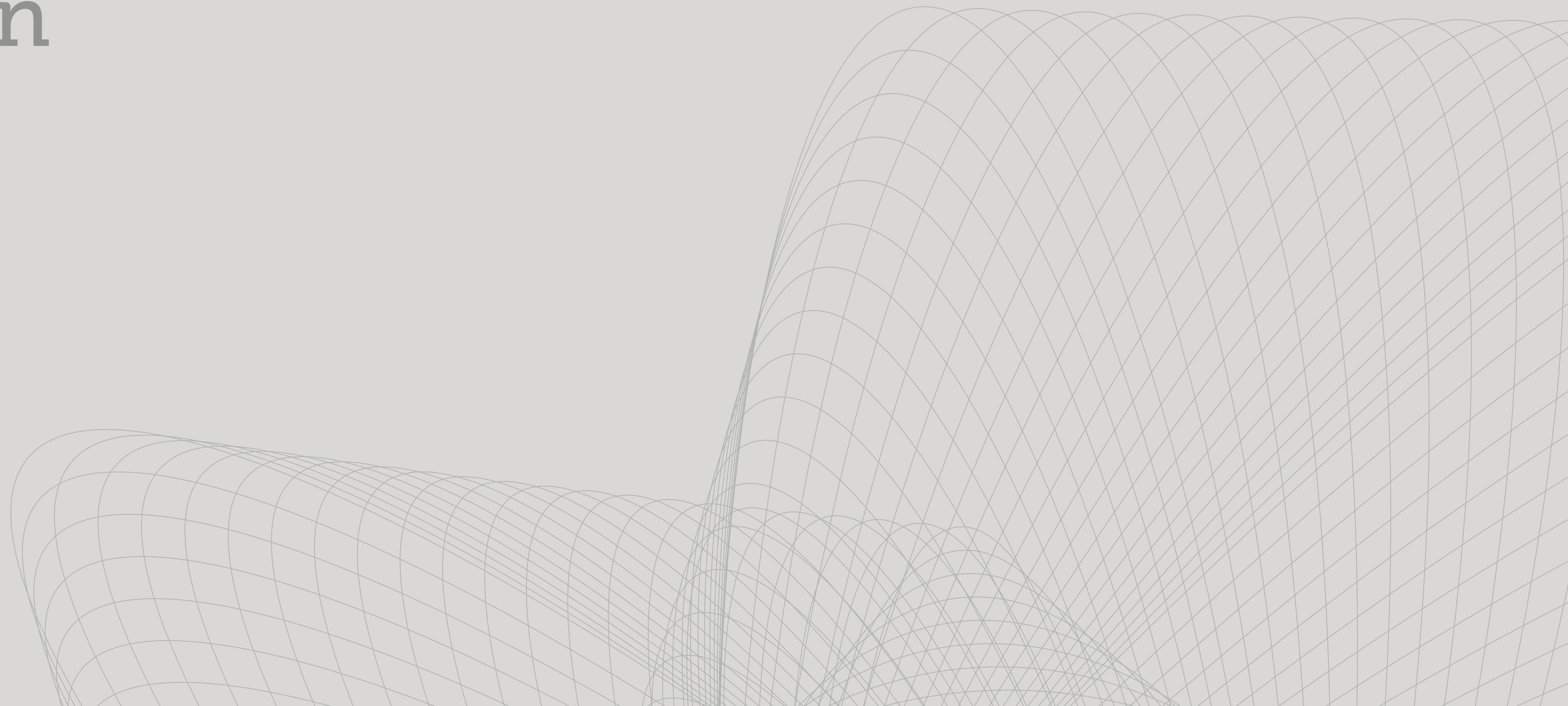


# Unitary patent uptake rate by field of technology

A look at the state of play  
one year on

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# The aim of this report

Over 28,000 European patents have been granted with a request for unitary effect since the unitary patent system started on 1 June 2023<sup>1</sup>. Despite the potential for cost savings being universally applicable, there has been significant variance in the extent different industries have engaged with the new system.

In this report, we calculate the uptake rates (the percentage of European patents that received a request for grant with unitary effect) in 12 fields of technology and use data about where patents in these fields were previously validated to examine differences between unitary patent uptake rates in different fields of technology.

# Unitary patents overview

After grant, a European patent can be validated as a national patent in each of 39 contracting states. The cost and administrative burden of maintaining a family of national patents can quickly become significant, so there has long been a desire to centralise the maintenance and enforcement of European patents after grant. That desire led to the creation of the unitary patent system.

A unitary patent (UP) is a single patent that has effect in multiple countries. As it is a single article of property, a unitary patent is dealt with centrally: post-grant decisions will take effect in all UP participating states, and single renewal fees maintain the patent.

The unitary patent system is an European Union initiative, and as such is only available in EPO member states that are also members of the EU. As of August 2024 only 17 of the 27 EU member states are participating in unitary patents, but more may join at a later date. The “classic” national validation route continues in non-unitary patent (non-UP) participating states. For UP participating states, patent proprietors must choose between classic national validation or requesting a unitary patent. This report examines how proprietors have exercised that validation choice.

EPO member states that are not in the EU, including the UK, will not be able to join the unitary patent system. For EPO member states that are non-UP participating states, post grant procedures are unchanged by the UP system, and most patent attorneys, including those from the UK, qualified to practice before the EPO, have full rights of representation before the Unified Patent Court, regardless of whether they are nationals of a UP participating state.

To convert a European patent into a unitary patent, a request for unitary effect must be filed within one month of grant. A European patent without a request for unitary effect may still be validated in UP states separately, but it is not possible to have both a unitary patent and a national patent for a UP participating state. A European patent can still be validated in any of the non-UP participating states, regardless of whether a request for grant with unitary effect is filed.

**Table 1**

## EPO Member states

| EU Member states     |                       | Non-EU member states |
|----------------------|-----------------------|----------------------|
| UPC Member states    | Non-UPC member states |                      |
| Austria (AT)         | Croatia (HR)          | Albania (AL)         |
| Belgium (BE)         | Cyprus (CY)           | Iceland (IS)         |
| Bulgaria (BG)        | Czechia (CZ)          | Liechtenstein (LI)   |
| Denmark (DK)         | Greece (GR)           | Monaco (MC)          |
| Estonia (EE)         | Hungary (HU)          | Montenegro (ME)      |
| Finland (FI)         | Ireland (IE)          | North Macedonia (MK) |
| France (FR)          | Poland (PL)           | Norway (NO)          |
| Germany (DE)         | Romania* (RO)         | San Marino (SM)      |
| Italy (IT)           | Slovakia (SK)         | Serbia (RS)          |
| Latvia (LV)          | Spain (ES)            | Switzerland (CH)     |
| Lithuania (LT)       |                       | Turkey (TR)          |
| Luxembourg (LU)      |                       | United Kingdom (GB)  |
| Malta (MT)           |                       |                      |
| The Netherlands (NL) |                       |                      |
| Portugal (PT)        |                       |                      |
| Slovenia (SI)        |                       |                      |
| Sweden (SE)          |                       |                      |

## EPO Extension/validation states

Bosnia and Herzegovina (BA)  
 Morocco (MA)  
 Moldova (MD)  
 Tunisia (TN)  
 Cambodia (KH)  
 Georgia (GE)

*\*Romania became a UP participating state on 1 September 2024 and has not been included as a UP participating state for the purpose of this report.*

# When is a unitary patent the right choice?

## Costs – Renewal fees

After grant, an annual renewal fee must be paid to maintain a unitary patent. This single renewal fee maintains the unitary patent in all the countries in which it has effect.

The renewal fee for a unitary patent is substantially less than the total of the renewal fees payable in all 17 UP participating states. However, if a patent is only desired in a few countries, it may be less expensive to pay the national renewal fees for those countries. For example, if patent protection is only sought in France and Germany, the renewal fees for a unitary patent are more expensive than those for the two national validations. If patent protection is also sought in Austria, Italy and the Netherlands, the unitary patent becomes the more cost-effective option.

To complicate matters further, renewal fees generally increase year-on-year. Renewal fees increase by different amounts in different states, so an applicant should consider the length of time they would like to maintain their patent for when deciding if a unitary patent is right for them. For example, an applicant who is interested in patent protection in France, Germany, Austria, Italy and the Netherlands would save about EUR 2000 paying the unitary patent renewal fees (rather than individual national renewal fees) for the full twenty-year term of the patent.

**Table 2**

### Renewal Fees (EUR)

| Year | Unitary Patent <sup>2</sup> | Total of UP participating states <sup>2</sup> | Germany (DE) <sup>3</sup> | France (FR) <sup>4</sup> | Austria (AT) <sup>5</sup> | Italy (IT) <sup>6</sup> | Netherlands (NL) <sup>7</sup> |
|------|-----------------------------|---|---------------------------|--------------------------|---------------------------|-------------------------|-------------------------------|
| 2    | 35                          | 146   |                           | 38                       |                           |                         |                               |
| 3    | 105                         | 899   | 70                        | 38                       |                           |                         |                               |
| 4    | 145                         | 1,049   | 70                        | 38                       |                           |                         | 40                            |
| 5    | 315                         | 1,483   | 100                       | 38                       |                           | 60                      | 100                           |
| 6    | 475                         | 2,024   | 150                       | 76                       | 104                       | 90                      | 160                           |
| 7    | 630                         | 2,544   | 210                       | 96                       | 203                       | 120                     | 220                           |
| 8    | 815                         | 3,211   | 280                       | 136                      | 313                       | 170                     | 280                           |
| 9    | 990                         | 4,036   | 350                       | 180                      | 417                       | 200                     | 340                           |
| 10   | 1,175                       | 4,756   | 430                       | 220                      | 522                       | 230                     | 400                           |
| 11   | 1,460                       | 5,561   | 540                       | 260                      | 626                       | 310                     | 500                           |
| 12   | 1,775                       | 6,414   | 680                       | 300                      | 731                       | 410                     | 600                           |
| 13   | 2,105                       | 7,306   | 830                       | 350                      | 835                       | 530                     | 700                           |
| 14   | 2,455                       | 8,163   | 980                       | 400                      | 940                       | 600                     | 800                           |
| 15   | 2,830                       | 9,011   | 1,130                     | 460                      | 1,044                     | 650                     | 900                           |
| 16   | 3,240                       | 9,983   | 1,310                     | 520                      | 1,148                     | 650                     | 1,000                         |
| 17   | 3,640                       | 10,964  | 1,490                     | 580                      | 1,253                     | 650                     | 1,100                         |
| 18   | 4,055                       | 11,862  | 1,670                     | 650                      | 1,357                     | 650                     | 1,200                         |
| 19   | 4,455                       | 13,054  | 1,840                     | 730                      | 1,566                     | 650                     | 1,300                         |
| 20   | 4,855                       | 14,202  | 2,030                     | 800                      | 1,775                     | 650                     | 1,400                         |

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## Costs – Other costs

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The procedural languages of the EPO are English, French and German, and all European patents are granted in one of those languages (with claims given in all three). After grant, some countries require translations of either full patent specification or the claims. This adds to the costs of validating a European patent in those countries.

Translations are also required for unitary patents. If the procedural language of the application before the EPO was French or German, a full translation of the specification into English is needed. Otherwise, the specification must be translated into any other official language of an EU member state (including non-UP participating states). The translation requirements for unitary patents will be lifted after a transitional period of (at least) six years.

Continuing the example of an applicant interested in patent protection in France, Germany, Austria, Italy and the Netherlands, validating a European patent in these countries would require full translations into Italian and German and a translation of the claims into Dutch (assuming the procedural language is English). This would have an estimated cost of between £6,000 and £12,000.

If the same applicant instead chose to request a unitary patent, only one full translation would be required, significantly reducing translation costs. Furthermore, a translation produced for a unitary patent can be more cheaply produced, for example by use of machine-assisted translation, because unlike the situation with translations produced for national validations, any errors in a translation produced for a unitary patent do not impact the legal scope of protection afforded by the patent.

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**Table 3**

**Year Cumulative Renewal Fees (EUR)**

|    | Unitary Patent | Total of UP participating states | DE + FR | AT, DE, FR, IT & NL |
|----|----------------|----------------------------------|---------|---------------------|
| 5  | 600            | 3,577                            | 392     | 592                 |
| 10 | 4,685          | 20,148                           | 2,520   | 6,489               |
| 15 | 15,310         | 56,603                           | 8,450   | 22,595              |
| 20 | 35,555         | 116,668                          | 20,070  | 50,564              |

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**Table 4**

| Requirement                | Typical translation cost (GBP) | Countries                  |
|----------------------------|--------------------------------|----------------------------|
| No translation             | 0                              | BE, FR, DE, LU, MT         |
| Translation of claims only | 500–2,000                      | DK, FI, LV, LT, NL, SE, SI |
| Full translation           | 3,000–5,000                    | AT, BG, EE, IT, PT         |

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## Countries of interest

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To determine whether a unitary patent is a cost-effective option, it is important to consider which countries patent protection is desired in. In our earlier report, “Trends in validation of a granted European patent by technology field”<sup>8</sup>, we analysed data published by the EPO showing the number of European patents validated in each country in 2019 before the unitary patent system started. As validation is a passive process which can occur automatically in countries without translation or other formalities requirements (indicated with an asterisk in figure 1), including Germany and France, we also considered the number of first renewal fees paid in these countries to determine where patent proprietors actively seek patent protection.

