

Product and Know-How Protection



VDMA Study  
**Product Piracy**  
2016



## The Digitalization of Product Piracy



Dr. Reinhold Festge

The advent of Industrie 4.0 is again changing our industry at its core. The many questions and challenges posed by this transition include one pressing issue: What about product piracy?

Germany's mechanical engineers continue to enjoy unrivaled appeal around the world. In 2015, the industry again broke its own records with turnover of more than €215 billion. The world's leaders in many disciplines and technologies are based in Germany – and represent only too tempting prey for counterfeiters!

We have been watching the product piracy scene with growing concern for many years. Despite tougher legislation and better support from official partners or expo and trade fair organizers, the threat of counterfeits and pirated products has far from diminished. In order to respond to this problem, the VDMA has been publishing its regular study of the extent and development of the threat every two years. The figures in this year's study show that we cannot let our guard down now!

Industrie 4.0 is promising fundamental changes for us; the evolution of the knowledge economy is not stopping at the factory gates. Digitalization and connectivity have enormous potential and promise, but also bring new threats and challenges in the form of product piracy. The risks are all too obvious and wide-spread in the case of additive manufacturing, that is, 3D printing. As soon as the forgers and fakers get their hands on the digital blueprint, they are in a position to produce perfect illicit copies: indeed, it is hard to speak of counterfeits, when we are dealing, for all intents and purposes, with identical products. There are now early reports of "Counterfeiting as a Service", with 3D printing centers specializing in product piracy on demand.

As value creation is becoming more reliant on digital data, product pirates and counterfeiters are following suit. They will not be satisfied with simply copying the nuts and bolts or discrete circuitry. Instead, they are setting their sights on the digital templates, the software inside the machines, and the main databases storing the valuable information.

Let us protect ourselves against the product pirates! Invest now in digital protections!

Dr. Reinhold Festge  
VDMA-President 2013-2016

**Note**

All responses of the participants in this study were treated with absolute confidentiality. This publication represents the findings of our study in anonymous and aggregate form. Please contact us with any other comments or questions about the data for the next product piracy study.

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# 1 Introduction

Every two years, the VDMA invites its members to take part in a study on product and brand piracy. The regular studies published since 2003 have thus become an invaluable source of information and reliable data and have cast a spotlight on the threat of counterfeit, faked, and otherwise illicitly copied products in our industry. The relevance of and need for this study is evident when one considers the great number of VDMA member companies that have become victims of piracy. The damage to mechanical engineering in Germany alone is estimated to reach billions of Euros year over year.

## What is Product Piracy?

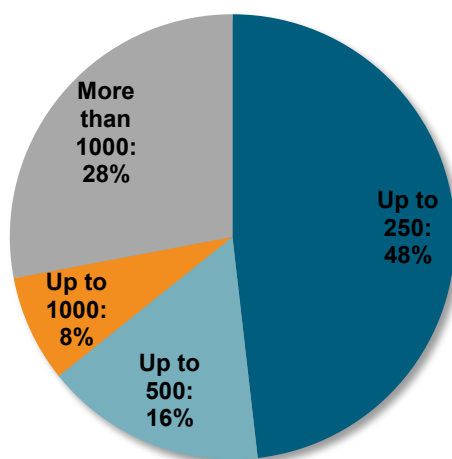
This study is concerned only with the illicit reproduction of products. By illicit reproductions (otherwise called product piracy or counterfeiting), we refer to the

- imitation of products in breach of special proprietary rights (e.g. protected brands or patents), or
- imitation of products without any breach of proprietary rights, but against accepted competitive practice.

A product is considered a reproduction against accepted competitive practice if the simple fact of the imitation is accompanied by another illicit act, which can mean deliberately obscuring the original product's manufacturer (increasing the likelihood of confusion) and benefiting illicitly from the original brand's good reputation.

## Sample 2016

In total, 193 member companies of the VDMA have contributed to the 2016 edition of the study. The data was collected in the period from 12 January to 4 March 2016.



Up to 250 employees: 93 companies

Up to 500 employees: 31 companies

Up to 1000 employees: 15 companies

More than 1000 employees: 54 companies

**Total: 193 companies**

## 2 Management Summary

More than 3100 members of the VDMA were surveyed on the problem of product piracy. Their answers show that the threat remains severe, even though a slight improvement is recorded over the last two years both among the surveyed VDMA members and in absolute figures.

**70 percent of the participating companies are victims of product or brand piracy. The damage to Germany's mechanical engineering sector is estimated at a full €7.3 billion every year.**

This represents a reduction of approx. €600 million in 2015 when compared to the negative record of €7.9 billion in the financial year 2013. The lost revenue of €7.3 billion would, however, still equate to approx. 34,000 jobs in the industry. On top of this loss of revenue and potential jobs, the companies affected by piracy are suffering other damages that cannot be expressed in financial terms, such as the damage to their reputation, lost competitive advantages, or the impact of illicit warranty claims. The German authorities and trade fair organizers are generally given a positive rating, while the participants see urgent need for action when their international counterparts are concerned. The measures taken locally – in the typical countries of origin of fake products – are not seen as sufficient to help meaningfully in the fight against product piracy.

**Record: 83 percent of all companies point their fingers at China.**

The People's Republic of China is named as a country of origin of counterfeits by a record 83 percent of the participants, which represents an increase of 11 percent after a slight improvement in the previous survey. This sad record demonstrates the undiminished need to not only introduce actions against product piracy on paper, but to actually enforce them without fear or favor. VDMA members frequently report retailers and counterfeiters that are allowed to keep distributing their fake products, despite official convictions, with only superficial changes.

**Help: Guidelines and standards as a first source of information.**

Putting a monetary value on the solutions and concepts that can prevent product piracy or the loss of know-how is not an easy task. The specific benefits will often only become evident in actual incidents, each with their unique circumstances and conditions.

The VDMA guidelines on "Product and Know-How Protection" offer companies affected by the problem a selection of suitable protection measures against product piracy and the theft of know-how. Pragmatic recommendations are introduced and represent a first source of information about the effectively targeted use of protections and safeguards<sup>1</sup>.

The guidelines have also become the basis for the draft standard DIN 66405 "Guidelines for the Definition of Protection Concepts against Product Piracy, Counterfeits, and the Trade in Illicit Goods", currently in development by the DIN NIA-02-01 "Measures against Product Piracy" standards committee in cooperation with the members of the VDMA.

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<sup>1</sup> Additional information can be found at <http://pks.vdma.org/article/-/articleview/1351236>

**The key findings of the VDMA Product Piracy Study 2016 in brief:**

- 70 percent of all companies are victims of product piracy (2014: 71 percent). Despite this reduction of one percentage point, the danger of product piracy remains severe.
- The estimated damage to the economy in the financial year 2015 is €7.3 billion. Compared to the last survey's figures for 2014, this is a reduction of approx. €600 million.
- The lost revenue of €7.3 billion would equal approximately 34,000 jobs. This means that around 4,000 jobs have been 'rescued' from the counterfeiters since the last survey (2014: damage equivalent to 38,000 jobs).
- The danger of counterfeits: 48 percent of companies see a risk to the safe operations of their systems caused by counterfeit parts; and a shocking 39 percent draw attention to immediate danger to life and limb (with consumers at risk in the food industry or users at risk in the case of industrial appliances)
- The People's Republic of China continues to hold the undisputed top spot among the countries of origin for counterfeits, being named in a record 83 percent of cases (+11 percent). Germany is named in second place with 24 percent (+1 percent). For the first time since 2012, India is again among the top three countries of origin with 19 percent of mentions.
- The most severely affected parts of the mechanical engineering sector are:
  - Engines and systems (92 percent)
  - Plastic and rubber machines (92 percent),
  - Textile machines (91 percent).
- Competitors are named most frequently as pirates or backers of pirates, with 76 percent of the sample (+5 percent), followed by underground factories in 27 percent of cases. The phenomenon of "client counterfeiters" has fortunately been reduced by seven percent (to 16 percent).
- Named in 69 percent of cases, reverse engineering is the most common source of counterfeits, followed by lost know-how, e.g. by former members of staff (32 percent). 13 percent of the surveyed companies have experienced outright industrial espionage.
- Individual components are the most counterfeited product type (62 percent); designs are copied in almost half of all cases (47 percent). The counterfeiting of entire machines and systems has decreased by ten percentage points (41 percent).
- Only 22 percent of companies are suffering from illicit warranty claims caused by counterfeit products (a reduction of 4 percent).
- Registering property rights is still the first line of defense for most companies: Over 80 percent of them put their trust in patents, brands, and other registered rights.
- Enforcing legal rights: Civil action or out-of-court settlements remain the most frequent avenue chosen when counterfeits are discovered.
- Many companies are sorely disappointed with the quality of official support abroad: 87 percent expect more support from official bodies, and 81 complain about insufficient support by local expo companies. Messe Frankfurt comments on the issue in this study.

- 50 percent of companies wishes a VDMA database for the globally reliable authentication of original products.
- For 39 percent of all companies that choose to forego technical protections, the reason lies in the cost of the measures involved. For 30 percent, the selection of possible measures is too large and unwieldy.

### **The VDMA Takes Action**

Product piracy represents a massive threat for the competitiveness and innovative potential of our economy. The dangers posed by piracy or lost know-how are manifold and diverse in mechanical and plant engineering.

We advocate a sustainable response to product piracy in the form of a comprehensive defense strategy, adjusted and matched with the unique situation and piracy risks faced by each and every company. A battery of properly aligned countermeasures can and should be selected as part of a custom protection concept. Legal protection, in the form of fully registering all property rights in the relevant markets, is an absolute necessity: Without registered property rights, companies will find it impossible to assert their claims. Organizational and technical measures also need to be considered and should include both the people inside the companies in question and the people on the outside, such as retailers or customers.

The VDMA supports its members proactively in the fight against product piracy on numerous fronts:

- The VDMA legal office provides advice and information on legal issues.
- The VDMA "Product Piracy" users' circle brings together affected member companies to share organizational, legal, and technical measures.
- The VDMA Working Group on "Product and Know-How Protection" offers support on technical protection measures ([protect-ing.de](http://protect-ing.de)).
- Our local offices in Berlin and Brussels are actively lobbying for more forceful action against product piracy by Germany's federal government and the European Union.
- The VDMA "Product and Know-How Protection" guidelines offer pragmatic advice on how companies can protect themselves against piracy.
- Standard responses against product piracy are being put forward at international standards organizations. The VDMA provides the deputy chair of the German mirror committee for ISO/TC 292 "Security and resilience".
- Annual User / Vendor Days hosted by the VDMA and a shared exhibit on "Industrial Security, Traceability & Brand Protection" at the Hannover Messe and other sector specific fairs offer up-to-date information about the VDMA's work.

[www.vdma.org/produktpiraterie](http://www.vdma.org/produktpiraterie)

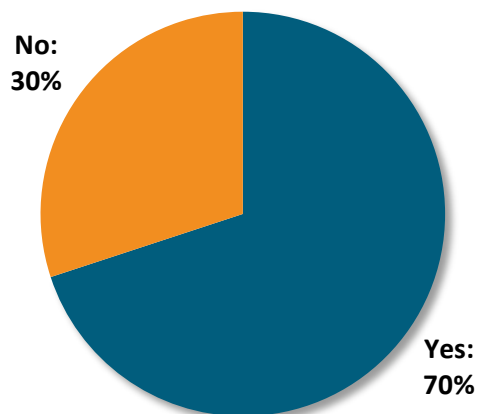


### 3 Threats and Victims

Product piracy is and remains a major threat for the innovative and competitive capacities of our industry. 70 percent of all companies become victims of product pirates.

All in all, we do not expect the figures to change substantially in the foreseeable future. The range of measures taken by companies and authorities to fight the problem are outweighed by the easier access to know-how, the changes brought about by Industrie 4.0, and the rise of global data sharing platforms.

#### Is Your Company Affected by Product or Brand Piracy?



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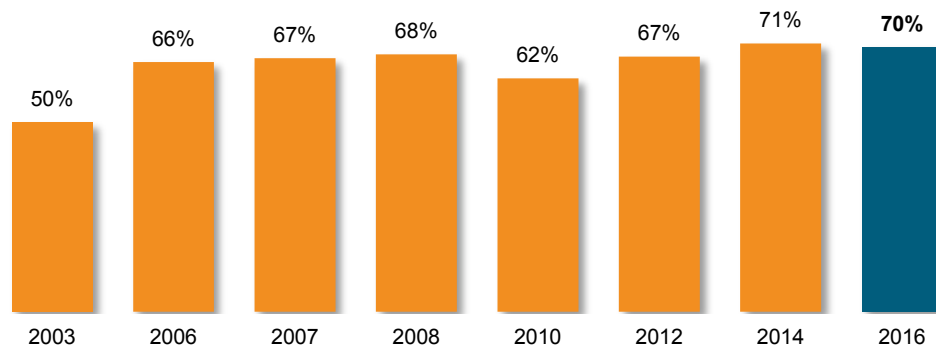
Companies affected by product and brand piracy in 2016 (in %)

N=193

The scale of the problem in terms of the numbers of companies affected has not changed substantially over the last decade. Despite the actions taken by the VDMA and Germany's federal authorities, it tends to lie between 66 and 71 percent.

Despite the suggestions proposed above, the causes for these statistically significant numbers are still unclear. In order to get a meaningful explanation, all actions taken to date, in particular those by political authorities, should be tested to ascertain their effectiveness.

