



VDMA Study
Product Piracy
2020



Note

Of course, we have treated the information provided by the participants with the usual discretion. In the following chapters you will therefore find the results in anonymized and summarized form. Should you have any further suggestions or questions regarding the evaluation of the next study on product piracy, please contact us.

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Table of contents

Table of contents	3
1 Introduction	4
2 Management Summary	6
3 Threat and dismay	9
4 infringement of property rights	12
5 Common types of counterfeits	13
6 Counterfeiters and their clients	14
7 Distribution of counterfeits	16
8 Dangers due to counterfeits	17
9 Measures after detection of counterfeits	18
10 Company damage	20
11 Politics and trade fairs	23
12 The VDMA acts	24
13 VDMA publications on product piracy	25
14 Publications of the VDMA on Security	27
15 Imprint	28

1 Introduction

Every second year, VDMA conducts a study on product and brand piracy among its member companies. Since 2003, reliable figures and information have thus been collected in order to outline the threat of plagiarism, counterfeiters, and fakers in our industry. The necessity of the survey among the members is shown by the large proportion of affected companies. The damages estimated by the companies go into billions of euros every year, for the German mechanical and plant engineering industry alone.

Definition of product piracy

This study is concerned only with the illicit reproduction of products. By illicit reproductions (otherwise called product piracy or counterfeiting), we refer to the

- Imitation of products in violation of intellectual property rights (e.g. trademarks, brands, patents) or
- Imitation of products without violation of intellectual property rights, but in an anti-competitive manner.

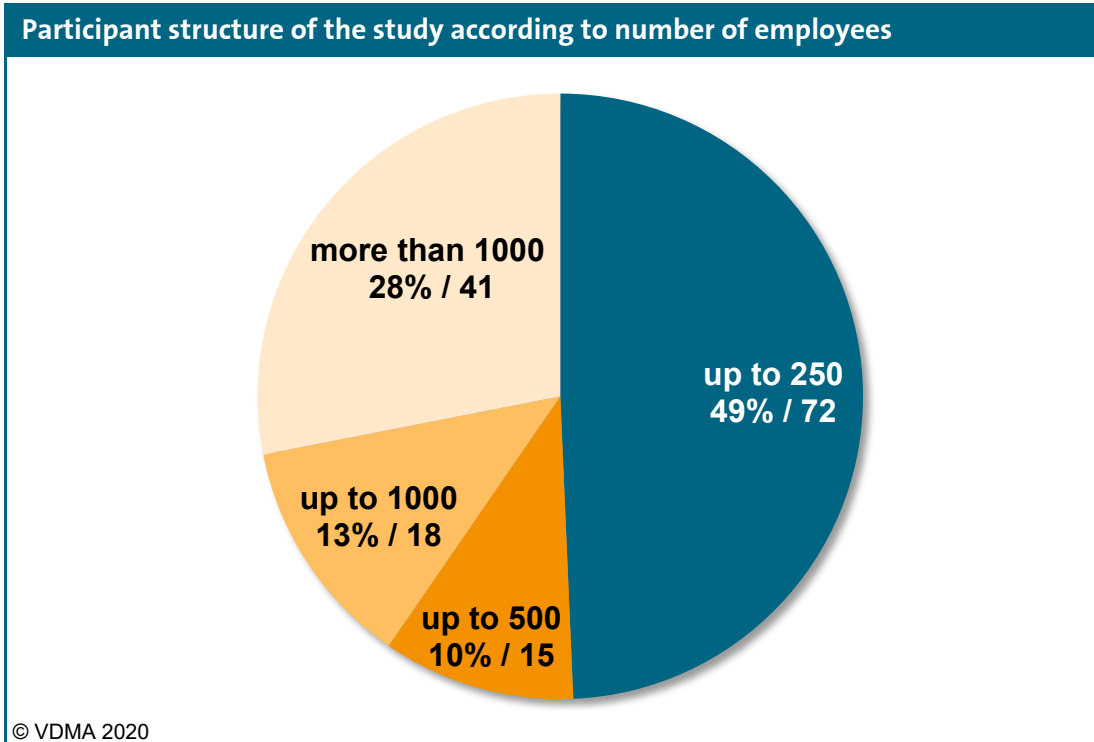
Replication that takes place in an anti-competitive manner if an unfair act occurs in addition to the replication. This unfair act is usually a deception about the manufacturer of the original goods (increasing the likelihood of confusion) and the associated exploitation of the good reputation, resulting in illicit benefit thereof.

Participant structure 2020

This year, 146 members of the VDMA participated in the study on product piracy during the period of data collection from the beginning of February to the beginning of March. Compared to the last study in 2018, the number of participants has thus increased from 136 by 10 members.

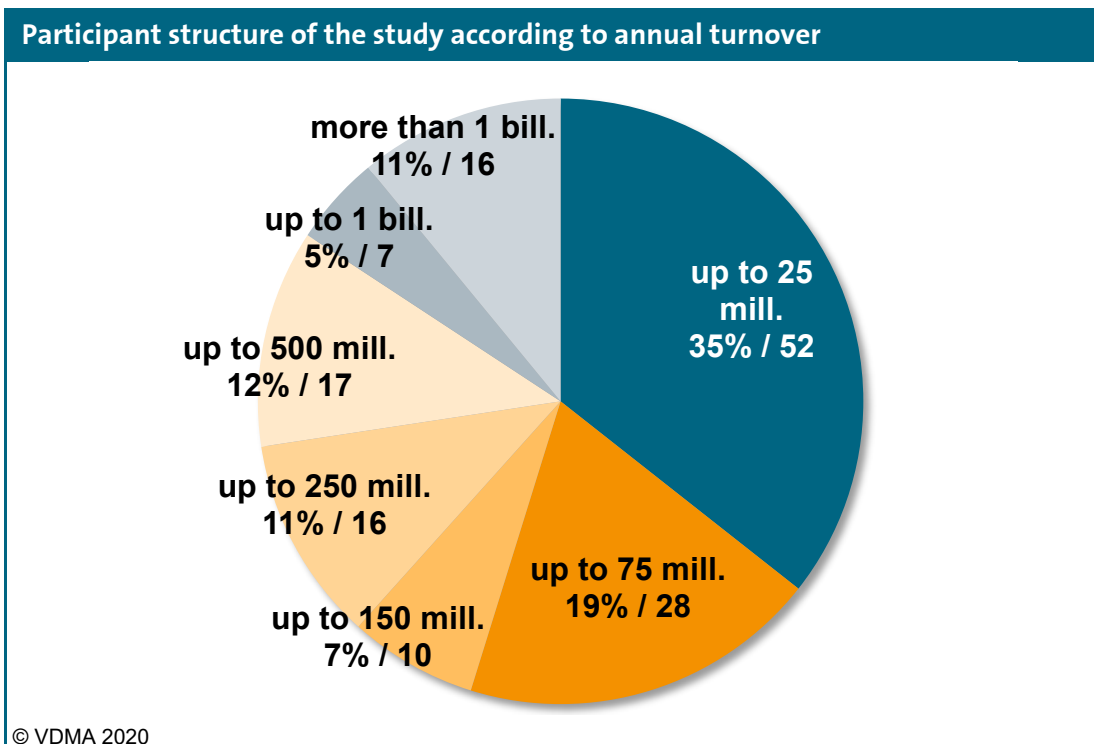
As the survey was already closed at the beginning of March, the answers of the participants do not consider any effects or changed market conditions caused by the corona virus.

About half of the participants are small and medium-sized enterprises. Together with the other half to large companies, this leads to balanced and representative results. The exact participant structure according to number of employees and annual turnover can be seen in the following two graphs.



Breakdown of study participants according to the number of employees

N=146



Breakdown of study participants according to annual turnover

N=146

2 Management Summary

The present results of the survey on product piracy show that the overall high level of threat from product piracy continues to increase and that product and brand piracy and its prevention play a central role for all member companies.

A new all-time high of 74 percent of companies in the German mechanical and plant engineering industry are affected by product or brand piracy. The estimated damage amounts to 7.6 billion euros annually.

Compared to the last study in 2018, the absolute corporate loss has thus increased by 300 million euros annually. In other words, the situation has worsened despite many political efforts. A turnover in the amount of 7.6 billion euros would secure almost 35,000 jobs in the industry. In addition to loss of turnover and jobs, the affected companies also suffer consequences that are difficult to assess in monetary terms, such as loss of image, loss of market advantage or unjustified legal claims.

Plagiarism is a safety risk

Plagiarism has been proven to pose a safety risk: An alarming 57 percent of the companies report counterfeits that pose a danger to machines, and only 30 percent state that counterfeits of their products pose no danger whatsoever, for example to the user, operator, or the environment.

The People's Republic of China remains the undisputed top dog as a distribution country for plagiarism with 61 percent. Compared to last year, we see a gain of 17 percentage points here. Russia, which has doubled to 12 percent and is now in third place among the distribution countries directly behind the second-placed Germany, is also recording a significant gain.

Only 45 percent of the companies surveyed consider the legal framework conditions to be sufficient. Insufficient controls and monitoring options are named as the most frequent shortcoming. For imports into the European Union and for online marketplaces, the study participants would like to see more personnel at the responsible offices (e.g. customs) and stronger political observation: "Product piracy is not a trivial offence, but an attack on the economy of the respective country".

