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## Facts and figures 2018

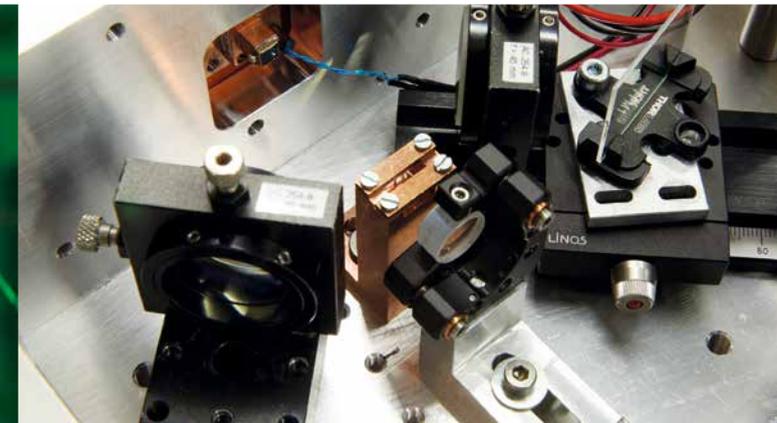
Key figures inside >

Applications at the EPO

Top countries

Top technology fields

Top applicants



### Ursula Keller

Winner of the European Inventor Award 2018  
in the category Lifetime achievement

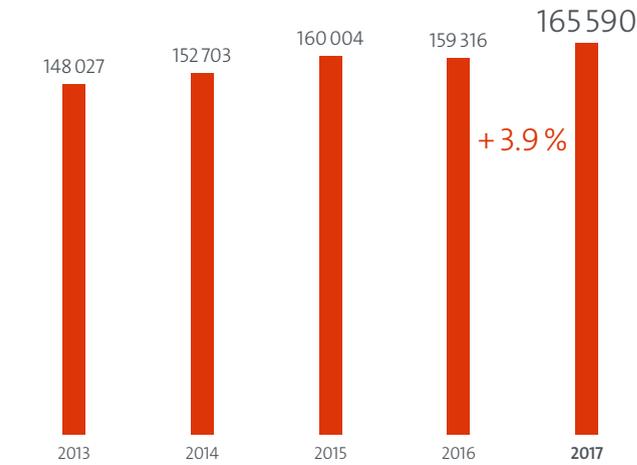
Medical surgery, detailed manufacturing and scientific research took a quantum leap forward when Swiss scientist, inventor and professor Ursula Keller discovered how to turn continuous laser light into ultra-fast laser pulses. With light bursts lasting less than a trillionth of a second, Keller's inventions handed science, industry and the medical community an instrument of unprecedented precision.

- > Learn more about the European Inventor Award:  
[epo.org/european-inventor](http://epo.org/european-inventor)

