g. Belgium, Netherlands or Sweden), while in Germany or the UK the shares of internal representations is only slightly above 5%.
- Large enterprises have higher shares of patents processed by internal representatives (13%) than small entities (less than 2%).
- There is very little cross border provision of attorney services in the EU.
- Representatives in the Northern and Western innovation-oriented countries cover a larger number of technological fields, whereas attorneys in the Southern and Central-Eastern European countries have expertise in fewer technological fields.

2 Introduction

Patents are a vested right for a limited time, which applicants/inventors are granted. Patents are essential to secure the investment in R&D and in the technological progress, especially in innovation-oriented countries. Applicants/inventors are granted this right in exchange to a disclosure of their technology/process so that any other applicant/inventor can take notice. Furthermore, patents have to fulfill several formal criteria, among them novelty and inventive step, which are both examined by professionals in the particular field. The formulation of patent applications is a sophisticated and challenging task, mostly fulfilled by professionals – patent attorneys – who then take responsibility of (in most cases) massive investments in R&D to be protected. As a patent application is not a simple matter of filling a form and then a subsequent examination of that form by the patent office, the way from the filing to the granted patent is a long one and full of obstacles and traps. All this makes the patent attorney – or more generally speaking the representative – a very important person within this process. High qualifications, broad experience and a number of other characteristics are mandatory or at least helpful for a successful patent application. Patent attorneys are among the best paid occupations in most countries.

Securing IPR by patents has gained importance in the past decades and the numbers of patents have increased considerably all around the world. So the overall economic effects of patent systems and the filing procedure have gained weight.

The costs of filing patents is in most cases defined by the procedural costs of the endeavor, where processing fees at the patent offices are calculable and straightforward, and are therefore often used to assess the overall costs of a patent application, but they are only a part of these overall costs. The costs for the services of the patent attorney, for translation, for prior art searches etc. are also considerable and make patents a costly thing. It becomes even more costly – though hard to predict – when law suits or infringements are involved. And this holds for both parties of law suits or infringements. This is why the resource endowment is often discussed as a crucial factor for pursuing one's own patent rights. The role of the legal representative in this procedure is a so far under-explored research question in patent statistics. This report provides descriptive empirical evidence on the structures of patent attorneys active at the European Patent Office.

3 The data

The patent data for the study was extracted from the "EPO Worldwide Patent Statistical Database" (PATSTAT). PATSTAT is a relational database with more than 28 tables and millions of entries that can be installed on a local server that is self administrated. At Fraunhofer ISI it is implemented in Oracle SQL and covers information about pub-

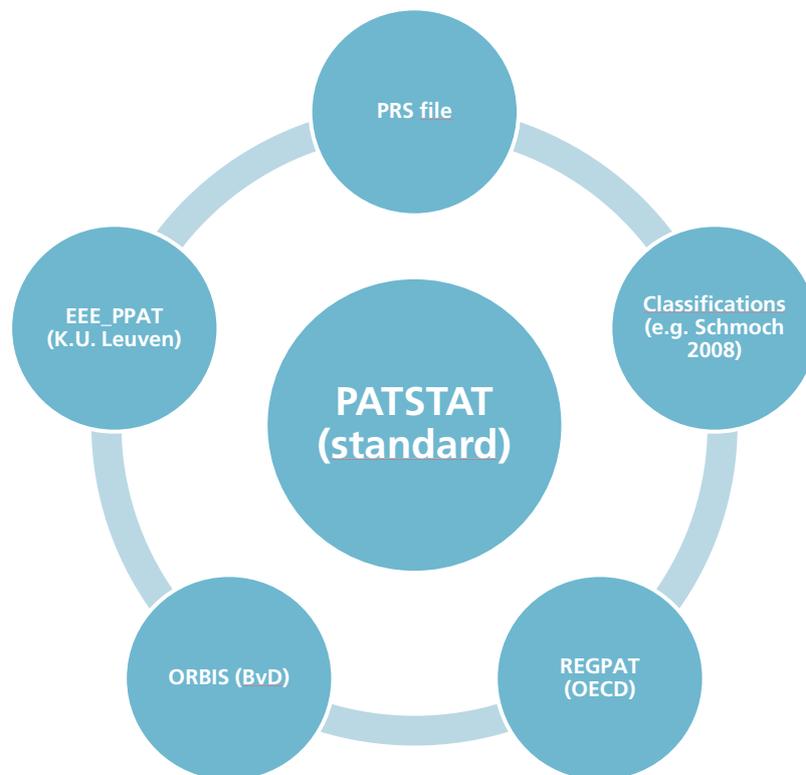
lished patents from 83 patent authorities worldwide, dating back to the late 19th century.

Due to its nature as a relational database, PATSTAT offers a unique analytical potential. First of all, it includes all information that are stated on a patent application, i.e. application authorities (patent offices), several patent relevant dates (priority, filing, publication date), the kind of an application (patent, utility model, etc.), inventor and applicant addresses, patent families (INPADOC and DOCDB), patent classifications (IPC and ECLA), title and abstract of a patent filing, technical relations and continuations, citations to patents and to non-patent literature.

For the sake of this assignment, supplementary information was necessary to be added to PATSTAT, thereby further enriching its analytical potential. Among these supplements are classifications (Schmoch 2008) as well as applicant type (SME, large enterprise, individual inventor, public research organization, university), which was constructed using a link of PATSTAT and BvD's Orbis database as well as a classification of small applicants (less than 10 patents in 11 years) and a manual assignment of the remaining applicants (Frietsch et al. 2013; Neuhäusler et al. 2015).

It has to be kept in mind that we systematically increase the information and the quality of PATSTAT with system immanent information. For example, we construct a priority date from the family information, defining the date of worldwide first filing. In addition, we fill in missing information for example on inventor or applicant country.

Figure 1: Fraunhofer ISI's PATSTAT version and its supplements



Information on the representative was extracted from ESPACE Bulletin and added to PATSTAT via the publication number. This information is only available for EPO filings (including PCT filings that already entered the regional phase at the EPO), while it is not available for PCTs in the international phase. In consequence, using PATSTAT version September of 2014, the priority filing cohort of the year 2010 is the latest completely available one. The number of filings in the years 2011-2013 are incomplete and therefore the absolute numbers decrease over time.

The representative data covers information on the name and address of the individual attorney as well as on the law firm. All analyses presented in this report are based on the representative/attorney data, whereas the data on the law firm was only used for the construction of an indicator on the size of the law firm where the particular representative is working.

The following indicators/additional data were constructed from within the data:

- country of representative / law firm
- experience of the representative (as a cumulated number of patents in the past)
- years of practice of the representative (as a difference between the current and the first year of appearance).

Not all patents provide information on the representative. The information is mentioned in the field "representative" (INID¹ code 74 or 740, respectively). In several of the EPO filings no representative is mentioned, because this data might be deleted from the document or it might not occur for unclear reasons – maybe simply because of missing data.

In the case of our data set, about 87% of the patent filings to the EPO have information on the representative that we were able to take into account for our analyses. Table 1 provides the number of total published patent filings at the EPO, the number of patent filings with information on the representative, and the resulting share of filings with representative information over the total number of filings per year. It was highest for the year 2005, but it varies around 87% with decreasing trends in the recent two years, which might be due to the incompleteness of these cohorts in the current PATSTAT version.

For the remainder of this report, we will restrict the analyses to the patents with information on the representative, so essentially to about 87% of total published filings.

