

SYNTHESIS REPORT ON IPR INFRINGEMENT 2018



June 2018

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1. EXECUTIVE SUMMARY

This report brings together the findings of the research carried out since 2013 by the European Union Intellectual Property Office (EUIPO), through the European Observatory on the Infringement of Intellectual Property Rights (Observatory), on the extent, scope and economic consequences of Intellectual Property Right (IPR) infringement in the EU. Evidence on the economic value of IPRs in the EU economy, the extent to which this value is exploited, the infringement mechanisms used to realise that value and the actions being taken in response to these challenges are outlined and discussed.

In a study carried out in partnership with the European Patent Office (EPO), the EUIPO found that the total contribution of IPR-intensive industries to the EU economy accounts for approximately 42% of GDP (€5.7 trillion) and 28% of employment (plus another 10% in indirect employment effects in non-IPR intensive sectors). Those sectors also generate a trade surplus of approximately €96 billion with the rest of the world and pay their workers 46% higher salaries than other sectors.

Because of the high value associated with IPR, infringement of those rights is a lucrative criminal activity, which generates significant costs to the rights owners and to the economy in general.

According to a study carried out by EUIPO and the OECD in 2016, estimates of IPR infringement in international trade in 2013, could reach as much as 5% of EU imports, or €85 billion per year.

In a series of sectorial studies, the EUIPO has estimated lost sales in 13 sectors (directly in the industries being analysed and across their associated supply chain), as a result of counterfeiting. These losses totalled more than €100 billion per year.

Abundant value, lenient sentences and high returns on investment, define the incentives for criminal gangs to engage in counterfeiting activities. The modus operandi of such gangs is becoming increasingly complex as technology and distribution channels evolve, hand in hand with the breadth of products being counterfeited.

The business models adopted by counterfeiters make significant use of the internet to distribute their products and to promote the distribution and consumption of illegal digital content.

Internet sites selling counterfeit goods benefit from additional advertising revenues from both “high risk” ads (adult, gaming, and malware) and, paradoxically, from legitimate brands, which then suffer in two ways from advertising on such sites (damage to their own brand and provision of credibility to the hosting website).

In addition to analysing the supply of counterfeit goods and pirated content, the EUIPO has also studied the demand side, that is, the attitudes of EU citizens towards IPR and their willingness to engage in illicit consumption. The incentives for consumers to purchase counterfeit goods include lower prices, easy accessibility and a low degree of social stigma associated with such purchases.

In response to these developments the EUIPO, together with public and private partners, is undertaking and supporting a number of actions to meet these challenges. These actions range from providing rights owners with information on the changing infringement landscape, working with Europol on wider responses to IP crime, not least by funding a specialised IP crime unit within Europol, supporting the European Commission (DG Trade) efforts to address the supply of counterfeit goods in third countries, and by providing citizens with information on the availability of legal digital content offers and on the economic impact of purchasing counterfeit goods or accessing illegal content.

2. INTRODUCTION

One of the tasks of the Observatory is to produce evidence on the impact, role and public perception of intellectual property in the European Union (EU).

The EUIPO, acting through the Observatory, in conjunction with its stakeholders, designs and delivers an annual programme of research aimed at fulfilling this objective. The programme generates evidence on the economic and commercial use of Intellectual Property and the opportunities and threats posed to the value and integrity of these innovative assets.

As the value and the usage of Intellectual Property Rights continue to expand, the incentives for economic agents, other than the original innovators, to infringe these rights has increased hand-in hand. This report draws together EUIPO and partners' research findings to illustrate the increasing economic importance of Intellectual Property, its use by European companies, the economic costs of IPR infringement arising from both domestic and counterfeit trade, the methods and channels by which these rights are infringed, and the actions being taken in response to these infringements.

This synthesis of the evidence begins with an assessment of the importance of Intellectual Property Rights to the EU economy.

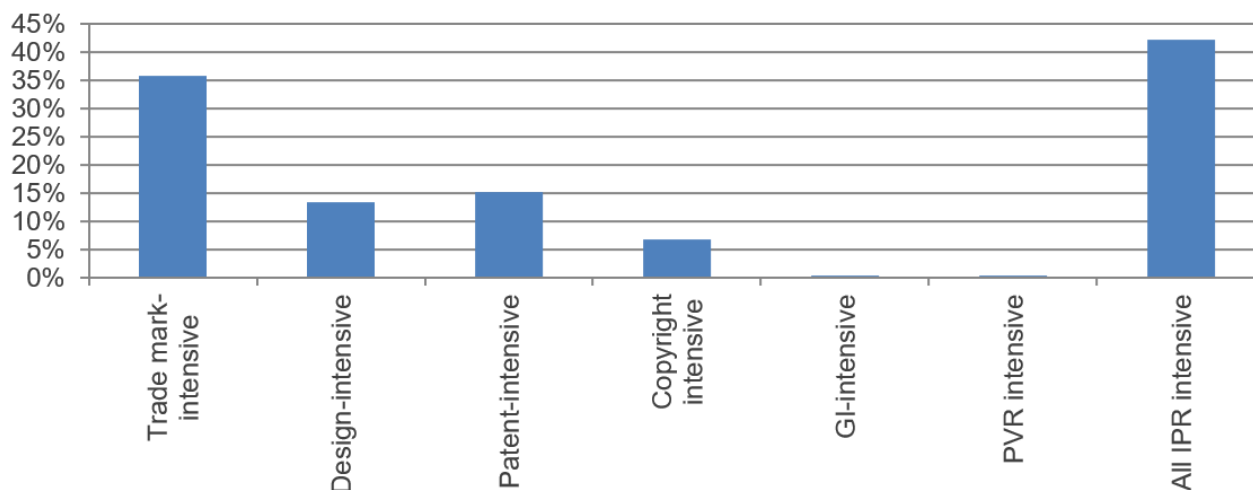
3. ECONOMIC CONTRIBUTION AND THE VALUE OF IPR

Innovation and innovative assets play a significant role in economic growth and their importance as business assets is increasing, not only to innovators, but to business partners, financiers and policy makers. Consequently, scoping and understanding their growing value and contribution to economic and employment growth is now, more than ever, a significant priority.

The economic value of European IPR-intensive industries has grown during the financial crisis. In 2013, EUIPO, in conjunction with the EPO, estimated that such industries, through 2008-2010, accounted for 39% of the EU’s economic output (€4.7 trillion) and 26% of employment.

Updated estimates in 2016¹ (covering 2011-2013), indicated that their contribution had grown to 42% of total European economic activity², corresponding to €5.7 trillion. Constituent employment and trade aggregates (Figures 2 and 3) illustrate other characteristics of the IPR-intensive industries, including a wage premium of 46% over other industries and their contribution to EU’s external trade. Protection of this innovative output is therefore paramount, not only to protect the rights of innovators, but to foster economic growth and employment in the EU.

Figure 1 – Contribution of IPR Intensive industries to EU GDP, 2011-2013 average



Source – EUIPO/EPO 2016 – Intellectual property rights intensive industries and economic performance in the European Union

¹ - European Patent Office and the European Union Intellectual Property Office, *Intellectual property rights intensive industries and economic performance in the European Union*, 2016, p. 6. Available at:

https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/IPContributionStudy/performance_in_the_European_Union/performance_in_the_European_Union_full.pdf.

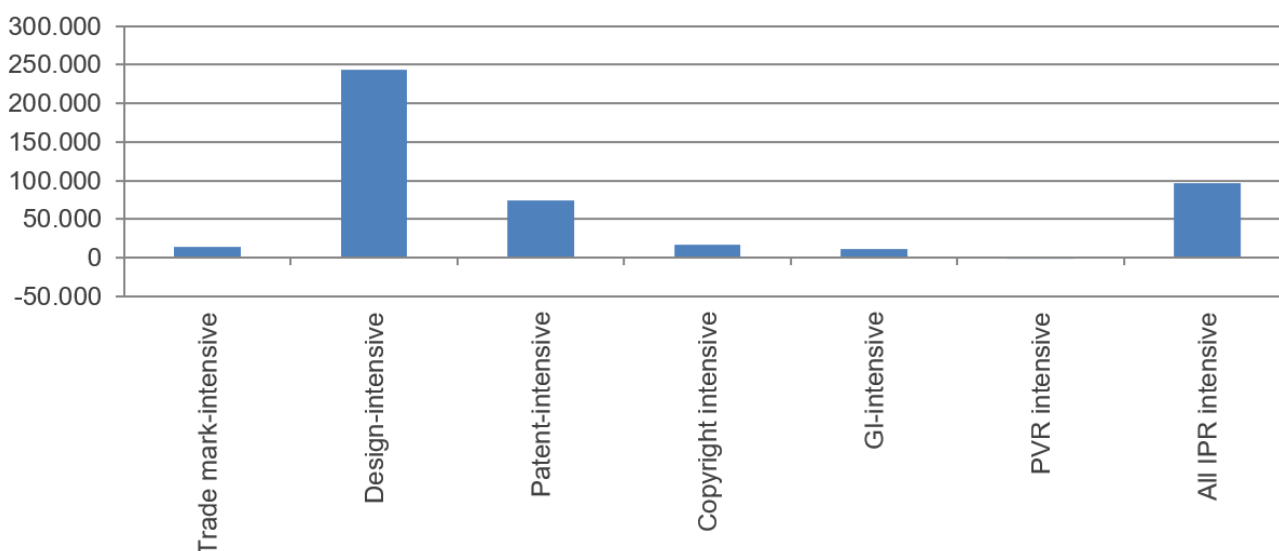
² - However, it should be noted that part of the increase is due to definitional changes at Eurostat.