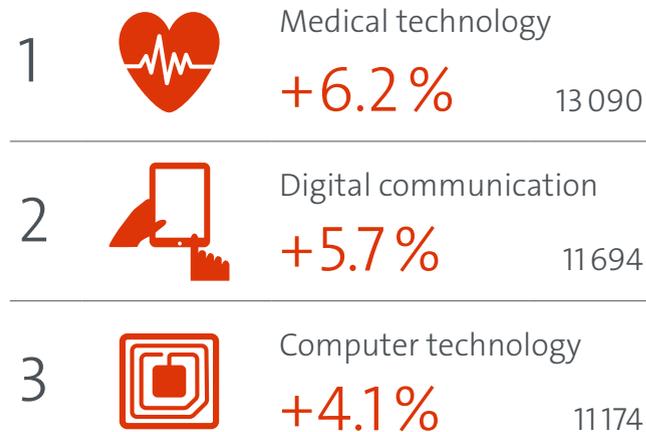
## Key figures<sup>1</sup> 2017

Source: EPO. Status: 22.1.2018

### Growth of applications



### Top technology fields<sup>3</sup>



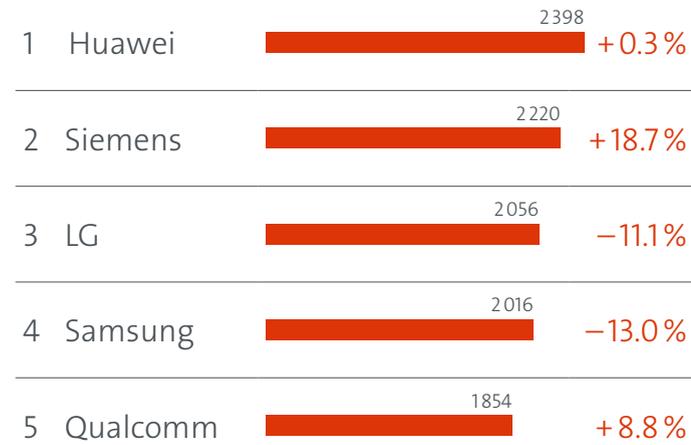
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[epo.org/statistics-indicators2017](http://epo.org/statistics-indicators2017)

### Geographic origin<sup>2</sup>

	Country	Applications	Change/2016
1	US	42 300	+5.8%
2	Germany	25 490	+1.9%
3	Japan	21 712	+3.5%
4	France	10 559	+0.5%
5	People's Republic of China	8 330	+16.6%

### Top applicants<sup>4</sup>



<sup>1</sup> All figures are based on European patent applications which include direct European applications and international (PCT) applications that entered the European phase during the reporting period.

<sup>2</sup> The geographic origin of the file is determined by the country of residence of the first applicant listed on the application form (first-named applicant principle).

<sup>3</sup> The definition of the fields is based on the WIPO IPC technology concordance.

<sup>4</sup> This is the ranking of the main consolidated applicants at the EPO in 2017 (first-named applicant principle). Applications by identifiable subsidiaries, not necessarily located in the same country, are allocated to the consolidated applicants.

Growing demand  
Quality  
Grants  
Efficiency  
Technology trends

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Responsible for content

Jana Mittermaier Director External Communication



## Dear readers,

2017 was a very good year for the European patent system: With 165 590, the number of patent applications filed with the EPO grew by 3.9 %, setting a new record. Around half of the applications filed originated from European countries (47 %), while the other half came from non-EPO member states (53 %). We have every reason to expect that this positive trend will continue.

To meet the growing demand, the EPO's 7 000 employees successfully responded with an increase in production: In total, our patent examiners delivered more than 105 000 high-quality patents into the hands of inventors, enterprises and businesses who look to our Office for legally secure intellectual property rights.

Furthermore, the growing appeal of the European patent system is reflected by its geographical expansion. Thanks to the recent validation agreements, European patents can now be validated in up to 44 countries on the basis of a single application, facilitating access to a market of some 700 million people.

These important developments are a promising basis for the EPO to build its activities on with a view of offering even better service to innovative businesses in Europe and around the globe.

A handwritten signature in black ink that reads "António Campinos". The signature is written in a cursive, flowing style.

António Campinos  
President

# The European Patent Organisation

Since 1973 the Organisation has grown to include 38 member states, two extension states and four validation states, covering an area with some 700 million inhabitants.

