

COHAUSZ & FLORACK

CFUpdate

**Legal Challenges in Industry 4.0
Collecting and Using Data**

Industry 4.0 would be inconceivable without the use of software. That is why we have put together a separate CFUpdate on the issue of software protection, which you can also obtain via our website.

Content

Introduction	3
How to collect data	4
Who owns the collected data?	4
Further legal issues regarding data collection	7
Standards, standard-essentials patents, and interfaces	7
Using the tried and tested for new purposes - protection options for networked products	8
Measures to ensure the broadest and most effective patent protection	9
Open-Innovation	10
How to evaluate data	11
Who owns the evaluated data?	12
Options to protect new business models	13
Excursus: 3D printing	15
About COHAUSZ & FLORACK	16
Imprint	18

“The man who feels the winds of change should not build a windbreak but a windmill” – Mao Tse-tung

Mao Tse-tung

Introduction

The effects of Industry 4.0 - Who can predict them? In particular the question whether these new technologies will be disruptive, i.e. will oust existing ones, cannot yet be answered. But what we at COHAUSZ & FLORACK can provide is guidance concerning the legal risks in the age of Industry 4.0 that might restrict you as a company, and insights into the opportunities that you should take advantage of.

The term Industry 4.0 covers systems with generally known components – for the most part, these are sensors, networks, or standardized interfaces for data communication. The data are exchanged between various commercial players. It can be of a technical or managerial nature and may, for example, be associated with a company or a person. Up to now, it has been normally difficult for companies to access such data if they were not close to the „data source“. However, due to ever-improving computing performance and software advances, it is now possible to collect and evaluate business-relevant data on a large scale. Those who have access to these data are more informed: about their business processes, products, and customers. This additional knowledge can be used towards new developments in order to secure and expand one's own market position. But collecting and evaluating data is one thing – acting as a data source for third parties is another. Companies often participate in both sides, depending on whether they are

interacting with suppliers or customers. That is why, in this brochure, we would like to present you with both of these perspectives and outline the respective legal challenges and opportunities. One thing is certain: The more complex the supply chain and the logistics requirements, and the more efficient it is to work with partners, the less companies can resist data flow; particularly because, it has become easily possible from a technical point of view. But it also has to be managed. Thus, companies should keep their data secure from competitors for as long as possible. At the same time, they should make every effort to obtain the most extensive, unrestricted access to business-relevant data from suppliers or customers. On the following pages we explain how this can be achieved with legal certainty.

Welcome to the world of Industry 4.0 – make use of your opportunities!

Your COHAUSZ & FLORACK team

How to collect data ...

The ways of collecting data in the age of Industry 4.0 are becoming increasingly diverse and technically sophisticated. Suppose you are a machine manufacturer: In this case, you could equip your machines with sensors that capture operational data, such as information on ambient temperature or humidity. In addition, data on the type or duration of use may also be of interest to you. It would be conceivable that some data are not generated in your production facility, but actually come from your customers who use your machines.

In order to collect the information centrally, you could use interconnected, decentralized systems, and communication modules that support standardized communication technologies, for example Wi-Fi, Bluetooth, GSM, GPRS, UMTS or LTE. In that way, the data can easily reach you, even over long distances or across national borders.

So the technical means are available – now it's important to clarify what legal consequences such data collection may have for you or your company.

Who owns the collected data?

There is currently no absolute legal protection of data (raw data). Legal regulations merely recognize the protection of personal and company interests relating to the collection and use of data. Certain types and manners of data collection and use are therefore legally forbidden if the respective protected persons or companies do not permit them.

Any personal data you collect or process on customers, employees, or other persons is considered "personal data" and is subject to data privacy laws. In Germany, the respective data protection law is relatively strict. In principle, personal information may only be collected, stored, and processed with the consent of the concerned person or if there is a legal basis that entitles you to do so. It is also permitted within narrow statutory limits to collect, store and transmit data (without consent) for advertizing or market research purposes. However, these limits can be overstepped rather quickly. It is therefore often necessary to arrange specific agreements regarding the purpose(s) and scope of the collection and use of the personal data.