#### Mechanical Engineering Companies Affected by Product and Brand Piracy



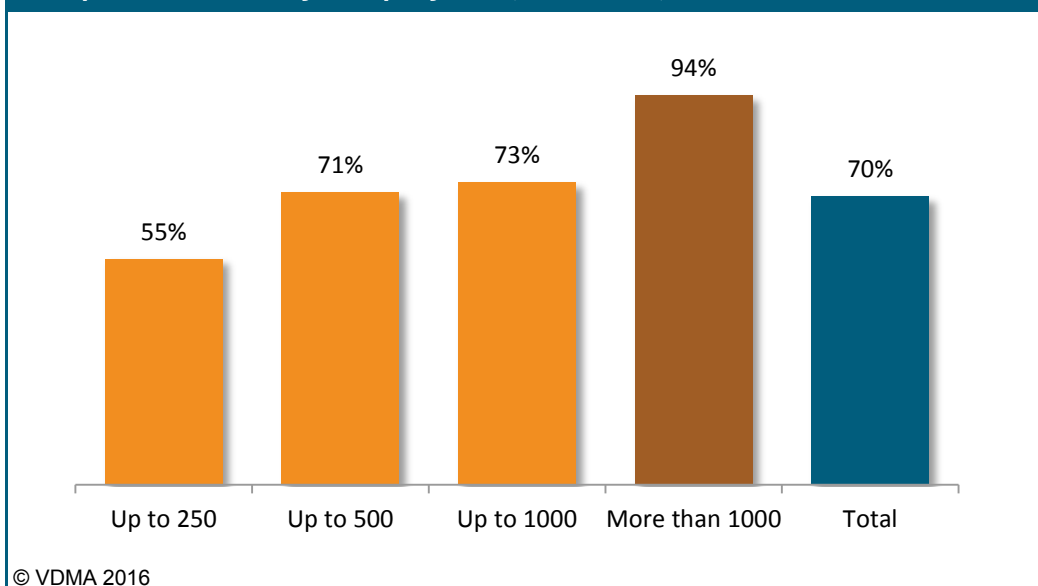
© VDMA 2016

Companies affected by product and brand piracy (in %) compared to previous VDMA surveys. N=193 (for 2016)

Looking at the scale of the problem in terms of the sizes of the companies affected, it is clear that the larger a company becomes, the more likely it is to be a victim of product pirates. This is no revolutionary insight, as the growth of a company usually adds other relevant factors to the equation, such as more international activities, production capacities moved abroad, R&D spending increasing etc.

The innovative SMEs, often called the backbone of Germany's economy or "hidden champions", are the preferred targets of product pirates. Many of these companies have expanded in a very short period of time and have not been able to strengthen their organizational and legal means at the same pace. In boom periods, the damage of counterfeiters and pirates is often hardly noticeable, but it becomes substantially more obvious and urgent an issue when the economy has a slow down.

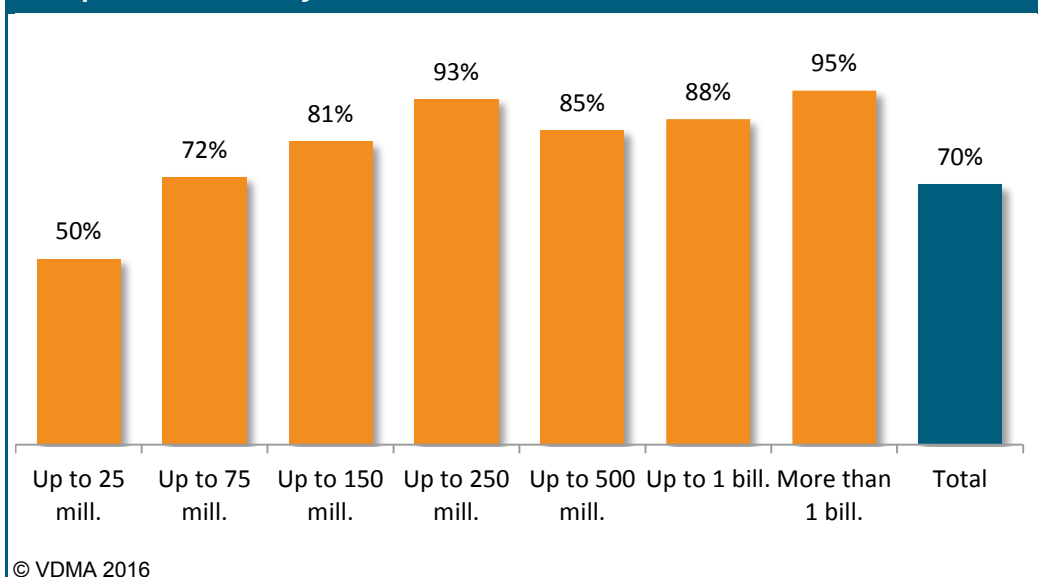
#### Companies Affected by Company Size (Headcount)



Companies affected by product and brand piracy (in %), by company size (headcount).

N=193

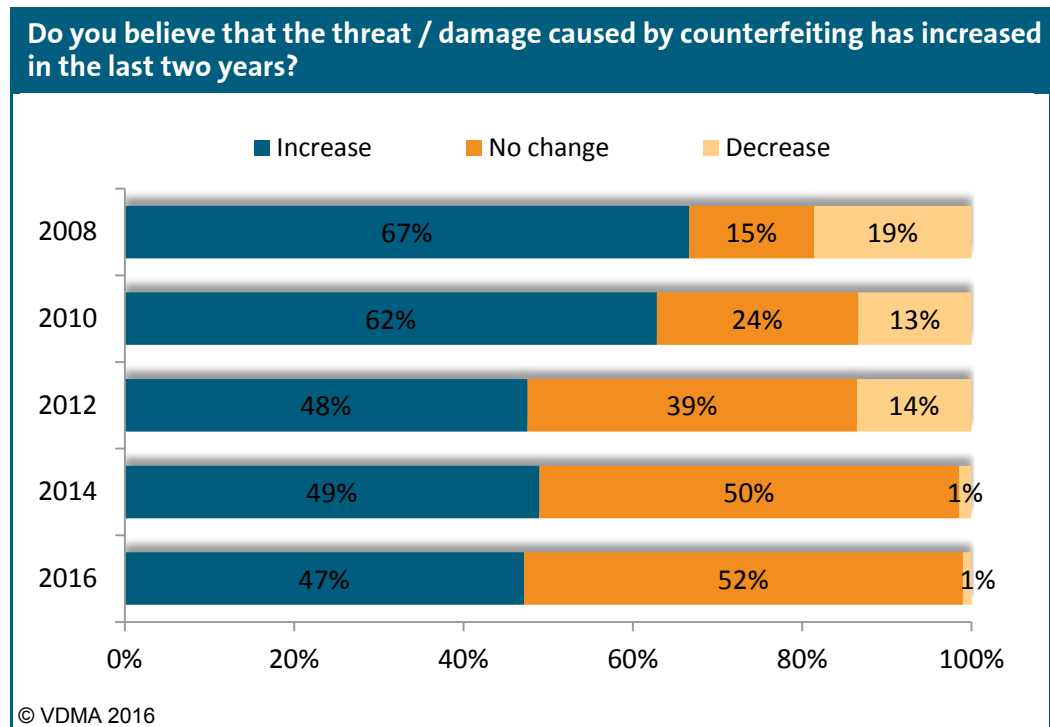
#### Companies Affected by Revenue



Companies affected by product and brand piracy (in %), by revenue category (in € p.a.).

N=193

The participants in the study differ in their perception of the scale of the threat in the past two years. While some see an increase in the number of incidents, others assume no change, albeit at a high level. Only two companies suggest a reduction of the number.

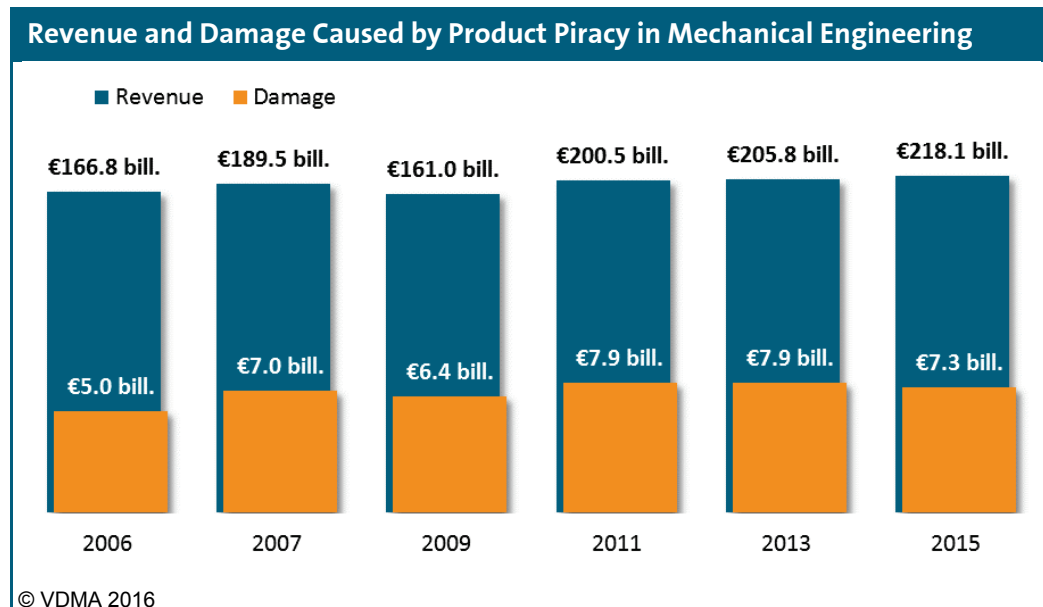


Threat assessment (responses in %)

N=193 (for 2016)

## 4 Damage to Businesses

The revenue lost by German mechanical and plant engineering businesses in 2015 is estimated at €7.3 billion. Revenue of this scale would equal about 34,000 jobs in the industry.



Industry revenue and damage  
caused by product piracy in Germany

N=193

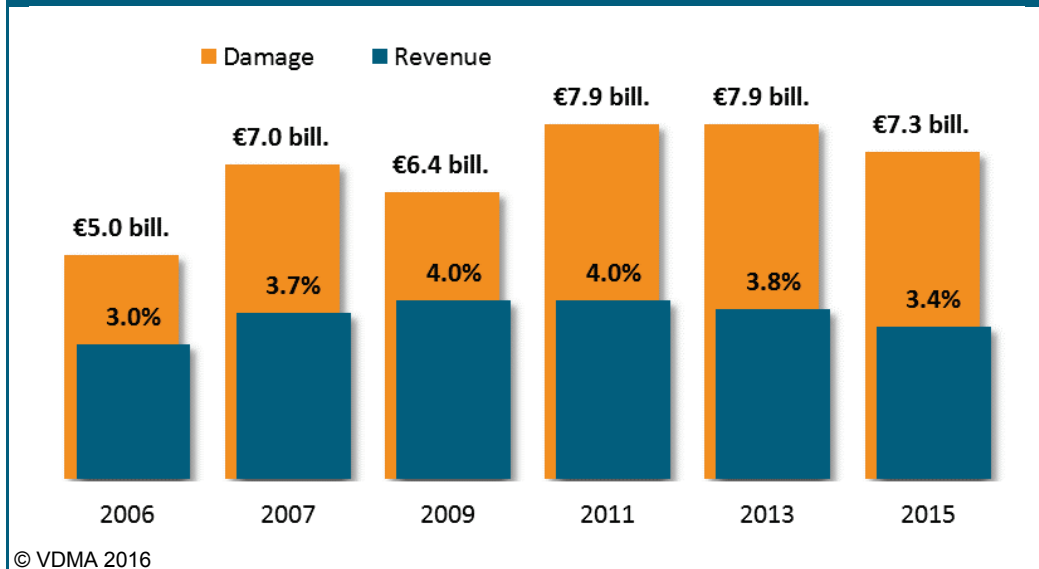
The absolute figures offer few meaningful insights, as they are based on estimates provided by the participating companies. The regular survey and analysis of the VDMA, however, allows a good assessment of how the damages caused by product piracy have developed over time.

Companies struggle with understanding the extent of the damage suffered by them: How are the affected companies faring compared to other companies in the industry? With this in mind, we contrast the absolute revenue losses with the relative figures of percentage of revenue lost.

The average loss in terms of revenue in our industry was 3.4 percent in the financial year of 2015. This represents a substantial reduction since 2013, continuing a positive trend. It is the second lowest figure recorded since the start of our surveys.

As suggested, this relative reduction shows that attention should not only be paid to the likelihood of being affected by product piracy in general, but also to a relative assessment of how severe the losses will be on average.