A look at measures taken after plagiarism has been discovered reveals resignation: with a significant decline of 13 percentage points, only 26 percent of the companies surveyed initiate civil court proceedings and around half (49 percent) dispense with measures altogether. This resignation is particularly evident among small and medium-sized enterprises, which seem to be giving up or are looking for other things to do when business is "booming". In particular, digitalization can offer creative solutions for physical counterfeits.

Help: Guidelines and standards as a first source of information

VDMA offers help for "Product and know-how protection", "Measures at trade fairs" and "Industrial security" to support affected companies in the selection and implementation of suitable protective measures. Further information can be found in the current list of publications at the end of the study.

An overview of the most important results of the VDMA Product Piracy 2020 study:

- **74 percent of companies in the mechanical and plant engineering sector are affected by product piracy** (2018: 71 percent). For companies with more than 500 employees, the rate is even around 90 percent. The threat of product and brand piracy is thus reaching a **new all-time high**.
- Compared to the last studies, the perceived threat shows a clear trend reversal: After a steady decline, with an increase of around 40 percent, **52 percent of those surveyed are now in favor of an increase in the threat level**.
- **The estimated loss in the 2019 sales year was 7.6 billion euros**, an increase of 300 million euros compared to the 2018 study. **The average loss for affected companies was 4.9 percent of annual sales**.
- The sales loss of 7.6 billion euros corresponds to around 35,000 jobs (2018: 33,000).
- The People's Republic of **China undisputedly leads the list of countries distributing counterfeit products with 61 percent**. In second place by a wide margin is Germany (19 percent), followed by Russia (12 percent)¹.
- For 72 percent of the companies, the **competitor** is considered **the cause of the plagiarism**. However, an **alarming 42 percent of those surveyed also say that at least one of their business partners (customers, suppliers, joint venture partners, spare parts sellers) is a plagiarist**.
- Among the infringements of industrial property rights, plagiarism in an unfair manner is again in first place with a clear 58 percent. Second place is shared by the infringement of brands and patent rights with 39 percent each. The infringement of trademark rights, design and utility models thus falls significantly behind the last study.
- **Plagiarism demonstrably poses a safety risk**: 36 percent of companies report counterfeits that pose a danger to operators or users. **An alarming 57 percent of those surveyed see a danger for the safe operation of the system in the case of the counterfeits they discovered**.
- In 64 percent of cases, individual components remain the most frequent plagiarism. Close behind are design plagiarisms in second place with 60 percent. In around 40 percent of cases, entire machines, spare parts or so-called "soft" plagiarism (catalogs, brochures, product photos) are the counterfeit target.
- In case of plagiarism, the extrajudicial enforcement of rights is the means of choice, ahead of starting proceedings under civil law. **However, about half of all companies affected do not take any action. This is particularly true of small and medium-sized enterprises, where two out of three companies do not take any action**.

¹ Note: In 2020, the country of manufacture was not surveyed (since the first survey in 2003, the People's Republic of China was in first place).

The VDMA acts

Product piracy is an enormous threat to the innovative strength and competitiveness of our industry. The dangers of piracy and the loss of know-how in mechanical and plant engineering are very diverse. Digital transformation is creating new challenges for the protection of data and information, both in product development and in the operation of machines, plants, and services.

In order to deal with product piracy in a sustainable manner, we advise companies to adopt a comprehensive defense strategy with adjustments to the company situation and piracy risks. Various coordinated measures should be combined to form an individual protection concept according to ISO 22384. In principle, legal protection measures should be taken in the form of applications for intellectual property rights in the respective markets. Without an application for intellectual property rights, legal enforcement is almost impossible. Organizational and technical measures that involve employees as well as dealers or customers must also be considered.

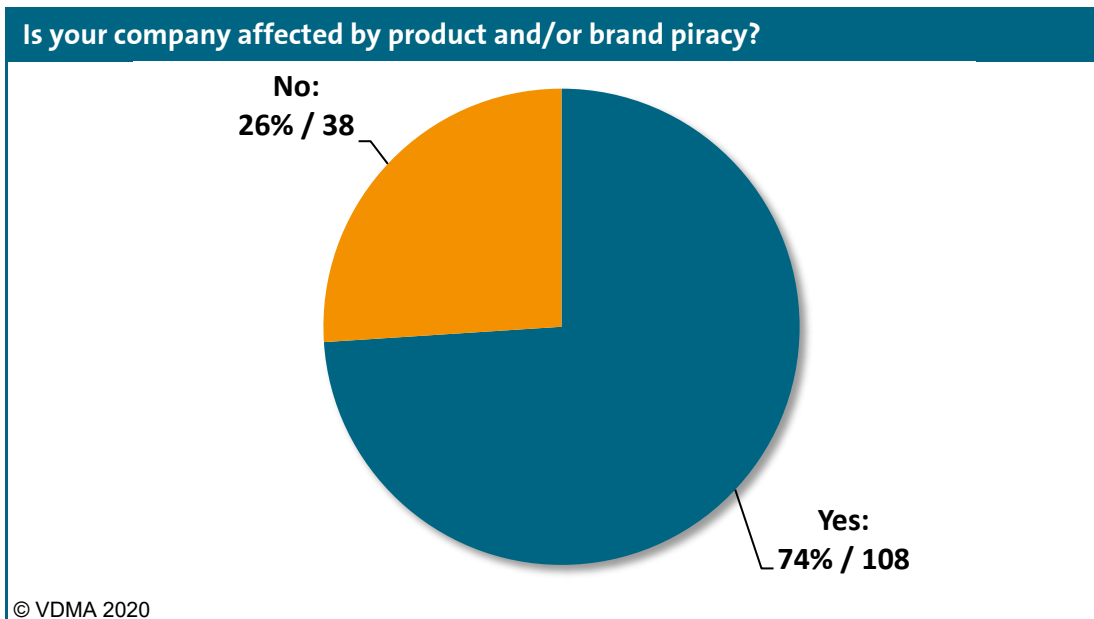
The VDMA actively supports its members in the fight against product piracy in various areas:

- The legal department provides advice and information on legal issues.
- The VDMA Working Group "Intellectual Property Rights" networks affected member companies to take organizational and legal measures.
- Through our offices in Berlin and Brussels, we continue to increase pressure on the German government and the European Union to take more decisive action against product piracy.
- The VDMA guideline "Product and know-how protection" offers help for self-help.
- The VDMA working groups "Industrial Security" and "Information Security" network member companies to gain knowledge and exchange experience in the field of cyber-attacks and protective measures.
- The "Traceability" working group networks member companies with the aim of establishing product tracing and verification in mechanical and plant engineering.
- The VDMA leads the project work of ISO 22384 "Guidelines to establish and monitor a protection plan and its implementation".
- The VDMA provides the deputy chairman in the German mirror committee of ISO/TC 292 "Security and resilience", the NIA-02-01 "Measures for authenticity and integrity of products".
- Annual user days on the subject of "Industrial Security" at the VDMA and an exhibition area "Industrial Security" at the Hanover Trade Fair offer up-to-date information and tried-and-tested solutions.

3 Threat and dismay

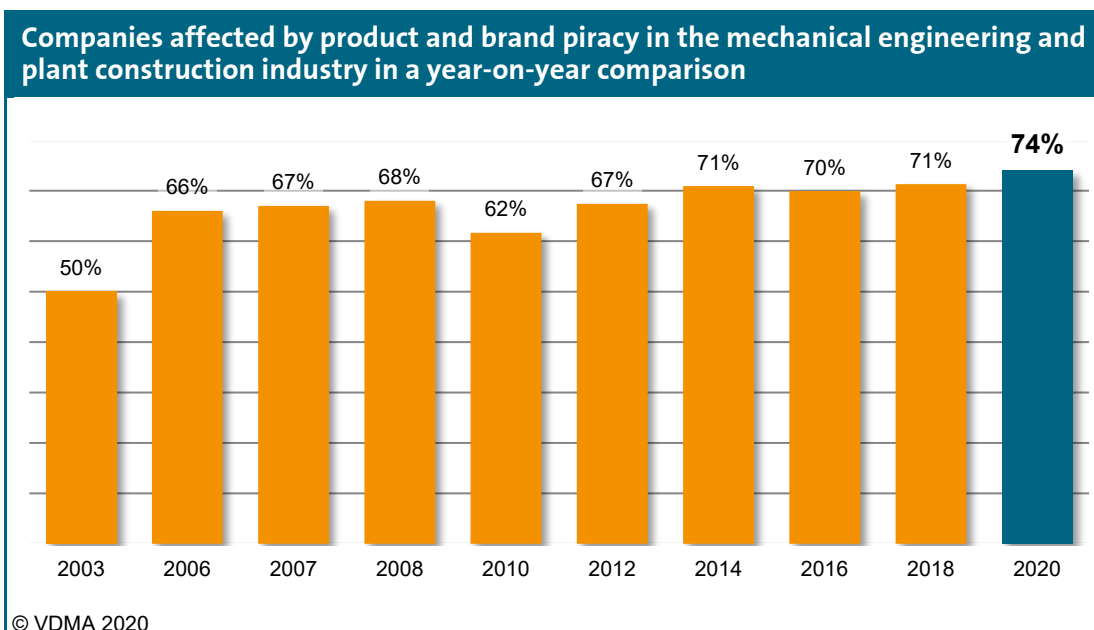
Product piracy is and remains an enormous threat to the innovative strength and competitiveness of our industry, which is reflected in a new all-time high this year: **74 percent of the companies surveyed are affected by product piracy.**

Here, comprehensive countermeasures by companies and authorities are countered by global data exchange, changes due to Industry 4.0 and the increasing motivation of plagiarists in a market segment that is declining sharply due to the corona virus.