Table 1: Number of patents and number of patents with office / law firm information in our dataset

Priority year	absolute N of patents	N of patents with information on representative	N of distinct representatives	Share of filings with representative information (in %)
2000	119,799	104,462	6,076	87.2
2001	118,465	103,026	6,170	87.0
2002	122,656	107,088	6,247	87.3
2003	128,872	112,519	6,222	87.3
2004	136,575	120,029	6,289	87.9
2005	141,428	124,567	6,360	88.1
2006	140,862	122,971	6,453	87.3
2007	138,139	120,694	6,357	87.4
2008	132,471	115,102	6,167	86.9
2009	133,568	115,205	6,274	86.3
2010	137,211	119,651	6,286	87.2
2011	113,693	97,307	5,686	85.6
2012	51,051	40,342	4,004	79.0

Source: EPO – PATSTAT; Fraunhofer ISI calculations.

1 www.wipo.int/standards/en/pdf/03-60-01.pdf

4 The rules and regulations for the representatives

For the representation at the EPO there are clear rules and regulations on who might undertake this legal act on behalf of the patent applicant. Article 134² of the European Patent Convention (EPC) deals with the question who could act as a representative of the patent owner. This can only be done by any natural person and national of one of the 38 EPC member states, who has his place of business within the member states and has passed the European qualifying examination. These are so-called European patent attorneys. In addition, any legal practitioner who is entitled to represent patent owners in patent matters in any of the EPC member states might also be able to act as a representative at the EPO. So any national patent attorney could also act on behalf of the patent applicant.

Next to the legal practitioners (lawyers/attorneys) a patent applicant who has its place of business – this means either headquarter or a subsidiary organized as an own legal entity – within the EPC member states might also file a patent without appointing a legal practitioner. Even non-residential entities who have their place of business outside the territory of the EPC might file an application on their own account, but then need to appoint a legal practitioner in the further course of the process.

In the guide for applicants³ the EPO strongly recommends to appoint a professional legal representative, especially to keep the probability of a successful application high. Different to the US, where individual applicants who act pro-se – this is the term for applicants who file on their own without support of a legal representative – get support and even consultancy from the examiner, such a special rule does not exist at the EPO. So if an individual fails to fulfil his/her requirements of the process, the filing procedure might come to an end and the patent will be rejected without any benefit of the doubt. In the US, the applicant might even get some hints how to reformulate some claims or change the scope of the patent to keep the process running. However, also in Europe a communication between the examiner and the applicant (or his representative) occurs, where the applicant might get some useful information on how to refine his application.

The majority of patent applications are filed by a professional legal representative, who can be internal – so directly employed by the patent applicant – or external. Especially small and medium-sized enterprises or at least small applicants (applicants with only few patent applications) might choose external representatives, whereas larger enterprises and larger applicants might be able to sport their own patent attorney or even

2 <http://www.epo.org/law-practice/legal-texts/html/epc/2013/e/ar134.html>

3 [http://documents.epo.org/projects/babylon/eponet.nsf/0/8266ED0366190630C12575E10051F40E/\\$File/guide_for_applicants_part1_10_13_en.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/8266ED0366190630C12575E10051F40E/$File/guide_for_applicants_part1_10_13_en.pdf)

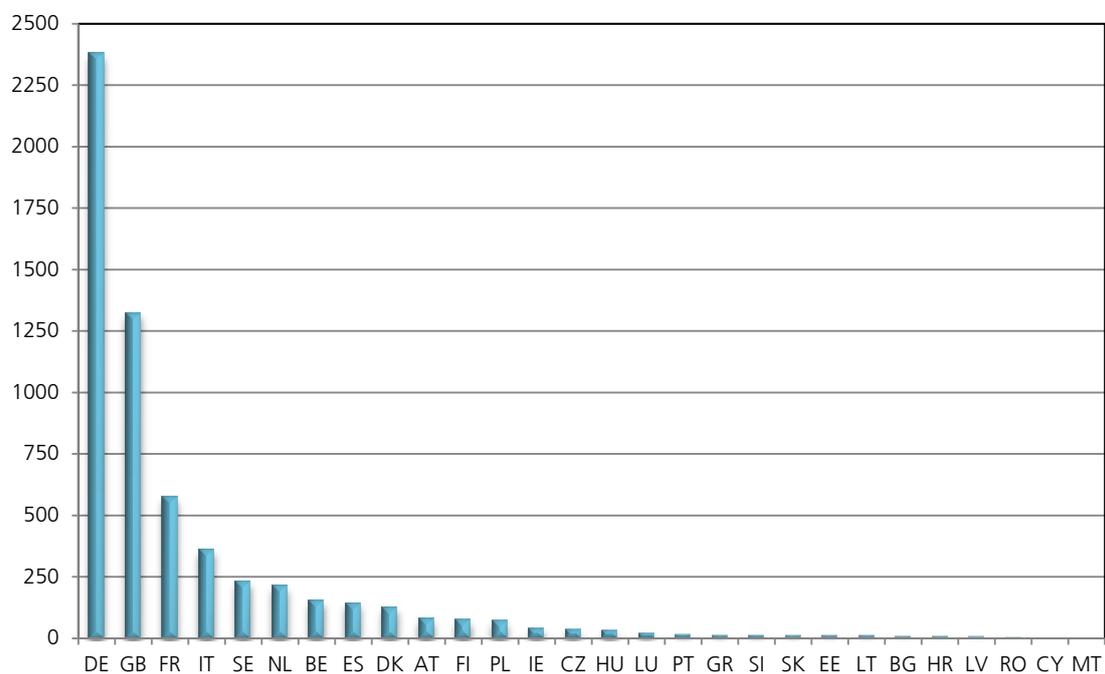
their own legal department with more than one attorney. However, the reality of large multinational enterprises with own legal departments sees a mixture of internal and external representatives. It is often the case that a number of legal practitioners are involved in a patent filing procedure, as there is also plenty room for specialisation even within the patent system. One person might be an expert in drafting the text, another one even in writing the claims, a third one in corresponding with the office, and another one being the best to act at the court of appeals in case of oppositions, or in law suits when already granted patents are under attack. For licensing and contracting even another legal representative might enter the scene. In fact, also in most of the smaller law firms and for sure in the larger ones, a patent application is usually teamwork where prior art searches, correspondence, process management, fees payment etc. are done by a team of people. However, as a representative on the patent application only one person occurs, who has to fulfil the criteria of article 134 mentioned above. This particular person named on the patent as a representative is in the scope of this analysis.

5 Structure and experience of patent representatives

We restrict our analyses to the EU-28 member countries. Most of the figures and tables use the country of residence of the representative and only a few provide data according to the country of the applicant. As a matter of fact not only the size of the EU member countries in terms of inhabitants is different, but also in terms of their innovation and patent orientation/activity. In consequence, also the numbers of patent attorneys in the member countries vary considerably between almost 2,400 in the case of Germany and none at all in the case of Malta (see Figure 2). The United Kingdom ranks second with roughly half as much representatives than Germany. France ranks third again with about half the size of the United Kingdom. In total, we find 6,286 different representatives in the year 2010.