Figure 1 illustrates the importance of IPRs by defining the proportion of EU GDP generated in IPR intensive industries for each of the six IPRs included in the study. Trademarks represent the highest share of total EU GDP, as all businesses that sell products and services need to identify their offerings and distinguish them from those of the competitors. Trademarks are thus an essential feature of a free market economy. In terms of contribution to GDP, trademarks are followed by patents, reflecting investment activity at the start of the innovation supply chain.

Above average employment shares are identified in Austria, Bulgaria, the Czech Republic, Denmark, Estonia, Germany, Hungary, Italy, Luxembourg, Slovakia, Slovenia and Sweden. And in terms of GDP, Bulgaria, the Czech Republic, Denmark, Finland, Croatia, Germany, Hungary, Ireland, Italy, Luxembourg, Romania, Slovenia, Slovakia and the UK have shares above the EU average. The presence on this list of many of the Member States that joined the EU in 2004 and later years reflects cross-border job creation in the single market, with companies locating manufacturing facilities so as to take advantage of the lower costs of production in these Member States. Such relocation, however, is only possible because the new Member States offer full protection of IP rights.

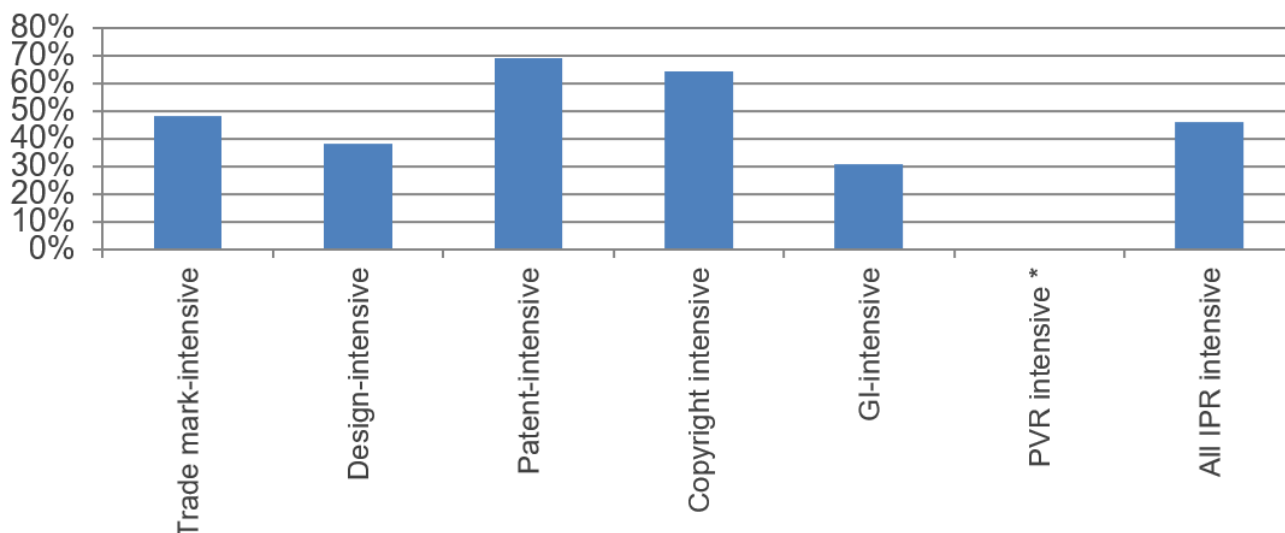
The trade picture not only emphasises the importance of IPRs in cross-border innovation, but supports the assertion that innovative companies are both more productive and efficient than their non-innovative counterparts. Unique products and services, by their very definition, have a primary competitive advantage in both domestic and export markets, although competing abroad implies that businesses are competitive, as prices and offerings must be able to absorb competitive hurdles such as institutional factors (legislation and tariffs) and those arising from the terms of trade (exchange rate). Accordingly, it is not surprising to find that sectors which make above-average use of IPR assets, exhibit a collective trade surplus with countries outside of the EU as illustrated in Figure 2. This surplus of €96 billion contributed to a lowering of the overall trade deficit for the EU of 0.3% of GDP. It represents a marked improvement in the trade position of the EU compared to the earlier study.

Figure 2 – EU external trade in IPR intensive industries, 2013 (€ million) – Net exports = Total exports – total imports



Source – EUIPO/EPO 2016 - Intellectual property rights intensive industries and economic performance in the European Union

Figure 3 – Average personnel costs in IPR intensive industries compared to non-IPR intensive industries, 2013



*Data for wages in agriculture are not available in sufficient detail to calculate the wage premium for PVR-intensive industries.
 Source – EUIPO/EPO 2016 - Intellectual property rights intensive industries and economic performance in the European Union.

With 42% of EU GDP (value added) and 28% of employment being generated by IPR intensive industries, the implication is that value added per employee in IPR intensive industries must be higher than in the rest of the economy. This, in turn, enables companies in those sectors to offer their workers higher remuneration than the non-IPR intensive sectors, as shown in Figure 3. Overall, remuneration in IPR-intensive industries was 46% higher than in other sectors³. This positive differential holds across all five IPRs for which the calculation was made.

To gain a greater understanding of the microeconomic dynamics underpinning these aggregates, EUIPO examined the relationship between IPR ownership and company performance, and published in June 2015⁴ the resulting report, “Intellectual property rights and firm performance in Europe.” By combining financial performance data from the Europe-wide financial database ORBIS with data from EUIPO’s and EPO’s registers, a comparison was made between companies owning IPRs and those without.⁵

The first notable characteristic of IPR-owning companies is their greater size (547 vs 94 employees on average, as shown in figure 4). This size differential between IPR-owners and non-owners means that

³ - This “wage premium” was 41% in the 2008-2010 period, indicating that the return on IPR-intensity has increased during the period under study.

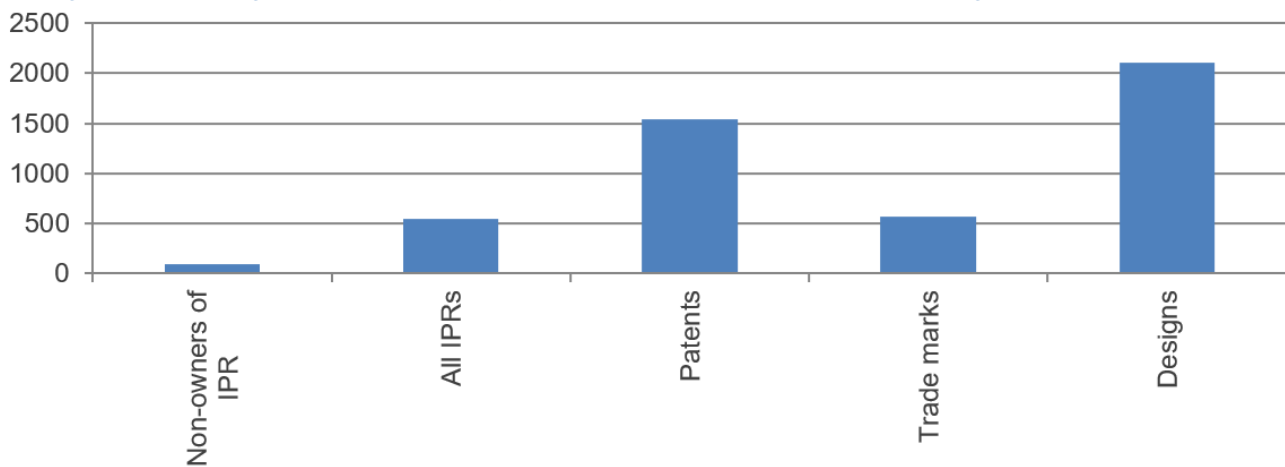
⁴ - Intellectual property rights and firm performance in Europe – June 2015 available at: - https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/IPContributionStudy/phase2/OHIM_study_report_en.pdf

⁵ - Company financial performance can be measured via a number of different indicators. To normalise the analysis, however, the principal indicator selected was “revenue per employee”. Using this measure, comparative analysis was conducted on issues relating to business performance, including the influence of increasing IPR stocks on indicators such as turnover, profitability and employment.

comparisons of financial performance must be corrected for size. Therefore, revenue per employee was used as the main economic performance indicator.