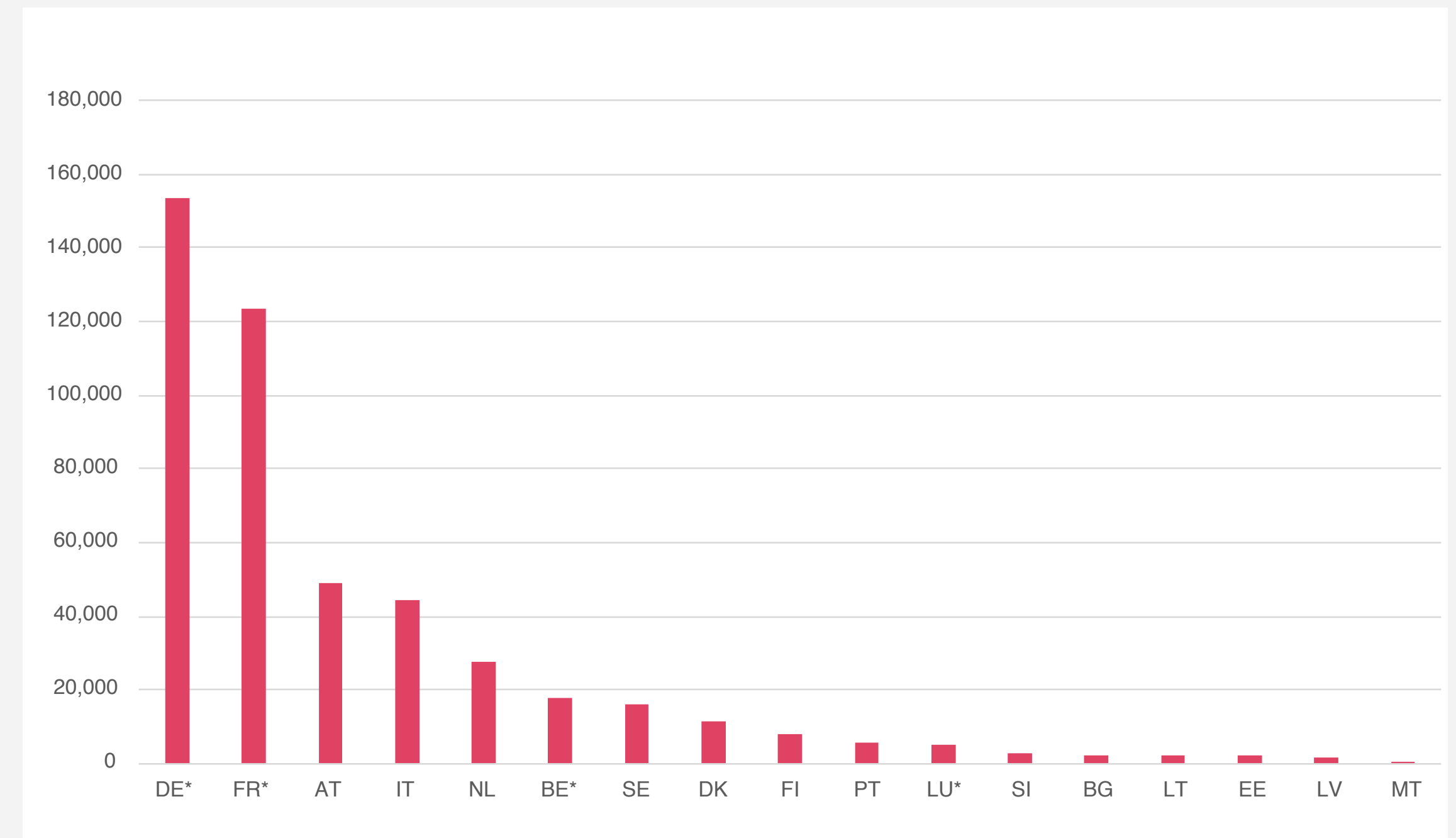
We use the 2019 data in this report as it is old enough to be unaffected by any preparatory measures taken by patent proprietors and applicants in anticipation of the unitary patent system starting. The data can therefore be used to snapshot validation strategies before the unitary patent system.

When looking at the number of validations in the UP participating states, over half (58%) of all validations were made in Germany and France. With the exceptions of Austria, Italy and the Netherlands, there were fewer than 20,000 validations made in each of the other countries. 138,000 European patents were granted in 2019, so fewer than 15% of granted patents were validated outside of the “top-five” countries.

Validations data shows that patent protection is concentrated in a small number of countries, particularly France and Germany. It is cheaper to pay renewal fees in these two countries than to maintain a unitary patent. However, when patent protection is extended to the top five countries (Germany, France, Austria, Italy and the Netherlands), the unitary patent becomes the more cost-effective option. It is therefore essential to know which countries are of interest when deciding whether to validate with unitary effect.

**Figure 1**

Total number of validations by UP participating state (2019)



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## Fields of technology

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The World Intellectual Property Office (WIPO) identifies 35 technology fields, which the EPO uses to categorise the patent applications and patents. The technology fields are determined using International Patent Classification (IPC) codes.

In this report, we consider the effect of the unitary system on 12 of the technology fields. These fields include those with the highest numbers of European Patent applications made in 2023<sup>9</sup>, (medical technology, digital communications, and computer technology), as well as those representing particularly high-value sectors (such as pharmaceuticals<sup>10</sup>). Together, these technology fields account for over half of the European patents granted in 2023.

The fields of technology discussed in this report are in Table 5 opposite.

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**Table 5**

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| <b>Field of technology</b>              | <b>European patents granted 2023</b> |
|---|--------------------------------------|
| Audio-visual technology                 | 2,292                                |
| Biotechnology                           | 1,753                                |
| Civil engineering                       | 3,805                                |
| Computer technology                     | 6,826                                |
| Digital communication                   | 8,844                                |
| Electrical machinery, apparatus, energy | 6,183                                |
| Engines, pumps, turbines                | 3,344                                |
| Medical technology                      | 9,088                                |
| Organic fine chemistry                  | 2,543                                |
| Pharmaceuticals                         | 2,765                                |
| Telecommunications                      | 2,601                                |
| Transport                               | 6,823                                |

# The data in this report

## Requests for grant with unitary effect

The EPO publishes the number of requests for unitary effect filed by month<sup>1</sup>. More than 23,000 requests for unitary effect were received by the EPO by 1 April 2024 and after a burst of requests made in June and July 2023, corresponding to the start of the UP system on 1 June 2023, the number of requests has stabilised at around 2000 per month.

Less than 4% of the total number of requests made before 1 April 2024 were made before 1 June 2023. Due to the low numbers of requests for unitary effect made in the months preceding June 2023, we have excluded the months of January to May 2023 in our analysis.

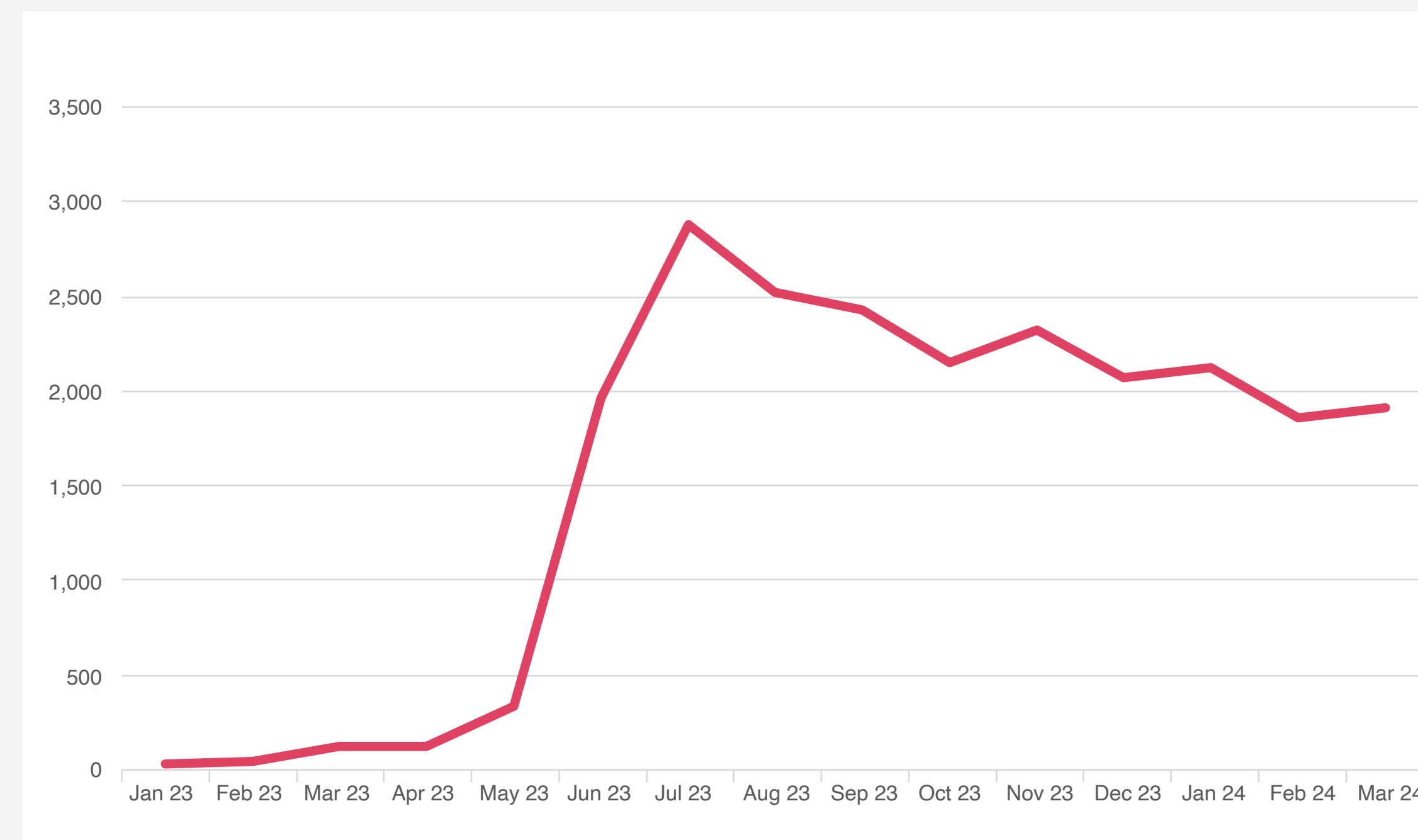
## Patents granted

The total number of European patent applications filed and European patents granted is published by the EPO each year, most recently for 2023<sup>9</sup>. This data is broken down into fields of technology.

In this report, we discuss the number of European patents granted in different fields of technology<sup>1</sup> with a request for unitary effect between 1 June 2023 and 31 March 2024. This time period spans 2023, for which the EPO has published the number of granted European patents, and 2024, for which this data is not publicly available. To calculate the number of European patents granted in the time period, we assumed that the EPO grants the same number of patents in each month of a calendar year, and the number of patents that will be granted in 2024 is the average of the number granted per year between 2020 and 2023.