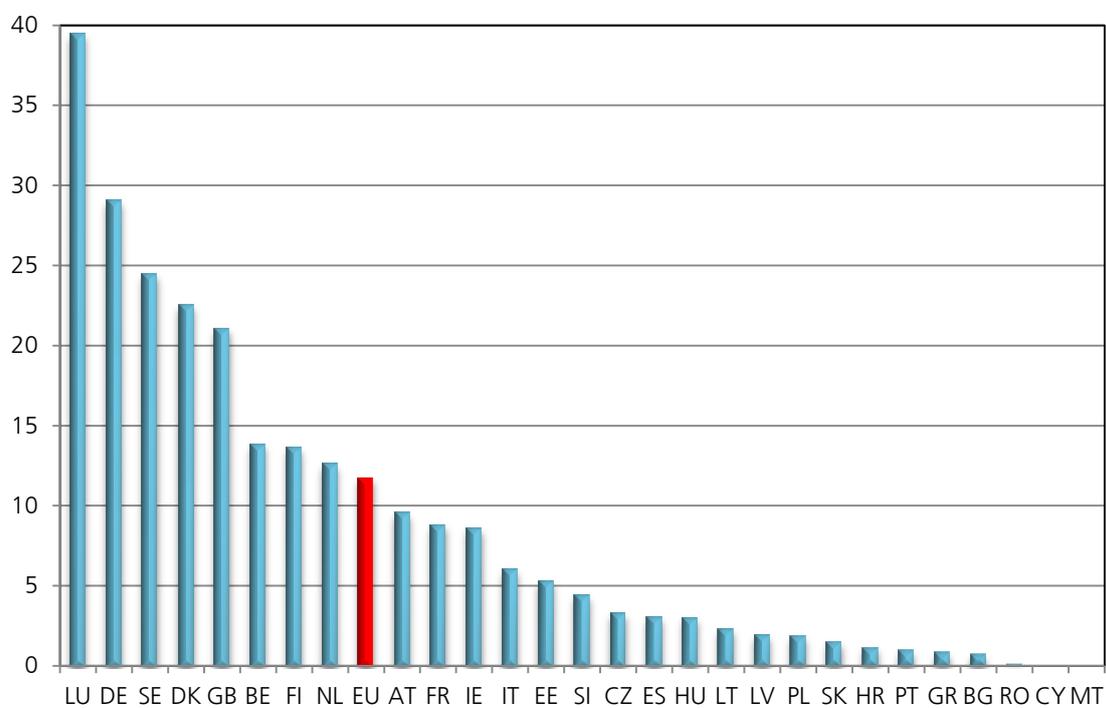
To get a better picture beyond country size effects, Figure 3 displays the number of representatives in relation to the countries' population. In this perspective Luxembourg ranks first with almost 40, followed by Germany with 29, then comes a group consisting of Sweden, Denmark and the United Kingdom having more than 20 attorneys per 1,000,000 inhabitants. Another group consisting of Belgium, Finland and the Netherlands are slightly below 15, while Austria, France and Ireland are slightly below 10.

Figure 2: Number of representatives by country of residence, 2010



Source: EPO – PATSTAT; Fraunhofer ISI calculations.

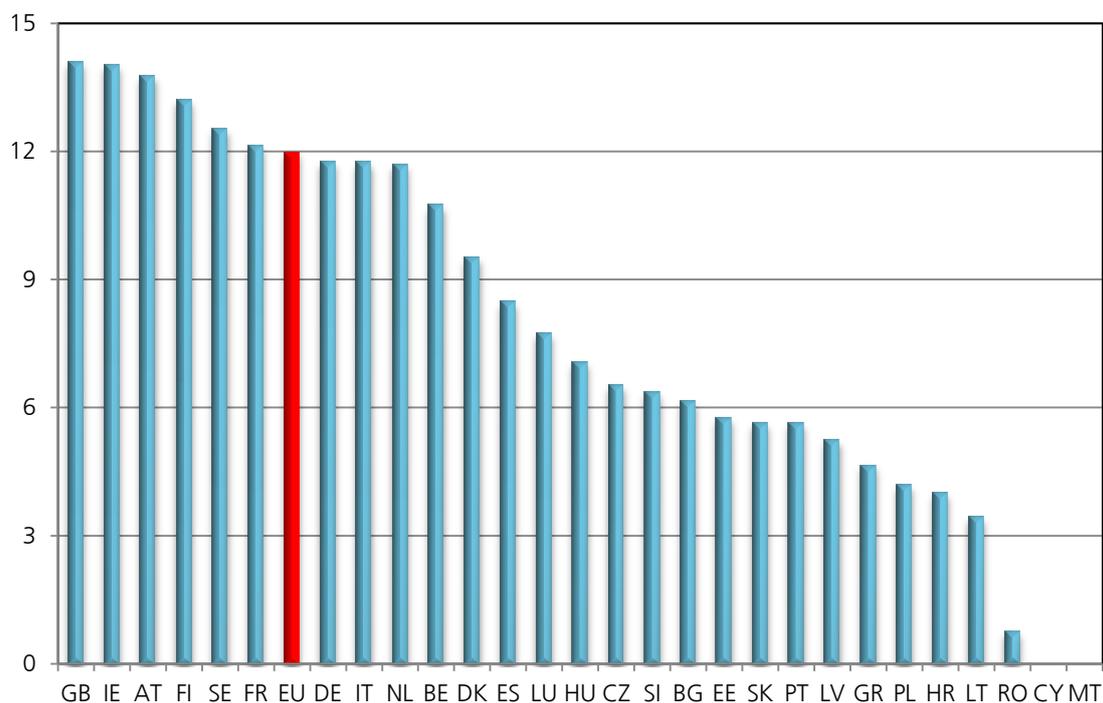
Figure 3: Number of representatives per one million inhabitants, 2010



Source: EPO – PATSTAT; Fraunhofer ISI calculations.

When it comes to the average years of practice of the representatives in the particular countries (see Figure 4), the Northern and Western innovation oriented and long-term industrialised countries are at the top, whereas the Eastern European and some of the Southern European countries (Portugal and Greece) can be found in the lower panel. The variation between the countries at the top is not that large. United Kingdom, Ireland and Austria reach values of about 14 years and even in countries which rank 7th, 8th or 9th, namely Germany, Italy and the Netherlands, the representatives of the cohort of 2010 have – on average – 12 years of practice.

Figure 4: Average of the representatives' years of practice by country, 2010



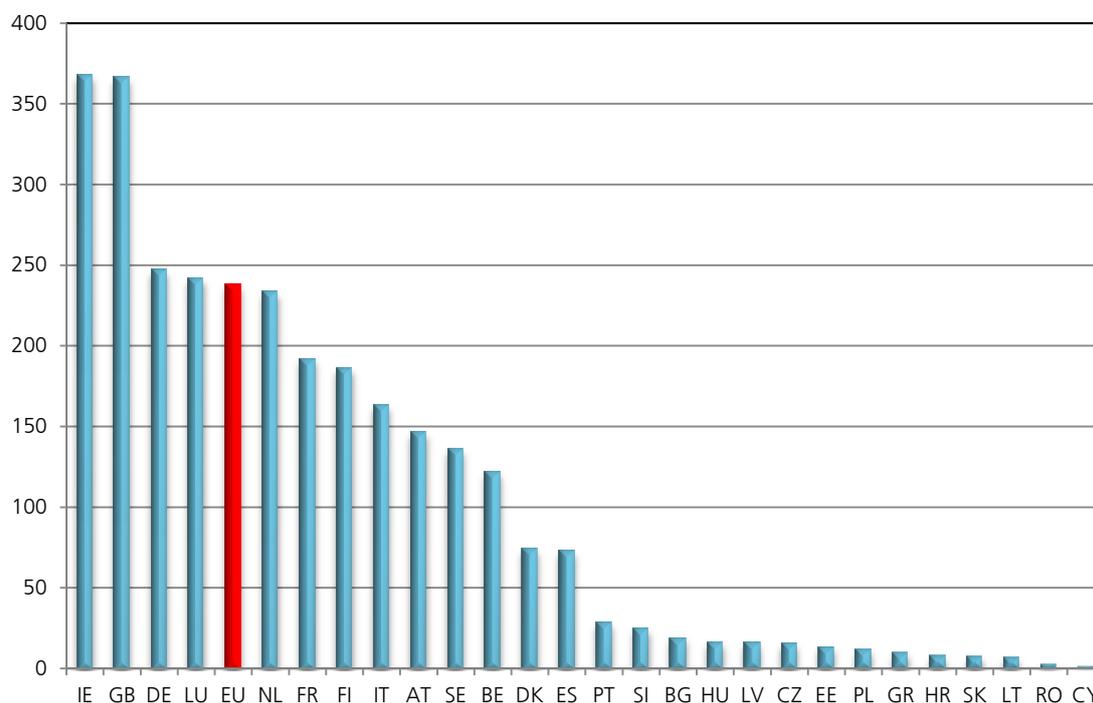
Source: EPO – PATSTAT; Fraunhofer ISI calculations.