How to collect data ...

If you wish to share the information with third parties, protective measures must be undertaken, even if approval is given. It will be possible for data protection audits to be carried out, in which your data protection concept is investigated and rated by independent reviewers. In case of negligence, however, regulatory measures may be taken, including fines and sanctions, against the responsible persons in the company. Therefore, contractual agreements, through which you legally secure your use of the data of your customers, business partners, or other affected persons, are strongly recommended.

In addition to personal data, technical data (e.g. data concerning machine operation) is also of great economic value in the world of Industry 4.0. But who actually owns such raw data? And can the entitled party also

commercialize it? According to current legislation, the party that controls and regulates access to the data is entitled to commercialize it. However, it actually has to do so: The law protects the data, as long as it remains secret. Thus, those persons entitled should take measures to keep the data secret – in that way they can defend themselves against illegal access (e.g. industrial espionage) or illegal disclosure (e.g. release by a person who is committed to secrecy). The legal protection also enables the owner to determine what is done with the raw data and to commercialise it. However, economic utilization presupposes that the raw data is kept secret at least up to the point of its “marketing”. Therefore, if the owner carelessly provides access to the data, he may not demand to partake in its utilisation afterwards.



How to collect data ...

But the question is, who can actually claim the protection of the raw data as a business secret? If the data are acquired internally by the company, the case is clear: The company is then also entitled to the data. The answer in the following case is a little more difficult: A manufacturer sells a machine which can generate and store data concerning its operation on the customer's premises. The manufacturer can equip the machine in such a way that only the manufacturer can retrieve the (possibly encrypted) data. This is where the current legal situation provides no clear answer as to who is entitled to the collected data. The manufacturer should therefore have the collection of the data approved and gain contractually guaranteed permission to use it in order to avoid a possible accusation of illegally accessing the customer's data. The customer may require compensation for the provision of such permission. However, if he does not do so beforehand, he cannot demand any compensation afterwards.

Tip 1: Make written contractual agreements with customers, business partners, and other persons involved regarding data handling and ownership!

Other countries – other rights?

A look beyond national borders

The developments of Industry 4.0 also include business relationships involving increasingly more players from different countries. This is where you as a company must decide which laws will determine all types of contracts. However, intellectual property rights as an asset are for the most part excluded from the choice of law. They are subject to the principle of territoriality, i.e. the law of the country that grants them or stipulates the protection for its territory. These rights are again interlinked through international agreements. The result: Different rights are valid depending on which territory is relevant to the decision. This is an issue you should already be considering when drafting patent and utility model applications. In addition to contract law and intellectual property rights, the binding legal regulations of market conditions must also be taken into account. These include antitrust law, competition law, data protection law as well as other mandatory legislation. These also apply territorially, meaning that they are determined by where the protected legal right is effected or whether the facts of the case or significant portions thereof are nationally implemented.

Further legal issues regarding data collection

Standards, standard-essentials patents, and interfaces

The term „Smart Factory“ in Industry 4.0 refers to systems in a production environment that largely organize themselves autonomously and without human intervention. The technical bases for this are cyber-physical systems that communicate with each other through components of a data infrastructure. Devices such as machines or containers can thus autonomously exchange certain information with each other and collect data („machine-to-machine communication“, in short: “M2M”). Various participants in a supply chain can also be involved in this communication.



In order to ensure smooth communication, the respective interfaces must be compatible. Technological standards are therefore required. They define the requirements for the respective product or procedure (e.g. the GSM, GPRS, UMTS or LTE standards in mobile technology) and are often established by standardization organizations such as the „European Telecommunications Standards Institute“ (ETSI) or the „International Telecommunication Union“ (ITU).