Proportion of companies affected by product and brand piracy

N=146



Proportion of affected companies compared to previous years

N=146 (2020)

In comparison to the results of the past 17 years, it has been shown that despite all the efforts and activities undertaken by the companies, the VDMA or the Federal Government, it is not possible to reduce the quota of companies affected by product and/or brand piracy.

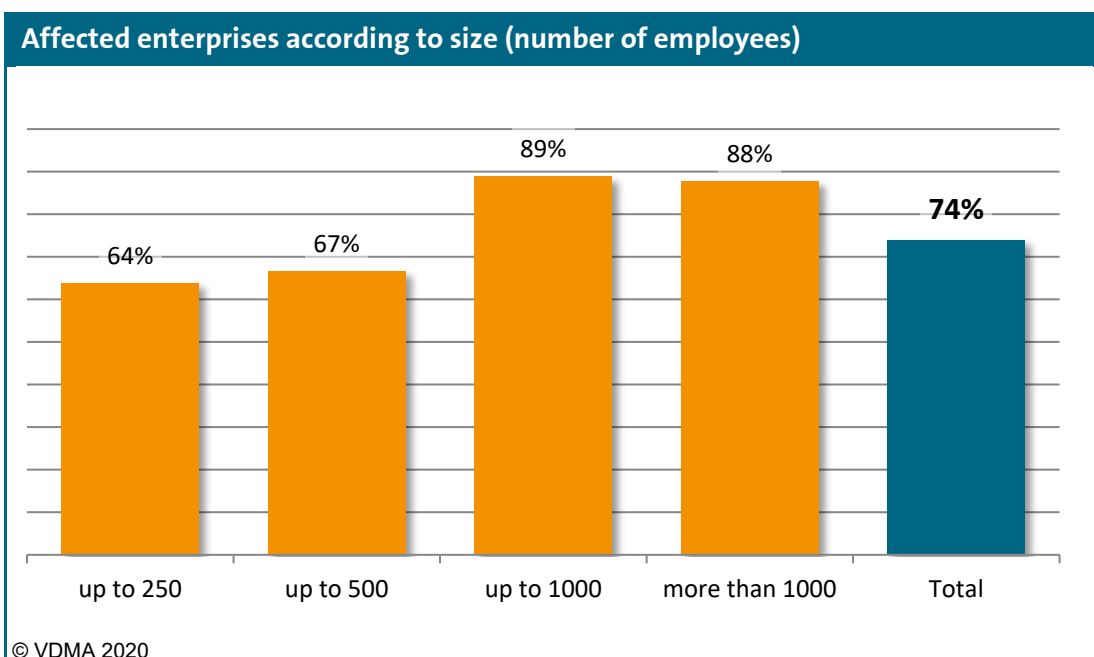
However, this does not in any way mean that these activities are ineffective, as a significant increase in the number of companies affected has been prevented over the last few years. On the contrary, the high proportion of affected companies underlines all the more clearly that such efforts and activities as a whole, and especially from the political side, must be further expanded in the future.

In addition, new ways must be found to reduce the impact of piracy. Promising approaches are provided by the opportunities offered by digitization, for example in the field of know-how protection or licensing.

Further interesting insights are provided by a breakdown of the companies affected by product and/or brand piracy by number of employees or annual turnover.

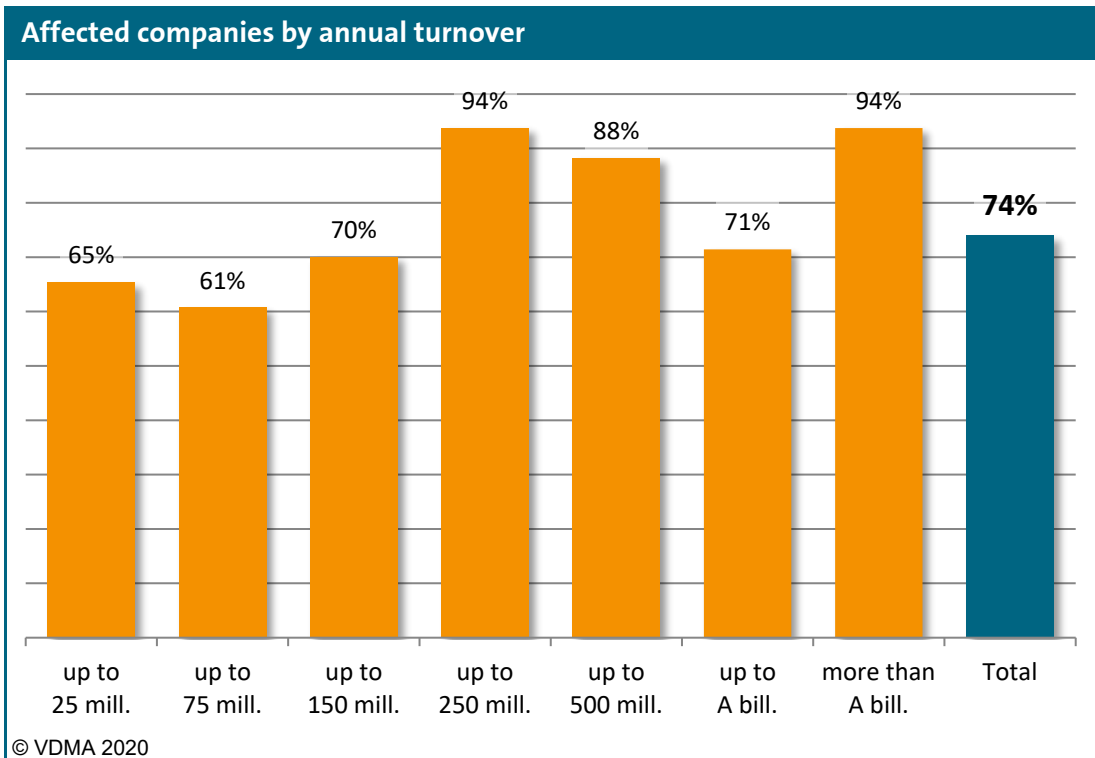
This shows that with increasing company size, the incentive for plagiarists to share in this success also increases: **For companies with more than 1,000 employees, or with an annual turnover of more than 150 million euros, the rate of affected companies rises from an average of 74 percent to a value of about 90 percent.**

Although small and medium-sized enterprises are not affected to the same extent, the rate of 64 percent for companies with less than 250 employees and 67 percent for companies with up to 500 employees is alarmingly high. This means that even in the case of small and medium-sized companies, around two out of three companies are victims of product and/or brand piracy. Compared to the last study, more and more small companies are thus affected: In the 2018 study, 60 percent of companies with fewer than 250 employees were affected, whereas in the 2016 study only 55 percent were affected.



Share of companies affected by product and brand piracy by number of employees

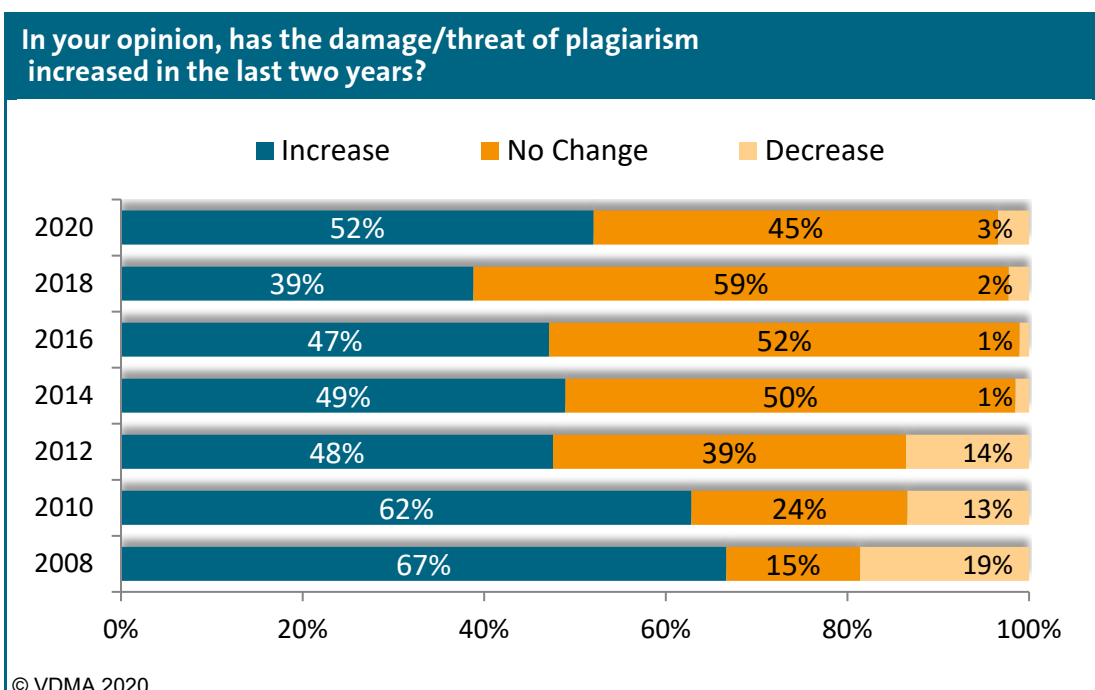
N=146



Share of companies affected by product and brand piracy according to annual turnover N=146

Another question in the study dealt with the subjective assessments of the study participants on the perceived threat within the last two years.