A much bigger difference can be seen in Figure 5 where the average experience – calculated as the accumulated number of patent filings for each representative – in the year 2010 is depicted. On average a representative in the United Kingdom and in Ireland had filed almost 370 patents, in Germany, Luxembourg and the Netherlands as well as the EU average almost 250, whereas in most of the other Western European countries like France, Finland, and Italy the experience is below 150 patents. The explanation is – as will be further shown in another section below – that high shares of the patents processed by UK, Irish and also by German representatives are filings from non-European applicants, which are subsequent filings to priorities outside Europe. In many cases the documents themselves are prepared by legal practitioners outside Europe. As they are not allowed to file patents at the EPO (see the discussion in section 2), a corresponding attorney needs to be found within Europe.

For practical reasons (language, experience, availability of attorneys (absolute number), and maybe also the geographical proximity to the EPO) UK and German representatives are chosen rather frequently by non-European applicants. Essentially, these representatives have much less work as they only act as a corresponding representative, so that they can process (in our case simply occur on) much more patents than if they have to fully prepare them from the scratch.

Figure 6 shows the shares of the six largest EU countries – defined by the residence of the representative – in the period between 2000 and 2010. It can be seen that the shares are rather stable for most of the countries with slightly increasing trends for Germany and France, but clearly a decreasing trend from 32.4% to 25% in the case of the United Kingdom. In fact, in 2010 about seven times more patents have been processed by representatives from the UK than there were filings from UK applicants (see Figure 7). In Germany and Ireland it is more than twice the number of patents processed by domestic representatives than filings by domestic applicants. The numbers for Bulgaria (and several other smaller countries) shall not be over-interpreted, as there are only 14 patents processed by Bulgarian representatives in 2010.

Figure 5: Average experience (cumulated number of filings) of representatives by country, 2010

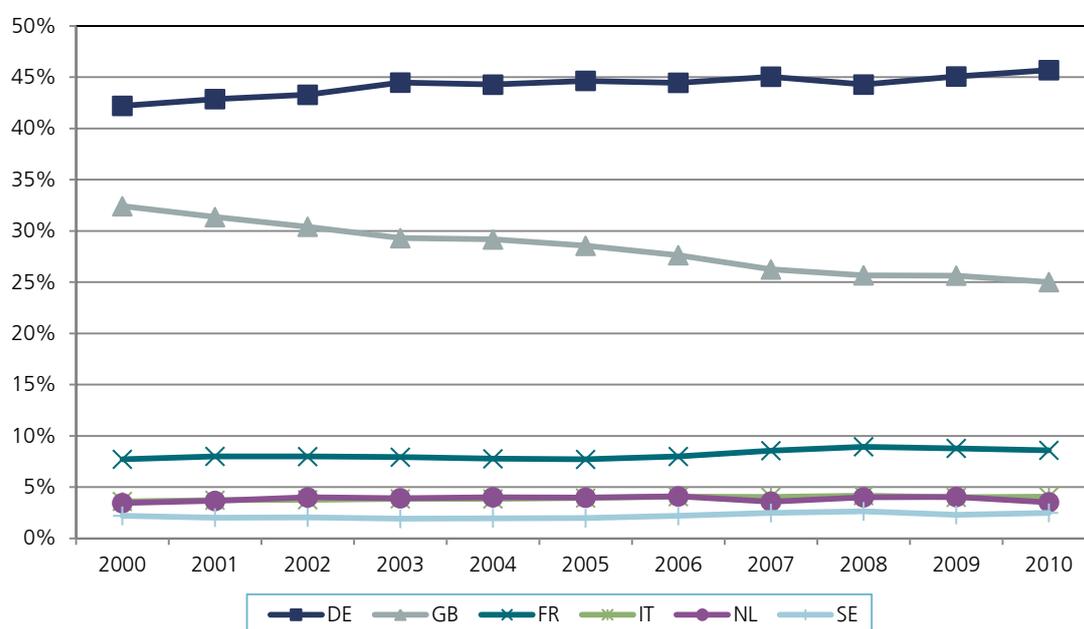


Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Figure 8 also reflects the decreasing trend of patent applications filed by UK representatives as the growth rate between 2000 and 2010 is negative at a value of -1.2% per year. Representatives from Poland, on the other hand, have been able to considerably

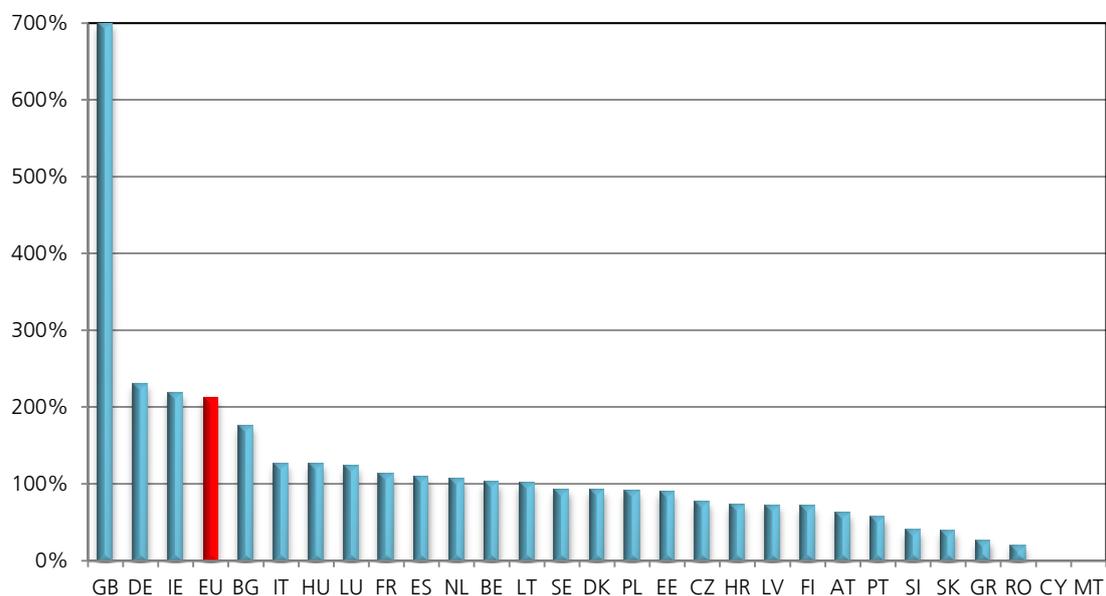
increase their workload between 2000 and 2010 by almost 74% each year, which means, however, a growth from one patent in 2000 to 251 patents in 2010. Hungary and the Czech Republic were also able to considerably increase their shares, but in absolute terms this means 104 or 105 patents in 2010, respectively. The majority of the countries' workload in terms of filings processed by their representatives has been around the overall average growth rate of patents at the EPO, namely at a rate between 2% and 3% per year. The absolute numbers can be found in Table 2 in the annex.