#### Lost Revenue and Damage Caused by Product Piracy in Mechanical Engineering

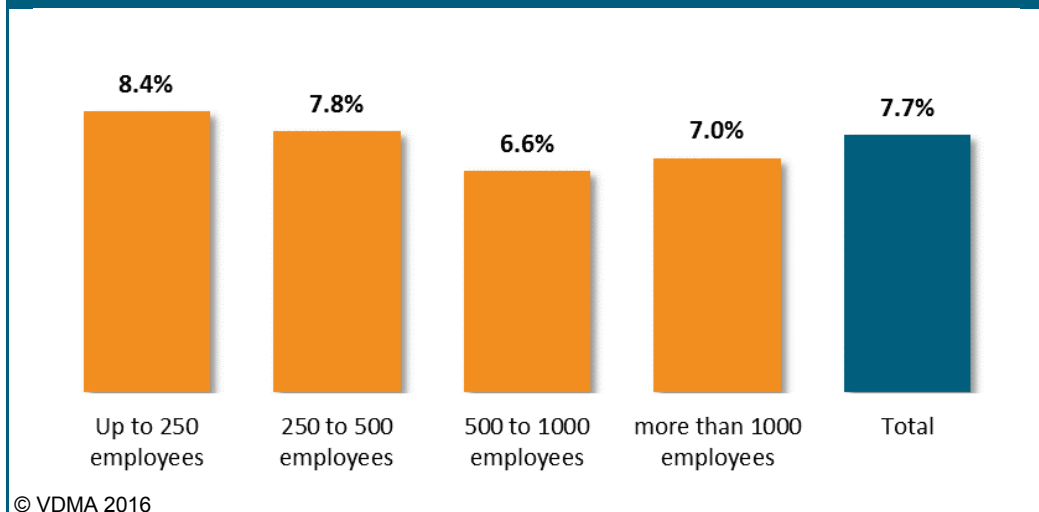


Damage in □ and revenue lost due to product piracy in Germany, in percent

N=193

The 3.4 percent figure also includes companies not actually affected by product piracy in 2015. Once these are excluded to leave only companies that have suffered actual revenue losses due to the actions of product pirates, the average loss increases to 7.7 percent. Seen by company size, it becomes evident that smaller and medium-sized enterprises are disproportionately affected, with companies employing fewer than 250 people suffering a more severe average 8.4 percent loss in their revenue.

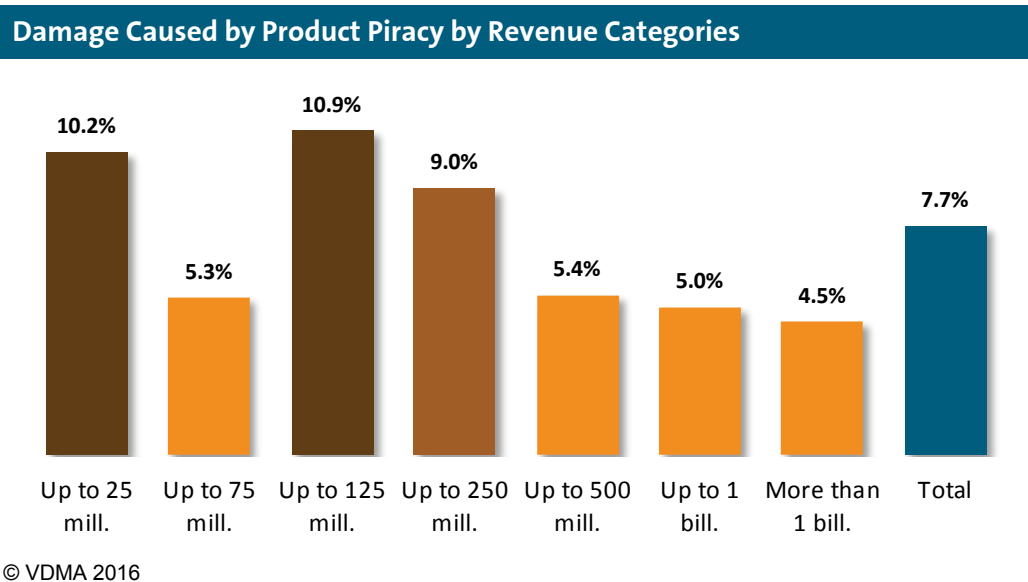
#### Damage Caused by Product Piracy in Mechanical Engineering, by Company Size



Revenue lost due to product piracy in percent, by company size (only affected companies)

N=106

Looking at revenue categories instead of company size, one notices that the revenue lost to product piracy can reach over ten percent on average in certain types of companies.



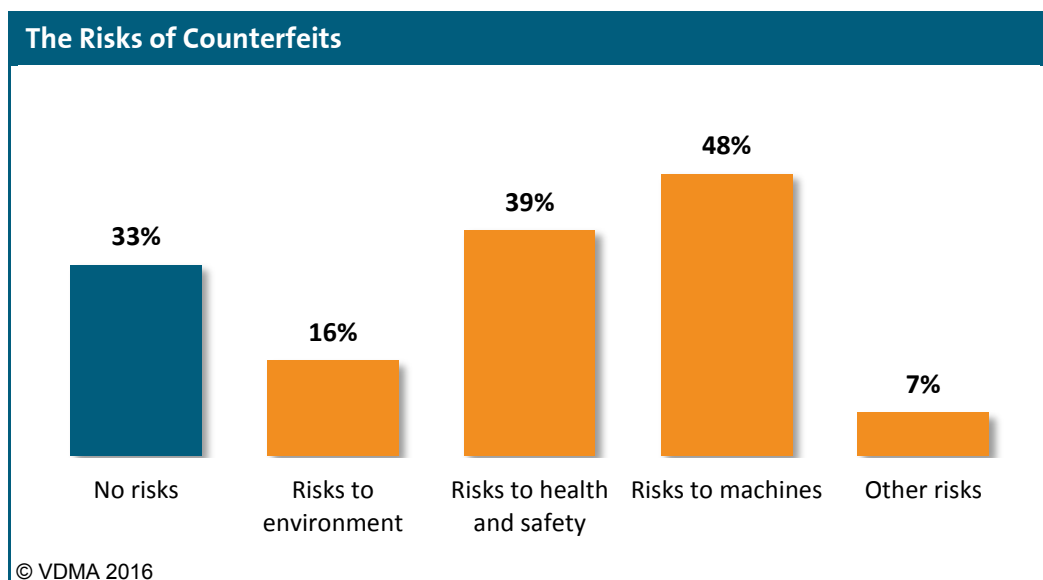
Revenue lost due to product piracy in percent,  
by revenue categories (only affected companies, in € p.a.).

N=106

## 5 The Risks of Counterfeits

This year's study included a new question about the risks posed by counterfeits, that is, who or what might be put in danger by fake components or systems. Companies tend to test these risks in each identified instance, which is why the survey allows multiple answers.

Only a third of companies report no danger whatsoever from counterfeits. In a majority of cases, using counterfeits means immediate danger. A particularly worrisome finding is the high incidence of risks to personal health and safety, which is mentioned by 39 percent of the respondents. A risk to the environment is named by 16 percent of companies. The most common danger mentioned is the risk to machines and systems that can often suffer severe damages when fake components are used.



Risks of counterfeits

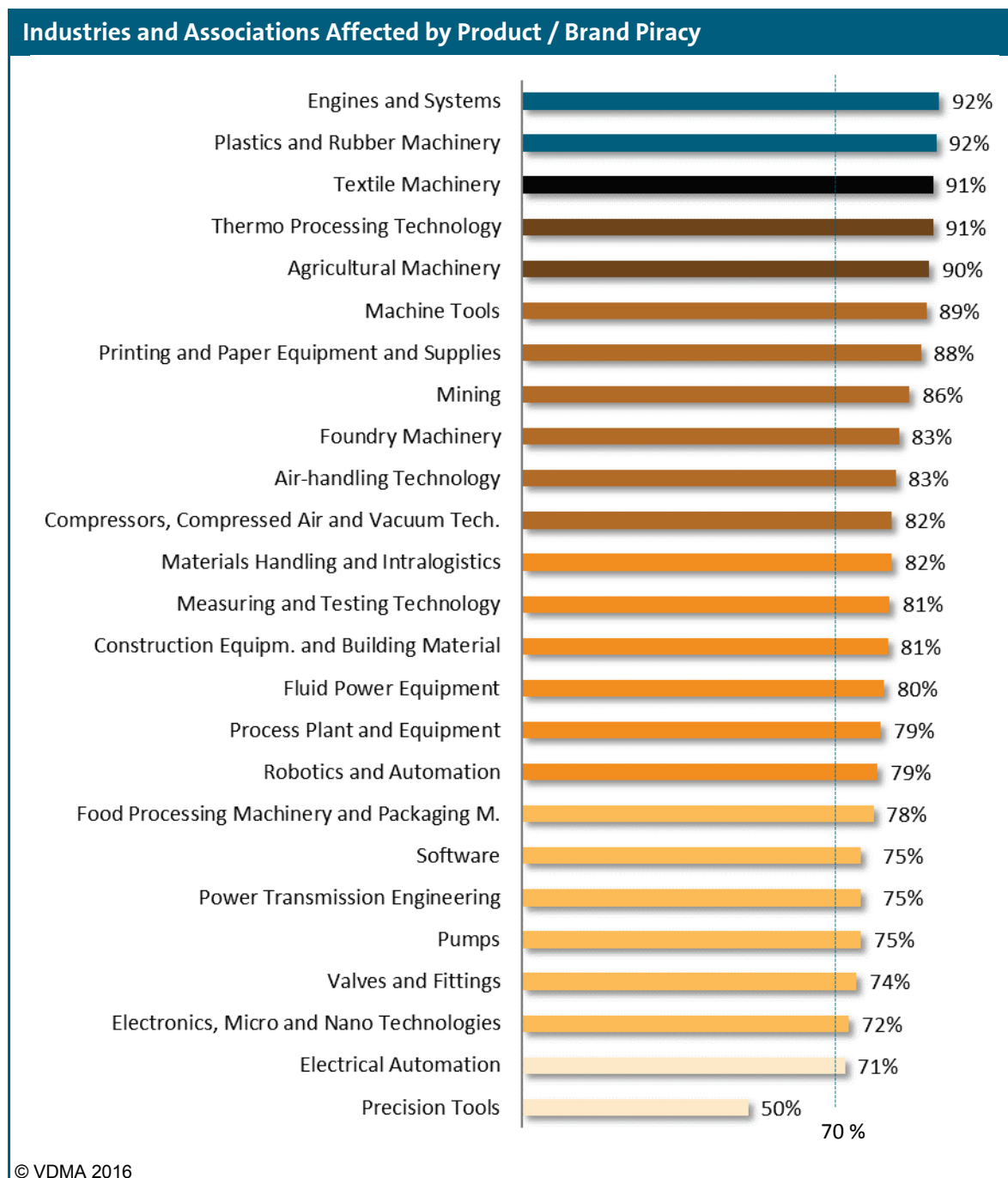
N=135 (Multiple answers allowed)

For the safe and reliable operation of machines and industrial systems, care should be taken to avoid all counterfeit and fake components. Financial considerations are less relevant here, as the primary concern is the health and safety of the people working with these systems.

Other risks reported by the victims of counterfeiters include the threat of machine certifications being withdrawn, the quality of the end product suffering, or illegal substances entering the production process (e.g. lead used in counterfeit feed systems in food processing machines).

## 6 Affected Industries and Associations

With 92 percent of companies falling prey to product pirates, the members of the “Engines and Systems” and “Plastics and Rubber” associations are exceptionally frequent victims of counterfeiters. Other heavily affected industries include the manufacturers of textile processing and agricultural machines. The following statistic only includes sectors of industry with at least 10 companies represented in the sample. As a result of this, the manufacturers of wood processing machines – the industry most affected in 2014 – are not included anymore, as the sector provided only 5 respondents.

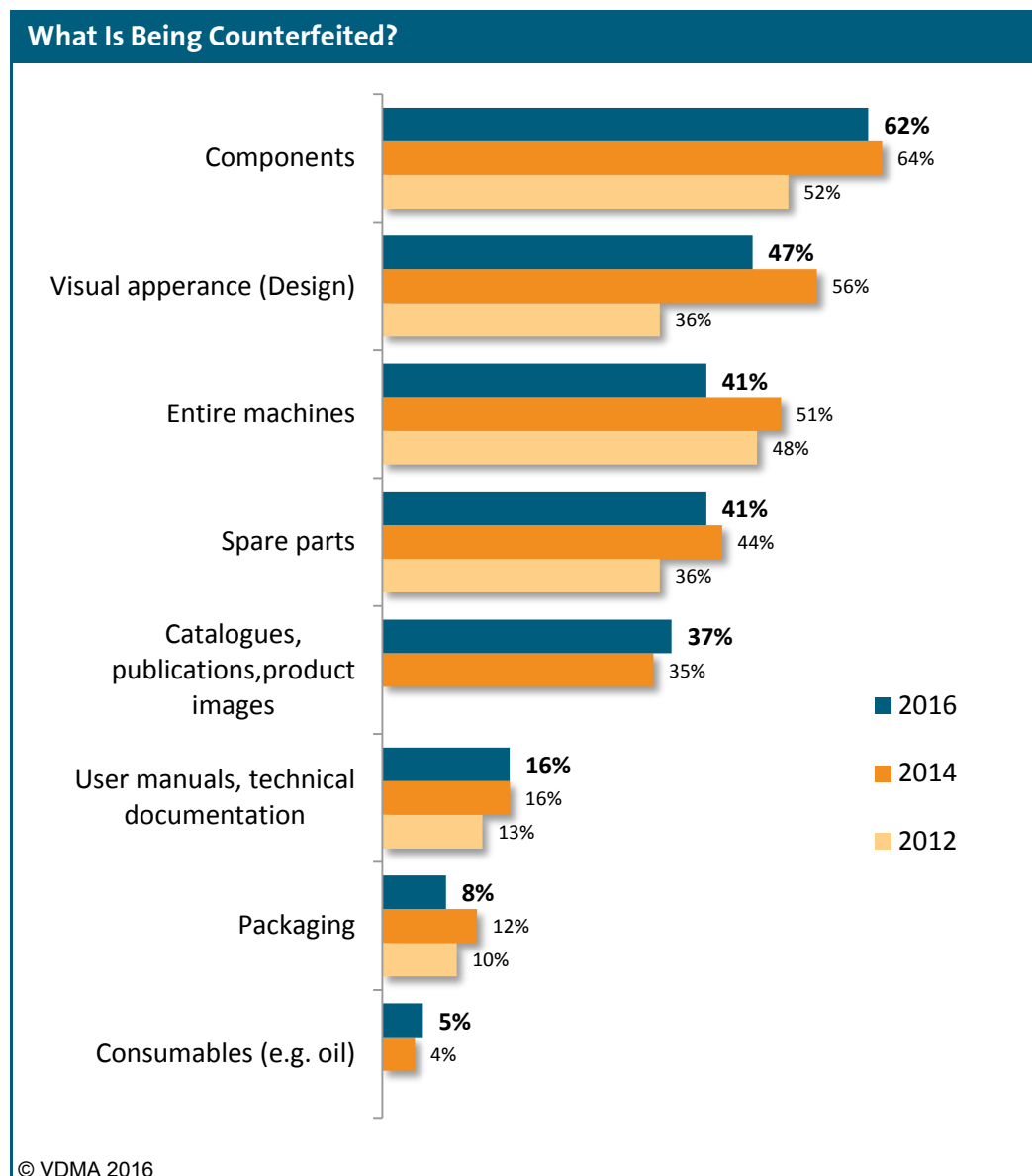


Industries and associations affected by product piracy (in percent), nine participants or more  
N=193 (Multiple answers allowed)