From figure 4, it appears there is an apparent relationship between business growth and the acquisition of IPRs. Of course, this requires further empirical testing, as there are a number of other factors which contribute to company growth, not least activities such as business and IP planning, strength of management, access to finance, quality of business advice and perception of Intellectual Property, to name but a few.⁶

Figure 4 – Average number of employees in companies with and without registered IPR

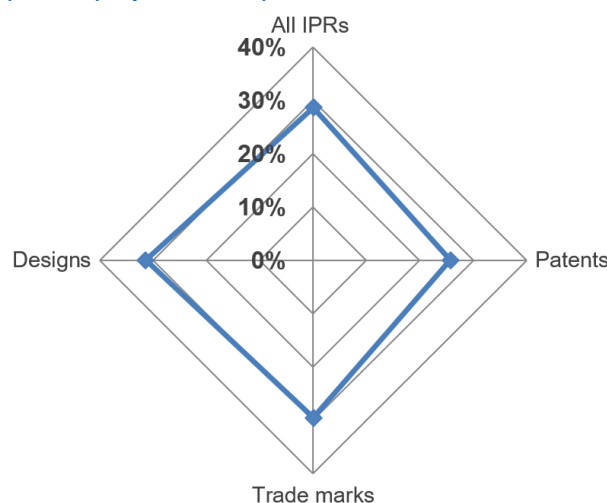


Source - -EUIPO *Intellectual property rights and firm performance in Europe – 2015*

The headline result from this study indicates that firms with IPRs generate on average 29% higher revenue per employee than firms without IPRs, as shown in Figure 5. Looking at the individual rights, patents exhibit a premium over non-IPR firms of 26%, trademarks 29% and designs 31%.

⁶ - The IPRs included in the study included patents, trade-marks and designs and combinations of these three rights (Copyright and Geographical Indications, due to their structure and associated measurement issues were excluded).

Figure 5 – Average revenue per employee – comparison between IPR owners and non-owners



Source – EUIPO, *Intellectual property rights and firm performance in Europe – 2015*

Furthermore, on average, IPR-owning companies pay 20% greater remuneration to their employees than those without IPRs. The distribution of the increased labour cost across rights is heavily weighted in favour of employees in patent-owning companies where the premium is approximately 41%. Thus, on average, a patent is the right which generates the highest rewards for the employees of the firm.

Further econometric analysis of the data revealed that a 10% increase in the stock of European trademarks or European patents led to an increase in revenue per employee of 2.8% and 1.8%, respectively; while a 10% increase in national trademarks, national patents or national designs gave rise to increases of 5.2%, 4.6% and 0.7%, respectively. These results indicate a positive relationship between increases in a company’s stock of IPRs and its financial performance.

Analysis of company size, business performance and IPRs revealed that this relationship was particularly pronounced for small and medium-sized enterprises (SMEs). These companies exhibited almost 32% higher revenue per employee than SMEs that do not own IPRs. This finding is of note, since IPR ownership amongst European SMEs is low (40% of large EU firms have registered rights, compared with 9% of SMEs), yet those that do own them exhibit a performance premium even higher than that shown by large companies with IPRs.

The finding that IPR-owning SMEs perform well and yet only a small minority of SMEs register IPRs led EUIPO to examine in more detail the use of IPRs by European SMEs: why do they register those rights (or refrain from doing so), what kind of problems do they face when trying to protect their rights, and what kind of impact did IPRs have on their business. The results were released through EUIPO’s 2016 IPR SME Scoreboard⁷.

⁷ - EUIPO (2016), Intellectual Property (IP) SME Scoreboard, available at https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/sme_scoreboard_study_2016/sme_scoreboard_study_2016_en.pdf

The main findings indicated that SMEs with registered IPRs believed they had a positive (47%) or very positive impact (13%) on their business. And the main motivations for registering IPRs were to prevent copying, to gain better legal certainty, to increase the value of their business and to improve the image of their company.

Despite this positive impact on commercial performance, many SMEs still believe that they lack sufficient knowledge about IPRs and their impact and that registration and enforcement is too lengthy and costly a process. A significant proportion of SMEs surveyed believed that gaining better access to IPR databases and information would help with these issues.

Of those SMEs which had suffered from infringement, 12% took no action. The impacts were particularly pronounced for micro SMEs, which indicated that the negative impact on their business was more significant than for larger companies.

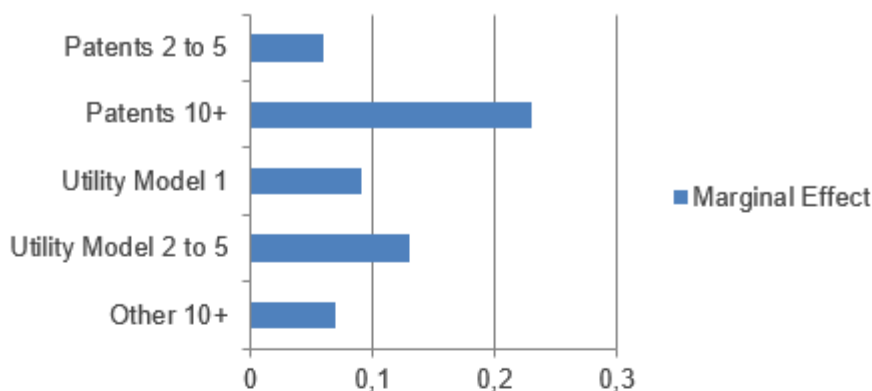
Additional analysis of the SME scoreboard data generated complementary microeconomic evidence to the findings of the 2015 firm level performance report on SME IPR ownership, IPR stocks and enhanced business performance. The analysis revealed that SMEs which indicated that their IPRs had a positive impact on their business, including indicators such as turnover, employment, profitability and access to finance, displayed strong economic characteristics (in terms of own and collaborative innovation, business and IP planning and a significant proportion of turnover generated in export markets).

Whilst there are a number of statistical issues associated with assessing these relationships, it is clear that there is a significant correlation between the number of IPRs owned by an SME and the likelihood of responding “yes” to one of the IPR business impact indicator questions (Figure 6).

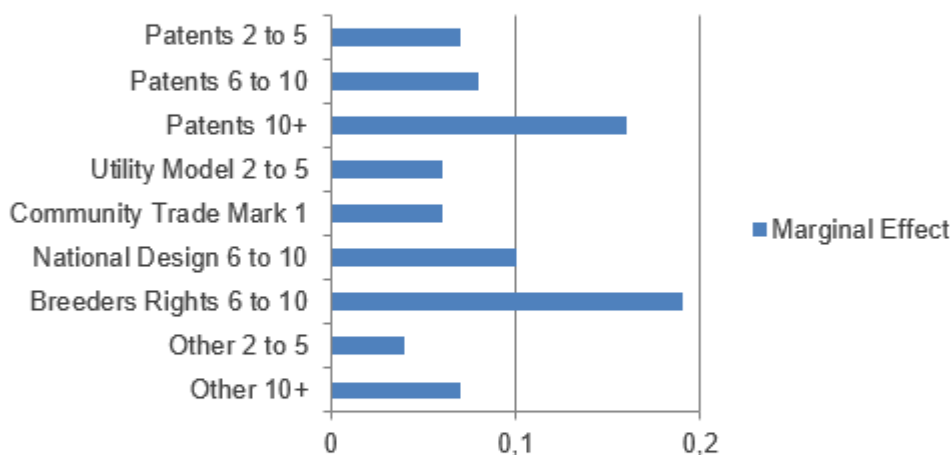
In particular, this relationship is apparent for increasing numbers of patents, EU and national trademarks, national designs and other categories of IPRs. This IPR profile is identified for turnover, employment and profitability. Each of the three charts shows the increase in the probability of the company stating that IPR has had a positive impact on performance as a function of the number of IPRs owned.