Figure 6: Share of the six largest EU-countries (country of representative) in total filings at the EPO



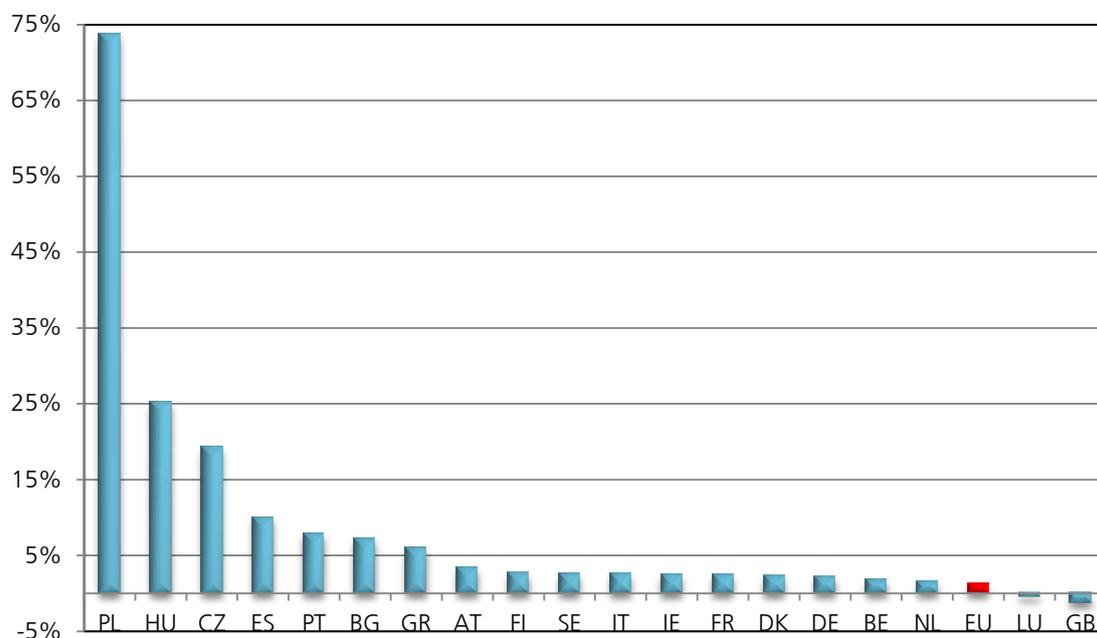
Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Figure 7: Number of patents processed by representatives in a country as a share of applications from that particular country



Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Figure 8: Growth rate (CAGR) of filings by representative country*, 2000-2010



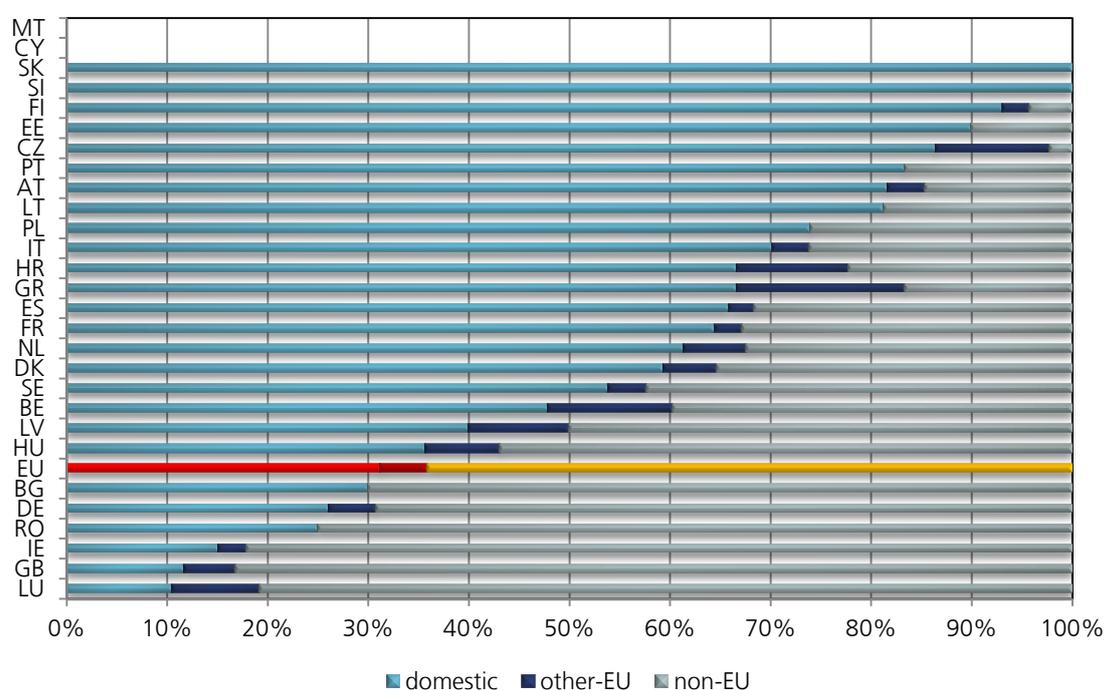
* For the missing EU-28 countries in this figure no CAGR has been calculated as the numbers in the early years were zero.

Source: EPO – PATSTAT; Fraunhofer ISI calculations.

6 The structure of the representatives' clients

This section of the report focuses on the structure of the clients and not so much on the representatives themselves, so here the applicant country as an additional dimension comes in as well as the applicant type – differentiating SMEs, large enterprises, PRO/universities, and individual inventors – and a differentiation of internal and external representatives. Finally, this section also contains a differentiation by technological fields.

Figure 9: Shares of applicant country groups by country of representative, 2010



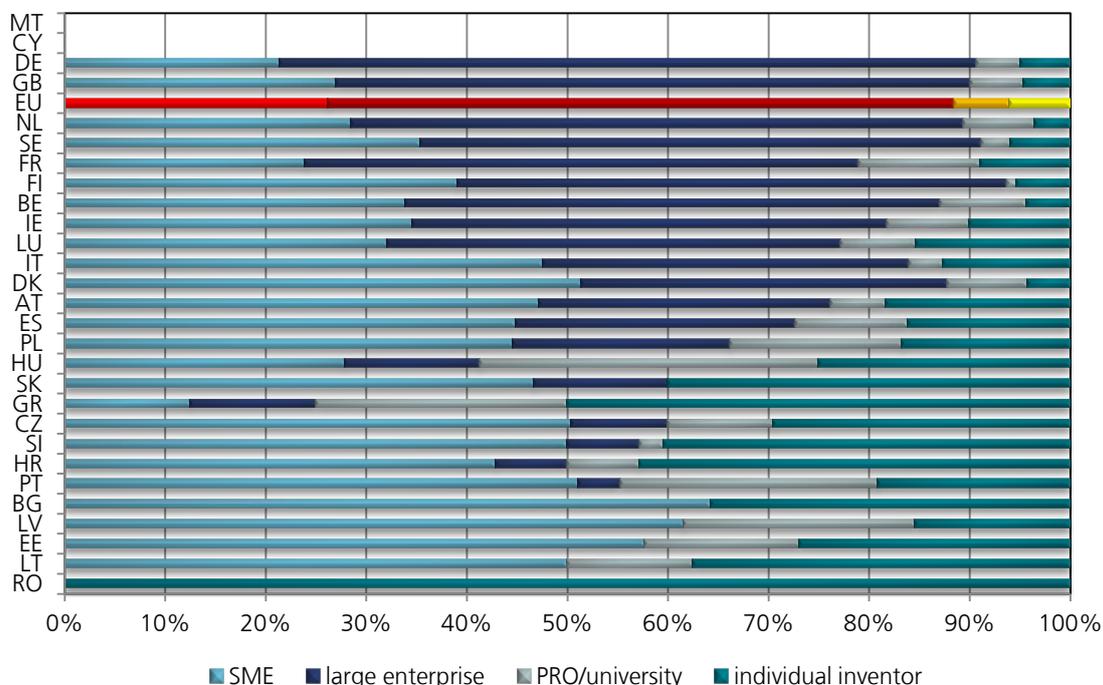
Due to low absolute numbers, data for Malta and Cyprus are not analysable.

Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Figure 9 provides the shares of applicant country groups – namely domestic, other-EU and non-EU – by country of residence of the representative in the year 2010. For Malta and Cyprus no usable data is available, due to low absolute numbers. Slovenia's and Slovakia's representatives only process patents for domestic applicants. Also in a number of other countries, among them Finland and Austria, the representatives process high shares of applications by domestic applicants. High shares of filings from applicants located in other European countries can hardly be found. Greece, Hungary and the Czech Republic as well as Latvia are exemptions, but with low absolute numbers. 12.4% of the patents processed by Belgian representatives are owned by applicants from other European countries, which is a rather high share compared to most of the

other countries. This might be due to language advantages of Flemish representatives, also processing filings from the Netherlands and Wallonian representatives processing filings from France. It is most interesting to see – and this was already mentioned above – that a number of representatives in particular countries, namely UK, Ireland, Germany but also Bulgaria and Luxembourg process high shares of applications by non-European applicants. At least for the UK, Ireland and also Germany explanations for this pattern have been already mentioned. Next to language advantages – English is one of the official languages of the EPO and a universal language in business and science –, also experience (economies of scale) and even a geographical proximity to the EPO in the case of Germany are reasonable factors.