## 7 Types of Counterfeits

There is no such thing as a typical counterfeit, as the threat has many forms and faces. As in 2014, the illicit copying of individual components is the most common form, with 62 percent of mentions. Counterfeit designs that imitate a product's look and feel (in color, shape etc.) hold the second spot, with 50 percent of the companies reporting them. The copying of entire machines has seen a major downturn and now holds a shared third place with copied spare parts.



Types of counterfeits

N=135 (Multiple answers allowed)

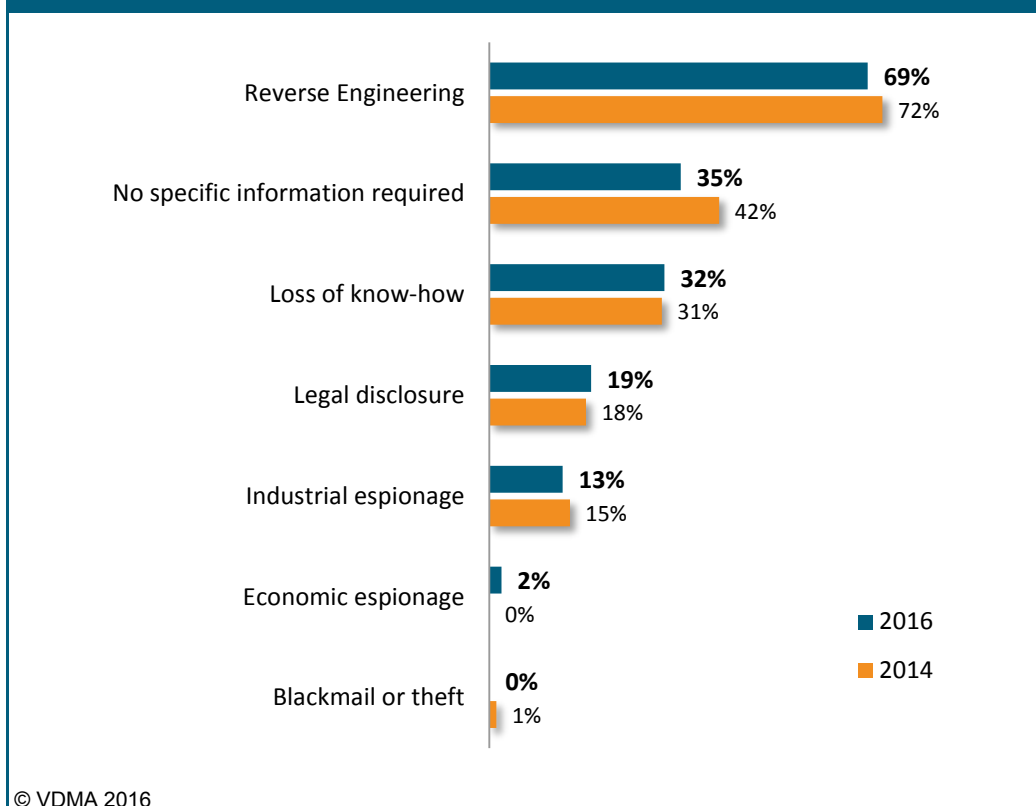
## 8 Counterfeiters' Sources of Information

Where do product pirates get the expertise and know-how they need to be able to copy products in the way they do? Every company that has become a victim of counterfeiters asks itself this question. The most common answer is that the know-how built into their products is retrieved by reverse engineering.

Reverse engineering means the disassembly and analysis of finished products and systems available in the market as a way of learning more about their functions, workings, and component parts. The simple act itself is not illegal. Without reverse engineering, European history would have gone without porcelain, compass, and paper. The situation is much different, however, when technical protections are deliberately broken or circumvented. In almost 70 percent of cases, this form of extracting know-how is the main source of information for counterfeiters.

About a third of companies believe that no special information was needed to copy the products in question. This refers primarily to brand forgeries or copied designs (color, shape etc.) or the simple copying of product images. Ranked third with 32 percent of responses, companies report the loss of know-how e.g. by former employees going to competitors or working freelance, or clients and suppliers sharing information with competitors.

**Where Do Counterfeiters Gain their Know-How?**



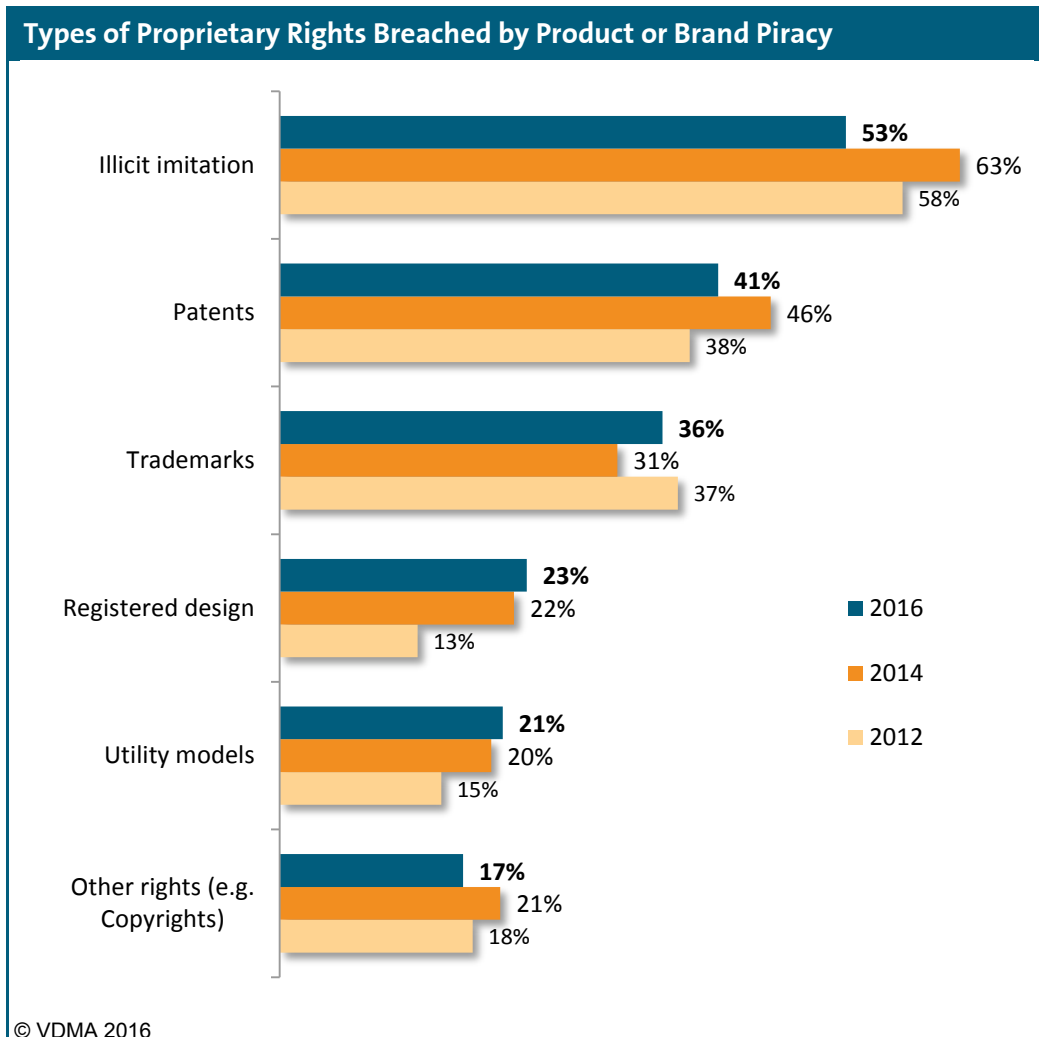
Sources of Information

N=132 (Multiple answers allowed)

## 9 Breaching Proprietary Rights

Looking exclusively at breached industrial property rights, 41 percent of the participating companies report infringements of patents.

Breaches of protected brands have become more frequent again since 2014 and now account for 31 percent of cases. The copying of industrial designs and utility models has not changed in prevalence (23 percent and 21 percent).

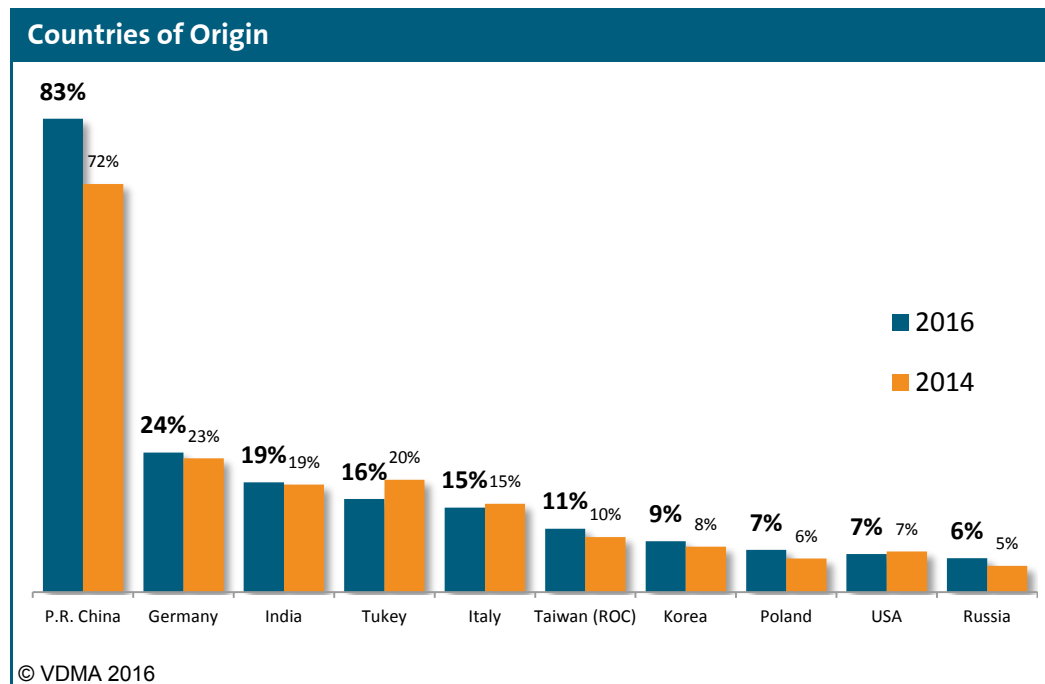


Breached proprietary rights

N=135 (Multiple answers allowed)

## 10 Origin and Distribution

The People's Republic of China maintains an unchallenged top spot among the countries of origin of product or brand counterfeits. The situation has deteriorated considerably, as over 80 percent of companies report Chinese counterfeiters, which represents a singular peak since 2003. The number of counterfeiters from Turkey has fallen, bringing the country back to a fourth place among the countries of origin, and overtaken by India. Germany still maintains the second place with no change in the incidence of counterfeiters.