Since this question was included in the study in 2008, the number of companies that perceived an increase in the threat has fallen steadily over the years, most recently to 39 percent. This time a clear trend reversal is evident: **With an increase of around 40 percent, 52 percent of those surveyed are now in favor of an increase in the perceived threat level.**



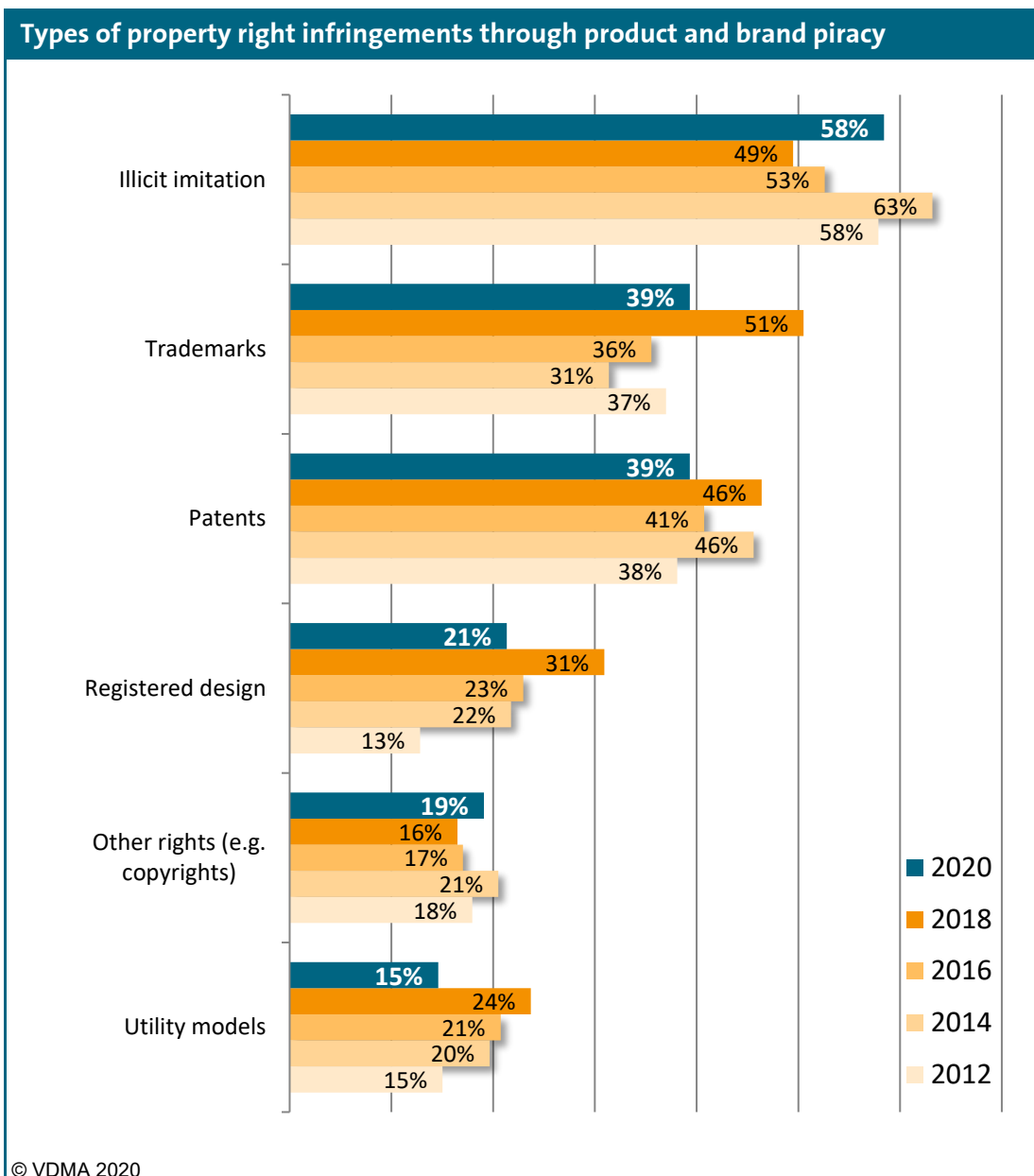
Threat assessment

N=146 (2020)

4 infringement of property rights

When asked about the type of infringement of intellectual property rights, a comparison with the trend of brand piracy in the last study shows that this time there has again been a shift towards "classic" unfair copying: with a significant increase, 58 percent of the companies concerned have become victims of this.

Although the infringement of trademark rights, patents, design and utility models has decreased in some cases significantly compared to the last study, it still remains at a very high level: **four out of ten affected companies complain about the infringement of trademark and patent rights.**



Types of infringement of intellectual property rights

N=89 (2020, multiple answers possible)

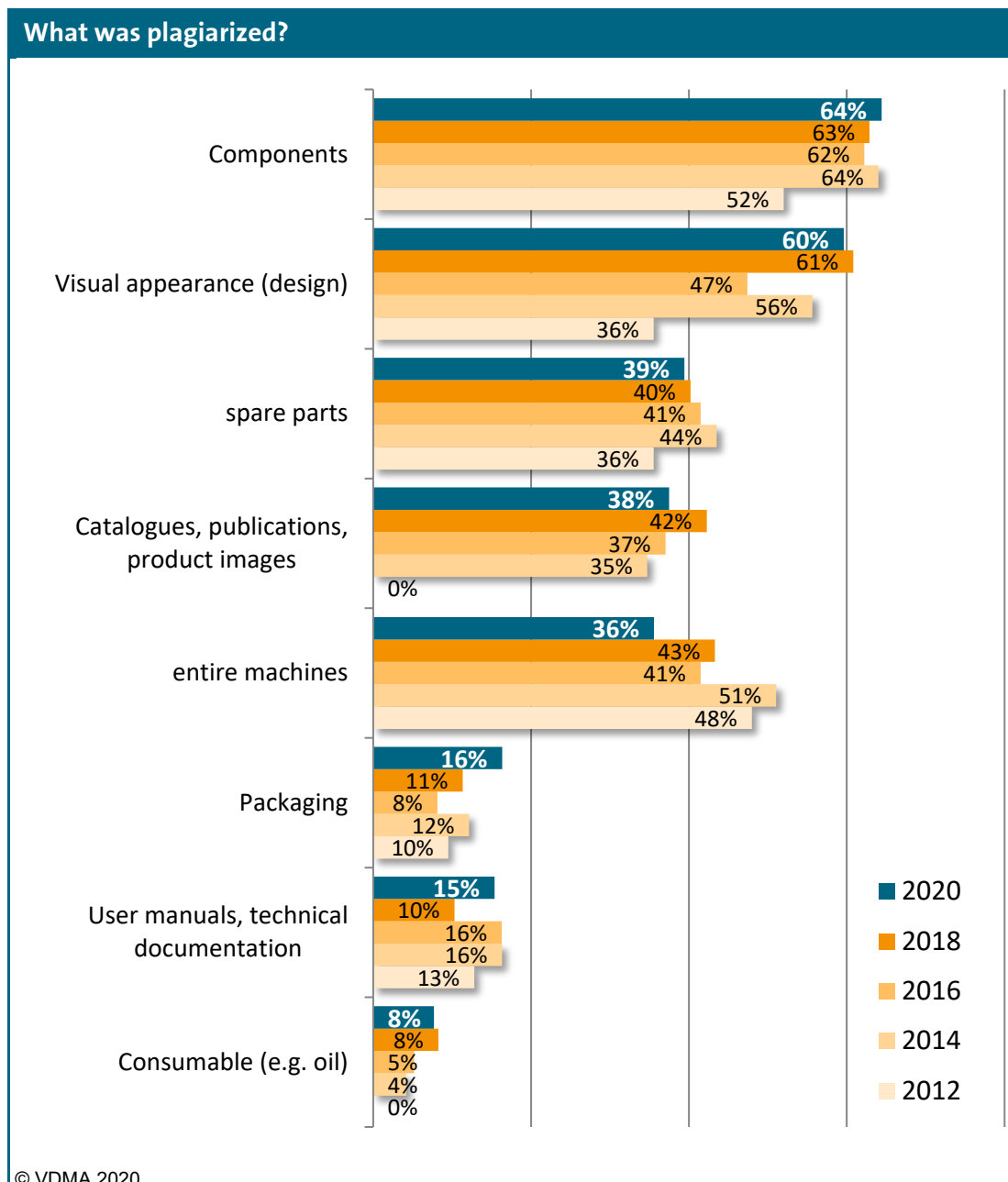
5 Common types of counterfeits

The fact that there can be many different forms of imitation and counterfeiting behind plagiarism is demonstrated again this year in the answers to the question of the type of plagiarism.

The most frequent plagiarism target, at 64 percent, remains the reproduction of individual product components, closely followed by imitations of the external appearance, for example of design, colors or patterns (61 percent).

In more than one in three cases, spare parts, entire catalogues, brochures or product photos and even entire machines were plagiarized.

Plagiarism of packaging, operating instructions and technical documentation has increased significantly.



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Types of plagiarism

N=104 (2020, multiple answers possible)

6 Counterfeiters and their clients

One question in the study was aimed at finding out by whom the counterfeits are produced and circulated or who commissions this.