Figure 6 – Increasing number of intellectual property rights and the likelihood that European SMEs indicated a positive impact on turnover, employment and profitability.

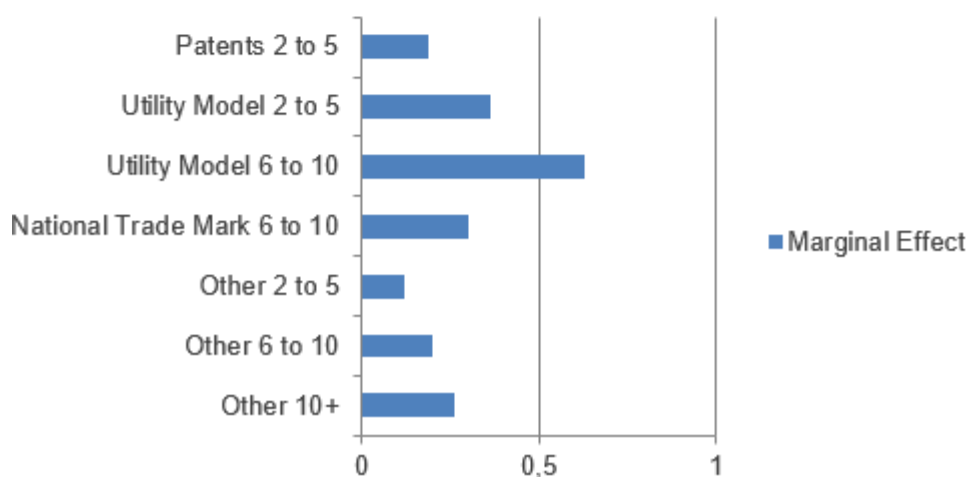
IPR Marginal Effects - Turnover



IPR Marginal Effects - Employment



IPR Marginal Effects - Profitability



Source – EUIPO SME Scoreboard survey data - 2016

In addition to acquired rights, a number of generic characteristics associated with the increasing likelihood of an SME responding “yes” to the business impact questions were identified. These characteristics include the source of business advice (accountants, lawyers and IP Offices), the inclusion of IP as part of the company’s business strategy, the markets in which they generate the majority of their turnover (less likely in local and regional markets and more likely in EU and markets beyond), IPR licensing activity (“out” and a combination of “in” and “out”), the size of the SME (mainly associated with larger medium sized enterprises) and the industrial sector in which the company operates.

Summary of section 3 – Value and economic Importance of IPR

1. IPR-intensive industries contribute 42% of EU's GDP, 28% of employment, and 93% of EU exports to the rest of the world. These sectors also pay salaries that are on average 46% higher than those in the rest of the economy.
2. On the level of individual firms, IPR owners perform better than non-owners (29% higher revenue per employee than firms without IPRs); increases in European and national IPR stocks are associated with improved performance. The effect is particularly strong for SMEs, where the revenue per employee is 32% higher for IPR owners compared to non-owners.
3. On average, IPR-owning companies pay 20% higher remuneration to their employees than companies without IPRs (in the same sector and country).
4. The SME scoreboard shows that accumulation of IPR assets has a positive impact on business indicators such as turnover, employment, profitability and access to finance.
5. Only 9% of European SMEs own IP rights, but there are strong indications that companies that rely on IPR are more profitable and grow faster than other companies.

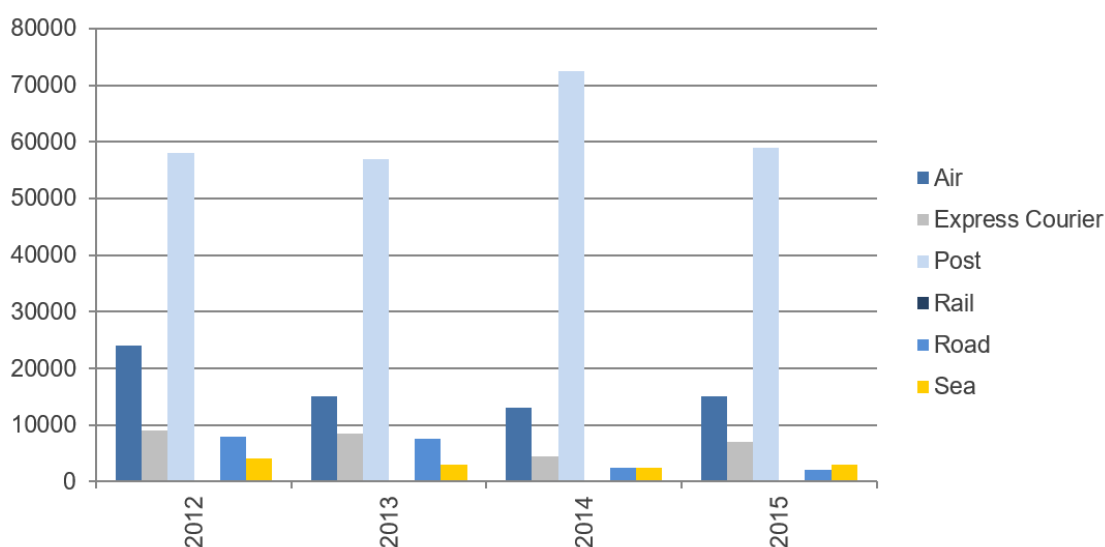
4. HOW AND WHY ARE IP RIGHTS INFRINGED?

The initial section of this report has shown the importance of IPRs to the EU economy and their value to the individual businesses themselves. However, sometimes this value is exploited by other economic actors, who are in effect free-riding on the efforts of the original innovators. These perpetrators seek to illegally benefit from this IPR value through a number of different channels, including the production and distribution of counterfeit and pirated products (including digital content) in both domestic and export markets.

Counterfeiting is a global phenomenon that has evolved significantly with the advent of better technology. Online marketplaces are increasingly becoming an important source of income for criminal groups engaged in the sale of both counterfeit products and pirated digital content (such as films, TV, music, e-books and games).

Counterfeiting has diversified from traditional activities centred on luxury and branded goods, towards pharmaceutical products, electronic goods, household and cosmetic products, automotive spare parts, pesticides, toys, food and beverages and technical products, such as bearings and electronic components. Customs seizures at EU borders indicate that the seized counterfeits are increasingly in the form of small shipments (Figure 10 illustrates the growth of postal seizures, relative to larger consignments of counterfeit goods) and include greater proportions of spare parts, including replacement car parts and components for mobile phones, such as screens or batteries.

Figure 7 – Development of Customs Seizures at EU borders by Carrier



Source – EUROPOL/EUIPO 2017 – Situation report on counterfeiting and piracy in the EU

The economic incentives driving counterfeiting are significant. In 2015 and 2017 EUIPO and Europol published a “Situation Report on Counterfeiting in the European Union”⁸ which addressed the incentives, routes and entry points of counterfeit goods. The reports detail the scale and scope of product counterfeiting within the EU and suggests practices and opportunities to detect, prevent and reduce the impact of counterfeiting.

Through a survey of public bodies and case studies improved intelligence on the production and trafficking of counterfeit goods was uncovered.

Notwithstanding the significance of counterfeit imports, the importance of domestic production has grown, driven by lower costs of production and distribution, and lower risk of detection. For instance, counterfeiters employ a range of practices to evade capture of goods, including the use of a high volume of small packages in opposition to bulk transportation, and the movement of non-labelled products over borders, with fake measures of authenticity attached at a later stage, prior to distribution.

These are but a few examples of a large number of practices engaged in by counterfeiters to avoid detection of their products. An additional noteworthy current practice is to change the mode of transportation. Traditionally counterfeit goods have been transported by sea, as this approach is cost-effective when moving large quantities. New transport links, such as the growing rail network between the EU and China, may provide counterfeiters with an opportunity to diversify their approach to transporting products. Nevertheless, it is important to note that, despite this change in focus, bulk shipments of counterfeit goods continue to remain the most significant delivery mode for counterfeiters from third countries; to reach 5% of EU imports using postal small shipments would be impossible.

With cheaper production methods and improved technology, counterfeiters have moved into the production of everyday goods, including for example medicines, shampoo, toothpaste, cosmetics and batteries for laptops and mobile phones. In essence, every product with a brand that has value can be and is counterfeited, even mundane, low-cost items such as laundry detergents. This illicit production carries both negative economic consequences, as shown in the previous section, and also consequences for the health and safety of consumers, who, as a result of buying these products can suffer a range of injuries, such as chemical damage to scalps, the ingestion of toxic substances through the application of counterfeit cosmetic products, and burns from self-igniting counterfeit batteries.