## Member states (38)

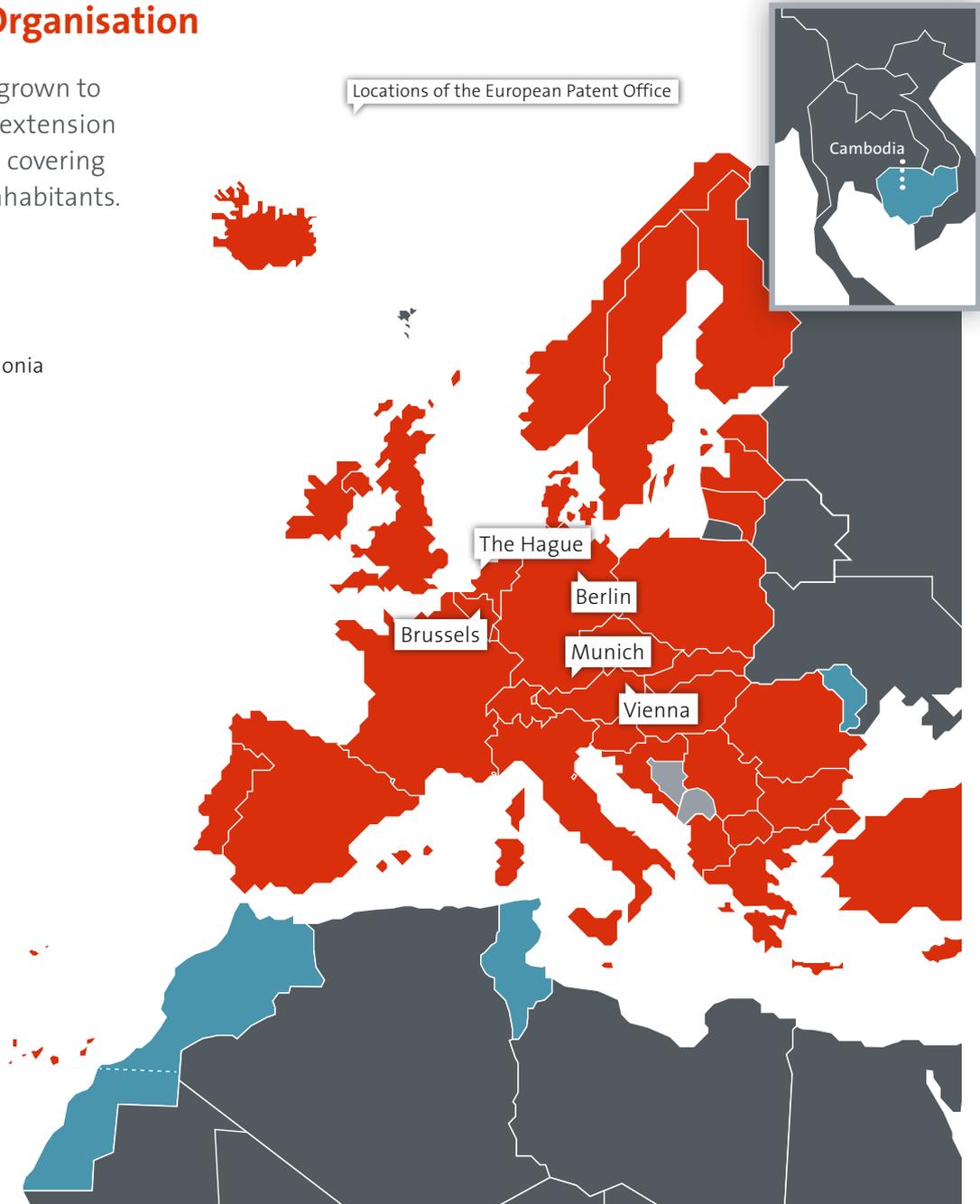
Albania	Luxembourg
Austria	Former Yugoslav
Belgium	Republic of Macedonia
Bulgaria	Malta
Croatia	Monaco
Cyprus	Netherlands
Czech Republic	Norway
Denmark	Poland
Estonia	Portugal
Finland	Romania
France	San Marino
Germany	Serbia
Greece	Slovakia
Hungary	Slovenia
Iceland	Spain
Ireland	Sweden
Italy	Switzerland
Latvia	Turkey
Liechtenstein	United Kingdom
Lithuania	

## Extension states (2)

Bosnia and Herzegovina
Montenegro

## Validation states (4)

Cambodia
Republic of Moldova
Morocco
Tunisia



## The EPO at a glance

As the patent office for Europe, the EPO supports innovation, competitiveness and economic growth across Europe through a commitment to high quality and efficient services delivered under the European Patent Convention (EPC).<sup>1</sup>

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### > Structure

The two organs of the European Patent Organisation are the **Administrative Council**, its legislative body, consisting of representatives from the contracting states and overseeing the activities and budget of the Office, and the **European Patent Office**, its executive arm in charge of examining European patent applications.