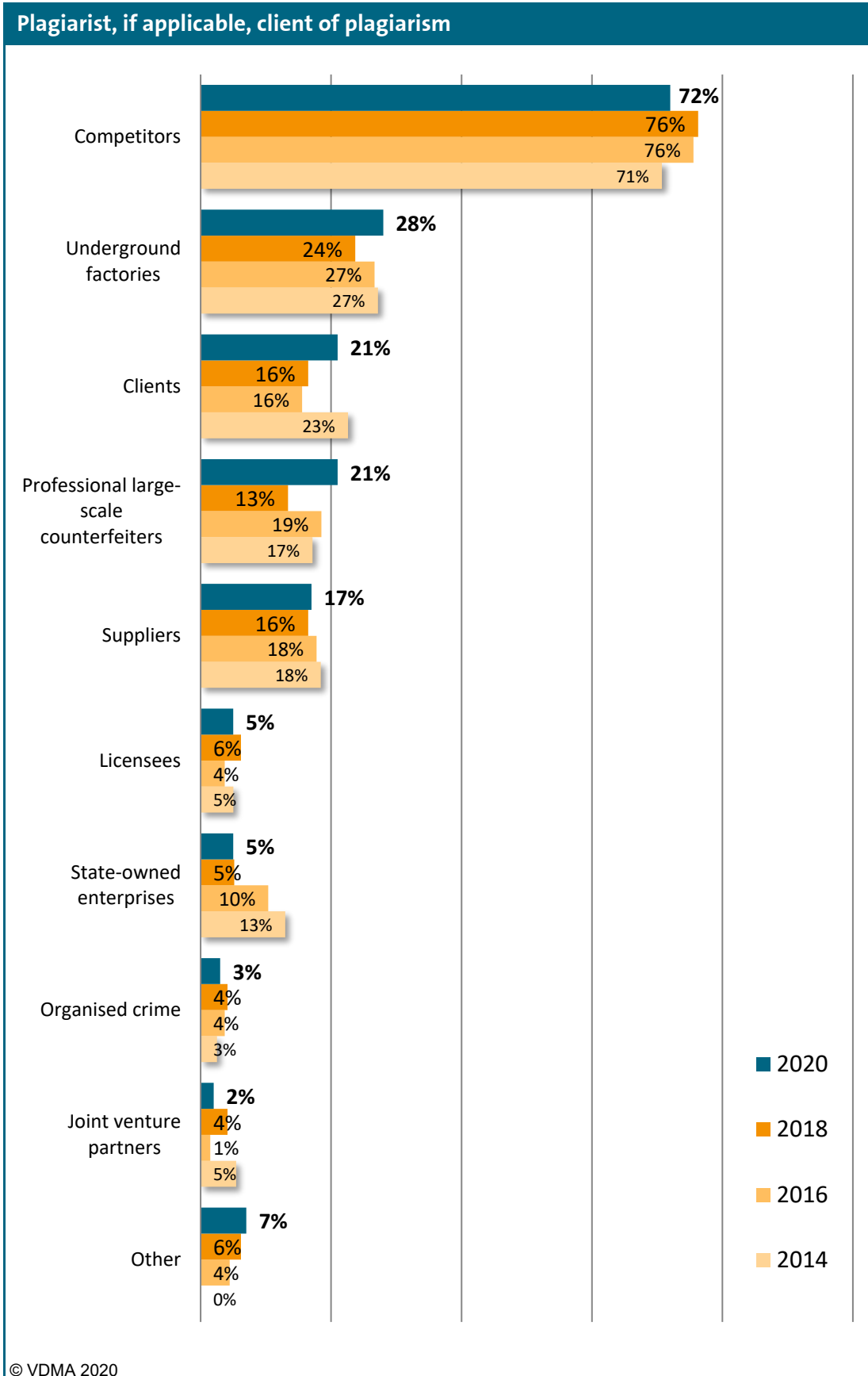
Unsurprisingly, direct competitors are the most common group of plagiarists in about three out of four cases, with a clear lead in first place. Underground factories, such as backyard workshops, follow with a slight increase to 28 percent.

While one out of six suppliers continues to appear as a plagiarist, there has unfortunately been a **sharp increase in plagiarizing customers (by 5 percentage points) and professional large-scale plagiarists (by 8 percentage points) to 21 percent.**

Licensees, state-owned enterprises, organized crime, and joint venture partners can each be identified as plagiarists in less than one in twenty cases.

Other plagiarists identified were, for example, spare parts dealers who appear to commission cheap copies in addition to the high-quality original.

If customers, suppliers, joint venture partners and (spare parts) dealers are summarized under the heading of business partners, a staggering 42 percent of those surveyed say that there is a plagiarist among at least one of them. This shows that despite the existing relationship of trust, measures to protect company and business secrets are necessary and that investments in protective measures pay off.



Plagiarists and, if applicable, their clients

N=100 (2020, multiple answers possible)

7 Distribution of counterfeits

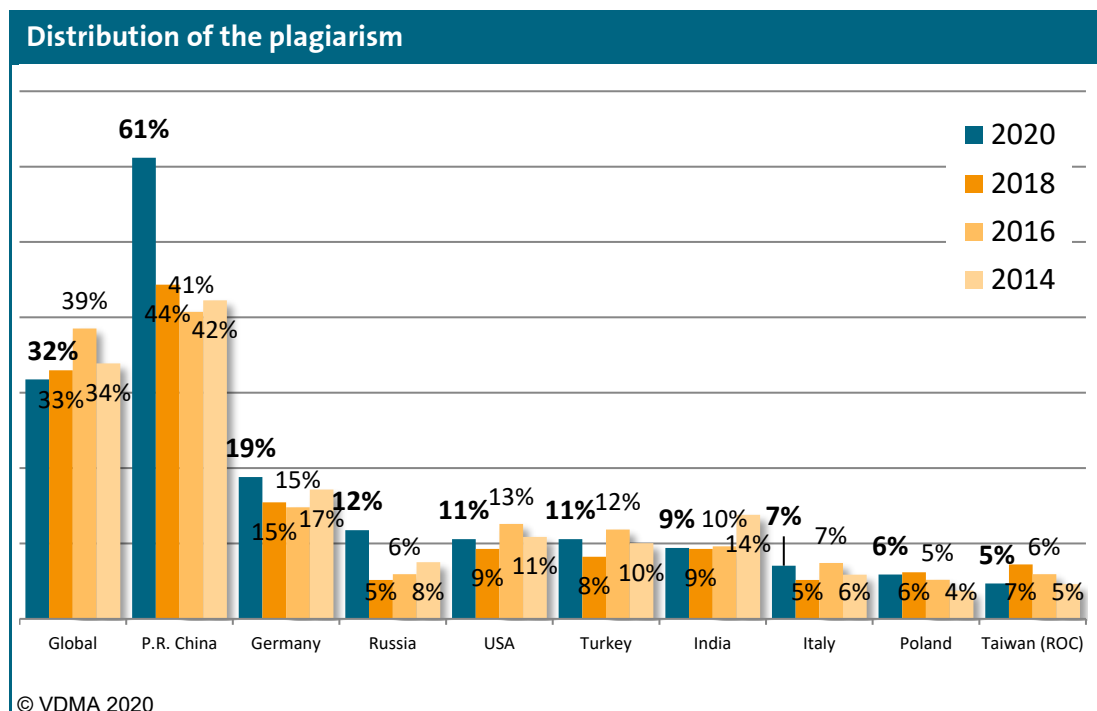
In contrast to the previous studies, this time only the country of distribution of counterfeit products was asked, and not additionally the country of production, for which the People's Republic of China took first place since the first survey in 2003.

When it comes to the question of the spread of plagiarism, the People's Republic of China once again asserts itself as the largest single marketplace, **with a huge gain of 17 percentage points to 61 percent.**

Germany already follows in second place with 19 percent as the second largest single market with a slight gain.

The third place is surprising: **With a doubling, Russia moves up to 12 percent and thus forms the third largest single market.**

32 percent of the companies observe the worldwide distribution of plagiarism of their products, especially via the Internet, which is comparable to the results of the last survey.