**Figure 2**

Total requests for grant with unitary effect





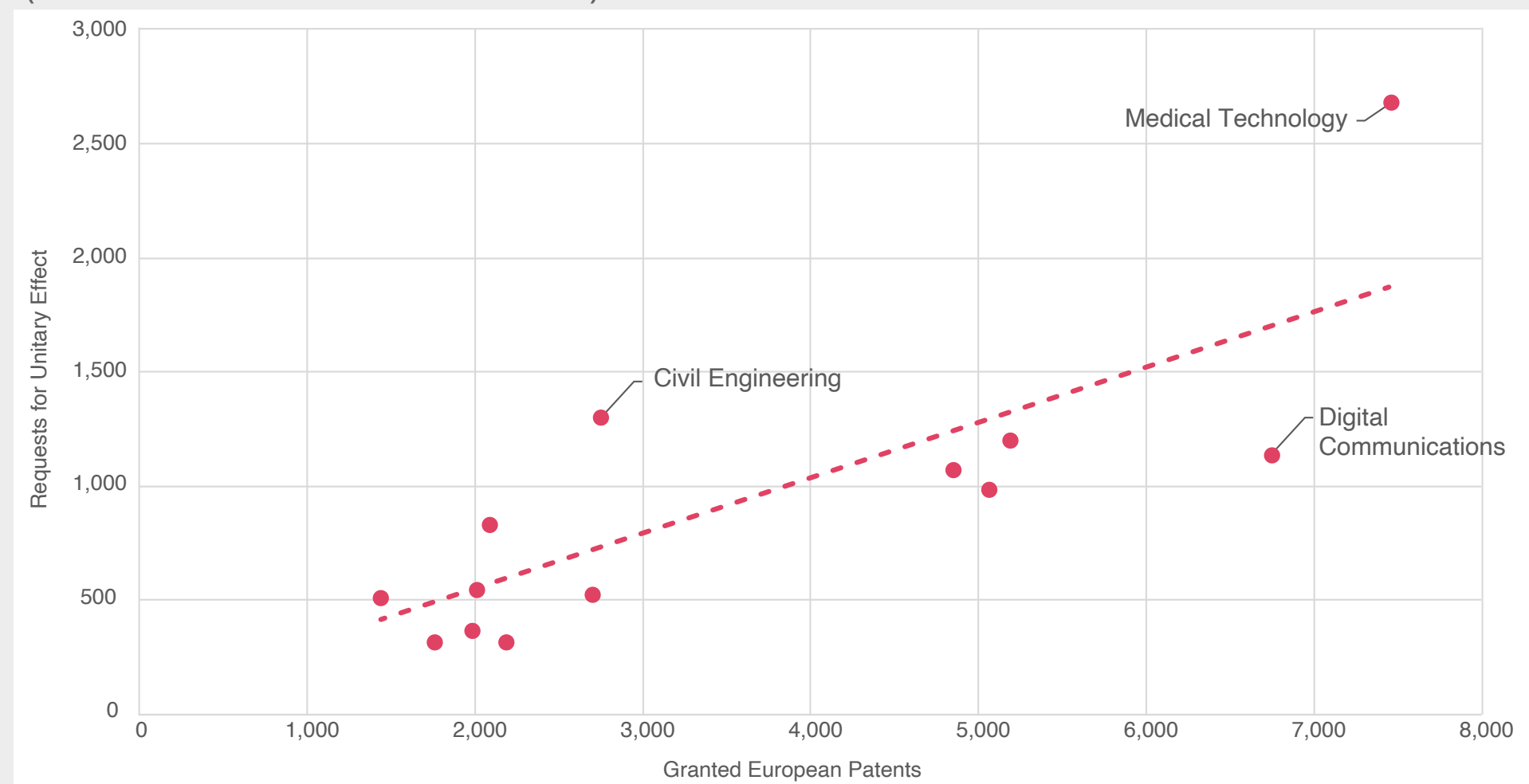
## Fields of technology

The EPO publishes the number of requests for unitary effect for each field of technology. Around half (51%) of the requests for unitary effect made between 1 June 2023 and 31 March 2024 were made for patents relating to one of the fields discussed in this report.

The technology field with the most UP requests, medical technology, is also the field with the highest number of European patents granted in 2023, but the number of granted patents in a technology field is only loosely correlated with the number of requests for unitary effect. For example, civil engineering and digital communication inventions respectively represented 6% and 5% of the total number of requests for unitary effect, but there were more than twice as many European patents granted for digital communications than for civil engineering.

**Figure 3**

European Patents granted and requests for Unitary Effect  
(1 June 2023 to 31 March 2024)



## Uptake rates

The EPO publishes an “uptake rate”, which is the percentage of granted European patents that received a request for grant with unitary effect<sup>1</sup>. The EPO uptake rate for 2023 is 17.5%. This figure, however, takes into account all European patents published in 2023. As seen in Figure 3, the number of requests for unitary effect made before June (when the unitary patent system was launched) was very low, with only 846 requests made in the months of January to May 2023. When we calculated the uptake rate of patents granted between 1 June 2023 and 31 March 2024, the percentage of European patents with a request for unitary effect rose to 28%.

We also calculated an uptake rate for each of the twelve technology fields considered in this report. These uptake rates allow us to identify technology fields with disproportionately high or low numbers of requests made for unitary effect.

**Table 6**

| Field of technology                     | Uptake rate |
|---|-------------|
| All fields                              | 28%         |
| Audio-visual technology                 | 18%         |
| Biotechnology                           | 36%         |
| Civil engineering                       | 47%         |
| Computer technology                     | 19%         |
| Digital communication                   | 17%         |
| Electrical machinery, apparatus, energy | 22%         |
| Engines, pumps, turbines                | 19%         |
| Medical technology                      | 36%         |
| Organic fine chemistry                  | 27%         |
| Pharmaceuticals                         | 40%         |
| Telecommunications                      | 18%         |
| Transport                               | 23%         |

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## Uptake rates by field of technology

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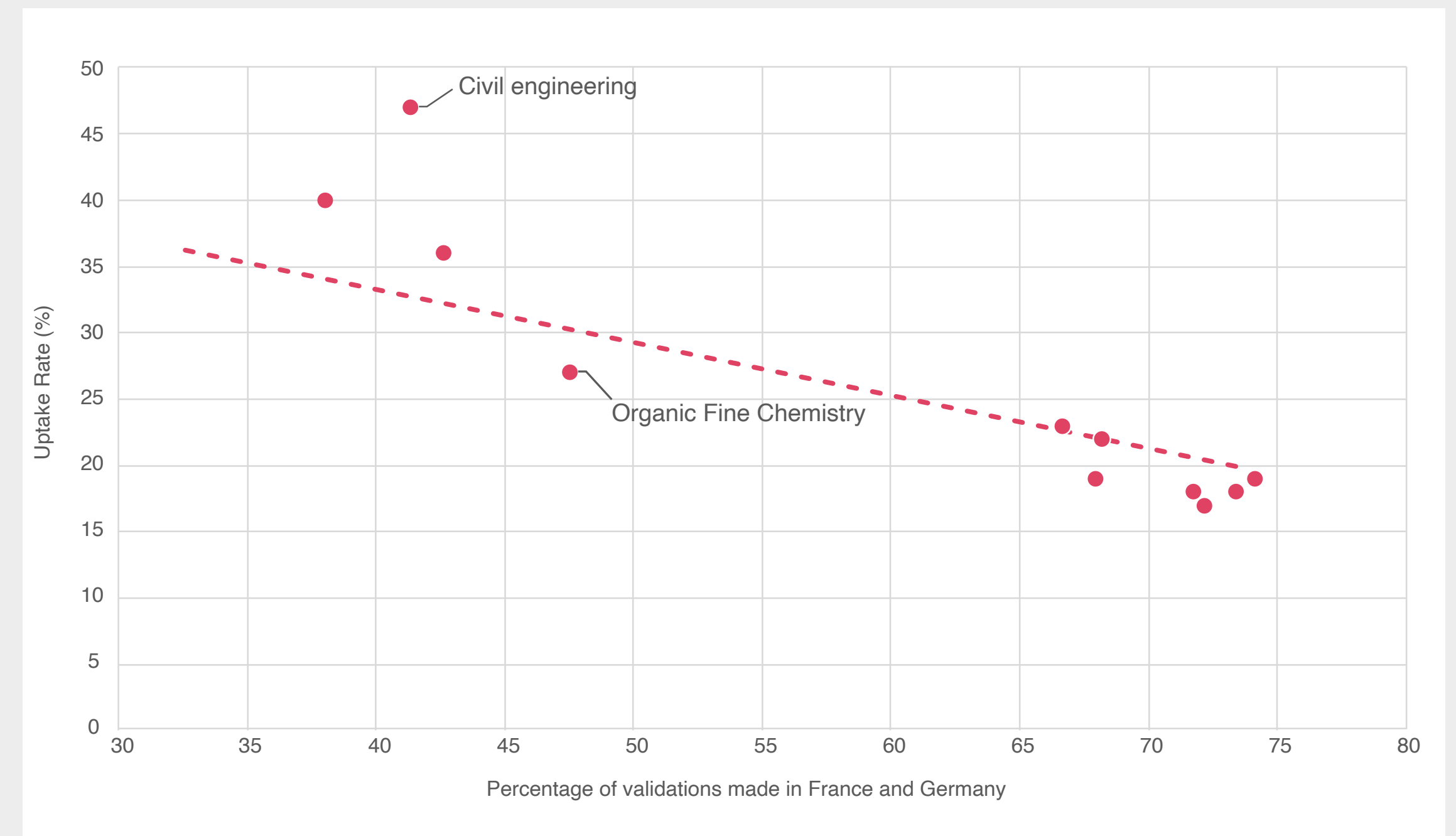
The distribution of validations made in each UP participating state differs between technology fields. For instance, 92% of all national validations made in UP participating states in the field of computer technology were made in only five countries (Germany, France, the Netherlands, Italy and Austria), but only 62% of pharmaceutical national validations were made in these countries. As over half of all national validations made in UP participating states were made in Germany and France, the proportion of validations made in these two countries (compared to all UP participating states) gives an indication of how widely patents in each field of technology are validated.

By comparing the proportion of validations made in France and Germany to the uptake rate for requesting unitary effect, we see that technological fields in which patent protection is more widely sought tend to have higher UP uptake rates. This suggests that the cost savings of a unitary patent, which are more significant when patent protection is sought in many states, is driving behaviour.

Some technological fields deviate from this trend. For example, medical technology has a greater UP uptake rate than would be expected given the proportion of validations made in France and Germany in those fields. This suggests that deciding to request unitary effect may not always be a choice made solely on financial grounds. To explain the differences in uptake rates between different technological fields, it is necessary to delve into each individual field.

**Figure 4**

Percentage of validations made in France and Germany vs uptake rate



# Fields of technology

|   |    |
|---|----|
| Audio-visual technology                 | 12 |
| Biotechnology                           | 13 |
| Civil engineering                       | 14 |
| Computer technology                     | 15 |
| Digital communication                   | 16 |
| Electrical machinery, apparatus, energy | 17 |
| Medical technology                      | 18 |
| Organic fine chemistry                  | 19 |
| Pharmaceuticals                         | 20 |
| Telecommunications                      | 22 |
| Transport                               | 23 |

# Audio-visual technology

17% UP uptake rate

Audio-visual technology encompasses visual displays, loudspeakers and data transmission systems. This field is closely tied with the entertainment industry, particularly in the fast-growing streaming sector.

Patents granted for audio-visual inventions have a lower than average uptake rate of 17% (compared to the 28% average). This uptake rate is comparable to the similar fields of telecommunications and digital communications, which also have uptake rates of less than 20%.

Audio-visual technology's low uptake rate is likely explained by the highly localised approach to patent protection in this industry: in 2019, 72% of all audio-visual validations made in UP participating states were made in France and Germany alone.

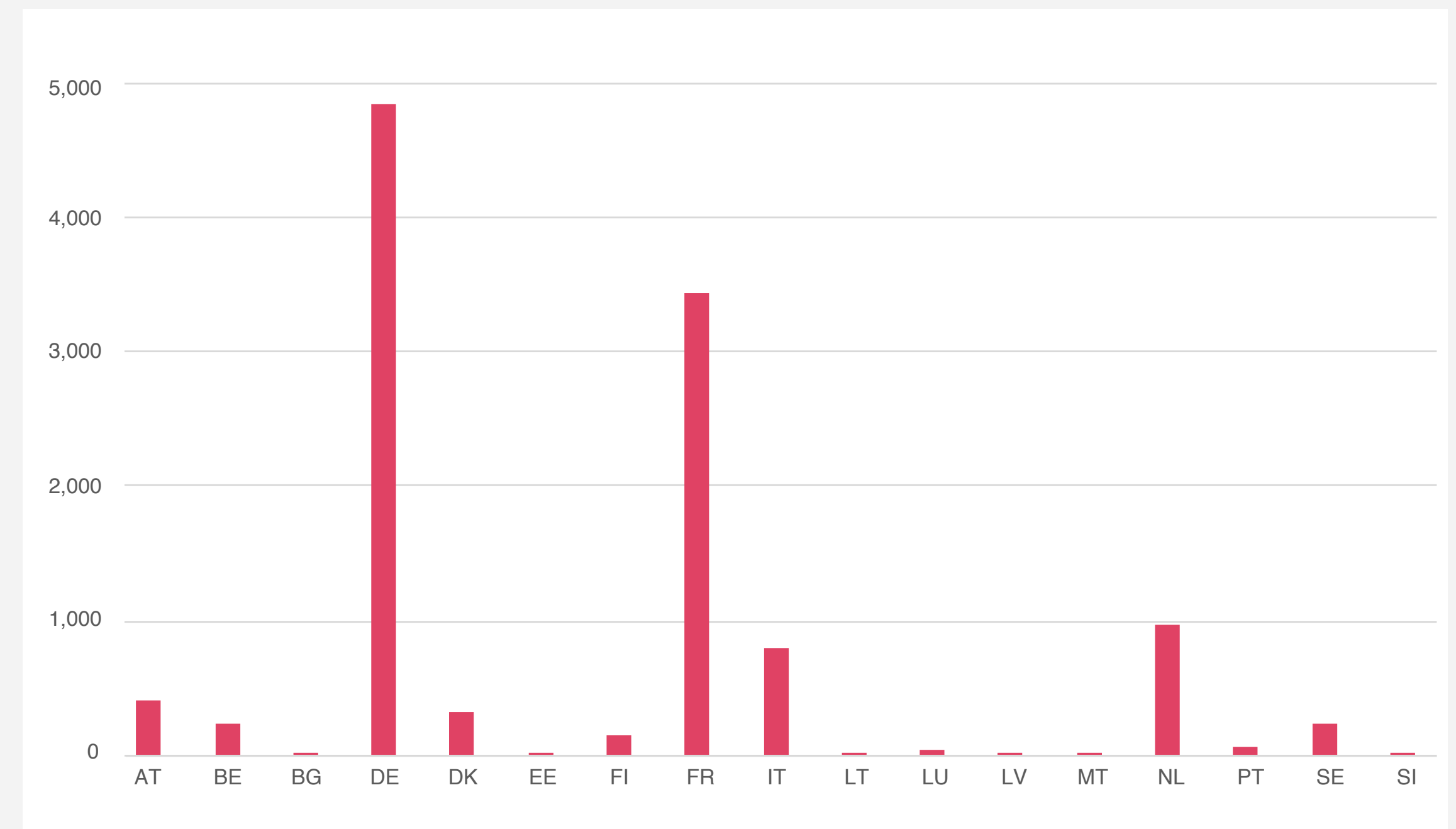
This may be surprising, since, with the growth of streaming and video on demand, media is becoming more easily accessible across borders. Media consumption is growing across Europe, and there are more than 3,000 video-on-demand services operating in the EU, but revenues are concentrated in a small number of companies<sup>11</sup>. Of the ten biggest audio-visual companies operating in the EU, four are based in the USA, three are French and three are German<sup>11</sup>. The concentrated nature of the sector could be driving similarly concentrated patenting strategies.