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### > Patent protection in up to 44 countries

The EPO provides **protection** for an invention in up to **40 European countries** on the basis of a single application. European patents can also be validated in four more countries, namely **Cambodia**, the **Republic of Moldova**, **Morocco** and **Tunisia**. In the states for which it is granted, a European patent has the same legal effect as a national patent.

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### > Three official languages

**English**, **French** and **German** are the three official languages of the EPO. Patent applications may be filed in any of these languages.



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### > Staff

The EPO has approximately **7 000 staff** of 35 different nationalities, 4 400 of whom are highly qualified scientists and engineers working as patent examiners in all fields of technology.

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### > Locations

The EPO has its headquarters in **Munich**, with a branch in **The Hague** and offices in **Berlin**, **Vienna** and **Brussels**.

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### > Budget

The EPO is the second-largest European public service organisation. It is **self-financing**, covering all its operating and capital expenditure and social liabilities from the fees paid by users for its services. The 2018 budget is EUR 2.3 billion.

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<sup>1</sup> EPO mission statement

## Our products and services

Delivering high-quality products and efficient services is our number one priority.

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### > State-of-the-art searches

#### **Search report and opinion on patentability**

The EPO provides a detailed search report and a written opinion on an invention's patentability within six months of filing. To do so, our examiners have access to the world's largest databases of patents, journals, standards documentation and other sources, comprising over 800 million technical records from over 100 countries – including over 70 million records from China, the Republic of Korea and Japan. Thanks to the most sophisticated classification, translation and retrieval tools available, our search is truly global and highly reliable.

#### **International searches**

Companies seeking a global market can also file an international ("PCT") application, choosing the EPO as their search authority. The EPO handles the largest number of PCT search requests of any patent office worldwide.

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### > High-quality patents on time

#### **Rigorous search and examination of patent applications**

Every patent application is subject to a thorough search and rigorous examination by three trained experts specialised in the relevant technology. A solid legal framework and an ISO 9001-certified Quality Management System applied throughout the entire patent granting process assure consistent high quality, with timeliness already good and steadily improving.

#### **Possibilities for review of decisions**

The EPO has a system of opposition and appeal proceedings allowing the review of its decisions to grant or refuse a patent. Some 4% of our patents undergo an opposition procedure, which enables anyone to contest a European patent within nine months of grant. This procedure establishes final clarity on the scope of protection of an invention and forms an important element of quality assurance in European patents.

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### > Information on the latest technologies

#### **Centralised access to global patent data**

The EPO's public databases – containing over 100 million patent documents with information about inventions and technical developments – are one of the world's most abundant sources of information about technology.

*Search the database at [epo.org/espacenet](http://epo.org/espacenet)*

#### **Translation of patent documents in one click**

Patent Translate, the EPO's free machine translation service, covers 32 languages. It enables automatic translation from and into English, French or German for 27 other European languages (covering all the EPO member states), plus from and into English for Chinese, Japanese, Korean and Russian.

*More information at [epo.org/patent-translate](http://epo.org/patent-translate)*

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### > Training and awareness-raising

The **European Patent Academy** organises training for patent office staff and patent practitioners, and promotes IP awareness among academics and business advisers in the member states. A collection of free e-learning modules on a broad range of topics is available under [epo.org/academy](http://epo.org/academy).

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## Highlights of 2017

Continuing to deliver on our commitment to quality, adapting to and making use of new technologies such as those related to the Fourth Industrial Revolution, and advancing co-operation with patent offices worldwide – these are just some of the developments of the past year.