Distribution countries, TOP 10 entries

N=85 (multiple answers possible)

8 Dangers due to counterfeits

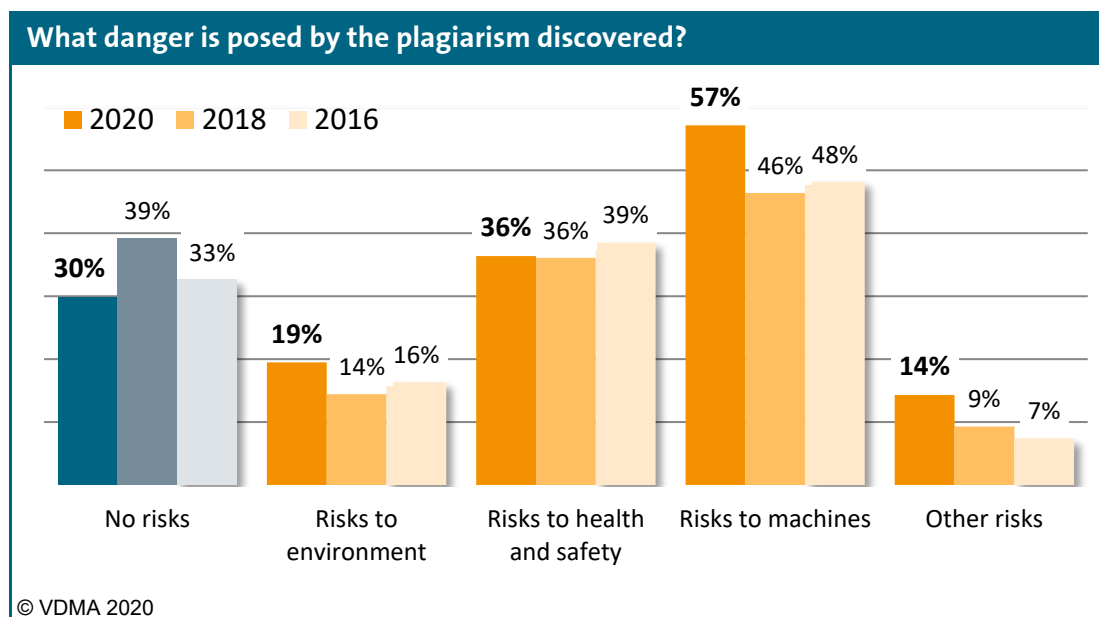
Since the study was conducted in 2016, we have been asking about potential dangers that the counterfeit products discovered entail, for example for humans due to missing or non-functional safety equipment or for the plant due to spare parts of inferior quality.

After a slight decline last year, the risks were rated higher in all categories this time. **In more than half of the cases, the use of a plagiarism creates a danger for the system**, for example through higher wear and tear when installing spare parts of inferior quality. **In more than one in three cases, there is also a direct danger to persons**, for example the machine operator.

Hazards to the environment, for example by environmentally harmful materials, can still be observed in one in five cases.

Only in less than one out of three cases does plagiarism does not pose any particular danger.

A further danger repeatedly cited was the damage to reputation resulting from reduced reliability and quality losses of the manufactured products.



Risk potential of discovered plagiarism

N=77 (2020, multiple answers possible)

Therefore, in the interests of safe and reliable operation of machines and systems alone, care should always be taken to prevent plagiarism from creeping in. This is particularly important regarding the occupational health and safety of your own employees, but also for financial reasons, as system failures or customer complaints can cause consequential costs and damage to your image.

9 Measures after detection of counterfeits

Once the plagiarism of a product has been detected, there are various measures that can be taken. **In about half of all cases, however, the discovery of plagiarism has no consequences.** Compared to the last study, this is an increase of 13 percentage points.

The breakdown by company size again clearly shows who has to put up with plagiarism without taking any action of their own: **Around two out of three small and medium-sized companies do not take any action against plagiarism that is discovered.**

In addition to the fact that plagiarists or distribution channels cannot always be identified beyond doubt, a rigorous prosecution of plagiarism can also be uneconomical or not feasible with reasonable effort for the companies concerned. In general, the larger the company, the more likely and extensive are the measures taken.

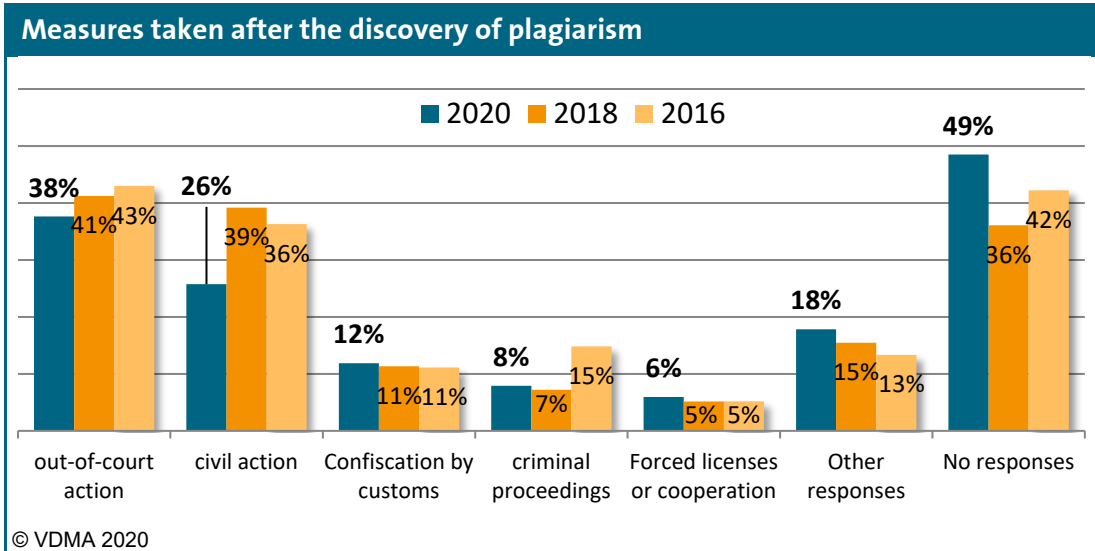
This trend is also particularly evident in civil court proceedings. **While around one in two large companies initiated proceedings following the discovery of plagiarism, this is only the case for one in ten small and medium-sized companies.** The reasons for this lie in the length and cost of such proceedings, which is why the VDMA recommends that out-of-court proceedings be considered first.

In the view of the VDMA, an out-of-court procedure, for example a letter from a lawyer, personal discussions or educational measures at the customer's premises, should be the first step in measures initiated. Experience has shown that the first improvement can be achieved, as many plagiarists act unrecognized and do not want to be named publicly. About 30 percent of the affected SMEs make use of this, and about one in two of the large companies.

Compared to the last study, border seizures are initiated by only about half as many companies (12 percent). Criminal charges and compulsory licenses are now only initiated by eight and six percent respectively.

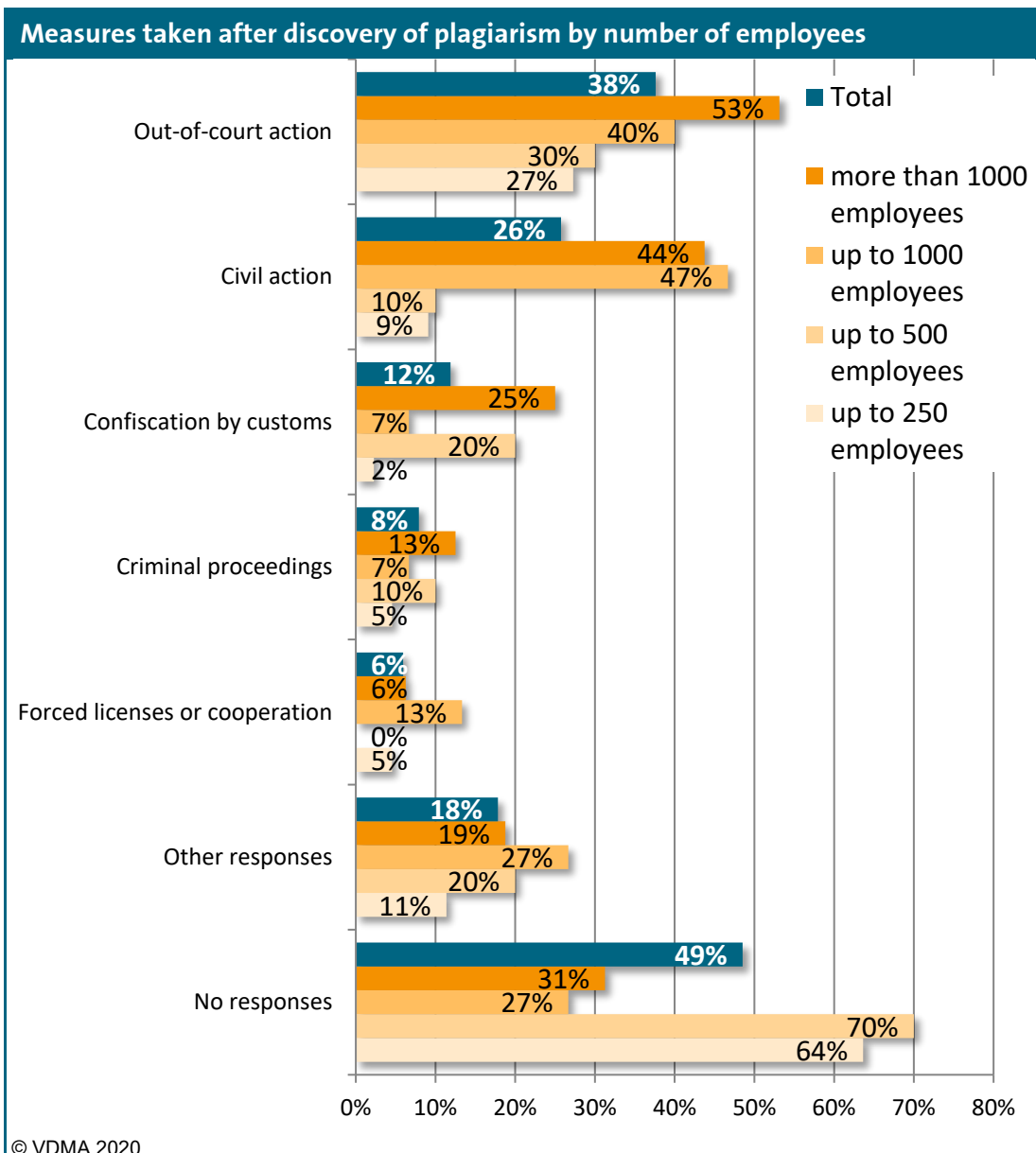
The continuing increase in the number of other measures shows that alternatives are often used or that spontaneous action is needed. For example, several participants stated that they specifically searched for plagiarisms at trade fairs and had them removed or confiscated together with the organizer and lawyers. Others pointed to hidden hurdles or changes in design, which make it more difficult to reproduce.