Patents granted for audio-visual inventions are concerned with media production as well as consumption. European audiences regularly engage with media produced outside their home countries; for instance over half of all video streamed in the EU originated in the USA. There are localised centres of media production within Europe (for example France and Italy lead EU film production)<sup>12</sup>. It may be more valuable for patent proprietors to protect their inventions in these centres, and patent protection may be targeted in a small number of countries for this reason.

If patent protection is only sought in a few countries, a unitary patent may be unnecessary. The low uptake rate for audio-visual patents reflects this.

**Figure 5**

Total validations by UP participating state, audio-visual technology (2019)



# Biotechnology

36% UP uptake rate

Biotechnology is the field of science concerned with using living organisms for human purposes. Modern biotechnology is a rapidly developing area resulting in the output of many biologic medicines, especially with the integration of bioinformatic techniques and the huge amounts of biological and genetic data that has been generated over the last two decades. Biotechnology also includes non-medical fields such as fermentation in food production and genetic selection of crops.

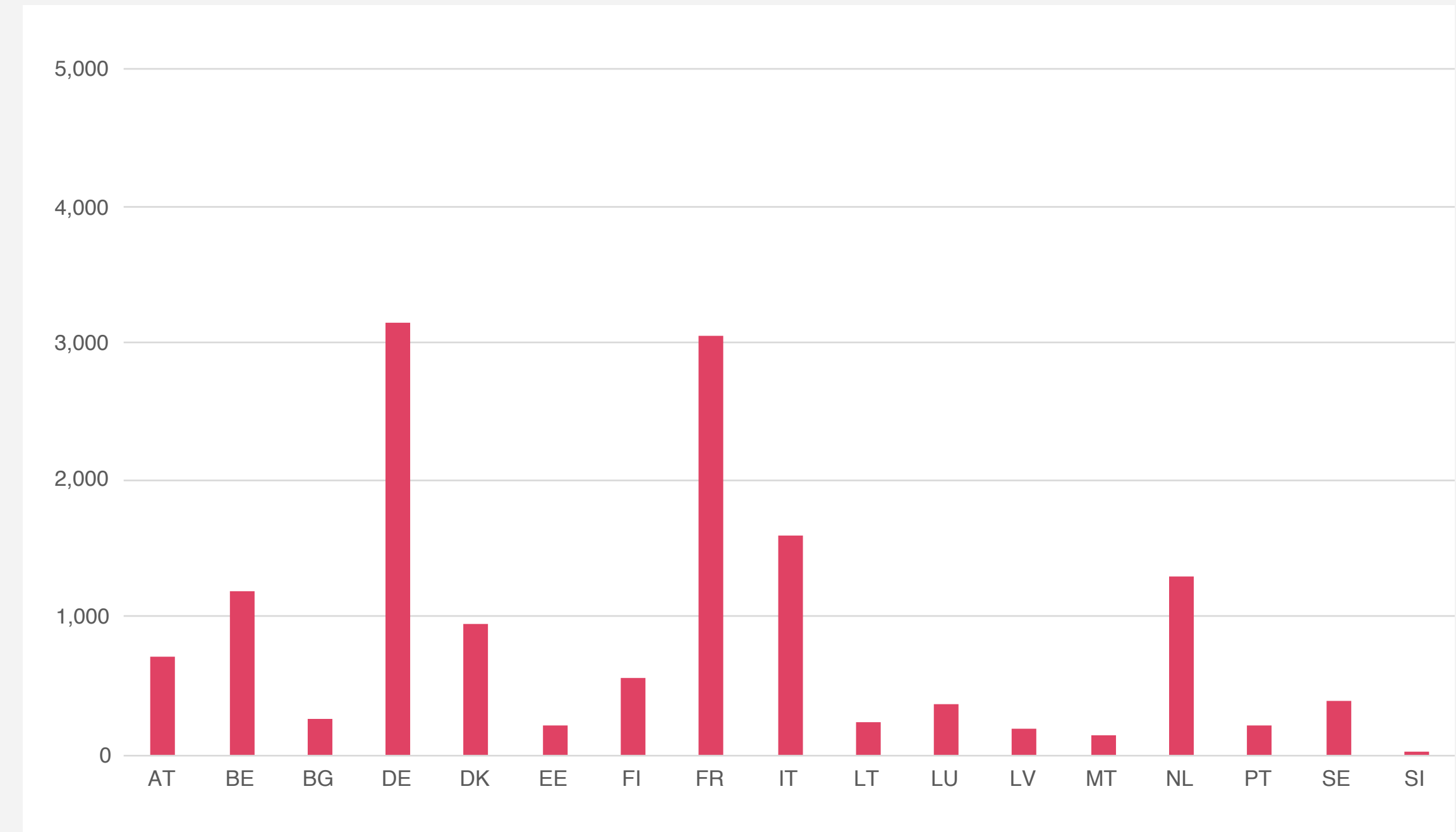
Although the number of granted patents for all fields of technology at the EPO has declined by 24% between its peak in 2019 and 2024, partly due to the EPO clearing its historic backlog, the number of biotechnology patents has seen a sharper decline of 51% for the same period<sup>9</sup>. In 2023, biotechnology was the 26th most patented field, down from 14th in 2019. This relative decline in number of patents granted is part of a long standing trend, where biotechnology is one of only a handful of fields to have fewer patents granted in 2023 than in 2014, along with organic fine chemistry, textile and paper machines, food chemistry and analysis of biological materials.

The list of top biotechnology patent applicants is dominated by large multinational pharmaceutical companies, with Roche the number one applicant<sup>13</sup>. However, unlike the Pharmaceuticals sector, other top filers include public research institutions such as INSERM and the University of California and smaller companies such as Illumina.

In 2019, validations in Germany, France and the UK made up 36% of all biotechnology patent validations. Switzerland and Italy were 4th and 5th, with a little over half the number of validations as the top three. Notably, both the UK and Switzerland are non-UP participating states.

When considering UP participating states only, Germany and France account for 42% of validations, and Italy, the Netherlands and Belgium round off the top 5. Biotechnology has a UP uptake rate of 36% from June 2023 to the end of March 2024, which is higher than the average of 28%. This makes sense as biotechnology has a relatively lower proportion of validations made solely in France and Germany as the only UP participating states (average 60%), suggesting biotechnology applicants tend to validate their patents widely and are thus seeking to benefit from the single fee for requesting unitary effect.

**Figure 6**  
Total validations by UP participating state, biotechnology (2019)



# Civil engineering

47% UP uptake rate

Civil engineering is the discipline concerned with the construction and maintenance of public infrastructure, such as roads, bridges, dams and sewage systems. Civil engineering is an essential part of modern civilisation, and innovations in this area must take into account a wide range of academic fields such as geography and environmental science, mechanical engineering and materials sciences.

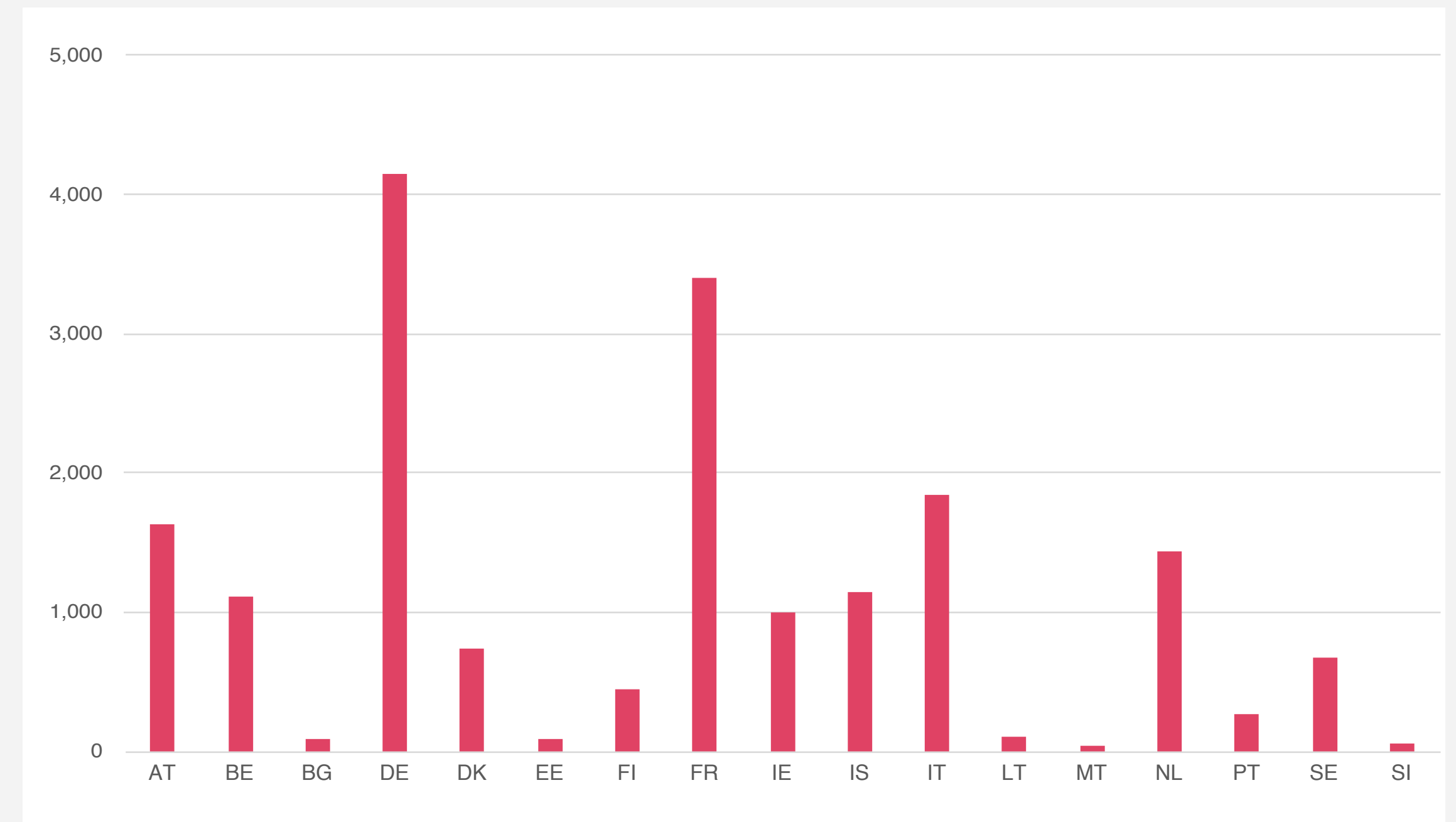
As with patents in general, the number of civil engineering patents being granted has declined in the period from 2019 to 2023<sup>9</sup>, although by significantly less than average, with granted civil engineering patents down 9% versus an average decline of 24%. In 2023, civil engineering was ranked as the 8th most patented field, versus the 10th most in 2019.

In 2019, Germany, the UK and France comprised 39% of all validations of civil engineering patents. Italy and Austria were the states with the 4th and 5th most validations. When considering only UP participating states, Germany and France make up 41% of total validations in 2019, which is below average for all fields of technology (60%), and second lowest only to pharmaceutical patents.

Civil engineering has the highest UP uptake rate of any of the fields discussed in this report, with a rate of 47% from June 2023 to end of March 2024 (compared to an estimated 28% for all overall). This fits the trend of more widely validated fields of technology seeing higher UP uptake rates. This makes sense, as civil engineering is an essential part of all EU countries' development rather than being localised in a few industrial centres.