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### > Quality, our first priority

The EPO's commitment to quality throughout the entire patent granting process was shown by convening the first dedicated quality sub-group on our users' advisory body, SACEPO; by publishing our first Quality Report; and by achieving our re-certification under quality standard ISO 9001. A major re-organisation has streamlined processes and helped to eliminate possible sources of error. Quality is our first priority – giving inventors and investors the confidence to rely on EPO patents.

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### > Working with our partners worldwide

In 2017 we continued our close co-operation with patent offices across Europe to improve our information services through initiatives such as the Federated European Patent Register. We also celebrated ten years of co-operation with our IP5 partners (China, Japan, R. Korea and the US) and renewed our strategic partnership with China, which is pivotal to increasing the quality and efficiency of the global patent system. Bilateral co-operation activities were also launched with dozens of countries around the globe, in particular in Latin America, Africa and Asia.



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### > Focus on SMEs

One in four applications we receive comes from a small and medium-sized enterprise (SME). In order to further raise awareness among smaller companies of the benefits of patents, we published a set of 12 SME case studies. Featuring companies from across Europe, they provide a detailed account of the different ways in which patent protection can be employed. Smaller businesses can use the experiences and good practices of the SMEs described in the studies to support their own development and growth.

*Read more >>> [epo.org/sme](http://epo.org/sme)*

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### > 4IR innovation takes off

European patent applications related to smart objects are rising rapidly, growing by over 50% in the last three years. To better examine this profound technology trend, we published a landscaping study on “Patents and the Fourth Industrial Revolution (4IR)” in co-operation with the Handelsblatt Research Institute. The study set out both the leading patent applicants involved in 4IR, and the regions of origin of patent applications for 4IR inventions filed with the EPO.

*Read more >>> [epo.org/4IR](http://epo.org/4IR)*



*Read more >>> [epo.org/highlights2017](http://epo.org/highlights2017)*

## Statistics and trends for 2017

The EPO received some 166 000 European patent applications in 2017, a record number and nearly 4% more than in 2016. There was a broad rise in demand for patents from every region of the world. Much of the growth came from the US and China, but most European countries also posted significant increases. These results highlight Europe's position as a leading region for innovation.



Read more >>>  
[epo.org/statistics-indicators2017](http://epo.org/statistics-indicators2017)

Source: EPO; WIPO for PCT filings.  
Status: 22.1.2018; PCT filings for 2017 are estimates.

### > Filings<sup>1</sup>

European patent filings, which are an indicator of the overall demand for patent protection, grew again in 2017 (+4.4%), reaching a new high of more than 310 000.

#### Total European patent filings<sup>1</sup>

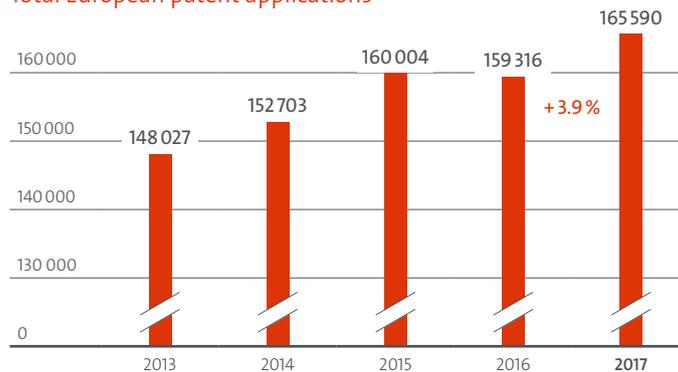
2013	2014	2015	2016	2017	
265 918	274 367	279 002	297 656	310 784	+4.4%

<sup>1</sup> European patent filings include direct European filings under the European Patent Convention (EPC) and international filings under the Patent Cooperation Treaty (PCT).

### > Applications filed with the EPO<sup>2</sup>

The EPO received some 166 000 European patent applications in 2017, which was an increase of nearly 4% and the highest number ever. The total applications included close to 98 000 international Patent Cooperation Treaty (PCT) filings which entered the European regional phase (becoming European applications) in 2017, and around 68 000 European patent applications filed directly at the EPO under the European Patent Convention (EPC).