Patents on such technologies, which other market participants inevitably make use of when complying with standards, are referred to as „standards-essential patents“ (SEPs). For you as a company, SEPs may in practice involve the following considerations:

If you wish to implement standardized technologies, you should ask yourself how you can avoid possible patent infringement. However, it is not always particularly useful to try and determine potentially infringed property rights – especially not in view of the large number of intellectual property rights, as for example is the case in the area of mobile communications. It is more advisable to precisely examine the legal framework set by a standardization organisation. If you have purchased technologies, you should contractually ensure that your supplier is already entitled to sell products or services based on those technologies.

Further legal issues regarding data collection

If, for example, the holder of an SEP takes legal action against you, he will often find it easy to prove the use of his patent as standards-essential methods or products naturally make use of said standard, and thus of the SEP. However, when it comes to enforcing SEPs – particularly in Germany and Europe – antitrust issues also have to be considered, as SEPs can hinder market access. This may enable you to ward off an opponent's injunction – with the argument that you are entitled to a license under fair, reasonable, and non-discriminatory terms (FRAND, „compulsory license objection“).

It is important to be aware of and to consider these legal specifics in the area of SEPs.

Using the tried and tested for new purposes – protection options for networked products

Technological networks, which are characteristic of Industry 4.0, have further consequences – also on a legal level: If, for example, your business aims to connect certain components in a particular way for the first time or to use special communication technologies for data transmission, this can in fact constitute a patentable invention. This is the case, even if it concerns already well-known, frequently used technologies (e.g. Wi-Fi, Bluetooth, or UMTS). The prerequisite: In accordance with the German Patent Act, your use of the well-known technologies for a new purpose must be based on an inventive activity, meaning that the use would not have been obvious for an expert. For example, this could be the case if

- component networking leads to new, hitherto unforeseeable technical effects
- the networked components had to be specially adapted
- data is transmitted in a new way leading to particular technical effects (e.g. energy savings).

Further legal issues regarding data collection

Measures to ensure the broadest and most effective patent protection

Industry 4.0 provides for ever-stronger computerization and networking. But this also means that individual steps of a procedure can be carried out without any difficulty by various devices. These devices can be operated not only from anywhere, but also by different companies – technology makes it possible. Through these means the first company can collect the data, the second can evaluate it and the third can use the results of that evaluation to control a machine.

This kind of networking has particular consequences for obtaining effective patents: For example, it must be ensured during the drafting of the underlying application text that the patent's scope of protection ideally addresses the individual steps in an isolated way ("single actor claim"). For example, the steps "sending of data" and "receiving of data" should be protected independently of each other. The opposite of this – the

so-called "multi-actor claim", which protects the procedure only as a whole – may have no negative effects during the granting procedure, but when it comes to the enforcement of a property right (which may be the case only years later!), this could prove to be disadvantageous. This is because the companies that carry out only individual aspects (e.g. only send data or only receive data) may in isolation not actually be infringing on a patent whose scope covers only a multi-actor process. For this reason, the patentee may be forced to provide additional proof in order to set forth the infringement, making the enforcement of the property rights potentially more difficult.

These particularities must be considered particularly in the area of software, i.e. in the case of so-called "computer-implemented inventions", in order to ensure optimal protection.



Further legal issues regarding data collection

Open-Innovation

The challenges of Industry 4.0 are vast. In order to overcome them, many companies have to access new, hitherto unknown fields of technology. So why not make use of external ideas? For your company that may mean obtaining licenses for third-party innovations or including external developers (individual inventors, IT start-ups, engineering offices, etc.).

This is where the Internet also provides new possibilities: Companies can network with creative heads from all over the world on so-called “open innovation platforms”. Internet users can introduce their problem-solving solutions within the context of idea competitions or similar events. These can also be of great benefit to the company, as long as you are properly protected from a legal standpoint. For example, you

should generally secure the exploitation rights to development results. Sufficient contractual regulations are a prerequisite for this. Furthermore, any exclusive use of the results also has to be contractually agreed upon. If you do not have the necessary know-how in your company when it comes to making use of the results, you should also obligate the developer to support you with the implementation.

This smart networking of innovations and opening up to the outside – with all of its legal consequences – could also be the starting signal for a new innovative culture in your company, where Industry 4.0 leads to Innovation 4.0.



How to evaluate data ...