The production and distribution of counterfeit products are alleged to be associated with criminal gangs and wider criminal acts, including fraud, tax evasion and human trafficking. Many of these gangs are set up across borders (intra and extra EU) and seek to take advantage of weaknesses in supply chains, corruption of brokers and falsification of documents, re-labelling of items and factory over-runs for example, to cover their tracks and to lower the probability of detection. Another method that is gaining increased

⁸ - EUROPOL/EUIPO - 2017 Situation report on Counterfeiting and Piracy in the European Union - Available at - https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/Situation%20Report%20EUIPO-Europol_en.pdf

prominence is the smuggling of labels and other packaging separate from the actual goods, with final assembly and other production activities taking place inside the EU.

There are a number of distinct incentives for criminal gangs to engage in counterfeiting activity. First and foremost is the potential return on investment, which, as has been suggested, can be greater than those returns gained on the sale of illicit drugs. According to the International Institute of Research against Counterfeit Medicines (IRACM) an investment of \$1,000 in the purchase of heroin could result in a yield of \$20,000 in return. In comparison, the same investment in counterfeit cigarettes can yield \$43,000, and the return on counterfeit pharmaceuticals might be as much as \$500,000.

Furthermore, once these attractive returns are risk adjusted for the counterfeiter (significantly lower prison sentences and fines for IPR infringement compared to illicit drugs trafficking, for example), the risk/reward relationship is heavily weighted in favour of counterfeiting. In addition, in the current environment, police and prosecutors may be more likely to focus on higher profile crimes, such as terrorism, the arms trade and human trafficking than IPR crime.

Examples of domestic counterfeiting include criminal gangs across the EU (Belgium, Czech Republic, Spain, Italy, Poland, Portugal and the UK) involved in the repackaging of cheap wine in expensive bottles, and the production of dishwasher detergent, powder, shampoo, liquid detergents.

As a reflection of these gangs' activities, customs officials are increasingly capturing shipments of empty bottles, which are presumably being used for counterfeit products, such as seized counterfeit champagne re-packaged in Italy. These developments indicate a greater number of domestic production facilities for counterfeit goods than previously estimated.

Counterfeiters, as noted by the WEF Global Agenda, are further enabled by the growth in Free Trade Zones (FTZs), which provide exemptions from duty and taxes, simpler administrative procedures and duty free import of raw materials, machinery, parts and equipment.

Counterfeiters can take advantage of free duty on imports to assemble counterfeit products, thereby disguising the country of origin of the raw materials, trying to deceive customs officials who use "country of origin" as a key risk indicator in detecting counterfeit goods. There are currently 3,500 FTZs in 135 countries, including 82 in the EU⁹. The EU's susceptibility to counterfeit products increased recently with the opening of the Tanger Med FTZ in Morocco, close to the Spanish coast. To date, however, this threat has yet to be realised, with Spanish customs experiencing little increase in seizures, despite the increased risk profile presented by trade passing through the area.

Complementary BASCAP (The Business Action to Stop Counterfeiting and Piracy) and International Trademark Association (INTA) research notes that Organised Criminal Gangs are taking advantage of limited regulatory oversight in FTZs, fewer inspections of containers in transit, and the simple inaction of governments, which may consider FTZs to be exempt from the laws that govern the rest of the economy.

⁹ - ILO (2014), Trade Union Manual on Export Processing Zones, International Labour Organization, Geneva.

Thus, FTZs provide useful services to the legitimate economy, but at the same time they are being misused by industrial-scale IPR infringers to produce and distribute counterfeit and pirated goods. The challenge for society is to ensure that the positive contributions to the economy from such institutions are realised while limiting the potential for abuse. In this sense, there is a certain analogy with the internet –online commerce has been a boon to companies marketing their products and services world-wide, and to the consumers purchasing those products and services, but it has also provided the IPR infringers with new possibilities for illicit gain, as is the case for internet advertising, discussed in the next sub-section.

4.1 INTERNET AS A FACILITATOR – DIGITAL ADVERTISING ON SUSPECTED INFRINGING WEBSITES

Counterfeiters have benefited from the growing importance of the Internet and e-commerce for the distribution and sale of counterfeit products and illegal digital content (films, TV shows, music, books and computer games). These platforms finance themselves in a variety of ways, one of which is advertising.

To investigate the extent to which owners of illicit web sites have been benefiting from this business model, EUIPO commissioned a report examining the extent and structure of digital advertising on suspected infringing websites¹⁰. More than 1,400 web pages and 180,000 adverts from 280 suspected infringing websites (selling counterfeits), were analysed. Approximately 13% of the websites analysed were categorised as Bit Torrent Portals, which allow peer to peer sharing of pirate copies of films, television shows, music, books and computer games, whilst a further 23% were Hosting Websites, which house storage servers, permitting users to upload and store different media. The remaining 64% were Linking Websites which do not host any content themselves, but link users through to Hosting Websites without financial charge. Linking Websites are usually entirely funded by advertising.

The research estimated that advertisement revenue raised by infringement websites is in the region of €5.3 million per site annually. Often adverts for goods associated with legitimate brands can be found on these websites, possibly as a result of the complex structure of the online advertisement market and the performance incentives of its brokers and agents wishing to maximise the use of adverts across the online advertisement ecosystem.

The study concluded that there is a diversity of advertising on suspected infringing websites, and that 46% of advertising found on the suspected infringing websites was mainstream in nature.

Amongst the mainstream adverts identified on suspected infringing websites, many were associated with major brands. More than 1,500 such unique brands were identified in the analysis. Forty-six from the top 100 global companies were found to have at least one brand advertised on an infringing website.

¹⁰ - EUIPO 2016 – Digital Advertising on Suspected Infringing Websites - available at - https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/publications/Digital+Advertising+on+Suspected+Infringing+Websites.pdf

Misplacement of these adverts can lead to problems for legitimate brands. First, the brand can be mistakenly viewed as financing and supporting the activities of the infringing website, creating the potential for brand damage, and secondly, the brand's presence can provide credibility for the website, generating significant benefits for the infringers.

A range of measures have been introduced in various countries to address this issue, including the exclusive use of approved suppliers of online advertising space to place adverts only on sites which are deemed not to be infringing IP, such as the initiative introduced by the Interactive Advertising Bureau Europe, which restricts the membership of intermediaries in this market to applicants which adhere to guidelines supporting responsible ad placement.

4.2 BUSINESS MODELS USED TO INFRINGE IPR

The supply and consumption of counterfeit goods represents only part of today's IP infringement picture. The supply and consumption of illicit digital content, across media such as television, films, music, games and books via the internet represents a lucrative market for infringers and consumers alike.

"The ingenuity of infringers of intellectual property rights appears to have kept track with and even to some extent outpaced the development of the legitimate business models designed to facilitate online commerce"¹¹.

In order to map the evolving business models used by suppliers of illicit digital content, the EUIPO carried out a study, resulting in a report on "Online Business Models Infringing Intellectual Property Rights" published in July 2016¹².

The report examined techniques used to facilitate online IPR infringements and the associated business models used to achieve this aim. In addition to identifying the techniques and the models employed, the analysis examined how the structures and approaches functioned, how they were financed, the revenue streams generated, the content being distributed and the associated customer bases.

The research was conducted in two stages. The first part reviewed case law and the findings of dispute resolution bodies on issues such as domain name disputes. Similarly, analysis of the rationale and evidence supporting "notice and takedown" actions were reviewed. Next, a taxonomy of the main characteristics of possible infringing websites and business models was developed, as well as a review of the specific features of each of the identified online business models.

The analysis found that there were at least twenty-five online business models, which either directly infringed IPR in the sale of counterfeit goods, or used the same websites, either on the internet or the Darknet to engage in illegal activity, such as phishing, dissemination of malware and the sharing of pirated

¹¹ - EUIPO 2016 – Research on Online Business models -available at https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/resources/Research_on_Online_Business_Models_IBM/Rsearch_on_Online_Business_Models_IBM_en.pdf

¹² - Idem.

digital content. In many of these models infringement of trademarks and copyright was most common, although there were instances of multiple infringements, including cases where IPR was misused in the domain name.

This report represented the first examination of the use of online business models by counterfeiters. The next phase of the research analysed the advanced misuses of the domain name system and the clear links between infringing websites. Specifically, by analysing re-registration of previously used domain names, it was possible to determine that e-shops suspected of marketing trademark infringing goods were being set up using domain names that had previously been used to various online purposes (such as domains names previously used by politicians, embassies or commercial business). When the domain names were available for re-registration, the entities operating the e-shops would systematically reregister the domain names and shortly afterwards set up e-shops marketing goods that were suspected of infringing upon the trademarks of others. The study, building on previous research carried out in Denmark, covered Germany, Spain, Sweden and the United Kingdom, and was published in October 2017¹³.