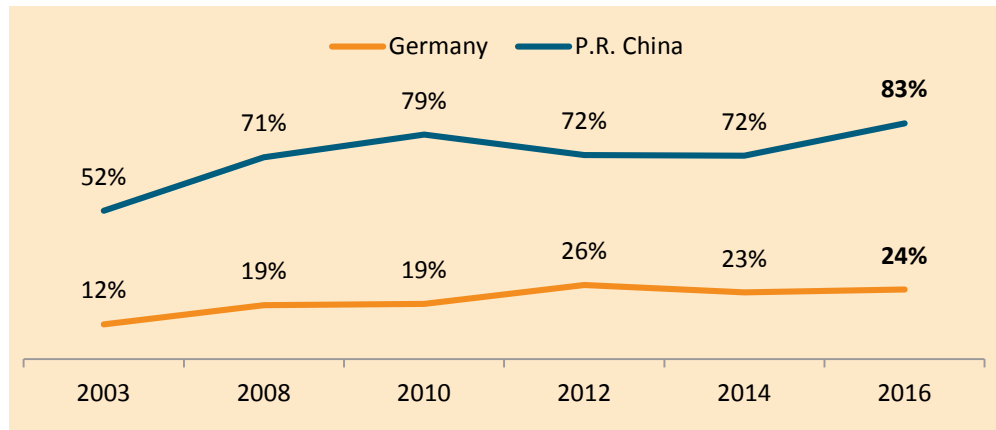


Countries of origin, TOP 10 mentions

N=135 (Multiple answers allowed)

A direct comparison of Germany and China shows that companies have reported significant activities of German and Chinese counterfeiters since 2008. In statistical terms, the number of companies naming either China or Germany (or both) as the country of origin of counterfeits stands at 91 percent. A full 9 out of every 10 companies become victims of product pirates either near to home (Germany) or half-way around the world (China).

### Countries of Origin: Germany vs. China



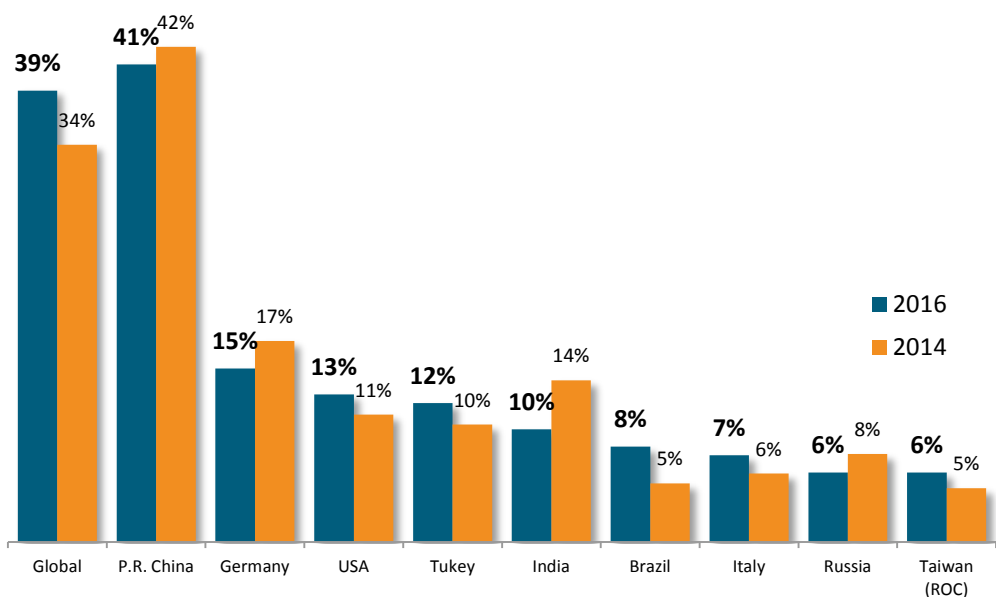
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Comparing Germany and China

N=135 (for 2014, Multiple answers allowed)

China remains the single biggest market place for counterfeit goods with 41 percent of mentions. The global trade in fake products, especially via the internet, has been reported by approx. 40 percent of companies. In third place, Germany maintains a relatively stable 15 percent of mentions, followed by the United States, Turkey, and India.

### Sale of Counterfeits



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Target destinations, TOP 10 mentions

N=135 (Multiple answers allowed)

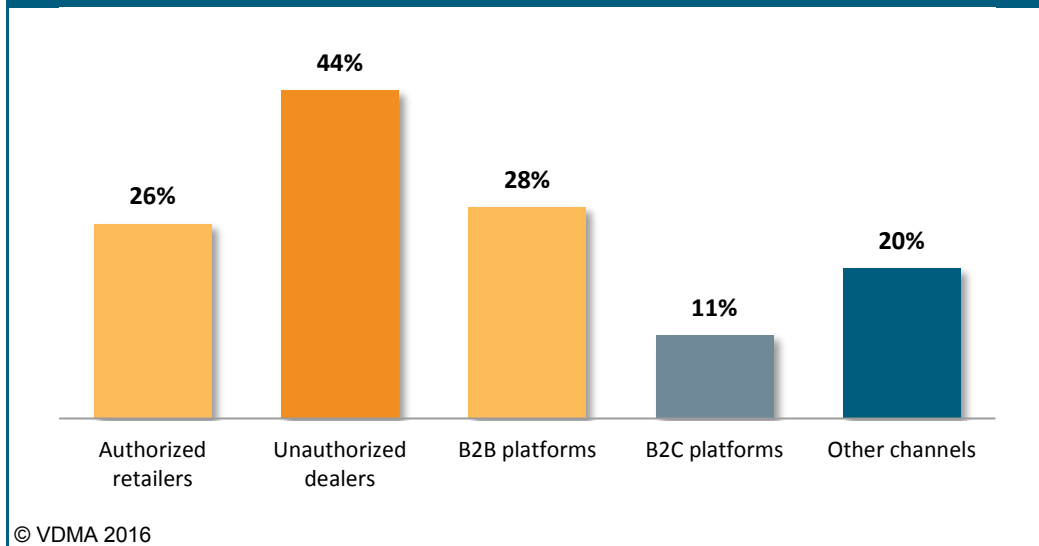
In addition to understanding the target markets of counterfeits, we were interested in the sales channels used.

In 44 percent of cases, companies found illicit copies of their goods at unauthorized dealers. B2B platforms like Alibaba, ec21, or ezplaza also play a major role in the global trade in fake products.

Around one quarter of all companies have negative experience with authorized retailers, who knowingly or unwittingly sell counterfeits. In addition to the original machines or components, B2C platforms like eBay, Amazon, allegro.pl, or taobao are named least frequently.

Particular mention should be made of the fact that many companies have reported counterfeits in direct sales by dishonest competitors, often in combination with fake web sites, spam messages, and trade fair activities.

#### Sales Channels of Counterfeit Goods

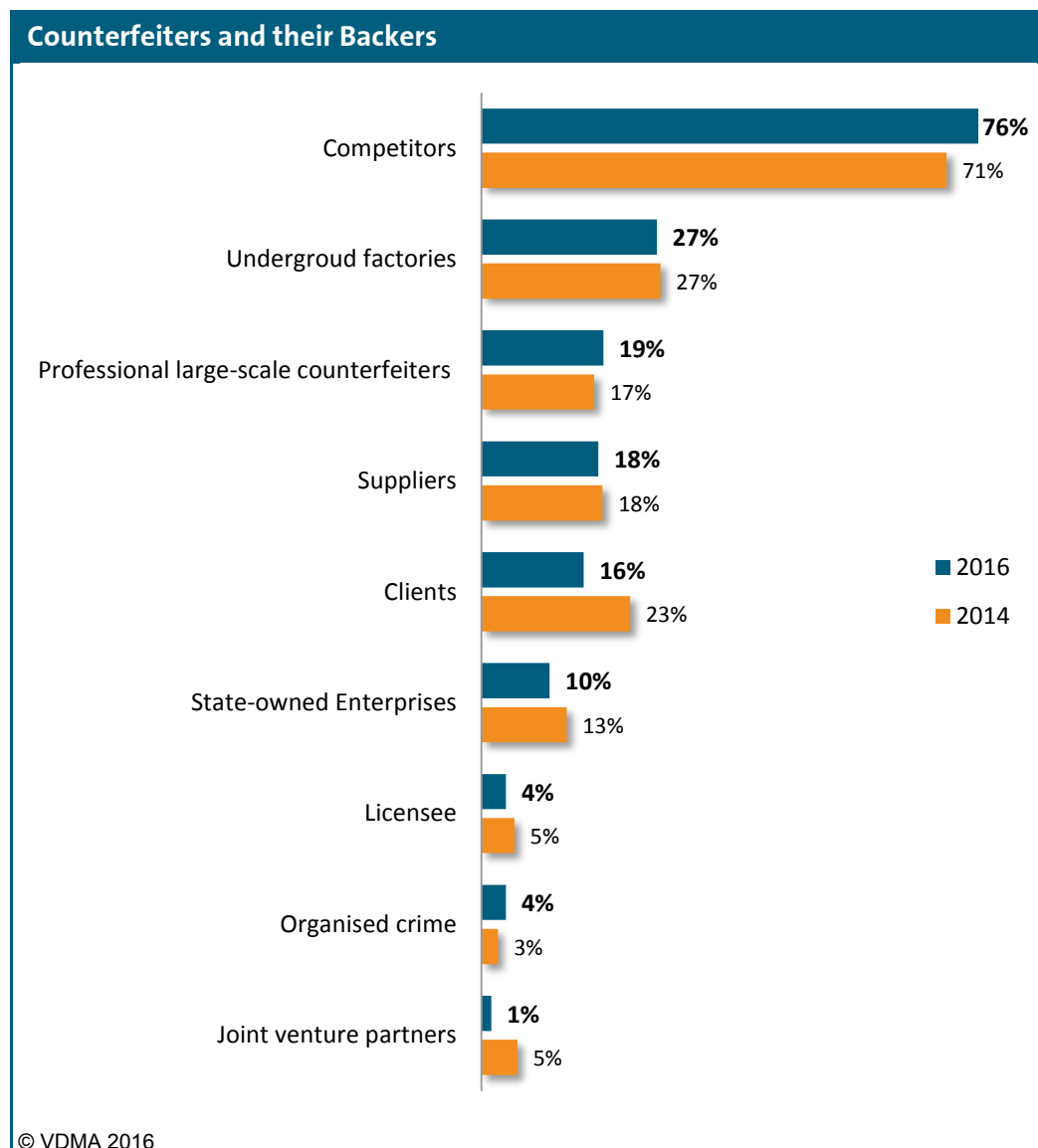


Sales channels of counterfeit goods

N=135 (Multiple answers allowed)

## 11 Counterfeiters and their Backers

The most common counterfeiters are direct competitors, and the situation is worsening: More than three quarters of companies name competitors as the guilty parties behind the attacks. To a far lower extent, underground (backyard) factories are also named (27 percent). It is positive news that trusted business partners, especially clients, are being named less and less in this respect. It should also be noted that oft-blamed organized criminals or state actors are far more unlikely suspects than press reports would suggest. One public exception to this rule is the case of Segway .



Counterfeiters (and their backers)

N=135 (Multiple answers allowed)

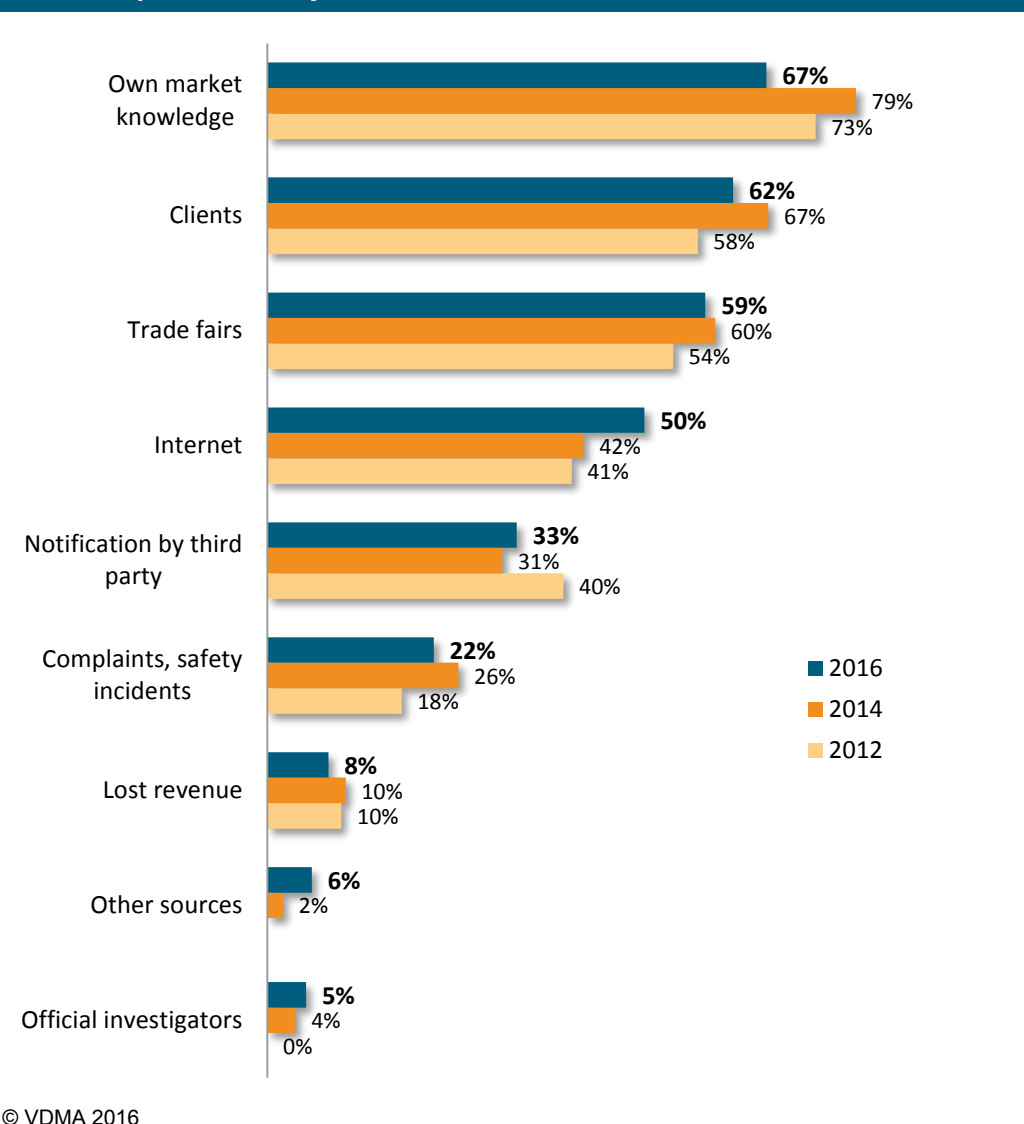
## 12 Discovery of Counterfeits

Nothing has changed in essence about how counterfeits are identified since the last survey. Around one third of the surveyed companies discover counterfeits as a result of their own market activities. 62 percent are notified by clients about copied products; trade fairs and, increasingly, chance discoveries via the internet are also included in the list.