#### Total European patent applications<sup>2</sup>



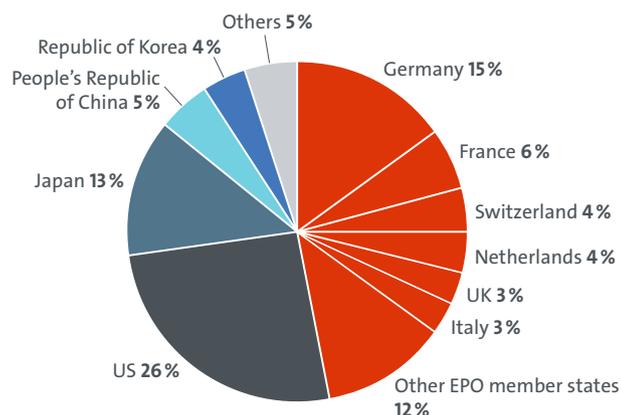
<sup>2</sup> European patent applications include direct European applications and international (PCT) applications that entered the European phase during the reporting period.

Technology trends  
Quality  
Growing demand  
Efficiency  
Annual results 2017

## > Origin of applications<sup>1</sup>

Almost half of all European patent applications (47%) came from the 38 EPO member states, followed by the US, Japan, China and the Republic of Korea. Growth in European patent applications was observed from most European countries in 2017. There were significant increases from some of Europe's largest filing countries – Germany, the Netherlands, the UK and Italy. Among the European countries with lower volumes, growth was strongest from Denmark, Austria, Spain and Sweden. At global level, the main drivers of growth were the US and also China, which posted another double-digit increase. Applications from Japan were up by 3.5% in 2017 after several years of declining figures. The main exception to the trend among the top patent filing countries is the Republic of Korea, which saw a lower demand of applications after two consecutive years of increase.

### European patent applications<sup>1</sup> per country of origin<sup>2</sup> in 2017



- 1 European patent applications include direct European applications and international (PCT) applications that entered the European phase during the reporting period.  
 2 The geographic origin is based on the country of residence of the first applicant listed on the application form (first-named applicant principle).

## > Measuring inventiveness

The inventiveness of Europe's leading economies is also reflected in the ratio of European patent applications to population. Switzerland (with 884 applications per million inhabitants), the Netherlands (412) and several of the Nordic countries topped the list again in 2017. Japan (172) was the first non-European country in the ranking, with a ratio higher than the EU average (134) and ahead of the Republic of Korea (122), the US (130) and China (6).

### Applications<sup>3</sup> per million inhabitants<sup>4</sup> in 2017

Country of origin <sup>5</sup>	Applications per million inhabitants
1 Switzerland	884
2 Netherlands	412
3 Denmark	377
4 Sweden	374
5 Finland	329
6 Germany	316
7 Austria	253
8 Belgium	188
9 Japan	172
10 Israel	167
11 France	157
12 United States	130
13 Republic of Korea	122
14 Ireland	118
15 Norway	99
16 Puerto Rico	83
17 United Kingdom	82
18 Singapore	77
19 Italy	70
20 Chinese Taipei	69

- 3 European patent applications include direct European applications and international (PCT) applications that entered the European phase during the reporting period.  
 4 Source of population figures: U.S. Census Bureau, International Data Base.  
 5 The geographic origin is based on the country of residence of the first applicant listed on the application form (first-named applicant principle).

## > Largest fields of technology<sup>1</sup>

Medical technology remains the field with the greatest number of patent applications at the EPO, again followed by digital communication and computer technology. Among the top fields, the strongest growth was in biotechnology, followed by pharmaceuticals and measurement. European companies led in patent applications in nine of the ten largest technology sectors, with US companies leading only in computer technology. Transport was the only one of the ten most active fields that saw a drop in applications.