**Figure 7**

Total validations by UP participating state, civil engineering (2019)



# Computer technology

19% UP uptake rate

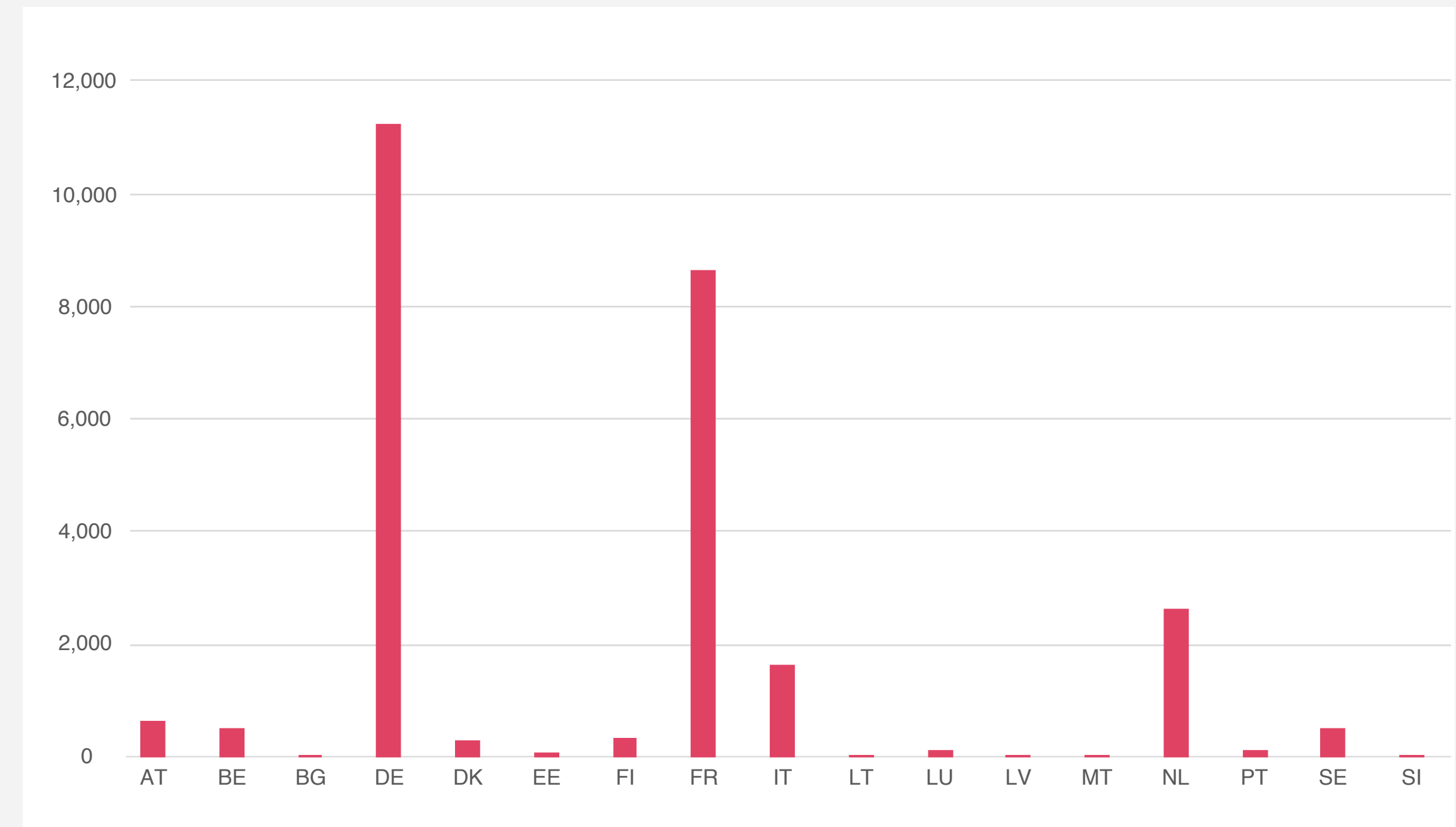
The field of computer technology covers inventions from both computer hardware and software and service sub-sections. Inventions in this field relate to digital and analogue computers, optical computing devices, data processing, data recognition, speech analysis and information storage.

In 2023, 15,746 patent applications were filed at the EPO relating to computer technology, this is in comparison to 15,555 in 2022<sup>14</sup>. This shows an overall 1.2% increase between 2022 and 2023.

In 2019, the top European country for validation in the computer technology sector was Germany, this was closely followed by the UK and France. After a significant drop off, the next countries with the highest validations were the Netherlands, Iceland, Italy, Ireland and Spain, only two of which are UP participating states. Those countries had significantly fewer validations than UK, France and Germany. Figure 8 shows validations made in UP participating states only, and demonstrates how, without the UK, Iceland, Ireland and Spain, patent protection is sought in only a few countries.

Within the computer technology sector, between 1 June 2023 and 31 March 2024, 19% of patents have been granted with unitary effect, this is lower than the average of 28% across all fields of technology. This suggests that companies in the computer technology field are interested in protection in only a small set of European countries. This is supported by France and Germany alone making up 74% of all validations in 2019 (compared to 60% all-sector average).

**Figure 8**  
Total validations by UP participating state, computer technology (2019)



# Digital communication

17% UP uptake rate

Digital communication is a technology field covering telecommunications and computers. In 2019 digital communication became the new leading field of patent applications at the EPO<sup>9</sup>.

In 2023, 17,749 patent applications were filed at the EPO relating to digital communication, this is in comparison to 16,349 in 2022<sup>14</sup>. Resulting in an 8.6% increase. Back in 2019, this increase was even greater, with a sharp 20% increase compared to the previous year<sup>9</sup>.

Digital communication technologies are tools that allow two or more people to communicate with each other. Possible reasons for the rapid growth in this area are likely because of developments in areas such as artificial intelligence and 5G<sup>15</sup>. In 2019, Germany had the most patent validations in the digital communications field, closely followed by the UK and then France. The Netherlands, Iceland, Italy and Ireland then follow in close succession.

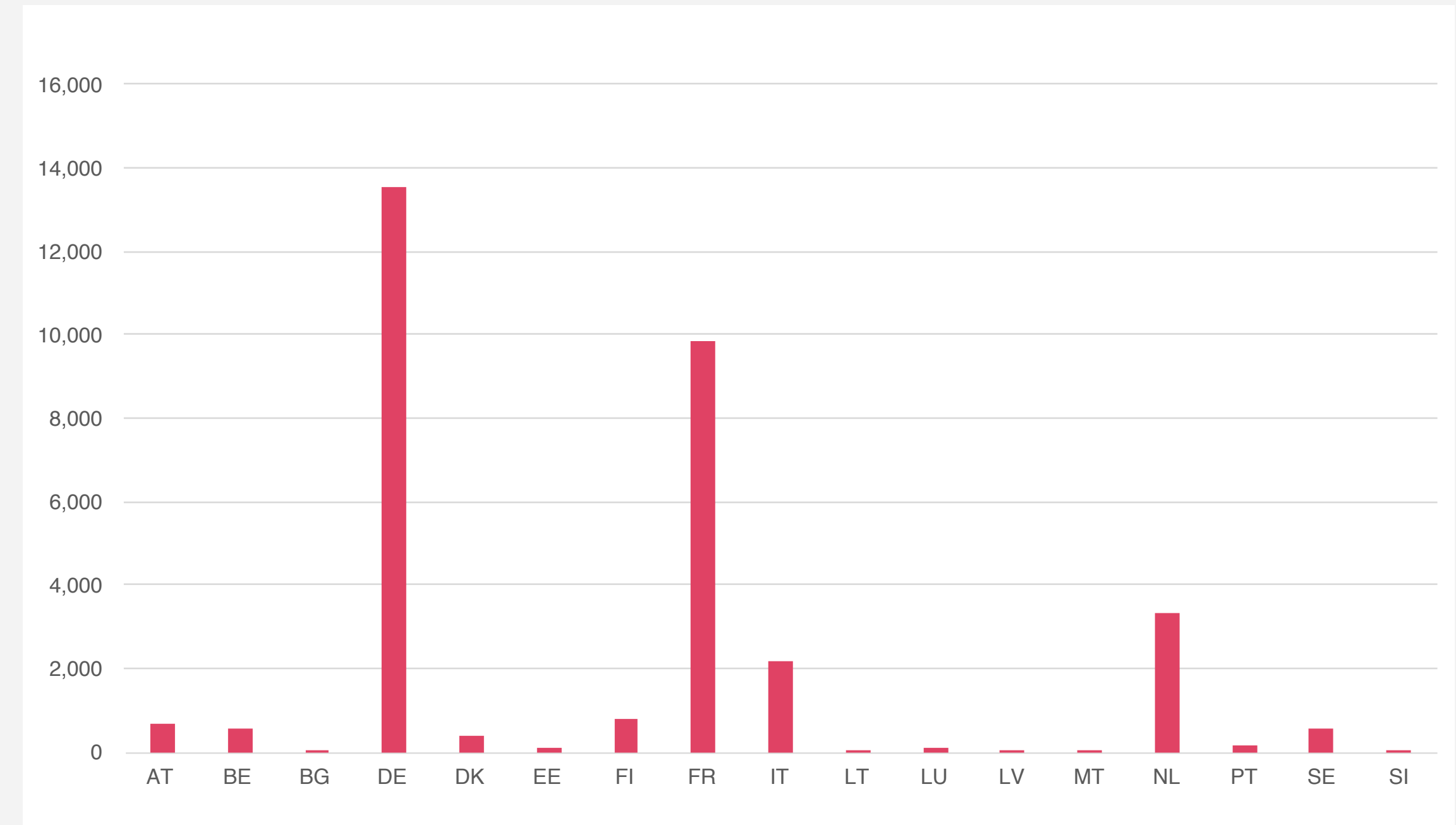
When considering only the UP participating states, patent protection is concentrated in only a small subset of countries. Figure 9 shows that, other than Germany, France, the Netherlands and Italy, fewer than 10,000 validations were made in each country in 2019. In this field, 72% of all validations made in 2019 were in France and Germany; this is greater than the average of 60% for all fields of technology.

Within the digital communication sector, since the UP system began, 17% of patents granted have been granted with unitary effect. This falls below the percentage of 28% of patents across all fields of technology granted with unitary effect.

Overall, it can be seen that digital communication is a rapidly growing field, however the percentage of patents granted with unitary effect in the field falls below the average across all fields of technology. Applicants appear to be interested in seeking protection in a select few countries only. If patent protection is only sought in a limited number of European countries, a unitary patent may be unnecessary.

Figure 9

Total validations by UP participating state, digital communication (2019)





# Electrical machinery, apparatus, energy

The electronics sector needs little introduction as it affects every facet of modern day living, from consumer products (such as household appliances) to industrial equipment. Semiconductor production also falls within the electronic sector, and is currently the most profitable subdivision of the industry. Such is the unrelenting growth of consumer electronics that it is more likely than not that you are reading these words on an electronic device rather than a paper copy. Thus, the sector is both innovative and fiercely competitive. Despite this, global electronics production remains dominated by the US, China, and Hong Kong<sup>16</sup>.