The research detected 27,870 e-shops suspected of marketing trademark infringing goods in the four countries. It was found that 21,001 of these e-shops (75.4 %) were using domain names that had previously been used to direct internet traffic to websites that have no relation to their prior use. Based on these results, it is considered likely that the same also occurs in other European countries with well-developed e-commerce sectors.

Collectively, these research outputs will be used to further inform innovative enforcement policy and actions, such as the development of the “follow the money” approach, both to curtail these additional revenue opportunities (e.g. advertising), and to place pressure on the core business of the infringers, for example by restricting their ability to receive payments.

4.3 DEMAND FOR COUNTERFEIT GOODS/PRODUCTS

The preceding sub-sections have looked at the economic incentives that motivate infringers, and the modus operandi used by those infringers. However, whenever goods or services are sold, whether counterfeit or genuine, there is both a supply side and a demand side. The demand for counterfeit goods and for illicit digital content is the subject of this sub-section.

The main incentives for consumers include lower prices, easy accessibility to counterfeit products and a high degree of social acceptability in some countries. On the flip side, however, there are also risks for the consumers, including health and safety consequences, inferior quality or performance, the potential for legal action and the realisation that one is supporting organised crime. In order to understand why consumers engage in IPR infringement by purchasing counterfeits or accessing illegal content online, the EUIPO has carried out two IP Perception studies, in 2015 and 2017, respectively, surveying a large, representative sample of citizens in all 28 EU Member States.

¹³ - EUIPO (2017), Research on Online Business Models Infringing Intellectual Property Rights – Phase 2. Available at: https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/Research_on_Online_Business_Models_Infringing_IP_Rights.pdf

EU citizens continue to purchase counterfeit goods, despite their recognition of the value of Intellectual Property (as shown in the 2017 IP Perception study¹⁴) and the awareness of the damage buying counterfeit goods has on businesses and jobs. There is, however, also a perception among some citizens that strict enforcement of IPR may curb innovation.

The study revealed that whilst 97% of Europeans surveyed believed that IP is important in protecting the rights of inventors and creators, 10% had purchased counterfeit goods, and a similar proportion admit to having intentionally downloaded or streamed content from illegal online sources during the last 12 months.

Survey results identified a number of drivers behind this illicit activity. Both the price and the availability of these goods play a part. 27% of those surveyed and 41% of 15 to 24 year olds agreed that “it is acceptable to purchase counterfeit products when the price for the original and authentic product is too high”. This view is not only driven by income issues, but also forms part of a protest vote and presents an opportunity for consumers to be “resourceful”. This perspective was most prevalent amongst young people and manual workers.

Whilst 10% of those surveyed indicated that they had intentionally accessed, downloaded or streamed content from illegal sources during the last twelve months, a slight increase from the 2015 survey, 24% of those questioned indicated that they had wondered whether or not the source was legal or not, a development which has been previously identified in studies from the UK (Digital Entertainment Survey 2013)¹⁵ and the US (“bad-company-you-can’t-deny”)¹⁶.

The 2017 survey also revealed that 52% of those using illegal sources also reported using lawful services to access content, highlighting that one of the most significant issues for those involved in downloading illicit content, is availability and not just price. This view was particularly common amongst 15 to 24 year olds, 43% of whom agreed that it was acceptable to obtain content illegally from the internet when there is no immediately available legal alternative. These issues were also identified in analysis of the 2015 survey results.

Econometric analysis of the 2015 survey data suggested that there is a negative relationship between the age of a respondent and the likelihood of purchasing a counterfeit product or downloading illegal content. In short, as respondents aged, so the probability of such activity appears to diminish. There are many potential reasons for this, not least that as people age, their incomes tend to increase, providing the capacity to purchase genuine goods over counterfeit counterparts. However, this does not appear to be the case for internet activity, since as the age of respondents increased, the likelihood of downloading both

¹⁴ - EUIPO 2017 – European Citizens and Intellectual Property, Perception, Awareness and Behaviour .- available at - https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/IPContributionStudy/2017/european_public_opinion_study_web.pdf

¹⁵ - Wiggin (2013), Digital Entertainment Survey 2013. Available at: http://www.des2013.co.uk/pdf/Digital_Entertainment_Survey_2013.pdf.

¹⁶ - MusicWatch, blog entry by Russ Crupnick, 22 February 2016. Available at: <http://www.musicwatchinc.com/blog/bad-company-you-cant-deny/>

legal and illegal content diminished, implying that accessing digital content, whether illicit or legal, is especially prevalent amongst younger respondents, as confirmed in EUIPO's 2016 Youth Scoreboard survey¹⁷.

Levels of education, employment, access to the internet and location, all play their part in explaining the increased likelihood of responding "yes" to the question about downloading either legal or illegal content. In keeping with the finding of the JRC study, the profile of respondents who are more likely to download illegal content, is in fact similar to that of one who would download legal content. Thus, it is more likely that the respondent will be a young, educated, employed male, with good access to the internet, living in a larger town. The prevalence of this profile was confirmed by the findings of the 2013 JRC study¹⁸ and EUIPO's Youth Scoreboard survey, conducted in 2016.

Summary of section 4: Why and how are IP rights infringed?

1. The profile of counterfeit products and distribution channels continues to evolve.
2. The nature of transportation is changing and diversifying (rail, FTZs, use of small packages as reflection of increased e-commerce).
3. Health & safety concerns are increasing, as counterfeiting of everyday consumables such as cosmetics or medicines becomes more prevalent.
4. The incentives to counterfeit are favourable (high profits, relatively light punishment).
5. Incentives for individuals to purchase counterfeits are lower prices and limited social stigma associated with buying fakes.
6. There is clear evidence that young Europeans are comfortable purchasing counterfeit goods and downloading illegal content, if the price is right and there is a lack of available legal content.
7. Distribution of counterfeits and the consumption of illegal digital content has led to additional financial benefits (advertising income) to counterfeiters, which has in turn led to more sophisticated infringement of IPR (trademarks and copyright in particular).
8. Counterfeiters use a range of different business models both to sell counterfeit goods and share illegal digital content, and to generate additional revenues (for example, through advertising) linked to these activities.

¹⁷ - EUIPO (2016), Intellectual Property and Youth – Scoreboard 2016. Available at: https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/IP_youth_scoreboard_study/IP_youth_scoreboard_study_en.pdf

¹⁸ - Joint Research Centre (2013), Digital Music Consumption on the Internet: Evidence from Clickstream Data, Institute for Prospective Technological Studies, 2013. Available at: <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6084>

5. ECONOMIC CONSEQUENCES OF IPR INFRINGEMENT

The analysis in the previous section examined the incentives on both the supply and demand side of the infringement “market.” This section turns to the impact of infringement on both the private and public sectors of the economy.

EUIPO has sought to quantify the economic costs arising from counterfeiting through a two-pronged approach. First, working in conjunction with the OECD¹⁹, analysis has focused on constructing estimates of the extent of global trade in counterfeit and pirated products. In parallel, the economic costs arising from counterfeiting for several IPR-intensive industries (regardless of the provenance of the counterfeits) have been estimated for EU and its Member States.

Due to difficulties in obtaining data on piracy, that is, illicit online access to copyrighted content, the infringement quantification research carried out to date has focussed almost exclusively on counterfeiting. Beginning in 2018, this is being rectified; a data source has been identified, and a piracy study covering all 28 EU Member States and designed to assess the economic impact of the infringement of digital content (such as films, TV series, music, e-books, games, etc.) has been initiated.

Combining the estimates from these three approaches will create a comprehensive picture of the costs of IPR infringement in the EU economy. This picture, when considered in the context of the total economic value of Intellectual Property, will support the efforts of policy makers to design deterrents to deal with an evolving infringement landscape.

Finally, businesses incur considerable expenses in their efforts to detect and deal with infringement of their IPR. The extent of these costs has also been a subject of a study by the Observatory and is discussed in the final sub-section of this section.