### Largest technical fields in 2017<sup>1</sup>

	Applications <sup>2</sup>	Growth
1 Medical technology	13 090	+6.2%
2 Digital communication	11 694	+5.7%
3 Computer technology	11 174	+4.1%
4 Electrical machinery, apparatus, energy	10 402	+4.0%
5 Transport	8 217	-4.2%
6 Measurement	7 999	+6.6%
7 Organic fine chemistry	6 462	+4.3%
8 Pharmaceuticals	6 330	+8.1%
9 Biotechnology	6 278	+14.5%
10 Other special machines	5 548	+0.4%

<sup>1</sup> The definition of the fields is based on the WIPO IPC technology concordance.

<sup>2</sup> European patent applications include direct European applications and international (PCT) applications that entered the European phase during the reporting period.

## > Top applicants<sup>3</sup>

For the first time in the history of the EPO, a Chinese company, Huawei, filed the most patent applications at the Office in the past year. Siemens moved up from sixth place to second, followed by LG, Samsung and Qualcomm. The top 10 was made up of four companies from Europe, three from the US, two from the Republic of Korea and one from China.

### Top applicants in 2017<sup>3</sup>

	Applications	Growth
1 Huawei	2 398	+0.3%
2 Siemens	2 220	+18.7%
3 LG	2 056	-11.1%
4 Samsung	2 016	-13.0%
5 Qualcomm	1 854	+8.8%
6 Royal Philips	1 733	-1.9%
7 United Technologies	1 719	-16.8%
8 Intel	1 435	+13.2%
9 Robert Bosch	1 412	+6.4%
10 Ericsson	1 373	+16.1%

<sup>3</sup> This is the ranking of main consolidated applicants at the EPO in 2017 (first-named applicant principle). It is based on European patent applications filed with the EPO, which include direct European applications and international (PCT) applications that entered the European phase during the reporting period. Applications by identifiable subsidiaries, not necessarily located in the same country, are allocated to the consolidated applicants.

## > Top patentees<sup>1</sup>

LG overtook Robert Bosch to become the largest patentee at the EPO in 2017. Robert Bosch was closely followed by Samsung, Huawei and Qualcomm. Two Japanese companies (Toyota and Panasonic) moved into the top 10. Among the top 10, three were from Europe, two from the Republic of Korea, two from Japan, two from the US and one from China.

### Top patentees in 2017<sup>1</sup>

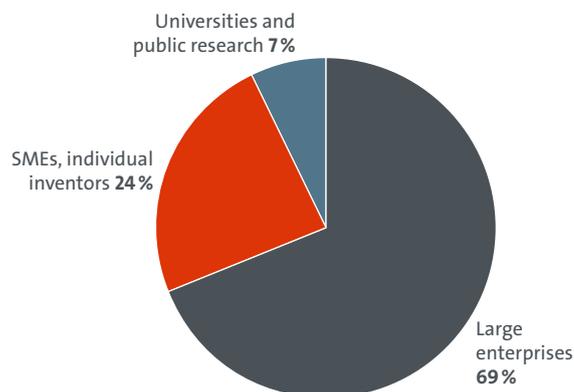
	Granted patents	Change
1 LG	1792	+52.8%
2 Robert Bosch	1463	-1.3%
3 Samsung	1408	+34.5%
4 Huawei	1262	+36.6%
5 Qualcomm	1155	+35.4%
6 Siemens	1053	+0.7%
7 Ericsson	1009	+3.9%
8 Toyota Motor	888	+34.3%
9 General Electric	840	-9.7%
10 Panasonic	830	+35.8%

<sup>1</sup> This is the ranking of the main consolidated patentees at the EPO in 2017 (first-named patentee principle). It is based on published patents granted by the EPO. Patents granted to identifiable subsidiaries, not necessarily located in the same country, are allocated to the consolidated patentees.