We are also pleased that VDMA members frequently make use of the free advice provided by the VDMA specialist departments both in dealing with the counterfeiter and in preventive measures for product protection.



Measures after detection of plagiarism

N=101 (2020, multiple answers possible)



Measures in case of plagiarism detection according to number of employees

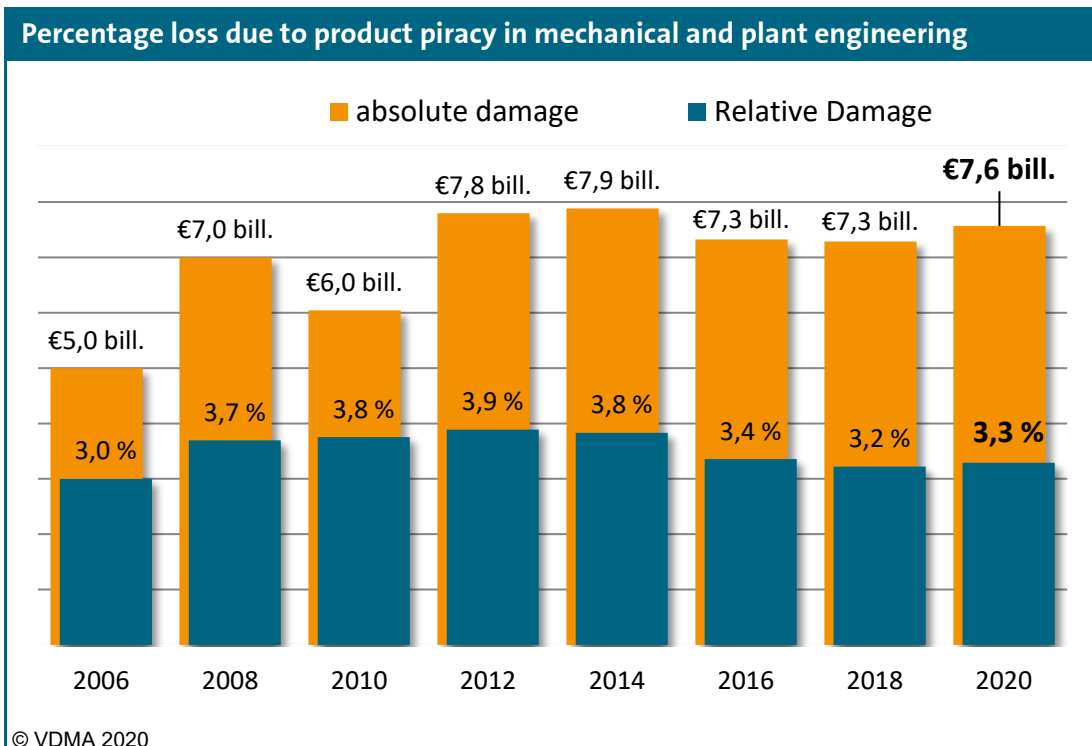
N=101 (multiple answers possible)

10 Company damage

In this chapter, we address the question of the estimated business damage caused by product and brand piracy. The self-assessment of the company damage is based not only on the pure loss of sales, but also on possible subsequent damage to the company's image, incorrect claims under warranty, product liability or similar and was given as a percentage by the study participants.

Together with the value for the annual turnover of the German mechanical and plant engineering industry² from the previous year, an absolute figure for the company damage caused by product and brand piracy can be calculated. The regular survey and evaluation of the VDMA provides a good estimate of how the damage caused by product piracy has developed in recent years.

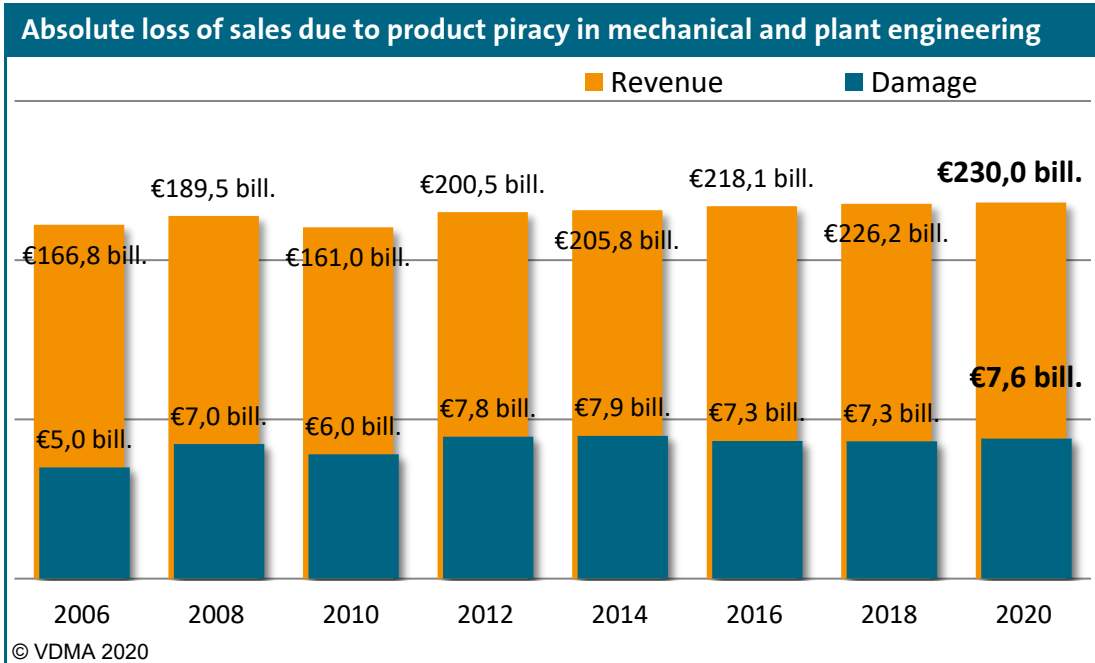
The estimated corporate loss incurred by German mechanical and plant engineering companies in 2019 shows an upward trend again at 3.3 percent after 8 years of downward trend. With a simultaneous increase in annual sales, the loss last year thus amounts to 7.6 billion euros. A turnover share of this amount corresponds to around 35,000 jobs in mechanical and plant engineering.



Business loss in EUR and loss of sales in percent by product piracy in Germany

N=117 (2020)

² Source: Federal Statistical Office/VDMA, companies with more than 50 employees.



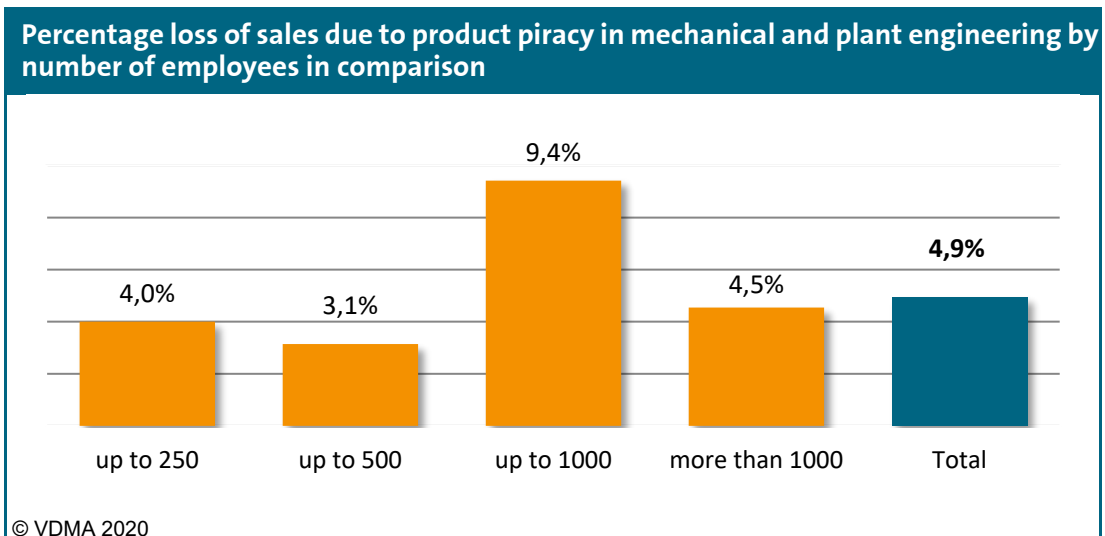
Previous year's premium income and claims by product piracy in Germany

N=117 (2020)

The 3.2 percent loss in sales reflects the overall average of the study participants. This means that not only affected companies are included, but also companies that have not suffered any damage in the past two years.

If only those companies are included in the calculation who have actually reported sales losses due to product piracy, the average sales loss is naturally higher and reaches an average value of 4.9 percent.