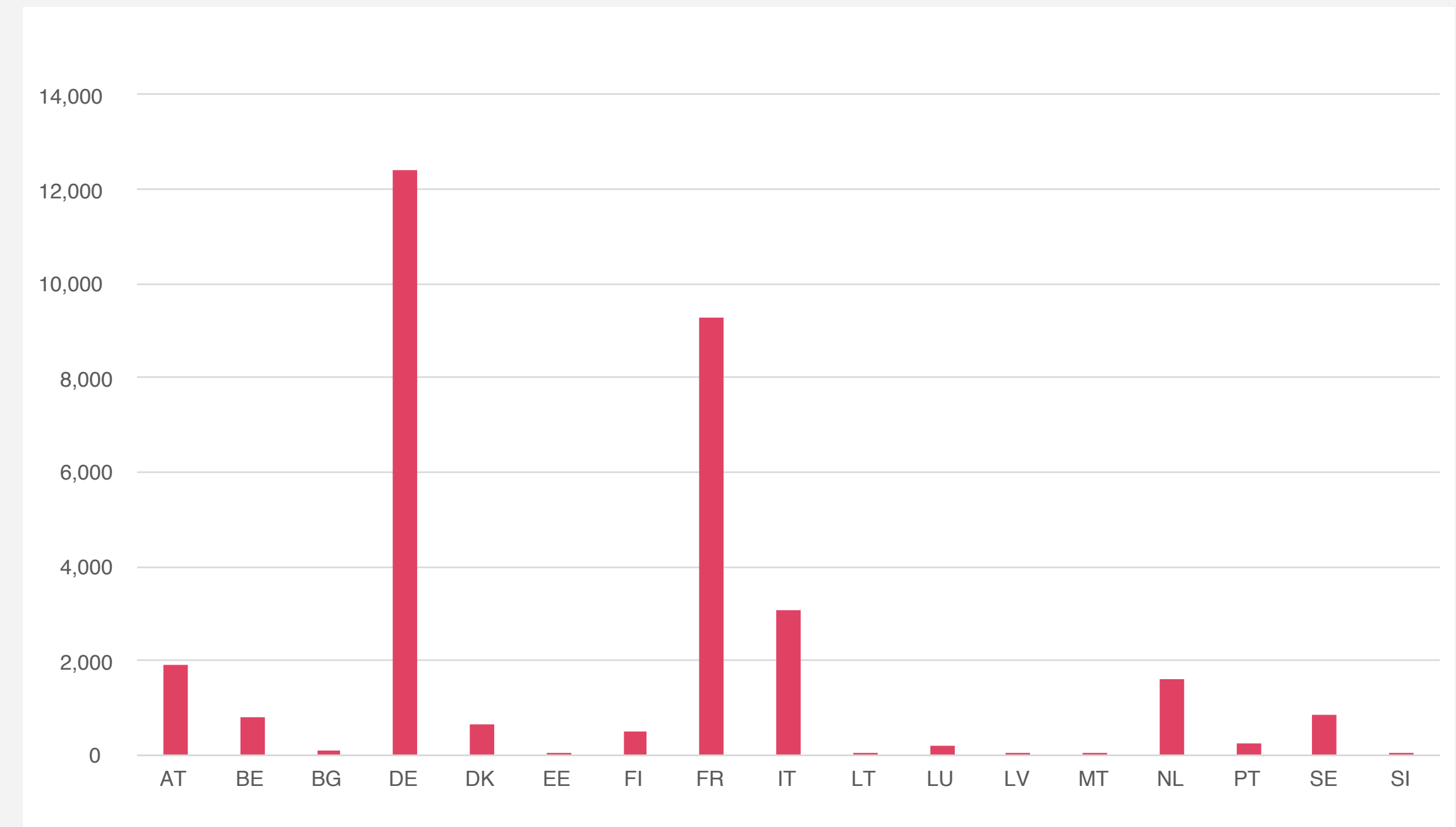
Notwithstanding the above, global electrical manufacturers are still keen to protect their inventions within Europe. The industry had the 6th highest number of granted European patents in 2023, out of all fields of technology. Out of these, the highest number of European patent validations are in Germany, followed by France. Significantly fewer patents were validated in other EPO member states. It is therefore no surprise that the UP uptake rate is slightly below average, at 22% of granted European patents, given that the cost for a unitary patent is more expensive than validating in Germany and France and the UK separately.

Notably, unitary patents within the “electricity” IPC class represent a disproportionate amount of the Unified Patent Court’s early case load<sup>17</sup>, at almost 40%. This is somewhat surprising, because electronics patents make up less than 10% of EPO Opposition cases<sup>18</sup>. This could mean that electronic patentees are trialling the unitary patent system for their most contentious cases, or it could signify that competitors are more eager to file an action against a patentee seeking broader geographical coverage via the unitary patent system. Regardless of the reason, this inevitably means that the early case law at the as-yet untested UPC will be largely influenced by these electronics cases. Only time will tell if this will make an applicant from this industry more or less likely to pursue a unitary patent.

22% UP uptake rate

**Figure 10**

Total validations by UP participating state, electrical machinery, apparatus, energy (2019)



# Medical technology

36% UP uptake rate

Medical technology is a broad field that relates to the use of devices and digital systems in healthcare. This can include lab-based diagnostic tools and devices, hospital equipment like dialysis machines, and, increasingly, portable and wearable devices such as continuous glucose monitors.

This breadth of application leads to medical technology patents being consistently in the top two technology fields for granted patents, sharing this space with digital communication. There has been a relatively small decline in the number of granted medical technology patents, with 13% fewer granted in 2023 than in 2019, versus the 24% average reduction for all patents<sup>14</sup>.

The top three applicants for medical technology patents are Medtronic, Philips and Johnson & Johnson, who in 2023 filed roughly 600 applications each. Becton, Dickinson & Company and Boston Scientific complete the top five<sup>19</sup>. These are the exact same top five applicants as in 2019.

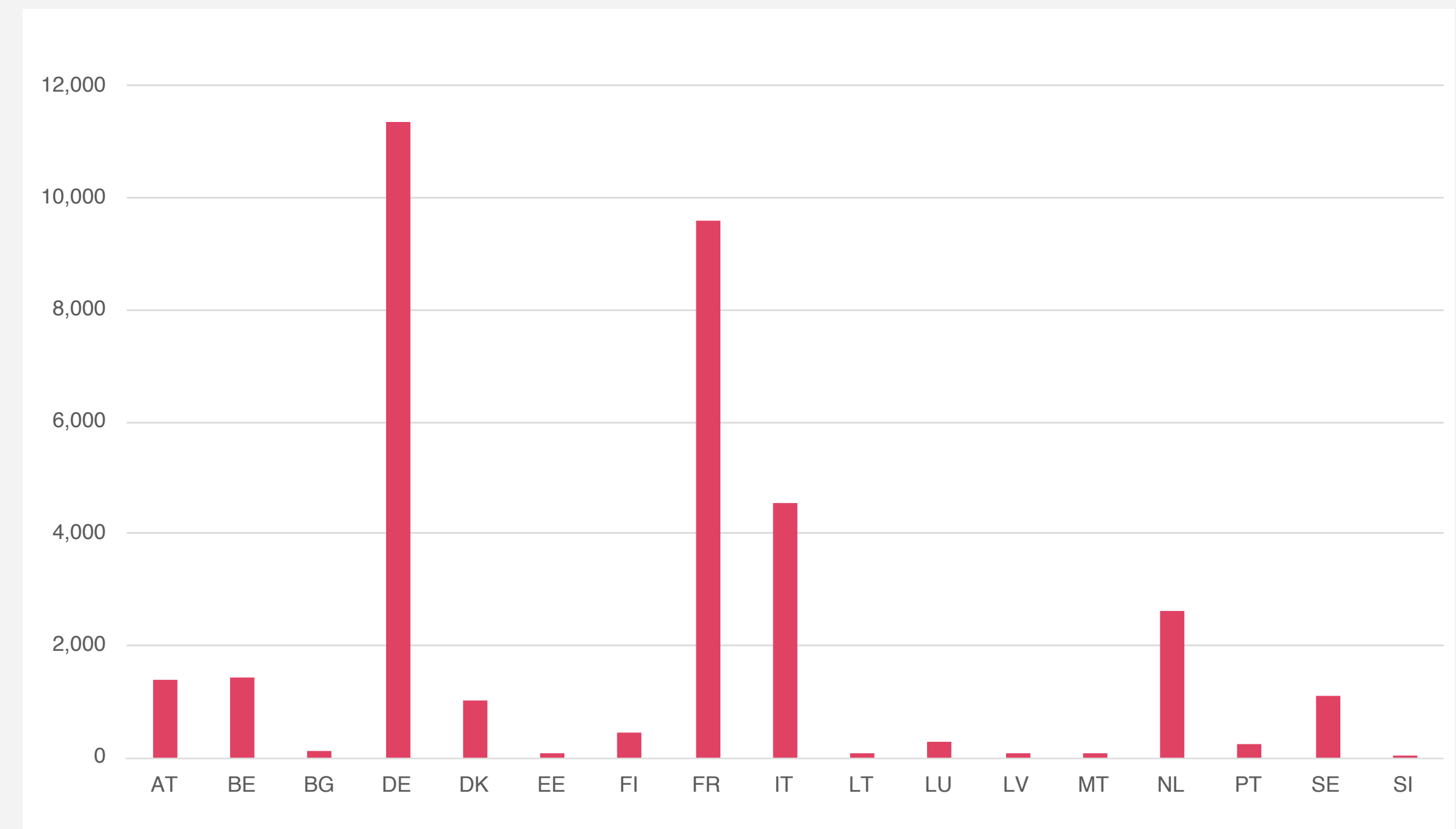
In 2019, Germany, the UK and France were the top three states for validating medical technology patents, comprising 52% of all validations between them. Italy, Ireland, Spain and Switzerland all had significant numbers of validations as well.

When considering only UP participating states, Germany and France comprised 60% of all validations in 2019, in line with the average for all fields of technology (60%). However, medical technology has a higher estimated UP uptake rate of 36% than the average of 28%, for June 2023 to end of March 2024.

This is somewhat out of line with other fields of technology, which in general see a higher total proportion of validations in France and Germany correlating with a lower UP uptake rate. This may suggest that medical technology applicants see some other value in the unitary patent other than potential cost savings for widely validated patents. This may be the fact that medical technology is used very widely across the EU and is often highly portable.

**Figure 11**

Total validations by UP participating state, medical technology (2019)



# Organic fine chemistry

27%

UP uptake rate

The European chemical industry is a competitive and innovative sector, and despite the increasing market share of their Chinese counterparts, Europe remains the second largest chemical producer and the EU accounts for 14% of global chemical sales<sup>20</sup>.

Typically, fine chemicals are complex, single, pure chemical substances that are produced in limited volumes (< 1000 tonnes/year) and sold at relatively high prices (> \$10/kg). Organic fine chemistry encompasses organic pure substances, combinatorial chemistry, and preparations for medical, dental and hygiene uses. For example, it includes steroids, sugars, cosmetics, and food ingredients<sup>20</sup>. Fine chemicals can be subdivided further into building blocks, advanced intermediates, or active ingredients, depending on their contribution to the final commercial product.

Thus, the organic fine chemical industry comprises a variety of products that are either essential or desirable to a modern society. This makes the sector very competitive, and innovation remains important for chemical companies to stay profitable. Furthermore, the chemical industry faces its biggest transformation in the history of the sector to become climate neutral, and this transformation will require billions of additional investments and rapid innovation<sup>20</sup>. Therefore, a well-planned patent portfolio, and accompanying validation strategy, are imperative to succeed in this sector.

European fine chemical patents are validated most commonly in Germany, France and the UK, with a similar number of validations for each country. Switzerland (and Lichenstein), Italy, Spain, and the Netherlands then follow, with about half as many validations in these latter countries.

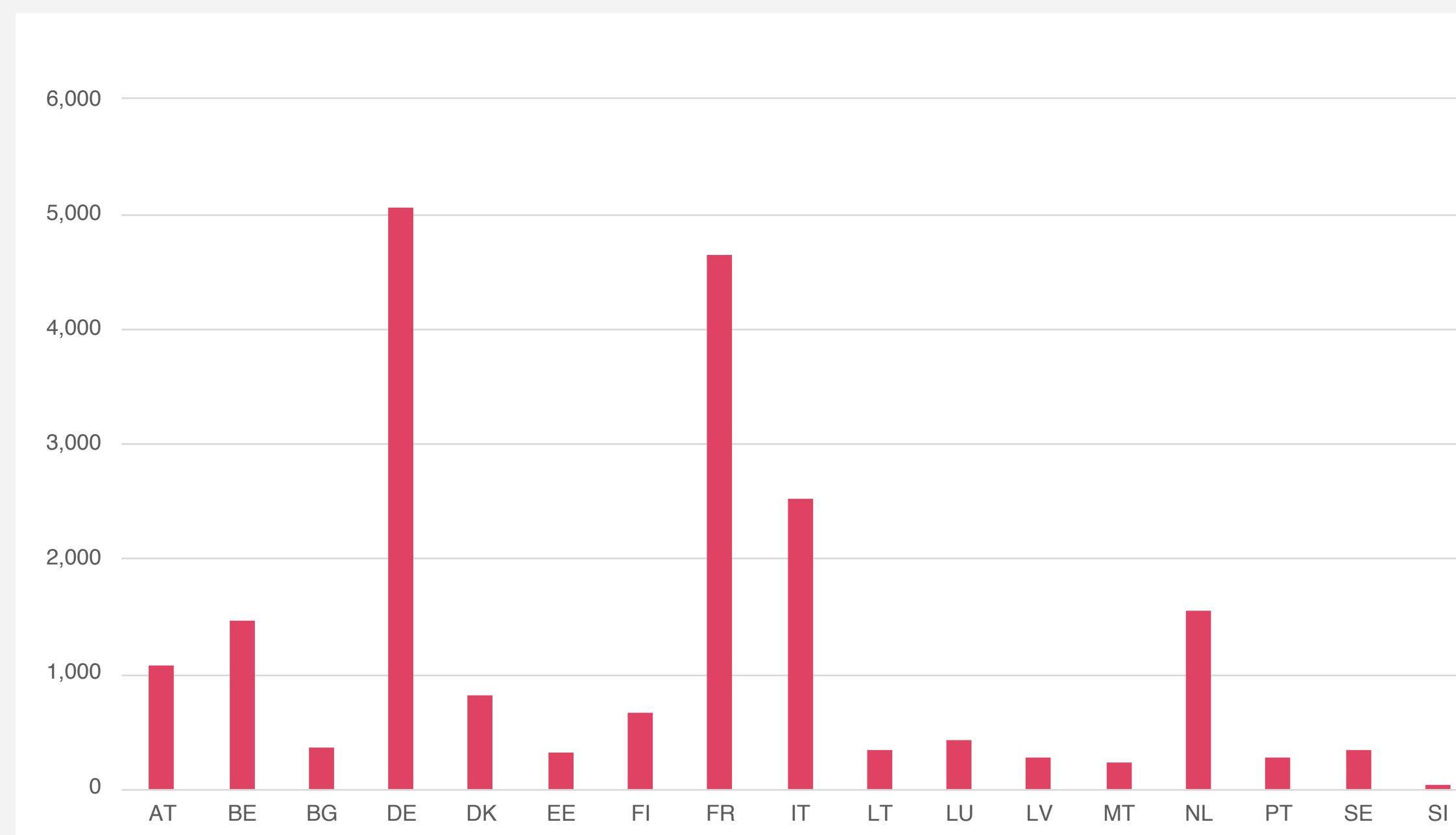
Organic fine chemistry has a UP uptake rate of 27%. This is very close to the average UP uptake of 28% for all industries, and this makes it the industry with the 5th highest UP uptake rate out of the industries analysed in this report.