## > Applicant categories<sup>2</sup>

A breakdown by category of applicants requesting services from the EPO in 2017 shows that while 69% of them were large companies, 31% were smaller entities, comprising SMEs and individual inventors as well as universities and public research institutes.

### Shares in patent applications in 2017<sup>2</sup>

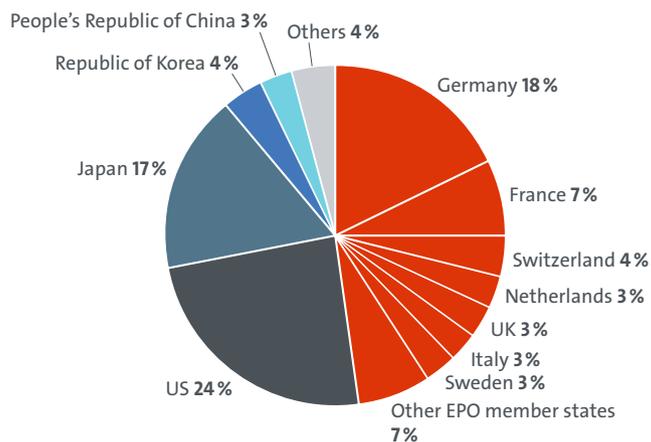


<sup>2</sup> The evaluation is based on a representative sample of patent applications treated by the EPO in 2017. It refers to the European Commission definition of SMEs (2003/361/EC). Data available in government and commercial databases as well as on company internet sites are analysed to allocate the applicant to one of the three categories. Depending on the company policy, the cross-ownership criteria can be difficult to evaluate.

## > Granted patents<sup>1</sup>

The EPO granted some 106 000 patents in 2017, an increase of 10% after a record year of growth in 2016. This increase was the result of a series of reforms implemented at the EPO in recent years to improve the quality and efficiency of our processes, which led to higher productivity. Most patents went to European companies (48%), followed by applicants from the US and Japan. The number of patents granted to Korean and Chinese applicants is growing rapidly, albeit from a lower number.

### Granted European patents<sup>1</sup> by country of origin<sup>2</sup> in 2017



### Total granted patents<sup>1</sup>



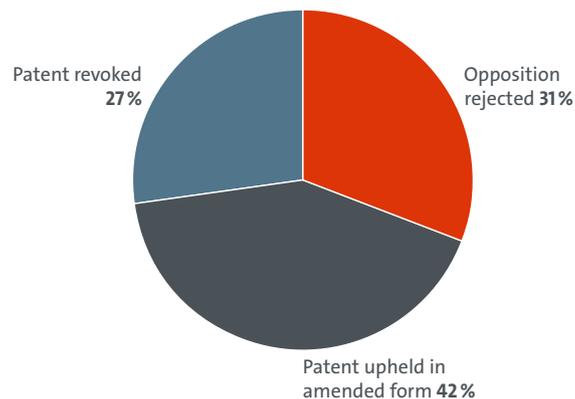
<sup>1</sup> The analysis is based on published patents granted by the EPO.

<sup>2</sup> The geographic origin is based on the country of residence of the first patentee listed on the published patent (first-named patentee principle).

## > Oppositions and appeals

The EPO offers a system of internal legal remedies to review its procedures and safeguard the quality of its patents. Anyone may oppose a European patent within a period of nine months from the mention of its grant. In 2017, the EPO issued 4 072 opposition decisions, with an opposition rate of 3.7%. In these cases, 73% of the patents were upheld either as granted or in an amended form. Decisions reached in examination and opposition proceedings may be appealed before the Boards of Appeal which are the first and final judicial instance in the procedures before the EPO.

### Outcome of opposition decisions<sup>3</sup> in 2017



<sup>3</sup> Opposition decisions communicated by EPO examiners.



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with the latest  
developments.*

## **The EPO is recruiting engineers and scientists to work as patent examiners.**

If you have a degree in physics, chemistry, engineering or life sciences, and the required language skills in English, German and French, you too could become part of our team in Munich or The Hague.

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