Only 22 percent of companies have to fight illicit claims (e.g. warranty, product liability) caused by counterfeits.

We also asked about the discovery of counterfeits by official investigations. At an exceedingly low rate of 5 percent, this avenue still remains clearly underused. This poor use of official channels seems to correlate with the similarly limited take-up of “ZGR-Online” (see the following question on prevention).

### How Companies Identify Counterfeits



How companies identify counterfeits

N=135 (Multiple answers allowed)

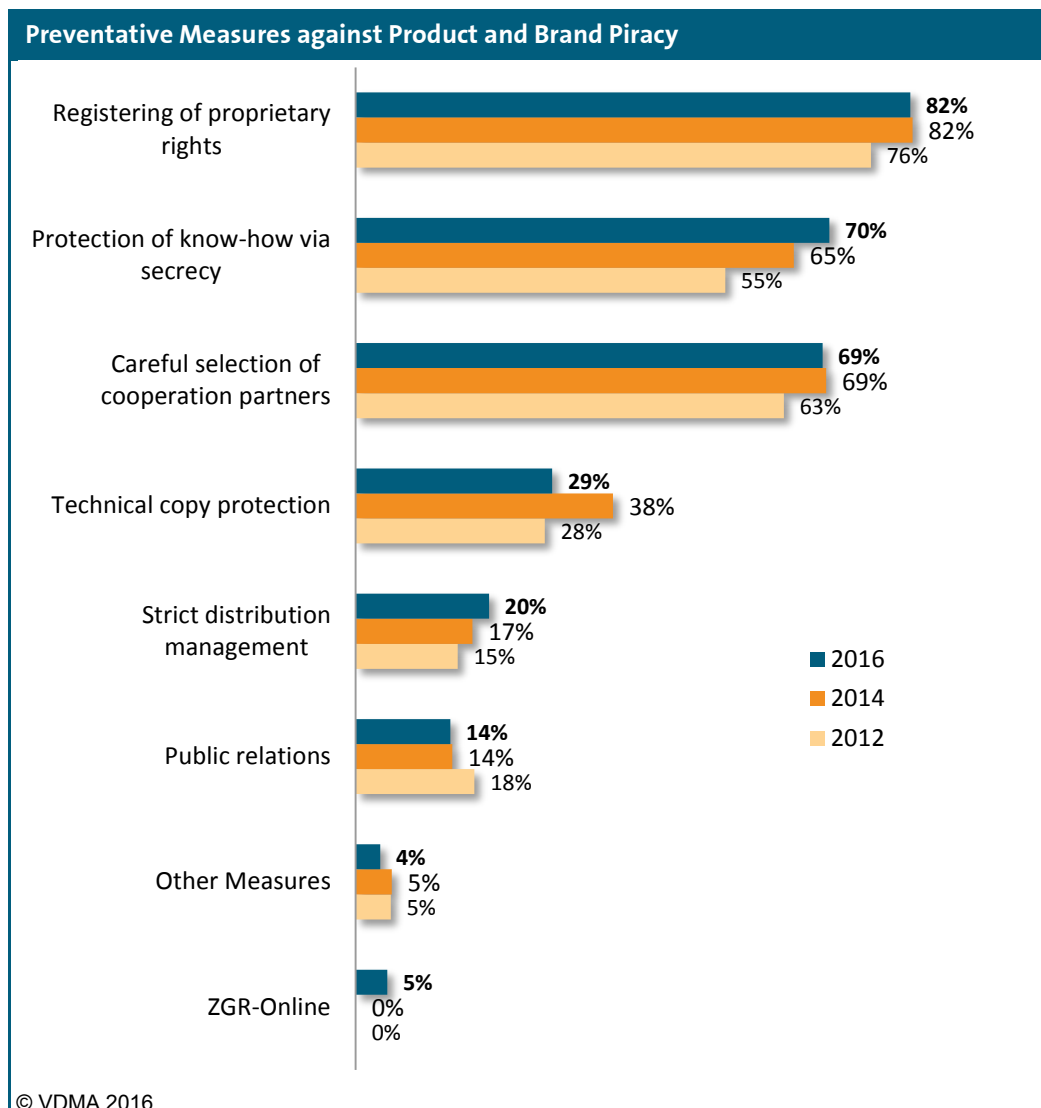


## 13 Preventative Measures

Almost every single company – whether already a victim of product piracy or not – is taking preventative measures to fight against the threat of counterfeiters. More than 80 percent of companies are relying primarily on registering their proprietary rights, such as patents or registered trademarks and brands. There can be no doubt: Without known and certain rights, there is no viable defense against product pirates.

The importance of know-how protection has for years been becoming ever more evident, and it has now risen to the second rank among the preventative measures taken by companies. This would appear to be a direct effect of current digitalization trends, both in collaborative product development and in the simple sharing of data with third parties.

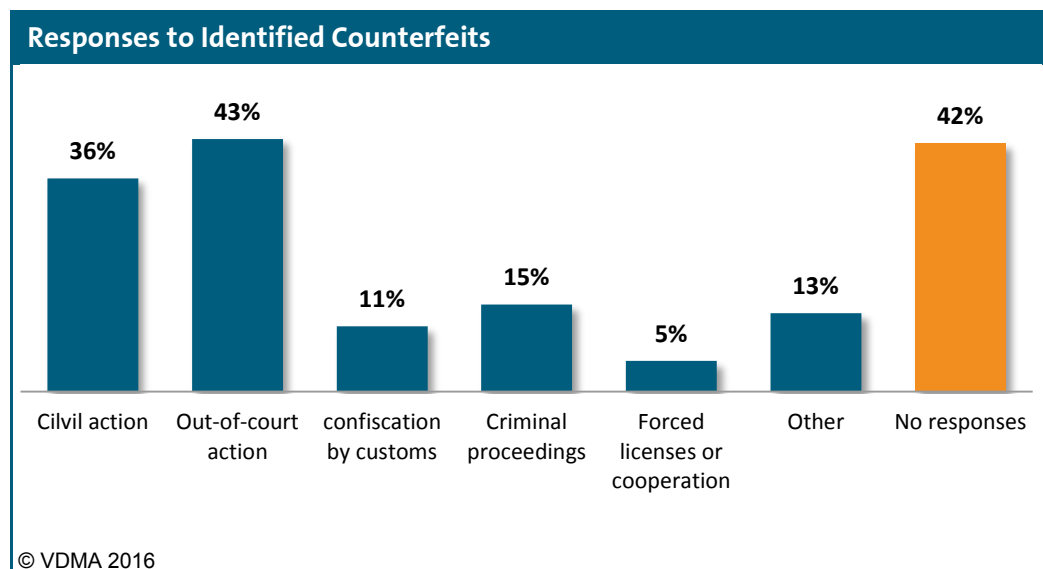
Another important pillar of defense strategies is represented by the careful selection of cooperation partners (69 percent). Used by only 5% of companies, ZGR-Online (a database published by the Central Office for the Protection of Industrial Rights) is still under-utilized. For better protection against EU imports of fake products, the affected companies are advised to check the opportunities presented on ZGR-Online (or COPIS on EU-level).



## 14 Responses to Identified Counterfeits

When OEMs identify counterfeits in the market, 36 percent of the participating companies choose legal action. The most common response, however, is out-of-court action. The confiscation of the goods, criminal action, or forced licensing are less frequent responses.

No actions are cited by 42 percent of companies, although the measures in question refer to individual incidents, not entire companies. Fighting counterfeiters will not be worthwhile in every individual instance.



Responses to Identified Counterfeits

N=135 (Multiple answers allowed)

The number of “other” responses shows that the participants employ a wide range of different tactics in their fight against counterfeits. Specifically, members of the VDMA have chosen the following responses in the last two years:

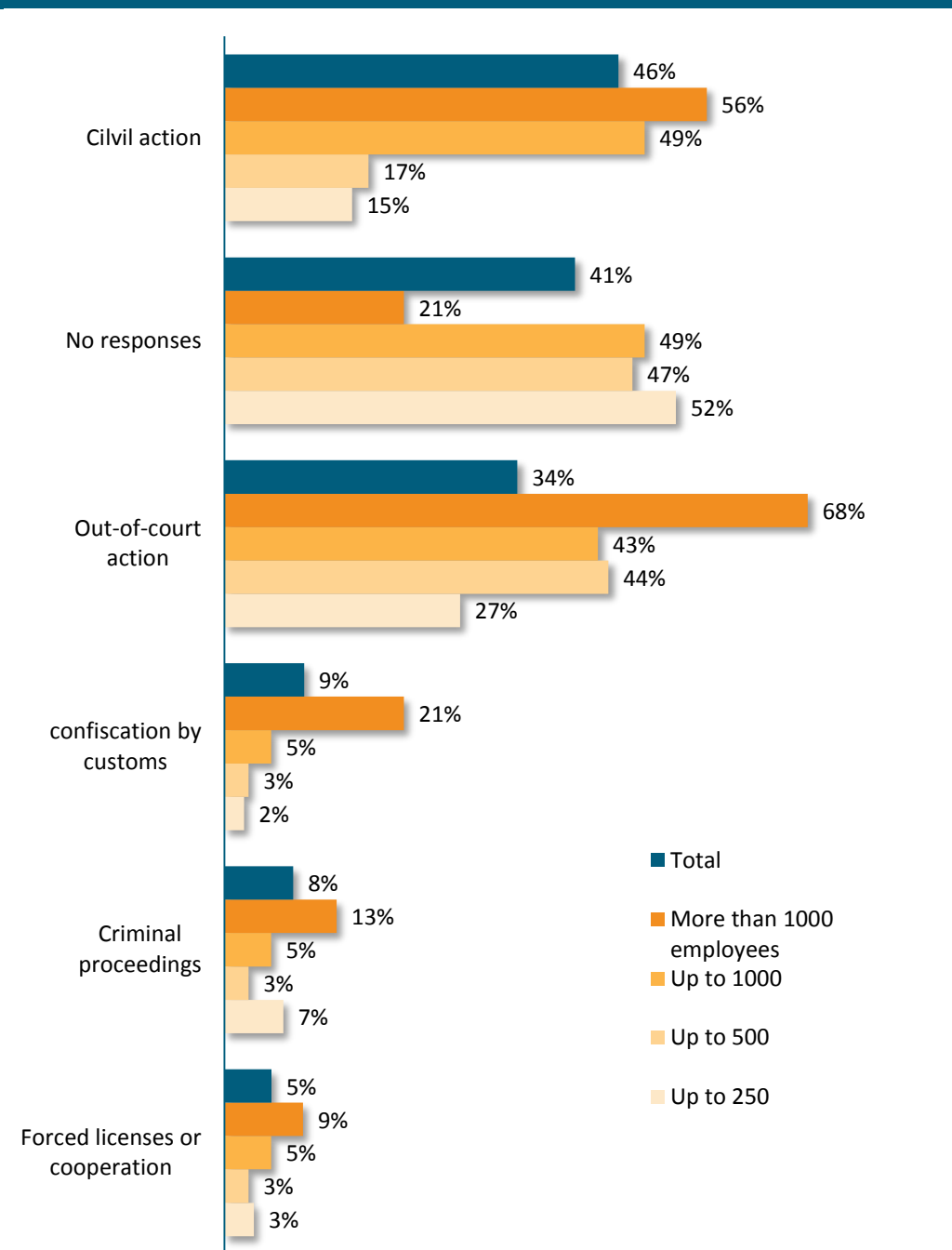
- Improving / Redesigning parts and components
- Calling on the VDMA to act as mediator
- Introducing know-how experts
- Amending contracts with suppliers and service providers
- Educating and creating awareness among clients (covering safety risks)
- Maintaining a technological lead over would-be counterfeiters
- Using Aliprotect (anti-counterfeiting campaign by Alibaba)
- Strengthening monitoring practices

Small and medium-sized enterprises are particularly prone to remaining inactive after counterfeits have come to light. Experience shows that out-of-court action, such as communication via solicitors or legal representatives, personal confrontations, and customer education measures can have a major effect.

Product pirates prefer to stay in the shadows; when they are pulled into the spotlight, smaller counterfeiting outfits in particular are likely to give in. If this first response does not suffice, legal action is a viable choice, as long as the legal rights are known and unambiguous.

Confiscating counterfeits at customs is only a meaningful option for major enterprises employing more than 1000 people.