Figure 10: Shares of applicant types by country of representative, 2010



Due to low absolute numbers, data for Malta and Cyprus are not analysable.

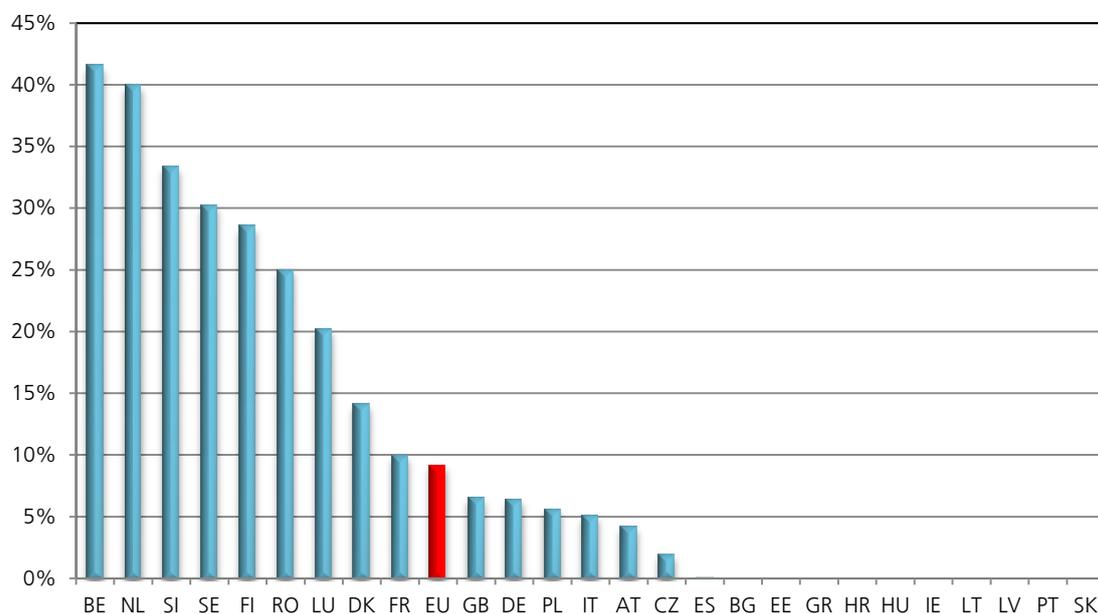
Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Differentiating the applicant types, Figure 10 provides information on the shares of the four groups by country of residence of the representative in the year 2010. Again, data for Malta and Cyprus is not available, due to low absolute numbers. While especially the representatives from Eastern European countries, from the Southern European countries Portugal and Spain, as well as Denmark result in shares of SME applicants close to 50% or above, Germany, the UK, the Netherlands, Sweden, France as well as Finland, Belgium, Ireland and even Luxembourg have rather high shares of large enterprises. Public research organisations and universities reach rather low levels in most of the countries, but play major roles in Hungary, Greece, Portugal or Latvia. Individual

inventors, on the other hand, are the only clients for Romanian representatives (but these were only 4 patents in 2010) and are large groups in Greece, Slovakia, Hungary, Slovenia, Slovakia as well as Latvia or Bulgaria.

Figure 11 shows that in Belgium and the Netherlands around 40% of the representatives are employed by the applicant – so are by us defined as internal. Shares around 30% of internal representatives can also be found in Slovenia, Sweden and Finland. In France, for example 10% of the patents are processed by internal representatives and 90% by external representatives, respectively. In the UK and Germany this share is about 6.5% or 6.3%, respectively. At least in the case of Germany this might be somehow surprising as the share of patent applications filed by large applicants is rather high. As large applicants have a higher probability of employing internal representatives, the expectation for this share might have been higher. One explanation again is that about two thirds of the patents processed by German representatives are filed by non-European applicants. Another explanation is that there might be a higher division of labour between internal and external representatives, simply due to the fact that German companies have a high absolute output of patent filings, which cannot all fully be processed by internal representatives.

Figure 11: Shares of patents processed by internal representatives by country of residence, 2010

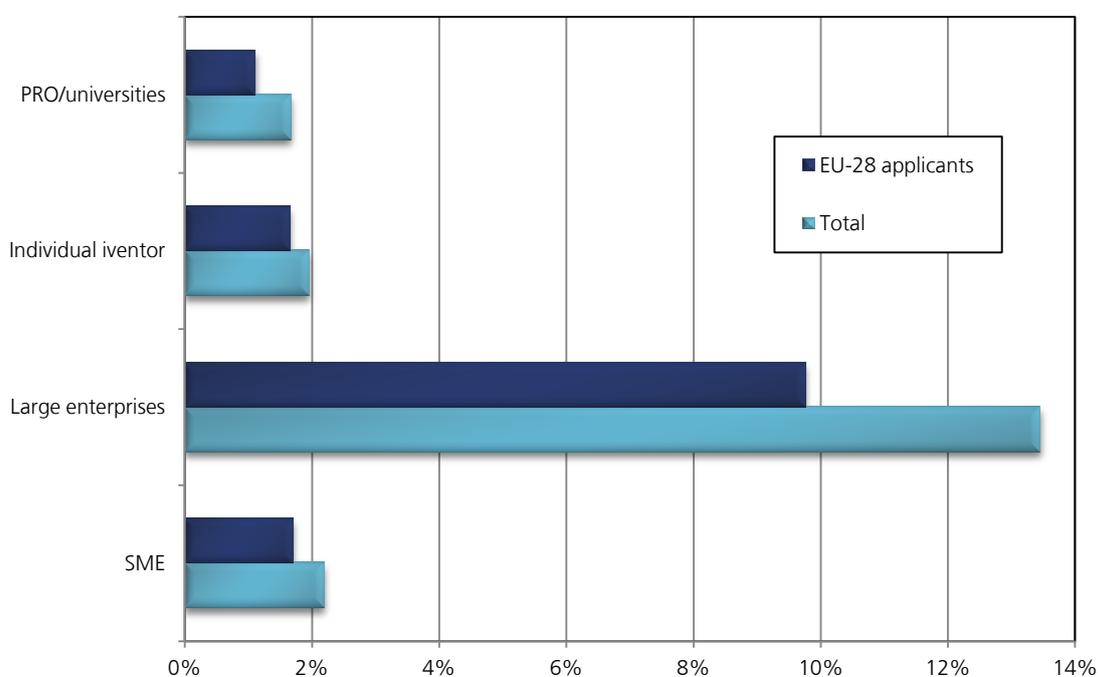


Due to low absolute numbers, data for Malta and Cyprus are not analysable.

Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Figure 12 depicts the shares of internal representatives by applicant types for the total of European filings as well as filings made by EU-28 applicants. Large enterprises employ by far more internal representatives than any of the other groups. It is interesting to note, however, that the shares of internal representatives are higher for total applications to the EPO than only by applicants from EU-28 countries – this means essentially that they are much higher for non-EU-28 countries. The explanation might be that a number of multinational companies have subsidiaries in Europe, very often with IP departments or even simply IP management subsidiaries, which then fulfil the criteria of article 134 of being a resident of the EPC states and/or having its place of business in Europe.