The collection of data will provide your company with economic advantages only if you can draw the correct conclusions from that data. This requires an evaluation that recognizes meaningful patterns in the data in order to derive new measures, for example, for your own production processes. Specially developed software manages the evaluation of these large amounts of data. You can develop such software yourself or, if you do not have the necessary know-how in this area, you can work together with a partner. In the preliminary stages of such a project, you should, however, clarify who owns the rights to the software and to the evaluated data.

Furthermore, the evaluated data may also be of use to third parties. This may further enable new areas of business for the data owner. For example: A car manufacturer could combine rain sensor data, which is normally used to control the windscreen wipers in cars, with the GPS data in the navigation system of the respective car. This would provide precise information about the areas in which it is currently raining. This data, which is evaluated and combined with other data, can be of great value, for example, for weather services. The challenges for the car manufacturer here are that technical solutions must still be developed in order to ensure that the networked data can be commercialized. Furthermore, agreements should also be made with third parties as to how exactly these data may be used while at the same time preventing competitors from doing so.



How to evaluate data ...

Who owns the evaluated data?

There are better options at your disposal to protect evaluated data than there are for raw data (see p. 4). This is where, among other things, your database rights protect you under the following conditions: The data must be systematically or methodically arranged and individually accessible with the help of electronic or other means. Moreover, the procurement, inspection, or representation of the data must be associated with sizeable financial expenditure or at least considerable effort on your part. If these conditions are fulfilled, an unauthorized person will be forbidden from duplicating, distributing, and rendering public the database or a substantial part thereof.

Patents or utility models, however, may also be an option for you if using the evaluated data allows you to inventively solve a technical problem. Supplying data does not automatically lead to rights to either the invention or any IP rights arising from the invention. If the supplier wishes to secure the possible use of the property rights or at least profit from the commercial use of the data, this must be contractually ensured beforehand.

Tip 2: Check whether you fulfil the patentability criteria for your kind of data evaluation – and register your solution as a patent or utility model well in advance of any publication!



How to evaluate data ...

Options to protect new business models

The analysis of large amounts of data is not typically the core business of a company specialized in industrial manufacturing. That has also been recognized by various service providers who provide the respective services to companies that lack the necessary expertise. In order to use these services, it is necessary to give the respective service provider access to internal company data. However, this should not be done without first making specific agreements regarding the use of the data and the rights to the processed data. Only in this way can companies avoid having their know-how unwillingly exposed.

Continuing with the example of an automobile manufacturer: In order for the manufacturer to provide and sell the connected data while preventing it from reaching unauthorized third parties, he could make use of cryptography, certificates, or other encryption measures. In this way, he can ensure, for example, that only paying customers can use the data. The automobile manufacturer should also make an agreement regarding the scope (i.e. frequency) of usage. Furthermore, he should also check whether the business model can possibly be protected through a patent. Particularly if the new method involves the collection and/or processing of technical data, this normally constitutes a technical invention, which can be patented.

But the service providers should also look ahead and protect their newly developed business models from imitators. If this concerns a business application in the form of a computer program (e.g. a transaction system for the sale of data), this program – like all others – is the result of a creative act. The respective computer code (and generally also the used command structure) are thus protected by copyright. However, the underlying mode of operation is not protected by copyright – it can only be protected in the form of a patent or utility model. A prerequisite is that the functionality goes beyond the mere act of data processing (e.g. the storage and transfer of data) to include a special technical performance.



How to evaluate data ...

As is the case with all new developments, it must be carefully checked whether third parties may in fact already own the property rights for the business model. This is where a “freedom to operate search” might be helpful.

If your business model concerns a business concept without a specific technological reference, protection will normally only be provided through a multiplicity of individual measures.

Parts of the business model that are not readily accessible to the general public during the concept implementation can be treated as a trade secret. This means that they should be physically protected from unauthorized access and only revealed if and when you have concluded a non-disclosure and non-use agreement. This should be observed especially during the initial phase when trying to find partners for the implementation of the business idea.