#### Responses to Identified Counterfeits



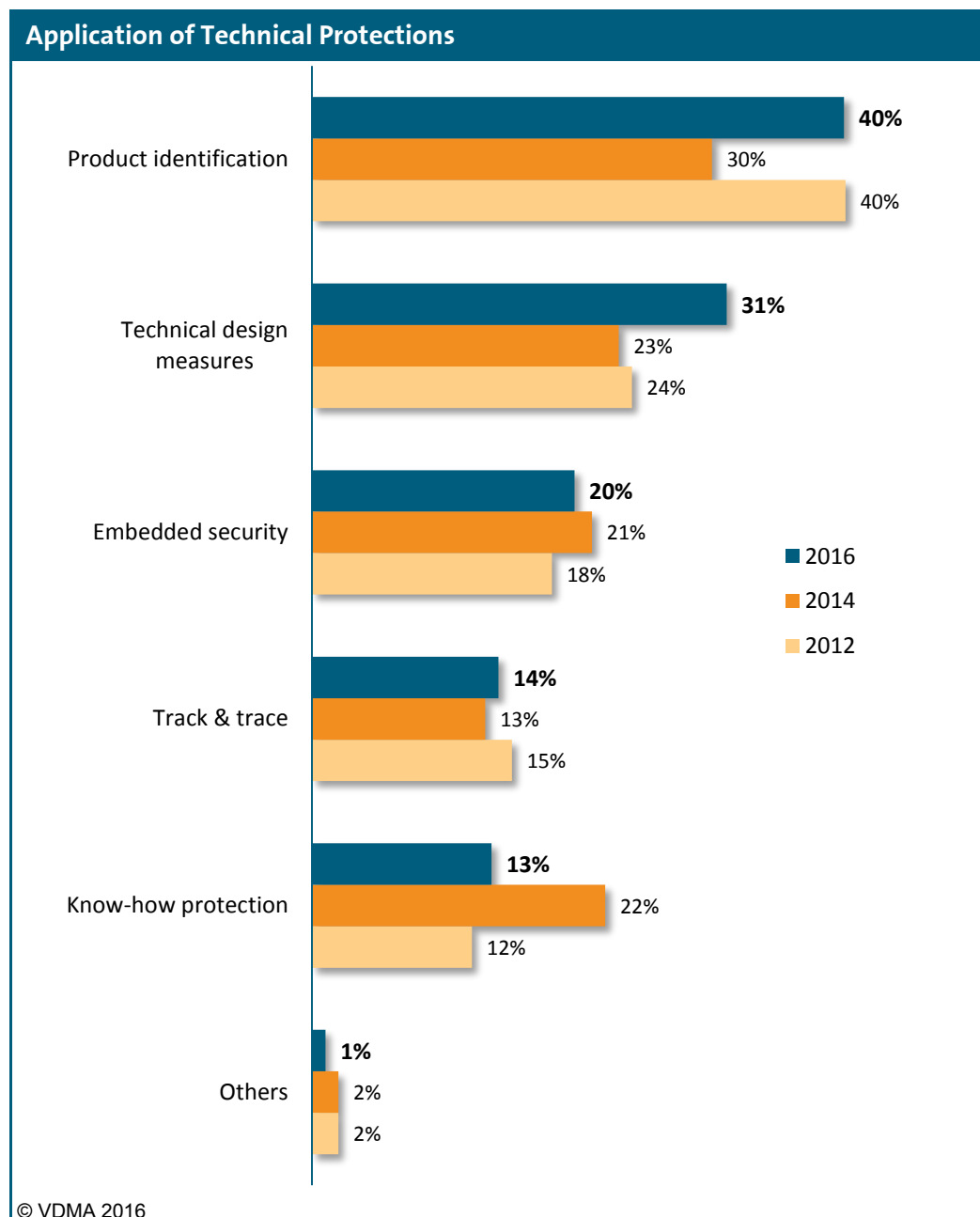
© VDMA 2016

Responses to Identified Counterfeits

N=135 (Multiple answers allowed)

## 15 Technical Copy Protections

Product markers (with holograms, chemical markers, or RFID) remain the most widespread of the technical protection measures, being used by 40 percent of companies in 2016. This is followed by design measures (e.g. deliberate use of non-standard components). Compared to the increasing attention paid to preventative know-how protection measures, technical measures are being used less frequently, while other technical options, such as the use of embedded security or track & trace systems has remained constant. The rise of Industrie 4.0 would suggest a greater use of such technologies in the future.



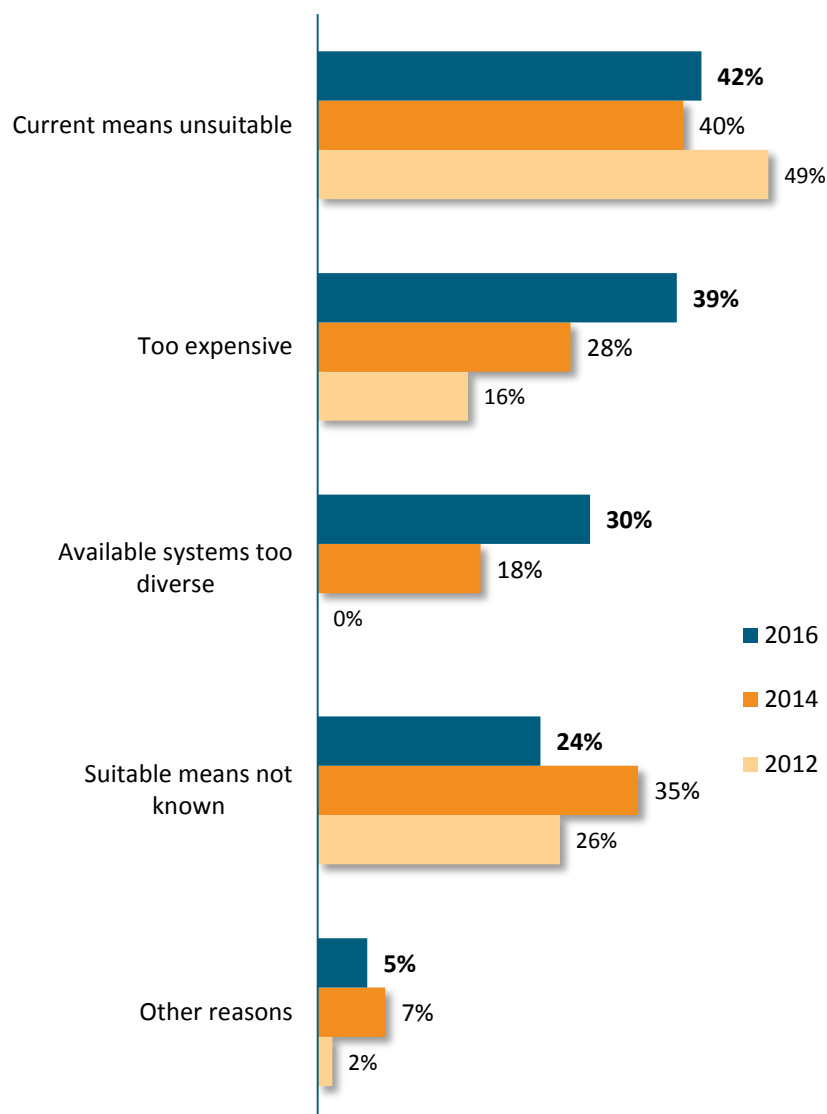
Technical Protections in Detail

N=193 (Multiple answers allowed)

Asked about their reasons for not using technical measures, 42 percent of the companies that forego such protections state that the protections currently available in the market are not fit for purpose.

However, a full 39 percent of the sample companies admit that cost remains prohibitive when technical protections are concerned: The damage might not outweigh the price of protection, and protections against product piracy alone offer no viable added value, as they do not contribute to other parts of the business. Other non-users complain about the unmanageable diversity of systems available in the market.

### Reasons for Not Using Technical Protections



© VDMA 2016

Reasons against technical protections named by companies not using any technical protection measures (Multiple answers allowed) N=74 (for 2016)

## 16 Sense and Purpose of an Identity Database

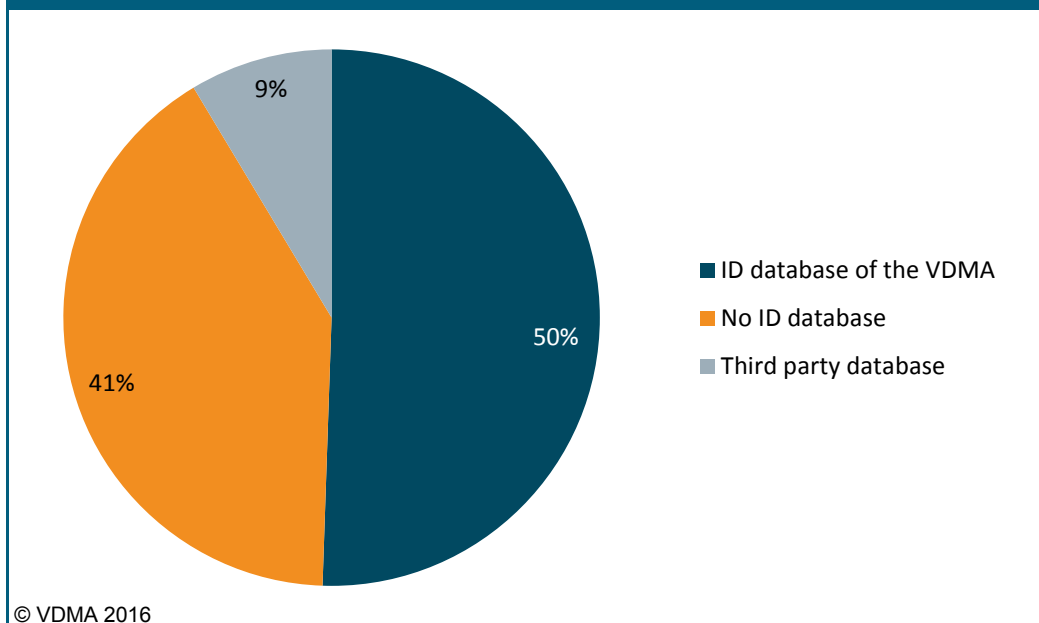
As part of the VDMA's campaign against product piracy and in the general context of Industrie 4.0, "secure identities" are considered a necessity for the trusted and reliable sharing of information. These secure identities are meant to allow the secure and trustworthy authentication of individual components, machines, or entire systems.

Unique and secure identities are essential in the following cases:

- Checking and conforming the systemic integrity of components or machines
- Managing processes, access, and access rights by time, place, or domain
- Authenticating components or spare parts
- Conducting remote or predictive maintenance
- Ensuring quality in production processes (e.g. process interlocks)
- Inventorying products
- Fulfilling compliance and documentation requirements
- Providing proof of origin

59 percent of all surveyed companies see a need for an identity database, compared to 41 percent who would not see such a necessity. The proponents of the database generally support a proprietary VDMA database, as only 9 percent of companies would trust third-party solutions.

### Support for Identity Databases

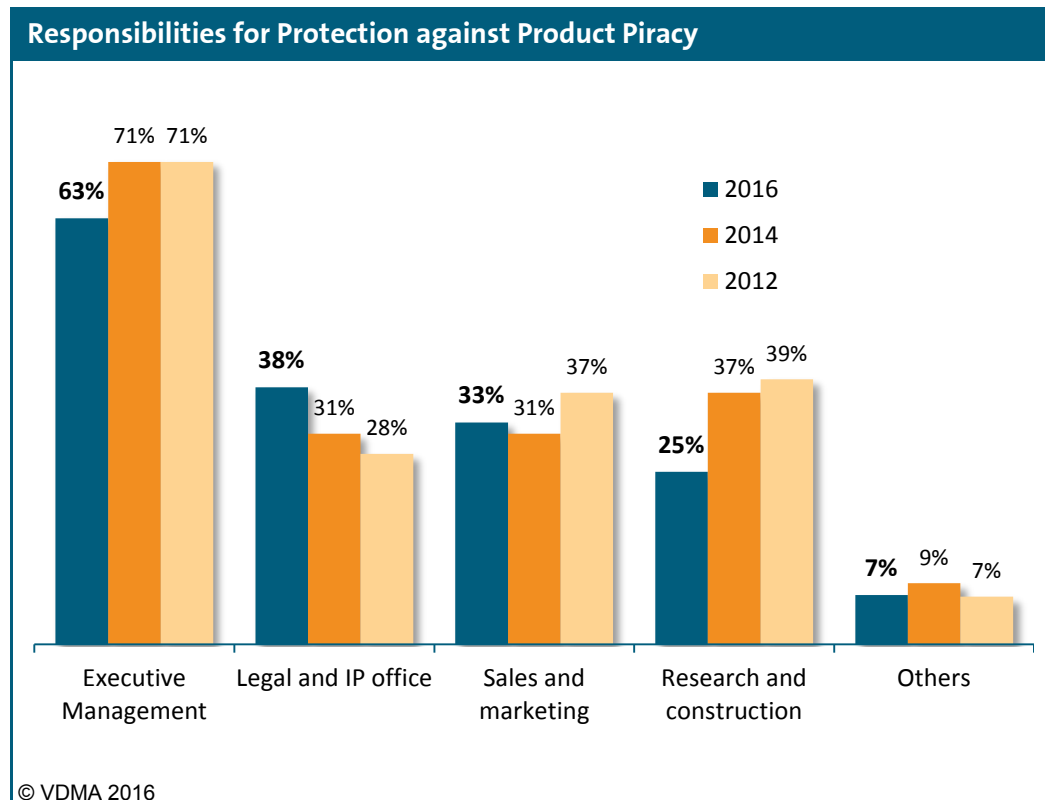


Support for identity databases

N=93 (+ 95 "no comment" responses)

## 17 Responsibilities in Organizations

Protecting innovations is and remains an “executive task”: 63 percent of the surveyed companies place their strategies against product piracy at the top executive level. The research and development function has again lost ground and is now ranked in the fourth spot behind sales and marketing (25 percent). In line with current trends, 38 percent of companies delegate the issue to their legal / IP offices.



