

MB Milestones (04/2018)

Is Europe ready for the next revolution?



From Julian Würmser, LL.M., partner

I. INTRODUCTION

The concept "Industry 4.0" is on everyone's lips. Industry 4.0 is the name for an innovative project concerning a comprehensive digitalization of industrial production to better equip it for the future. The concept goes back to the Science and Industry Research Union set up by the German Federal Government and a 2012 Federal Government project by the same name in high tech strategy.

In the final analysis, the terms "Industry 4.0", like "Internet of Things" or "IoT", are buzzwords of current industry. Theoretically almost all new developments can be summarized under these terms. However, at their core, they are concepts aimed at three economically highly relevant trends which are unstoppable in establishing themselves in all fields of industry.

A) After people, it is now also machines and simple everyday objects, e.g. dresses and toothbrushes, that are given a presence in the internet.

B) Data has gained in value.

C) The creation added value in the value creation chain is shifting. Profits are no longer (only) made from the sale of a product but increasingly also from servicing, maintenance, and even from use. An example for this is car sharing where the car makers, e.g. Daimler or BMW, no longer profit from the sale but solely from the use of a vehicle, whereby the respective fees are calculated by the minute.

II. Reaction of patent offices and applicants

Following the reports of the last few months, the national and regional patent offices in Europe and, in particular, the European Patent Office, are well prepared for such trends. According to a study published at the end of last year, "Patents and the Fourth Industrial Revolution" ([downloadable here](#)) 48,000 patent applications are supposed to have been submitted in the period between 2011 and 2016, such applications fall within the field of Industry 4.0 - in the study also referred to as the "fourth industrial revolution" (4IR for short). The European Patent Office recognizes an increase in application numbers and predicts a growth rate of about 8% per year.

If, however, the number of 4IR applications (approx. 5000 in 2016) is compared with the number of total applications received by the European Patent Office (approx. 300,000), it is conspicuous that, despite the predicted immense potential, 4IR applications constitute only a small percentage of the annual total of applications.

Reviewing the countries of origin, only 29% of 4IR applications stem from the contracting states of the European Patent Convention. Interestingly, Asian countries take the first rank in the list with the most frequent filers of 4IR applications, wherein South Korea, with the firm LG and Samsung submitting the highest number of applications in the field of Industry 4.0.

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Considering the low total number of applications in general and the low number of filing originating from European firms it imposes the impression that the non-Asian economic regions, in particular Europe, are missing out on the fourth industrial revolution.

III. CHALLENGES IN PATENTING

Looking at the history of decisions in recent years, it can be understood why many companies are reluctant to file applications with the European Patent Office. Industry 4.0 manifests itself primarily in the following technical fields:

1. Miniaturization of sensors;
2. Communication of data;
3. Data processing;
4. Visualization of data.

There is little doubt that sensors can easily be patented. However, the communication, processing and visualization of data are challenging fields when it comes to patenting.

According to the European Patent Convention, neither data as such nor transmitted data or protocols are eligible for patent protection. The same holds for software and graphic user interfaces if they are claimed as such. The European Patent Office requires evidence of so-called "further technical effects", before it can grant a patent for such subject matter. It is not sufficient that the respective invention is implemented by means of a computer. Rather, in addition to the use of the computer, an effect must be achieved that leads e.g. to a reduction of the used memory space, to lower band-width requirements, etc. The same approach is applied to algorithms and business methods. At the end of the day, it is best if the applicant of such patent application can prove that due to the invention a robot arm or a valve moves/opens differently.

For the (core) technology of Industry 4.0 it is, however, difficult to furnish proof of a respective further technical effect. For instance, a robot arm forming part of an intelligent assembly line that automatically orders supplies from an off-site

supplier does not move any differently than an older generation robot. It just knows more about its environment, e.g. its supplies, and reacts accordingly.

Graphic interfaces that are designed so that contents based on thousands of data sets can be understood by a user within seconds usually do not generate a further technical effect.

In contrast to the increasing importance of Industry 4.0, there are no signs that existing legal practice at the European Patent Office is softening in any way. The decisions by the Boards of Appeal of the last few years (T1261/12 decided in 2015, T1565/17 decided in 2018, T527/10 decided in 2015, T969/12 decided in 2017, T1441/11 decided in 2016, T1130/11 decided in 2016, T2023/11 decided in 2017) suggest that a restrictive interpretation of the respective articles is intended.

As a result thereof, the examination proceedings of so-called computer-implemented inventions constituting a core field of Industry 4.0 are evidently longer than those for patent applications in other technical fields. In line with the high rate of rejection by the Boards of Appeal, the refusal rates of the examination division in that field are equally high.

IV. Chances

Even though no positive turnaround is in sight when it comes to patenting technologies in the field of Industry 4.0, there are developments in jurisprudence which companies may make use of to protect their innovations in that field.

Generally, the patentability of graphic user interfaces was acknowledged in a number of decisions (T2278/12 decided in 2016, T1715/11 decided in 2015). Companies that have invested a lot of time and money in the development of user-friendly graphical interfaces are therefore not solely dependent on the design protection. In addition to protection for the appearance of the respective interface, patent protection is also possible for concept behind the design and the operation thereof which for instance prevent accidental misuse of a machine.

For further information:

Meissner Bolte ■ Julian Würmser, LL.M. ■ Widenmayerstrasse 47 ■ 80538 Munich ■ Germany
Phone +49-89-21 21 86-0 ■ Fax +49-89-21 21 86-70 ■ E-mail: mail@mb.de

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Patenting of business methods might likewise become easier in the future. Previously the European Patent Office examined such inventions using an omnipotent notional business person who already knew the actual core of the invention, so that only the implementation details were considered for assessing the inventiveness. In the vast majority of cases such evaluation scheme led to a rejection of the application. According to the most recent case law (T1463/11 decided in 2016 and confirmed by T2079/10 decided in 2018): said notional business person has lost some of his knowledge/power, so that business methods are more likely to be patented. In respect of Industry 4.0 this means that any concepts aimed at a change in the value creation chain (see e.g. car sharing) may in fact be patentable if technical means are used for the implementation.

For the remaining application, for which the chances of success remain low, at least at the European Patent Office, a well planned filing strategy may lead to a positive result. There are, in fact, national patent offices that meet a request for the protection of e.g. software and data with clearly more flexible examination approaches.

V. CONCLUSION

In view of the highly restrictive approach taken by the European Patent Office, the protection of many ideas within the field of Industry 4.0 must be very carefully planned and meticulously prepared. Given the economic potential and the fact that Asian companies are very active with their applications in this field, application strategies have to be developed that safeguard these business fields for many of the existing companies. For the Industry 4.0, it is more important than in any other field to carefully select the ideas that are eligible for patenting. In contrast to other fields of technology, in which the traditional industry has years of experience, many companies know little about the chances and risks when it comes to the patenting of Industry 4.0 related inventions.

We would be happy to assist you in acquiring the necessary know-how by offering you our in-house seminars either personally or via WebEx. Simply get in touch with us.

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