5.1 JOINT EUIPO-OECD STUDIES OF COUNTERFEIT TRADE

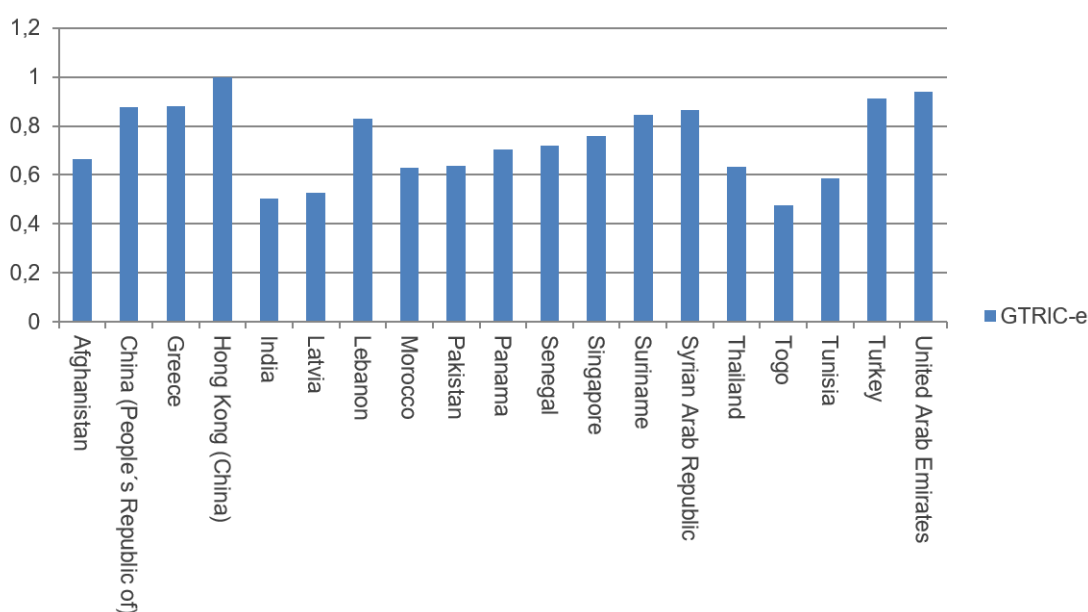
In April 2016, working jointly with the OECD, the EUIPO published a report entitled “Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact”. The report contained estimates of the total value of trade in counterfeit goods based on seizure data from the World Customs Organisation, DG TAXUD (Directorate-General for Taxation and Customs Union) and the US Customs and Border Patrol. The analysis revealed the extent of counterfeit goods in global trade, which is estimated to have reached as much as \$461 billion in 2013 (€338 billion). This constitutes an increase compared to the first such study carried out by the OECD in 2008 and updated in 2009, which showed global trade in counterfeits of up to

¹⁹ - OECD/EUIPO (2016), *Trade in counterfeit and pirated goods mapping the economic impact*, 2016, p. 11. Available at: <http://www.oecd.org/gov/risk/trade-in-counterfeit-and-pirated-goods-9789264252653-en.htm>

\$250 billion, although it has to be acknowledged that the 2016 study reflects significant improvements in the methodology and the data used so that care needs to be taken when comparing the two figures.

Through the use of economy-specific trade and product indices, which account for custom seizure percentages and trade flows, the most prevalent provenance economies of counterfeit goods entering the EU were identified. The top of the list includes countries and territories such as Hong Kong and China, the UAE, Turkey, Greece, Syria, Suriname, Lebanon, Singapore, Senegal, Panama, Afghanistan, Pakistan, Thailand, Morocco, Tunisia, Latvia, India and Togo.

Figure 8 – Top provenance economies of counterfeit goods entering the EU



Source – OECD/EUIPO 2016 - Trade in Counterfeit and Pirated goods: Mapping the economic impact. The figures on the vertical axis show GTRIC-E, a relative measure of a country's propensity to be a provenance country for counterfeit goods.

Whilst these results highlight the importance of these countries in the supply of counterfeit products, no distinction is made between the role of each of these countries as either a producer of “fakes”, or as a transit point for their onward shipment to the final destination. Therefore, in 2017 EUIPO and the OECD sought to gain a greater understanding of these roles through an in-depth analysis of the complex trade routes used by counterfeiters²⁰. Focusing on the products identified in OECD-EUIPO (2016) as particularly prone to counterfeiting and piracy, an assessment based on customs seizures, production, trade and location data was undertaken to determine which countries produced the counterfeits and which ones served as transit points.

²⁰ - OECD/EUIPO 2017 – Mapping the Real Routes of Trade in fake Goods, available at - https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/Mapping_the_Real_Routes_of_Trade_in_Fake_Goods_en.pdf

The ten high-risk sectors included: foodstuffs; pharmaceuticals; perfumery & cosmetics; articles of leather and handbags; clothing & textile fabrics; footwear; jewellery; electronics and electrical equipment; optical, photographic and medical equipment; and toys and games.

In the analysis China emerged as the top producer of counterfeit goods in nine out of the ten industries. Customs seizure data indicated that significant volumes continue to arrive from China, with a large proportion of these exports transiting through the port and international airport of Hong Kong. Chinese counterfeits cover the full range of products mentioned earlier, involving bulk movements of shipments by sea and the use of shadow companies, the domiciles of which are difficult to trace, to set up shops and establish an online presence.

Other Asian economies, including India, Thailand, Turkey, Malaysia and Pakistan were also identified as important producers of counterfeit goods, although their market share was significantly lower than that of China.

Turkey, in particular, was identified as being an important producer of counterfeit leather goods, foodstuffs and cosmetics, transporting these products into the EU via road. Seizure data indicated that Turkey is a major provenance country for trade in ready-to-wear clothing and counterfeit labels, tags and stickers to countries such as Bulgaria and Belgium. It is here that criminal gangs assemble the counterfeits and the accompanying labels for transportation, storage and distribution throughout the EU.

The nature of counterfeiting production in Thailand and Singapore differs from that in Turkey. Seizure data show that counterfeiters operating in these countries focus on the export of mobile phones and accessories to Germany, Belgium and Italy, in small packages, each containing small numbers of units (one or two).

The next country in the rank of provenance is Malaysia, where the counterfeit export picture is more evenly spread across products, although there appears to be a certain specialisation in body care items heading to France, Slovenia and Spain, where labels are attached for further distribution in the EU. Vietnam, in contrast, appears to have developed a counterfeit model based on the production of cigarettes for export to Greece (by ship) and to Poland (by road).

The research revealed some important transit points for counterfeit goods, including Hong Kong (mainly for Chinese-made counterfeit products), the United Arab Emirates and Singapore. These countries are important global transit points, where fake goods arrive in large containers and are then distributed via small parcels or courier services.

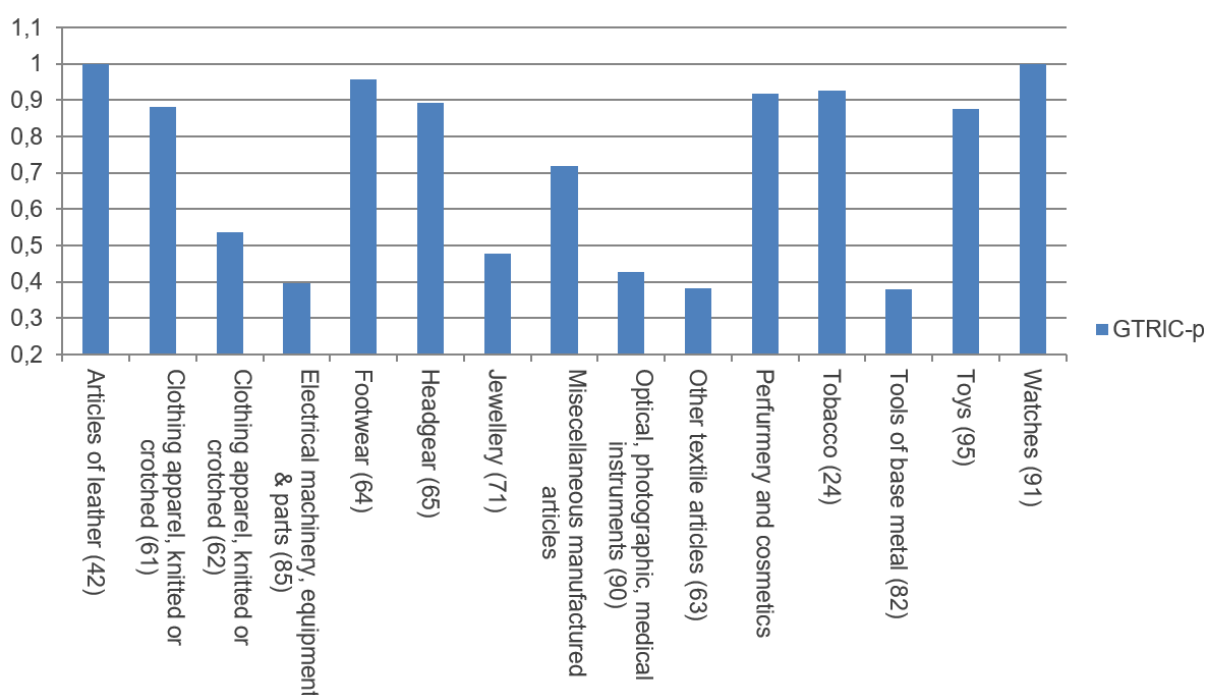
Important regional transit points were identified in the Middle East, providing Africa with fake goods, while three transit points in Albania, Morocco and the Ukraine were noted as routes into the EU. Similarly, Panama was noted as an important transit point for fakes being shipped to the United States.