The uptake rate is relatively high because many chemical patents have a fairly broad validation strategy across UP countries. Therefore, patentees are seeking to take advantage of a broader geographical protection for reduced costs. However, it is

worth noting that 3 of the top 7 validated EPC states in this industry (UK, Switzerland and Spain), are not participating in the UP, and therefore the financial reward for using the UP is not as large as it is for other industries. As these three countries represent a fairly large market share of the European chemicals market, it is perhaps no surprise that their omission from the UP stunts the uptake rate, as patentees have to balance the pros and cons of obtaining a unitary patent or validating a patent separately in individual EPC member states.

**Figure 12**

Total validations by UP participating state, organic fine chemistry (2019)



# Pharmaceuticals

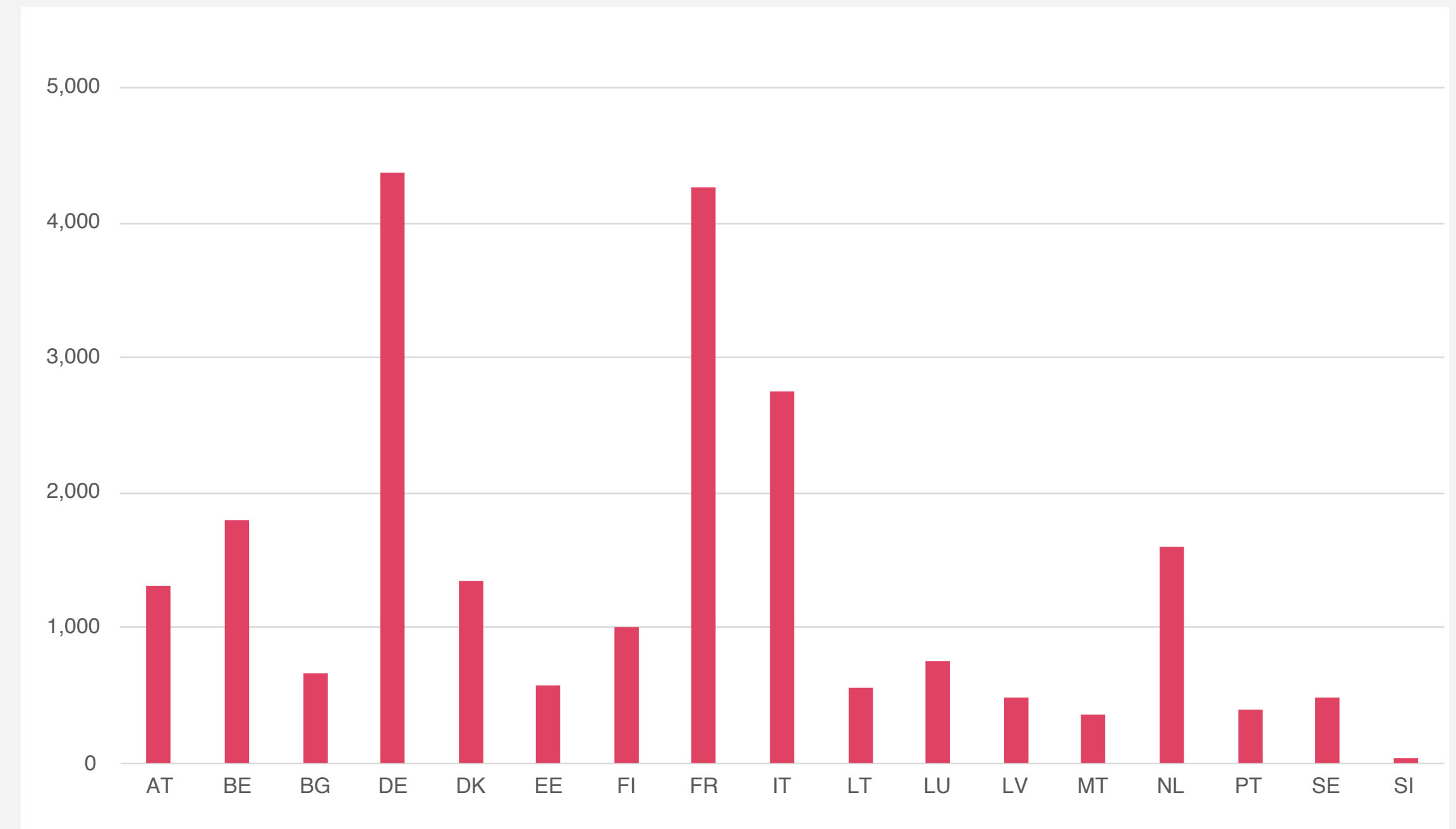
40% UP uptake rate

Europe's pharmaceutical industry remains a hub for investment and innovation, and provided a €162.7 billion trade surplus and over 840,000 direct jobs for the region in 2021<sup>21</sup>. Impressively, 5 of the top 10 global pharmaceutical companies, when ranked by revenue, are headquartered in Europe (Roche, Bayer, Sanofi, AstraZeneca, and Novartis) despite stiff competition from their US and Chinese counterparts<sup>22</sup>. Furthermore, the European market accounted for 23.4% of global pharmaceutical sales in 2021<sup>21</sup>.

Whilst large profits can be achieved by pharmaceutical companies, there are also big challenges to surmount to bring a new therapeutic to market, which can require a large (and ever-increasing) amount of investment. Consequently, pharmaceutical patents are extremely valuable, and the breadth of geographical protection that is required needs to be planned very carefully. Typically, the more valuable the invention is considered to be, the broader the protection an applicant will want.

The pharmaceutical field follows the same general validation trend as other industries, with Germany and France as the top two most validated UP participating states for this industry. Furthermore, prior to the introduction of the UP pharmaceutical patents were validated across UP participating states more widely than other industries. This broad validation strategy reflects the aforementioned value of pharmaceutical patents, and some of the larger pharmaceutical companies will validate their key patents in all UP participating states, but this is an expensive strategy to take.

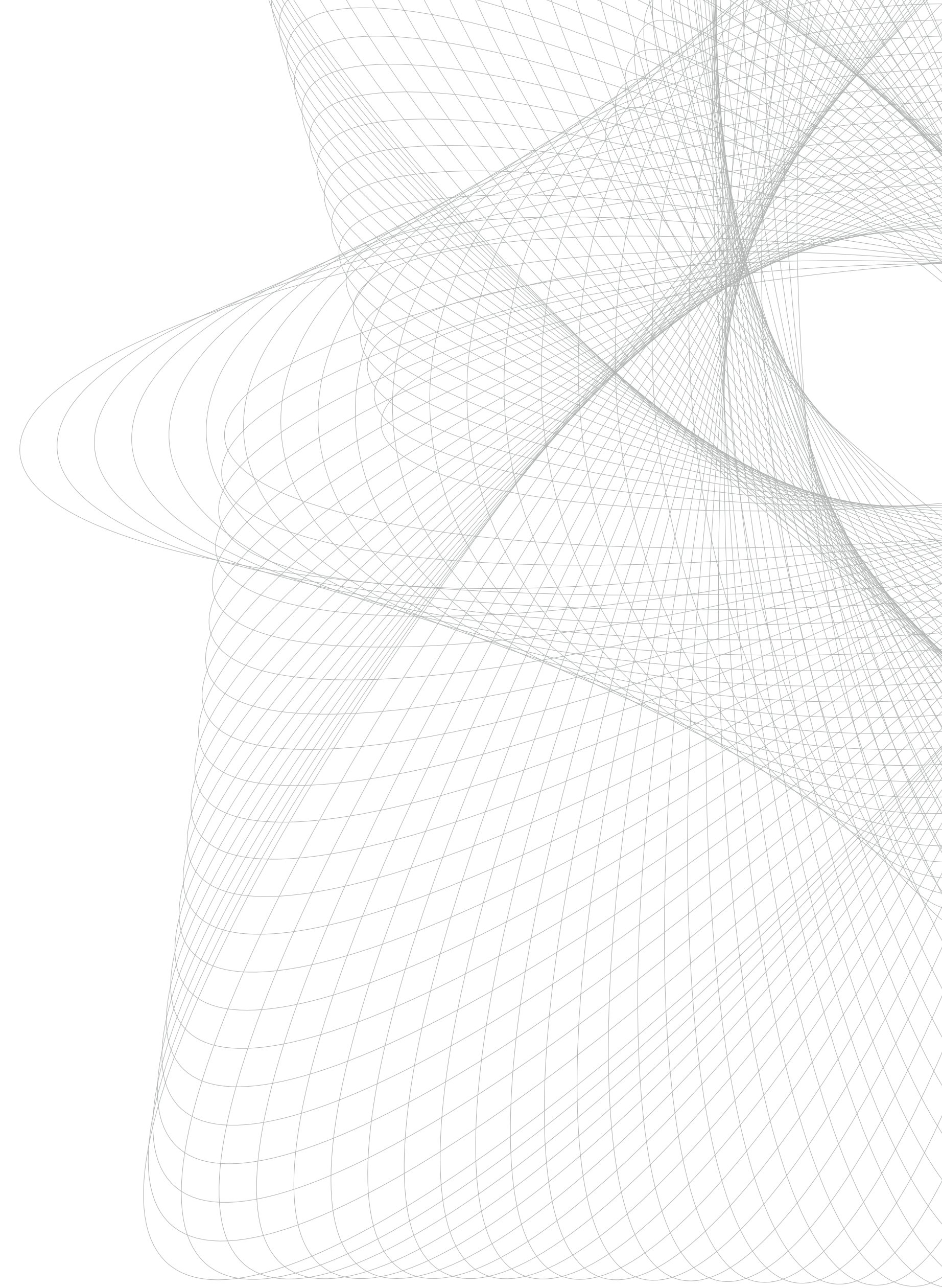
**Figure 13**  
Total validations by UP participating state, pharmaceuticals (2019)



It is therefore unsurprising that the pharmaceuticals sector has a high UP uptake rate of 40%, which is the second-highest UP uptake rate for all industries, as patentees seek to take advantage of a broader scope of protection for a reduced cost. In doing so, patentees get protection in 18 member states for less than the cost of validating in Germany, France, Italy and the Netherlands separately (when the cumulative costs after 10 years are compared).

However, most patentees still prefer to validate their patents in individual EPC member states, despite the improved cost afforded by a unitary patent. This may be because patentees are hesitant to trial their high-value patents at the UPC, which is a new court with little case law. Furthermore, a central invalidation action at the UPC could potentially invalidate a unitary patent across all UP member states simultaneously. Such an invalidation action could be catastrophic for a high-value pharmaceutical patent, as it could result in a large market share of the treatment being quickly absorbed by generic pharmaceutical companies. Currently, patentees prefer to opt-out most of their patents from the UPC and continue to validate in individual states separately, at an increased cost, to avoid the risk of a central invalidation action.

As the UPC matures, and more case law is established, the uptake rate for the pharmaceutical industry is likely to change, but it remains to be seen whether this will go up or down.



# Telecommunications

18% UP uptake rate

The telecommunications sector includes inventions relating to the transmission of digital information such as telegraphic, telephonic and pictorial communication – in other words, inventions for transmitting words, audio and video as signals for telephones, TV, radio and the internet.

Inventions in this sector can be split into three sub-groups:

- + telecommunication equipment – transmission systems e.g. local networks
- + telecommunication services – foreign and domestic
- + wireless communication – mobile devices, and cloud-based technology

The European telecommunications sector is very large with Europe’s largest telecommunication company Deutsche Telekom having a market value of 112.2 billion euros in 2024<sup>23</sup>. In 2023, 4,681 patent applications were filed at the EPO relating to telecommunications, this is in comparison to 4,536 in 2022, resulting in a 3.2% increase<sup>9</sup>. This shows a good level of growth in the field.