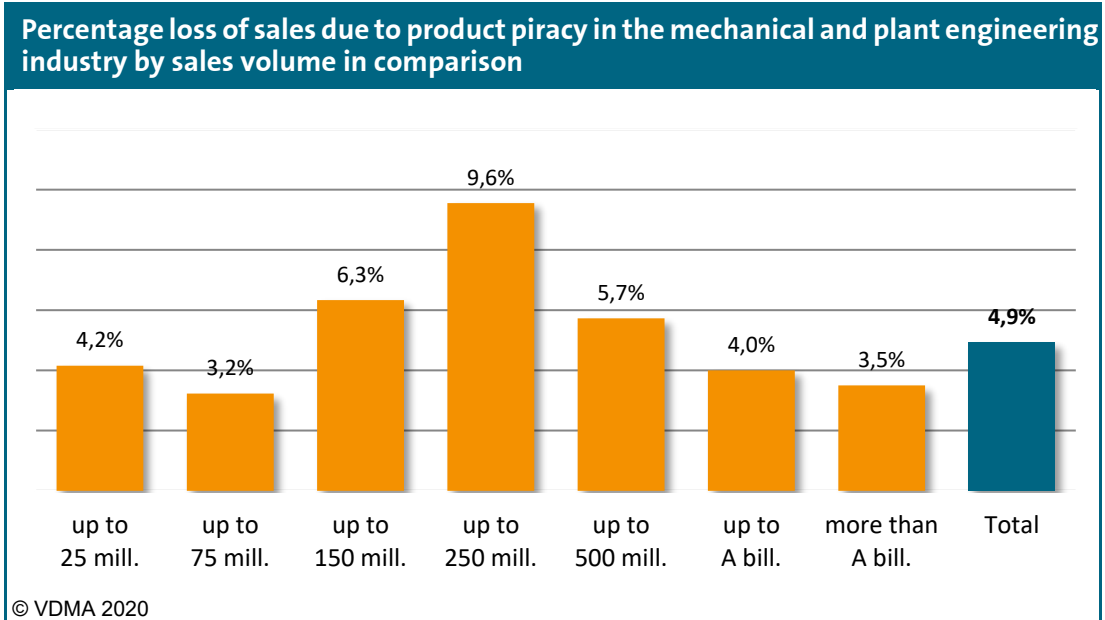
Broken down by company size, a significant additional burden is evident for companies with 500 to 1,000 employees. This can be attributed to two participants, who put the loss in turnover they suffered at more than 20 percent.



Loss of sales due to product piracy in Germany by company size in percent

N=78

If one focuses on company turnover as a distinguishing feature instead of the number of employees, a similar picture emerges: companies in the midfield suffer higher percentage losses due to product piracy.



Loss of sales due to product piracy in Germany by company turnover in percent

N=78

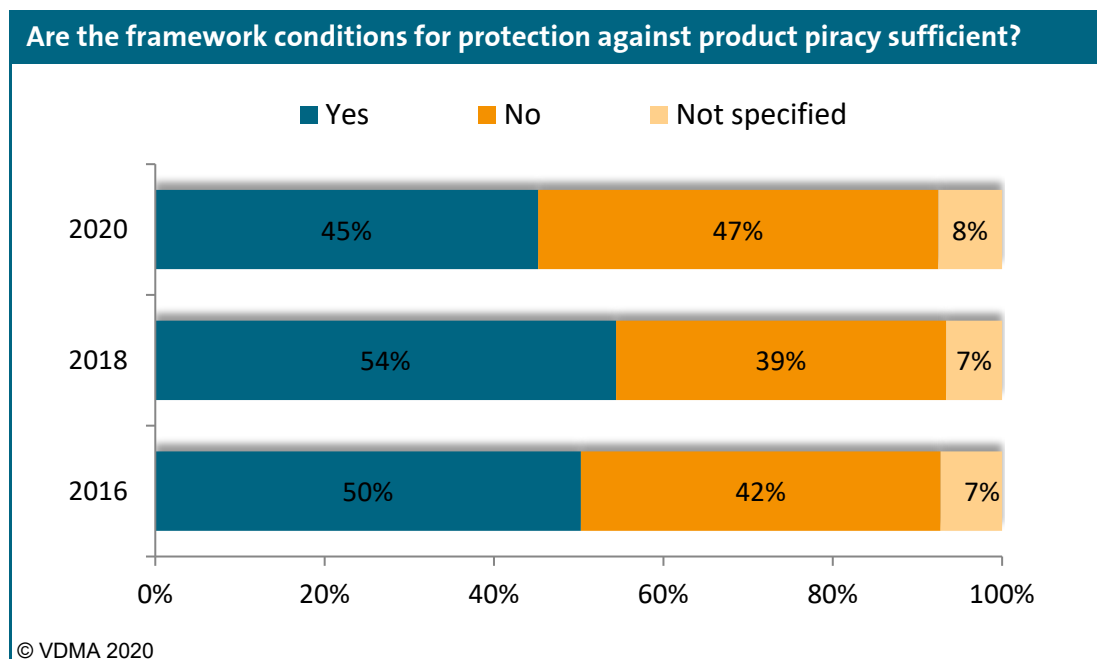
11 Politics and trade fairs

Since the study was conducted in 2016, we have been asking the study participants to provide a general assessment of the legal framework for protection against product and brand piracy.

Although this year there is no clear statement in this regard - **around half of the companies surveyed consider the legal framework for protection against product piracy to be inadequate** - the trend since the last study is clear: **almost one in ten companies has switched from "sufficient" to "insufficient" in the last two years.**

From the comments made it is clear that the legal framework in Germany and Europe is considered sufficient, but that more uniformity is already desired in Europe. With regard to the non-European area and here in particular to China, missing and inadequate international agreements are discussed, which, if they exist, are only partially applicable or difficult to enforce.

Enforcement seems to have some pitfalls in the European area as well: **some participants point to inadequate controls, for example on imports into the European Union or already in online trade**, and would like to see more staff in the responsible positions and greater influence by politicians: **"Product piracy is not a trivial offence, but an attack on the economy of the respective country".**



Evaluation of the framework conditions for product piracy

N=146 (2020)

12 The VDMA acts

The VDMA has been responding to product and brand piracy for some time now with a broad-based strategy and various measures.

In 2007, the Community initiative "Choose the Original - Choose Success" was launched. Supported by numerous European associations, the aim of the initiative was to make customers more aware of the importance of choosing original products. By making positive statements in favor of the original, member companies were able to advertise their products.

At the initiative of the VDMA, ten research projects on technical measures were carried out between 2008 and 2011, funded by the BMBF with a research volume of almost 30 million euros. In the joint project "Innovations against product piracy", piracy-proof design of products and processes, labelling technologies, risk assessment and implementation of measures were researched. The results of the projects were published in three comprehensive volumes by VDMA (see publication list).

To ensure that product protection innovations are further developed to meet the specific needs of mechanical engineering, the VDMA established the Working Group on Product and Know-how Protection (AG Protect-ing) in 2010. After successful work, the working group was merged in 2016 into the "Intellectual Property Rights" working group, which informs interested VDMA member companies about the latest developments in industrial property protection and offers space for the exchange of experience.

From 2020, we will resume work in the field of marking technologies and their digital applications within the framework of a "Traceability" working group in the Software and Digitalization Association. The aim is to publish a guide to tried and tested applications of the technologies (use cases).

Legal protection measures

For most companies, legal protection forms the basis in the fight against product piracy. We inform our member companies in brochures and lectures about legal possibilities for innovation protection and provide sample contracts. In personal meetings we discuss problem cases and help with the registration of protective rights and contractual formulations.

At selected trade fairs, we provide a lawyer emergency service that enables action to be taken against plagiarists at the trade fair. Our cooperation with law firms in the most important foreign markets enables us to provide fast and competent advice on site.

Contact

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13 VDMA publications on product piracy



Guideline Product and know-how protection

Publication: VDMA 2013
 Language: German or English
 Price: free of charge after registration as PDF

Instructions for the successful use of protective measures including practical examples.

Available on request from Biljana Gabric: biljana.gabric@vdma.org

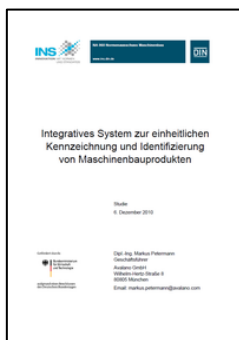


Guide to Product and know-how protection

Publication: VDMA 2016
 Language: German and English
 Price: free of charge

contributions to product piracy, security and know-how protection. Overview of technologies, protection measures and solutions in the (dissolved) working group including matrix.

Available on request from Biljana Gabric: biljana.gabric@vdma.org



INS study "Integrative system for uniform marking and identification of mechanical engineering products"

Publication: DIN/NAM/VDMA 2011
 Language: German
 Price: free of charge as PDF

Overview of marking technologies and their suitability for various applications.

Available on request from Biljana Gabric: biljana.gabric@vdma.org



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Effective protection against product piracy within the company

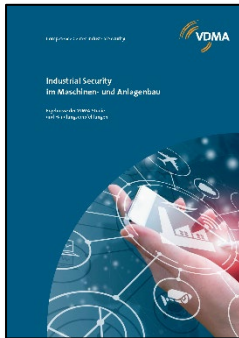
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14 Publications of the VDMA on Security

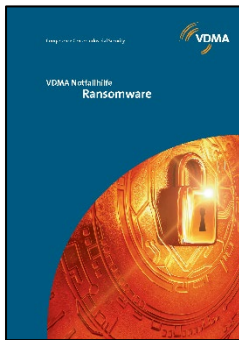


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