Things like documents and graphics, which you have created in order to describe and present your business idea, are often protected from imitation through copyright protection. New designs for products or sales

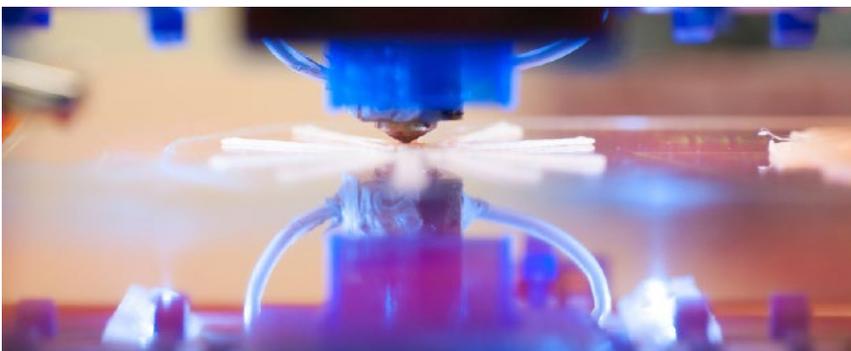
means can be protected in the first three years through unregistered community designs or for a longer period as registered designs. For this, they must be sufficiently distinctive, thereby at least differing substantially from already known designs. Finally, you can create and protect brands for your business model. Brands that bind your customers and convey the image that makes your business stand out from the competition.

Recommended reading: The comprehensive interconnection that is accompanied by Industry 4.0 also refers to mechanical and electrical components, which are increasingly linked to software. Many fields of application – from sensors to machine control – are therefore hardly conceivable without corresponding software services. That is why business is particularly active in this area. Information on protecting your ideas in the area of software can be found in our brochure „CFUpdate software protection: how to protect your ideas“ (available at www.cohausz-florack.de/software-schutz). In addition to patent protection, here you will also find how your products can be legally protected through copyrights, designs, or brands.

Excursus: 3D printing

The catchphrase “3D printing” refers to a variety of additive, computer-controlled production processes in which the respective object is built up in layers. After its beginnings in prototype construction and in the hobbyist scene, 3D printing is used today in industrial production technology. It has the potential to fundamentally revolutionise production. With 3D printing, complex components can be manufactured that would otherwise have required great effort or could not have been produced at all with conventional methods. Furthermore, highly individualized products can be economically produced in small quantities. And when it comes to mass production, this technology is also progressing, as high processing speeds can now also be achieved. In terms of materials, users now have a large selection. Depending on the printing method, not only plastics but also metals, ceramics, and various powdered or fibrous materials can be used. As 3D printing is a fully digital production process, producers

merely require a printer as well as the digital data, and can thus decentralise production at will. In that way producers can, for example, enable distribution partners to manufacture spare parts for their products as required. This eliminates high warehousing and transport costs. Moreover, the acquisition and operating costs of 3D printers are relatively low. Even a complete shift in the production location is possible. A provider in the 3D printing industry would, for example, be able to supply customers with data products instead of material products, enabling them to produce the products themselves. These examples show that data actually is the raw material in the age of Industry 4.0 – and that it brings with it drastic changes in certain sectors (for example in the spare parts market). Participants in these markets should therefore check their own business models in good advance and prepare them for the future.



Excursus: 3D printing

But the new freedom provided by 3D printing technology also has its downside: If data is delivered instead of material products, there is a general risk that this may be used and distributed in an uncontrolled way far beyond the respective rights of use. In order to prevent this, you as a provider should take technical measures (e.g. copy protection or digital rights management) as well as legal measures (e.g. appropriate licensing conditions for the data). Patent protection may also be an option if the product that can be produced with the data or the specified print commands for the 3D printer represents a technical innovation. Careful drafting of the patent application can then also provide patent protection for the data product. Another concern in 3D printing is the increased risk of counterfeiting or plagiarism: An original specimen may already suffice in order to produce a deceptively authentic-looking plagiarism. This is where preventative measures are also

called for – for example with the help of 3D technology itself. Because, in addition to the mere production of finished products, 3D printing also offers the possibility of providing goods with specific identification marks while printing, in order to identify their authenticity. Hidden structures, patterns, colors or materials in the printed component can make it more difficult to imitate. A good way to distinguish the original from the copy could also be provided by internal markings (such as QR codes) that instead of being registered by a surface scan, can, for example, be read with backlight. Such labels make it easier for customs authorities to detect and seize counterfeits. However, in addition to these practical means, holders of trademarks, patents, and designs will of course also find appropriate ways within the German legal system to enforce their property rights.