In 2019, Germany had the most European patent validations in the telecommunications sector. This was followed by the UK and France. Of the UP participating states, the Netherlands and Italy follow France and Germany in the number of 2019 validations made. The likely reason behind this is due to the location of Europe’s biggest telecom companies, Orange in France and Vodafone in the UK<sup>23</sup>. These companies have the third and fifth highest revenue in European telecommunications in 2024.

Interestingly, even though Spain is a popular country for patent validations in the telecommunications sector, likely because of Cellnex (the telecommunications company with the fourth highest revenue for Europe), Spain falls behind the Netherlands, Italy, Ireland and Iceland for the number of telecommunications patent validations in 2019.

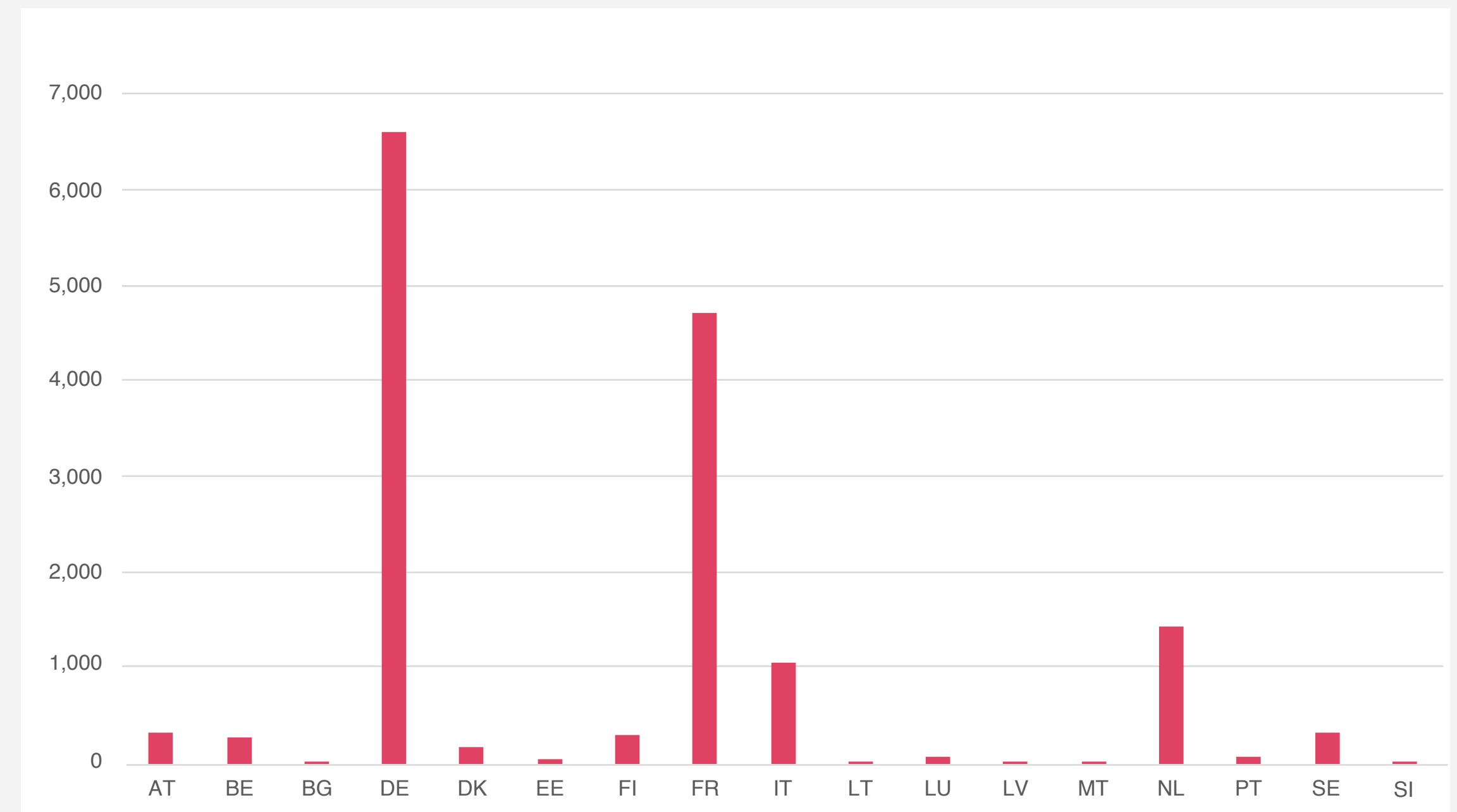
The high numbers of patents validated in Italy and the Netherlands, as well as France and Germany, suggest that telecommunications should have a high UP uptake.

rate, but this is not the case. The UP uptake rate for telecommunications is 18%, ten percentage points less than the average of 28%.

Overall, it can be seen that there has been a steady increase in the number of applications filed at the EPO in the telecommunication sector. However, the 18% uptake rate indicates that companies in the telecommunications space are not favouring pursuing a unitary patent.

Figure 14

Total validations by UP participating state, telecommunications (2019)



# Transport

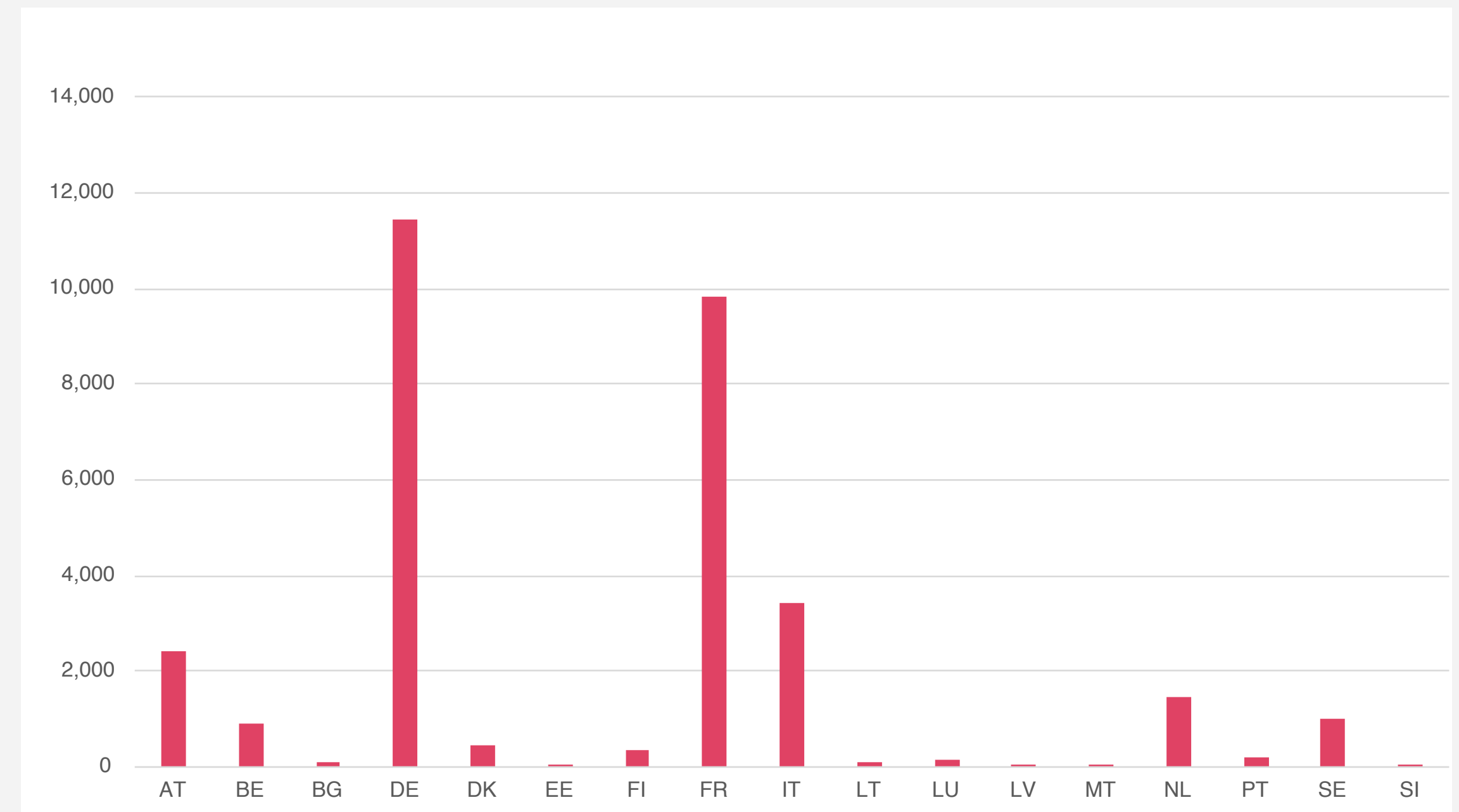
23% UP uptake rate

Transport is a highly-innovative and lucrative industry, as is highlighted by the high number of granted European patents, which numbered at 6,823 in 2023. Aircraft are the most patented mode of transport, making up 35% of all validated transport-related patents, followed by automotives (22%), ships or waterborne vessels (18%), rail (17%), and bikes (8%). A more thorough breakdown of European validations by sub-section of transport can be found in our previous guide on the topic of validations<sup>8</sup>.

The transport industry follows the general validation trend, with Germany and France, being the top two most validated in UP participating states in 2019, respectively. These are followed distantly by Italy, Austria, the Netherlands and Sweden. It is therefore no surprise that the UP uptake rate is slightly below average, at 23% of granted European patents, given the cost for a unitary patent is more expensive than validating in Germany and France separately. It is also worth noting that 3 of the top 7 validated EPC countries (UK, Iceland, and Spain) are not UP participating states, which detracts from the attractiveness, and cost efficiency, for applicants in the transport industry.

It perhaps seems contradictory that an industry that both enables, and relies on, an interconnected world, would have such piecemeal validation strategy and applicants are not more compelled to validate with unitary effect, as this provides broader geographical protection at reduced costs. Instead, patentees appear to seek patent protection in countries that manufacture and produce the transport products (with Germany, France and the UK consistently ranking amongst the top manufacturing countries for all transport types), rather than a broader protection in all countries where the product may be used or sold.

**Figure 15**  
Total validations by UP participating state, transport (2019)



Looking at the data for automobiles (table 7), which are sold in much higher volume than aircraft, it is worth noting that Germany, France, and the UK have the three biggest new car markets within Europe<sup>24</sup>, which would suggest that, at least for automobile manufacturers, protection in these three countries alone may be sufficient to retain a good share of the European market, at a reduced cost. Whilst Italy also has a sizeable new car market, it is perhaps not large enough to warrant the increased cost of a unitary patent, compared to validating in Germany, France and Italy separately. The size of the new car markets in Europe drops off dramatically after Italy. For example, Belgium – which has the fourth largest new car market out of the UP member states – registered less than 1/3 of the number of new cars than Italy in 2023.

Given the significant value that can be attached with patents relating to transport, patentees may be choosing to avoid the risk of a central invalidation action at the as-yet untested UPC, which can potentially invalidate a unitary patent across all UP participating states in one action. This may change in the future, when patentees have had enough time to witness the UPC in action.

**Table 7**

| <b>Country</b> | <b>New passenger car registrations in 2023–24</b> |
|----------------|---|
| Germany        | 2,844,609   |
| United Kingdom | 1,903,054   |
| France         | 1,774,723   |
| Italy          | 1,565,331   |
| Spain          | 949,359   |
| Belgium        | 476,675   |
| Poland         | 475,032   |
| Netherlands    | 369,791   |
| Sweden         | 289,827   |
| Switzerland    | 252,215   |



# Conclusion

A year's worth of UP uptake data shows a thoughtful approach to using the unitary patent.

We see no signs that the dominant force in UP uptake is fear – fear of the unknown and fear of placing a large number of rights at the mercy of a single revocation by an untested court. If fear were the dominant factor driving behaviour, we would expect to see especially low UP uptake by the pharma industry – a sector with relatively large IP budgets and one where patents are extremely valuable.

We also see few signs that the introduction of the UP has seen much in the way of geographical expansion of protection sought.

Relatively few proprietors are embracing the UP as a means of gaining protection in hitherto unaffordable ranges of countries.

Instead, the dominant theme is that proprietors already know where they want protection. The UP has not changed that, rather it has been utilised to achieve those aims where it is a cost-effective tool and ignored where it is not.

So, for example an aerospace manufacturer who in a pre-UP world validated in Germany, the UK and France only has continued to do so outside of the UP system, whereas a pharma company who typically pursued protection in about 20 European countries, has continued to do so but is now using the UP to cover many of them at a lower cost.

A stated aim of the UP was to lower costs for SMEs. We see little evidence of success on that front. Companies in sectors with patent budgets typically too small to validate widely under the post-UP system by and large continue to validate narrowly under the pre-UP system, whereas larger entities with relatively large budgets have been able to realise cost savings from their broad validation strategies.

Perhaps the overall theme is one where businesspeople who know in which countries patent protection is important have not changed their minds, and the patent profession have embraced the UP as a cost saving tool only where its use aligns with unchanged business requirements.

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