Figure 12: Shares of patents processed by internal representatives by applicant type, 2010

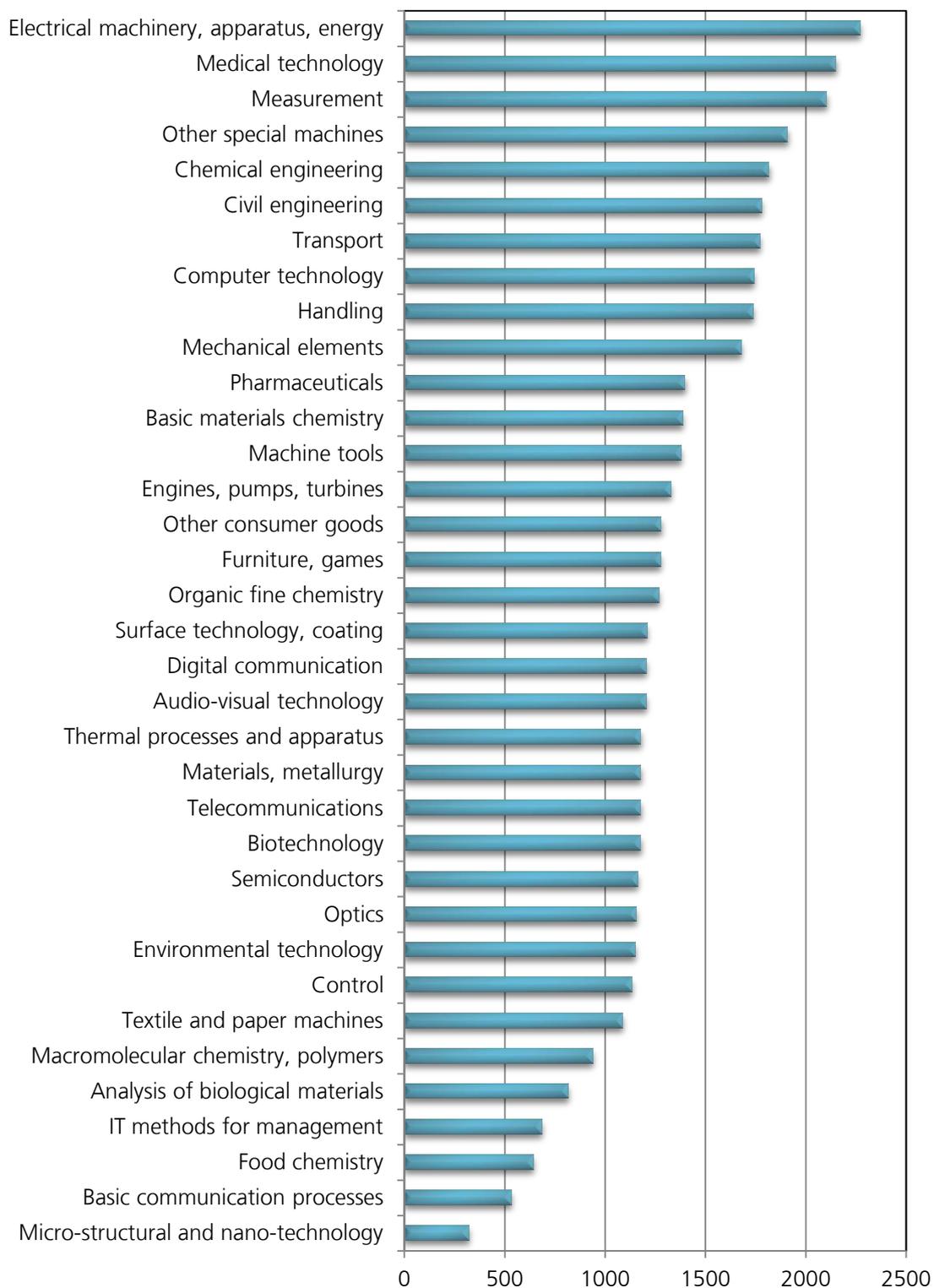


Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Employing a classification suggested by Schmoch (2008), we were able to calculate the number of representatives active in technology fields. Figure 13 depicts the absolute number of distinct representatives per field. It has to be kept in mind, however, that between the fields one representative might occur several times. In other words within the fields there is no double counting, whereas between the fields there might be double/multiple counting. In electrical machinery as well as in medical technology and measurement more than 2,000 representatives have been active in the year 2010. The fewest representatives can be found in the small fields (in terms of patent applications) of Micro-structural and nano-technology, but also in food chemistry, polymers or textile and paper machines.

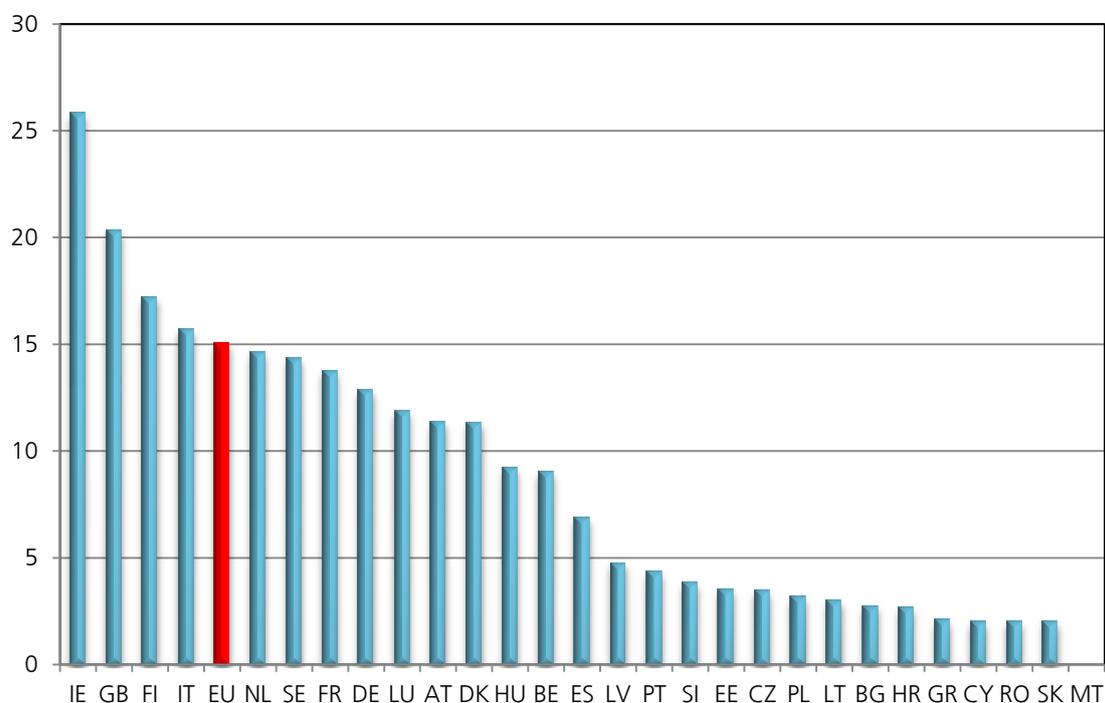
The average number of technological fields per representative in each of the countries of residence of the representative is shown in Figure 14. Representatives from Ireland and the UK cover – on average – more than 25 or more than 20 fields, respectively. This might be seen as another indication of rather high shares of subsequent patents with priorities outside Europe – especially in the US –, where representatives from these countries mainly act as corresponding representatives. For acting as correspondence it is not absolutely essential to be an expert in the particular technological field. At first sight, however, the result for Germany is in contradiction to this line of argumentation as the average number of fields is only 13. We had found high shares of filings for German representatives originating in non-European countries. Based on these additional insights we might be able to further qualify the above-mentioned result. For Ireland and the UK the language advantage seems to be the decisive factor for the high shares of non-European filings. For Germany, the language advantage does not really hold, but the proximity to the EPO and the economies of scale, due to a large number of national filings might be attracting factors. In general, Figure 14 shows that representatives in the Northern and Western innovation-oriented countries seem to be able to cover a larger number of technological fields, whereas – maybe also as a matter of low absolute numbers – representatives in the Southern and Eastern European countries are more concentrating their technological expertise.