About COHAUSZ & FLORACK

COHAUSZ & FLORACK is an interdisciplinary firm of patent attorneys and attorneys founded in 1954 and based in Düsseldorf that combines technical and scientific know-how with legal competence. 24 patent attorneys and four attorneys currently work for the firm. In total, the firm has more than 120 employees.

Our consulting services include all aspects of IP rights, as well as the adjacent areas of law such as unfair competition and contractual matters. This is where we assist our national and international clients in everyday business matters as well as in dealing with specific conflict situations.

COHAUSZ & FLORACK is a service provider in legal matters as well as a strategic management consultant for the legal aspect of the trademark and innovation policies of our clients. We have particular expertise in the design, registration, tracking and management of extensive IP rights portfolios.

COHAUSZ & FLORACK represents clients in all legal disputes relating to IP rights before state courts and offices, also within the framework of alternative dispute resolution. Our clients include DAX and Dow Jones-listed international corporations as well as innovative medium-sized companies from all over Germany.

Imprint

© 2016

Publisher

COHAUSZ & FLORACK Patent- und Rechtsanwälte
Partnerschaftsgesellschaft mbB
Bleichstraße 14
D-40211 Düsseldorf
Telefon: +49 (0)211-90 490-0
Telefax: +49 (0)211-90 490-49
E-Mail: mail@cohausz-florack.de
www.cohausz-florack.de

Concept

Erik Schäfer
Dr. Henning Sternemann
Hendrik Bücken
Matthias Waters
Dr. Reinhard Fischer
Michel Kaminsky
Christiane Hering

Editorial staff

Erik Schäfer
Dr. Henning Sternemann
Hendrik Bücken
Matthias Waters
Dr. Reinhard Fischer
Michel Kaminsky
Dr. Elena Winter

This brochure including all content is protected by copyright. All rights are reserved and the property of COHAUSZ & FLORACK or third parties (see references). Reprint or reproduction of this work either in whole or in part in any form (by printing, photocopying, or other methods) as well as the storage, processing, duplication and/or distribution by electronic systems of any kind is prohibited without the express written permission of the copyright holders. All translation rights reserved. The brochure including all content has been carefully prepared. However, printing errors and misinformation cannot be completely ruled out. No liability shall therefore be assumed for the topicality, correctness and completeness of the contents of this brochure; the same applies for typographical errors. No legal responsibility and/or liability in any form can be accepted for any incorrect information and/or any resulting consequences. Readers must always check information themselves before using it. The content of the printed material by third-parties in this brochure is the sole responsibility of said third parties.

Photo credits

Title: vege - Fotolia.com

Page 4: Pixelbliss - Fotolia.com

Page 5: Zerbor - Fotolia.com

Page 7: Nataliya Hora - Fotolia.com

Page 9: industrieblick - Fotolia.com

Page 10: psdesign1 - Fotolia.com

Page 11: Zerbor - Fotolia.com

Page 12: sakkmasterke - Fotolia.com

Page 13: Sergey Nivens - Fotolia.com

Page 15: Veniamin Bibikov - Fotolia.com

Page 16: science photo - Fotolia.com

COHAUSZ & FLORACK



COHAUSZ & FLORACK Patent- und Rechtsanwälte

Partnerschaftsgesellschaft mbB

Bleichstraße 14 · D-40211 Düsseldorf · Germany

Phone +49 211 90490-0 · Fax +49 211 90490-49

mail@cohausz-florack.de · www.cohausz-florack.de