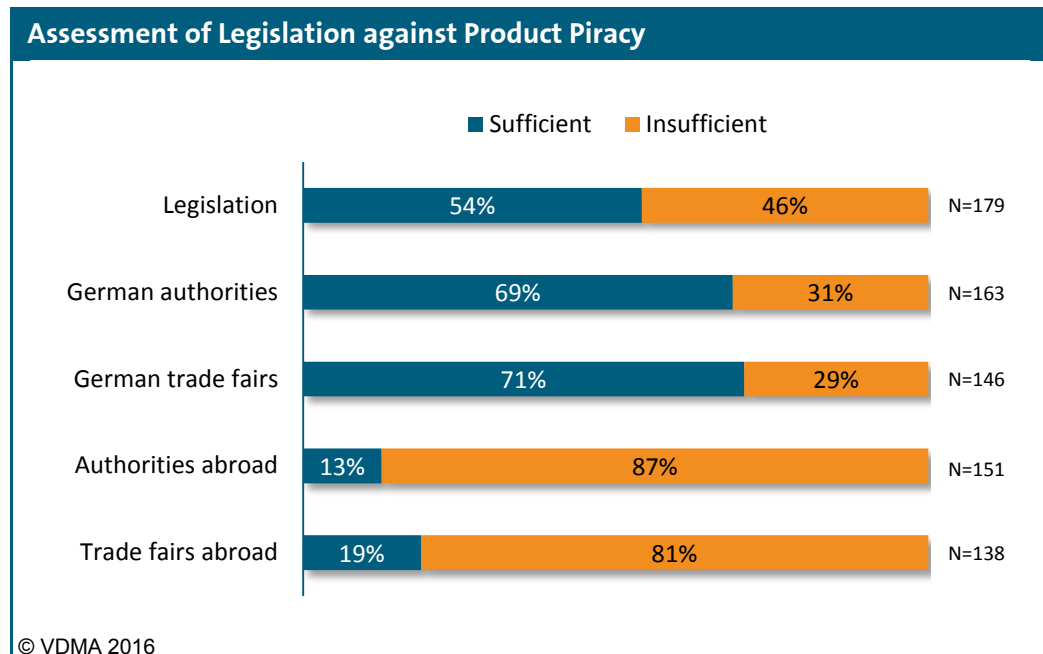
Responsibilities in organizations

N=193 (Multiple answers allowed)

## 18 Politics and Expositions

As part of the study, the members of the VDMA were again asked about their opinions of current legislation and the support offered by official bodies and trade fair organizers.

Opinions differ when current legislation is concerned: Around half of all companies are satisfied with the given terms and conditions, while the other half would expect more legislative efforts. Considering the data in detail, it becomes obvious that European legislation has proven its worth, while companies still expect much more support in the fight against piracy especially in the emerging economies (including China, India etc.).



Assessment of legislation against product piracy

The demand for legal change can immediately be seen in the vast number of comments on the issue. The following demands were voiced particularly frequently:

- Globally aligned patent rights (harmonization)
- Tougher action against pirates, especially against repeat offenders
- Possible prison sentences for counterfeiters found guilty of causing injury or environmental damage
- Blacklisting of companies and individuals and counterfeiting registers
- Withdrawal of licenses, import stops or full import bans
- Better enforcement of current legislation (especially in China and India)
- More frequent controls and tougher official action
- Faster and streamlined legal processes in unambiguous cases
- Stronger monitoring of exports by China and India



- Regulating and prohibiting “slavish imitations” in line with patent standards
- Intensive official support in the case of homegrown counterfeits made in Germany
- Review of bilateral agreements with known countries of origin
- Faster and simpler reviewing of evidence
- Stronger support by the EU Commission, especially for CE forgeries
- Reversal of the burden of proof in blatant cases or repeat offenses
- Bilateral agreements on the enforcement of proprietary rights
- Longer protection of industrial designs
- Education and information of consumers

The partners' efforts in the fight against product piracy, as evidenced by the comments of the victims of piracy, shows definite dissatisfaction with the enforcement of current laws. The companies primarily call for tougher sanctions and bilateral agreements on protected proprietary rights.

Official authorities, such as customs officials, should be able to take tougher action against counterfeits, including a ban on imports by the guilty party. All in all, only 50 percent of companies are satisfied with the work done by customs.

More than 80 percent of all companies consider the efforts against piracy by international trade fairs to be unsatisfactory. Many comments accuse expo companies of placing insufficient restrictions against known counterfeiters, motivated by a fear of losing business.

One of the world's leading trade fair organizers is “Messe Frankfurt GmbH”, hosting 86 expositions abroad in 2015 alone. The Messe Frankfurt was asked for comments on the accusations. Ms. Iris Jeglitza-Moshage, Member of the Executive Board of Messe Frankfurt GmbH, agreed to respond to our query:

*Messe Frankfurt has a vital interest in allowing exhibitors to showcase their innovations without fear of counterfeits. As the host of globally leading brand events and as a service and marketing partner of our clients, we are, however, bound to maintaining neutrality. Trade fair organizers can contribute to offering their clients a fair environment in terms of legal certainty and industrial property rights. That is considered a hallmark of quality of our events around the world and benefits all parties involved – our exhibitors, our visitors, and the organizers.*

*As the very first trade fair organizer, Messe Frankfurt initiated a vast information and service campaign in 2006, dedicated to setting a lasting signal for the protection of property rights – “Messe Frankfurt against Copying”. As part of this initiative, our clients have the opportunity to report alleged counterfeits. We help them help themselves: It is up to the holders of the property rights to enforce their rights. The timely registration of brands and products with the relevant authorities and the provision of meaningful proof at the event can help identify any potential infringements. This means that the documentation of existing rights at trade fairs is a precondition for the involvement of custom or police authorities. The Messe Frankfurt also offers emergency legal aid, with initial advice free of charge at the point of need.*

*We also inform our clients in relevant cases by mail or hotline throughout the year. For this purpose, we produce information materials and host a “Messe Frankfurt against Copying” booth at selected fairs. Working with partners including the German Patent Office, the Working Group of German Patent Information Systems, and the Enterprise Europe Network Hessen, this creates awareness for the*

*commercial importance of industrial property rights as well as providing concrete advice and guidance.*

*At this point in time, we have informed over 32,000 customers at our events about industrial property rights. We believe that the topic is represented to different degrees, but always visibly, at our events. We acknowledge that our clients expect us to actively speak out and provide support concerning this issue.*

## 19 VDMA Taking Action

The VDMA has long pursued a broad-ranging strategy and a barrage of measures against product and brand piracy.

In 2007, the joint initiative “Choose the Original – Choose Success” was launched with the support of many other European associations. The aim of the initiative was to create awareness among clients and to encourage them to choose original products. The member companies had the opportunity to advertise their products with positive statements about the originals’ qualities.

On the initiative of the VDMA, ten research projects on technical measures were conducted between 2008 and 2011 with the support of the Federal Ministry of Education and Research and a total research budget of almost €30 million. The results of these projects are in the public domain and can be accessed via [www.conimit.de](http://www.conimit.de).

The VDMA has created the dedicated Working Group on Product and Know-How Protection (AG Protect-ing) to support the development of innovative technologies and solutions in the fight against piracy.

### Legal Measures

For most companies, legal protections are the first line of defense against product piracy. We provide information about legal means of protecting innovations with our publications (e.g. “Strategies against Piracy in China”) and lectures as well as contract templates for our members. The VDMA is available for personal discussions of problematic cases and can help with registering proprietary rights and drafting relevant contract clauses.

Our legal first responders are present at selected trade fairs and exhibitions to act against counterfeiters on site. Our partnerships with attorneys and law firms in the most important international markets offer quick and competent advice where it is needed.

### Contact

**Daniel van Geerenstein, LL.M.**

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Email [Daniel.vanGeerenstein@vdma.org](mailto:Daniel.vanGeerenstein@vdma.org)

## Technical Measures

Legal means alone do not suffice to combat product piracy. Successful protection against counterfeiters can only be achieved by integrating construction, production, and IT-based means.

The VDMA Working Group on Product and Know-How Protection is a first port of call for affected businesses and an independent representative of the providers of anti-piracy and know-how protection technology and services. We focus on six product areas:

### 1. Product identification and product protection

Identification technologies are visible or invisible security features that allow the proof of originality and authenticity of products.

### 2. Detection and authentication of protected products

This refers to devices and systems to identify, read, and verify security features and proof originality.

### 3. Tracking and tracing systems for products

Systems to track and trace products through the distribution chain and the entire lifecycle with unique security features.

### 4. Embedded security in industrial products and systems

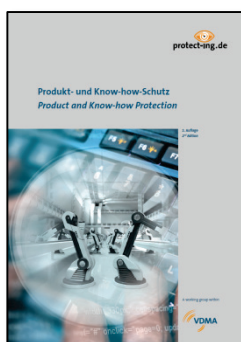
Protection of know-how that is hidden in control software, electronics or data inside of smart products.

### 5. Technical protections against unwanted transfer of know-how

IT-based technologies for protecting sensitive construction, production, or business know-how.

### 6. Engineering and advice on product and know-how protection

For the intended application, technologies and solutions should be independently checked for effectiveness in terms of usability, efficiency and protection level.



#### VDMA directory "Product and Know-how Protection"

VDMA 2016

Languages: German and English

Price: Free

Current information on product piracy, security, and know-how protection; an introduction to technologies, protection measures, and solutions by the Working Group (with suppliers matrix)

#### Contact

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[www.protect-ing.de](http://www.protect-ing.de)

## VDMA Publications on Product Piracy



### "Product and Know-How Protection" Guidelines

Published: VDMA 2013  
 Language: German or English  
 Price: Free PDF after registering

A manual for the effective use of protection measures, with realistic case studies.

<http://pks.vdma.org/article/-/articleview/1351236>

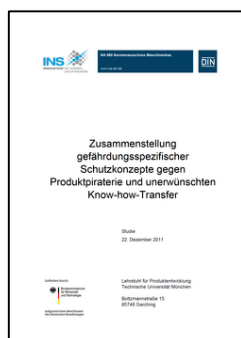


### INS-Studie "Status Quo des Know-how-Schutzes im Maschinen- und Anlagenbau"

Published: DIN/NAM/VDMA 2013  
 Language: German  
 Price: Free PDF

A statistical overview of the current know-how protection practices by VDMA member organizations.

<http://pks.vdma.org/article/-/articleview/1351004>

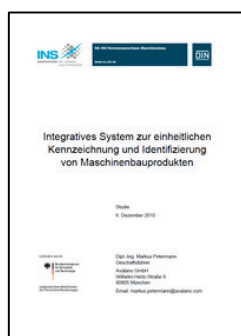


### INS Study "Schutzkonzepte gegen Produktpiraterie"

Published: DIN/NAM/VDMA 2012  
 Language: German  
 Price: Free PDF

A comparison and combination of published concepts for protection against product piracy; presentation of a draft standard.

<http://pks.vdma.org/article/-/articleview/582627>



### INS Study "Integratives System zur einheitlichen Kennzeichnung und Identifizierung von Maschinenbauprodukten "

Published: DIN/NAM/VDMA 2011  
 Language: German  
 Price: Free PDF

An overview of product marker solutions and their suitability for various forms of application.  
 Available on request via Biljana Gabric (biljana.gabric@vdma.org)

## 20 VDMA Publications on Security



### "Industrial Security – die unangreifbare Maschine"

Published: VDMA 2014  
Language: German  
Price: Free

Current contributions by VDMA members and official partners on industrial security, including remote maintenance, machine security, security by design, apps in mechanical engineering, and free tools.

Available on request via Biljana Gabric (biljana.gabric@vdma.org).

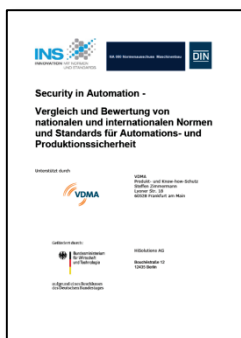


### "Fragenkatalog Industrial Security – Einfach anfangen."

Published: VDMA 2014  
Language: German  
Price: Free

An introduction to the selection and evaluation of security measures for production environments. 33 questions for a first evaluation.

<http://pks.vdma.org/article/-/articleview/6262936>



### INS-Study "Security in Automation"

Published: DIN/NAM/VDMA 2014  
Language: German  
Price: Free

A comparison of German and international norms and standards for automation and production security.

<http://pks.vdma.org/article/-/articleview/6264245>



### Study "Status Quo der Security in Produktion und Automation"

Published: VDMA 2013  
Language: German  
Price: Free

An assessment of industrial security by VDMA members, with practical recommendations.

<http://pks.vdma.org/article/-/articleview/2717338>

## 21 Imprint

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