Figure 13: Absolute number of representatives per technology field*, 2010



Source: EPO – PATSTAT; Fraunhofer ISI calculations.

Figure 14: Average number of technological fields per representative by country of representative; 2010



Due to low absolute numbers, data for Malta and Cyprus are not analysable.

Source: EPO – PATSTAT; Fraunhofer ISI calculations.

7 Conclusions

The analysis of the structure of representatives at the EPO shows a high concentration in absolute as well as in relative terms on Germany and the United Kingdom, with some activity in other larger applicant countries like France, Italy, Sweden or the Netherlands. As a matter of fact the most experienced representatives are located in Germany and the UK, but this result might be biased due to high numbers of subsequent filings in these countries, originating mainly in the US or also Japan. Explanations for this effect are language issues in the case of the UK (and also Ireland) and geographical proximity to the EPO as well as economies of scale in the case of Germany.

Large companies are responsible for the majority of the representatives' workload in Germany and the UK, but also in France, the Netherlands, Belgium or Sweden – of course mainly because many large and also multinational companies have their headquarters or IPR departments in these countries. The much lower absolute numbers of patents in Southern and Eastern European countries mainly stem from SMEs, individ-

ual inventors and in some countries – for example like Portugal, Greece, Hungary or Latvia – also stem from public research organisations or universities, which account for large shares of filings from these countries.

It could be worthwhile to analyse the role of the representatives in the patenting process and their impact on the filing outcome or the filing strategy. A focus on the experienced representatives especially in the larger countries might be efficient and for a broad picture also sufficient. A distinction between first and subsequent filings seems a relevant dimension. Internal versus external as well as registered European attorneys versus other legal representatives also seems a reasonable distinction to be taken into account.

8 Data annex

Table 2: Number of filings represented by representatives by country (2000-2010)

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
AT	734	740	780	774	875	816	913	915	935	1027	1027
BE	1286	1232	1392	1380	1629	1710	1764	1807	1722	1384	1545
BG	7	6	12	13	22	25	20	12	11	12	14
CY											
CZ	18	21	42	63	58	54	78	104	97	94	105
DE	44086	44161	46353	50040	53142	55611	54666	54372	50967	51920	54666
DK	919	866	848	948	954	1094	974	1133	1090	1018	1150
EE		3	7	3	14	3	9	26	20	24	26
ES	565	614	752	830	1074	1153	1278	1311	1337	1362	1470
FI	914	865	828	874	898	869	905	1018	1055	1106	1185
FR	8062	8246	8550	8912	9321	9600	9827	10331	10293	10118	10281
GB	33859	32299	32562	32962	35010	35563	33979	31670	29545	29537	29923
GR	9	11	22	21	11	23	27	25	19	17	16
HR				1	1	1	4	7	4	6	14
HU	11	26	38	50	57	48	52	79	81	100	104
IE	798	785	788	700	808	1129	1056	1115	1058	1120	1020
IT	3770	3840	4042	4338	4622	4900	5011	4876	4809	4614	4870
LT						1	7	10	11	4	16
LU	439	432	375	513	507	539	490	484	449	348	417
LV					3	7	8	9	14	13	13
MT											
NL	3593	3767	4280	4407	4819	4949	5038	4327	4614	4656	4216
PL	1	4	15	44	92	107	108	147	171	199	251
PT	22	19	19	40	44	59	59	53	74	43	47
RO			1	5	2	8	7	2	1	3	4
SE	2302	2088	2194	2146	2358	2452	2709	2991	3042	2629	2981
SI		4	12	29	36	26	16	36	46	38	42
SK		2		4	3	10	16	14	12	15	15
total	104462	103026	107088	112519	120029	124567	122971	120694	115102	115205	119651

Table 3: Average number of technological fields per representative by country of representative; 2000-2013

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
AT	9.5	9.1	9.5	9.7	11.2	11.3	11.1	10.4	10.4	11.3	11.4	10.8	8.2	2.6
BE	8.6	8.5	9.7	9.0	9.3	9.3	9.0	9.9	9.0	8.6	9.0	10.1	8.0	1.6
BG	2.1	2.2	2.8	1.9	3.2	3.2	2.7	1.9	1.6	3.6	2.7	2.0	1.0	1.0
CY	---	---	---	2.0	---	1.0	---	---	---	---	---	2.0		
CZ	3.5	2.5	2.4	3.4	2.6	2.3	3.1	3.6	3.9	3.7	3.5	3.2	3.0	1.0
DE	11.9	12.2	12.4	12.9	12.7	12.8	12.7	13.0	13.4	13.1	12.9	12.1	9.2	3.0
DK	11.4	11.8	11.6	11.1	11.8	12.2	10.6	10.9	12.1	11.0	11.3	12.0	7.8	1.3
EE	1.7	1.7	2.2	4.0	2.2	1.6	2.4	3.5	2.4	3.2	3.5	1.9	4.2	1.0
ES	5.1	5.6	5.6	5.6	6.7	6.2	6.3	6.3	6.3	6.2	6.9	6.8	5.2	1.7
FI	15.4	16.2	15.9	15.3	15.9	16.0	15.2	14.4	16.4	17.6	17.2	17.1	10.3	3.2
FR	12.7	12.6	13.8	13.5	14.0	13.6	13.6	14.6	15.1	13.7	13.7	12.8	10.3	2.7
GB	18.3	18.4	19.1	19.5	19.7	19.3	19.3	19.4	20.2	20.0	20.3	20.5	15.4	5.3
GR	1.8	2.3	2.2	2.3	2.7	2.4	3.4	1.9	1.9	2.3	2.1	2.4	1.8	
HR	---	3.0	---	1.5	1.0	1.0	2.3	1.9	3.3	1.8	2.7	2.0		
HU	5.7	9.0	9.0	9.8	11.3	9.9	9.7	11.4	11.4	10.8	9.2	9.7	3.6	1.0
IE	22.9	24.9	22.4	22.2	23.3	24.1	21.8	22.6	24.1	24.5	25.8	22.1	15.7	2.0
IT	11.6	12.8	12.6	13.2	13.5	13.5	13.7	13.6	14.3	14.3	15.7	15.1	11.1	1.7
LT	---	---	---	---	1.0	1.5	1.3	2.0	2.5	1.2	3.0	3.3	1.9	1.0
LU	15.2	14.9	13.6	16.1	12.8	13.8	13.4	14.0	13.2	12.9	11.9	11.3	9.2	1.3
LV	---	---	---	3.0	3.5	2.0	2.3	2.8	4.7	4.8	4.8	5.8	8.7	
MT	---	2.0	---	---	---	---	---	---	---	---	---			
NL	15.8	15.3	15.4	15.0	15.6	14.6	15.6	15.9	15.8	15.4	14.6	14.9	11.0	3.7
PL	1.0	2.2	1.8	2.2	2.5	2.3	2.8	2.6	3.1	2.7	3.2	3.7	3.3	1.0
PT	3.0	3.2	3.5	5.0	4.6	4.5	3.9	3.4	7.2	5.4	4.3	5.8	2.3	
RO	1.0	1.7	1.0	1.9	2.6	1.5	1.8	1.3	1.5	1.4	2.0	1.8	2.7	
SE	13.1	13.8	13.2	12.7	12.8	13.6	13.7	13.8	14.8	13.3	14.3	14.3	9.8	1.5
SI	2.0	3.5	8.6	8.9	9.4	4.5	3.6	5.5	5.5	4.5	3.8	4.9	4.1	2.0
SK	1.7	1.5	1.0	1.4	2.8	1.2	2.1	1.9	2.5	2.3	2.0	2.3	1.0	

9 Cited literature

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