The EU industrial sectors (Figure 9) most prone to counterfeiting were found to be similar to those in World Trade Flows, implying that the issue of counterfeiting in EU imports is broadly based, across many

industries and product categories. It is becoming increasingly apparent that counterfeiters are prepared to imitate any branded goods, not just luxury items.

Despite this breadth, counterfeiting intensity was especially high for items such as watches, articles of leather, travel goods, handbags, footwear and perfumes and jewellery. Counterfeiters also focus their efforts on consumer products imported into the EU, including apparel, tobacco and toys and also imported intermediate products such as industrial machinery or electronic and optical instruments.

Figure 9 – Top 15 industries likely to suffer from counterfeit EU imports



Source - OECD/EUIPO 2017 – Mapping the Real Routes of Trade in fake Goods. The figures on the vertical axis show GTRIC-P, a relative measure of a product category’s propensity to be counterfeited.

In addition to the economic damage they cause, counterfeit imports often include goods which threaten the health and safety of EU citizens, such as counterfeit cosmetics, pharmaceuticals, spare parts, tools and machinery, chemicals and household products. The health and safety consequences for both end consumers, and for those using these products in production (e.g. farmers using fake pesticides), are wide ranging and in some circumstances can be life threatening. In 2015 a report published by DG TAXUD²¹ revealed that 25.8% of all goods seized by customs officials would be considered dangerous to the health and safety of consumers.

Using the trade and product indices outlined above and applying these to import data, total imports of counterfeit and pirated products into the European Union were estimated to be as much as €85 billion in 2013, representing approximately 5% of total EU imports.

²¹ - European Commission - Report on EU Customs enforcement of intellectual property rights – Result at the EU border, available at: https://ec.europa.eu/taxation_customs/sites/taxation/files/2016_ipr_statistics.pdf.

Even though it cannot always be assumed that a purchase of a counterfeit good displaces a sale of the corresponding genuine product, these totals nevertheless give an indication of the magnitude of business being lost in the EU by rights owners as a result of counterfeit trade. In addition, it should be borne in mind that these figures only include internationally traded goods and so most likely understate the true extent of the problem.

5.2 SECTORIAL STUDIES – ESTIMATES OF ECONOMIC COSTS ARISING FROM THE PRESENCE OF COUNTERFEIT GOODS IN THE EU

As mentioned above, one of the limitations of the joint studies with the OECD is that only internationally traded goods are included in the analysis. The sectorial studies carried out by the EUIPO, discussed in this sub-section, seek to avoid this problem by focusing directly on the damage to the legitimate industries resulting from the presence of counterfeit goods in the EU marketplace, regardless of the provenance of those goods. In doing so, these studies supplement the joint EUIPO-OECD studies of counterfeit trade.

It is no co-incidence that the EU counterfeiting trade product profile identified in the joint OECD study maps well onto the range of industrial sectors for which the Observatory has chosen to assess the economic costs arising from the presence of counterfeits. The link between these co-incident profiles is their intensive use of Intellectual Property Rights, as a means to protect unique designs, branding and innovations.

Based on a study carried out for the European Commission by RAND Europe in 2012²², the EUIPO has developed a methodology to estimate the extent of lost sales within an industry as a result of counterfeiting. The analysis focuses on the extent to which these lost sales were due to economic factors and factors related to counterfeiting. Economic factors include income measures such as Gross Disposable Income of households and GDP per capita, whilst purchasing power issues were captured via the exchange rate between the Euro and other currencies.

Counterfeiting effects were gauged through a number of different variables such as: population at risk of poverty or social exclusion as a share of total population, the Corruption Perception Index, governance indicators from the World Bank and selected information from the IP Perception studies related to the purchase of counterfeit products and the consumption of illegal digital content. For each of the Member States, where data is available, comparable infringement rates were estimated, from which the direct economic costs were calculated²³.

Having established the direct losses, including sales and employment lost as a result of infringement, the sector studies examine indirect costs, focusing, on wider supply chain employment issues and government revenue. The estimated costs are presented in Table 1.

²² - The original RAND report is available at:

http://ec.europa.eu/internal_market/iprenforcement/docs/ipr_infringement-report_en.pdf.

²³ - The methodology is described in details in every sectorial report. See, for example, the report on fake pesticides, available at: <https://euiipo.europa.eu/ohimportal/en/web/observatory/ipr-infringement-pesticides-sector>.

The twelve reports issued to date focus on the following IPR-intensive sectors: Automobile tyres and batteries; Smartphones; Pesticides and Agrochemicals; Pharmaceutical products; Spirits & Wine; Recorded Music; Jewellery & Watches; Handbags & Luggage; Toys & Games; Sports Goods; Clothing, Footwear and Accessories; and Cosmetics & Personal Care. These sectors all make intensive use of patents, trademarks and registered designs, often in combination.

As shown in Table 1, it is found that the sales of the legitimate sectors are lowered by an average of 7.5% across the EU due to the presence of counterfeits. This average reflects a range of 2.8% for batteries to 11.6% for handbags and luggage. These direct lost sales amount to €59 billion on an annual basis, corresponding to an employment loss of almost 435 thousand jobs. Finally, the governments across the EU lose nearly €15 billion in taxes and social security contributions.

Table 1 – Estimated direct & indirect infringement economic costs – selected IPR intensive industries in the EU (average annual figures, 2012-2015)²⁴

SECTOR	DIRECT LOST SALES (€billion)	% OF SALES	TOTAL LOST SALES (€billion)	DIRECT EMPLOYMENT LOSS	TOTAL EMPLOYMENT LOSS	GOVERNMENT REVENUE LOSS (€billion)
Tyres	1.4	4.5%	2.6	4,400	12,400	0.2
Batteries	0.3	2.8%	0.5	600	2,000	0.03
Smartphones*	4.2	8.3%	Not calculated	Not calculated	Not calculated	Not calculated
Pesticides & Agrochemicals	1.1	10.4%	2.2	1,900	8,600	0.3
Pharmaceuticals	16.0	6.6%	26.9	55,700	131,700	2.3
Spirits & Wine	2.7	6.9%	6.3	7,100	41,000	2.2
Recorded Music*	0.2	5.9%	0.4	900	2,100	0.1
Jewellery & Watches	1.0	7.2%	2.0	6,600	13,800	0.3
Handbags & Luggage	1.6	11.6%	3.3	12,500	25,400	0.5
Toys & Games	1.2	9.3%	1.9	4,500	10,000	0.3
Sports Goods	0.3	4.2%	0.6	1,800	3,600	0.1
Clothing, Footwear and Accessories	23.2	8.1%	37.9	277,800	393,400	6.5
Cosmetics & Personal care	5.8	8.9%	11.3	60,900	100,500	2.0
Total all sectors	59.0	7.5% (avg.)	100.2	434,700	744,400	14.7

Note: figures rounded to one decimal place and to the nearest one hundred jobs; aggregates based on the rounded figures. Cosmetics & Personal Care, Clothing, Footwear & Accessories, and Smartphones are shown at consumer prices. Pharmaceuticals are shown at wholesale prices. Other sectors are shown at producer prices.

**Figures for these two sectors refer to 2015 only.*

²⁴ - The figures in the table do not correspond to those shown in the reports previously published on the Observatory website, as those reports were based on data for earlier time periods and used the 2013 version of the IP Perception study. The figures shown here have been updated to use the same time period ending in 2015, and to use the latest IP Perception study and other sources of explanatory variables.

The estimates in Table 1 supplement the joint EUIPO-OECD studies in describing the magnitude and economic impact of IPR infringement in the EU. Aside from the direct economic consequences estimated in these reports, IPR infringement could also have dynamic, long-term effects. If infringement reduces companies' returns on innovative assets, then investment in innovation may be lower than socially optimal. For all these reasons, counterfeiting is a serious problem that merits attention from policy makers and enforcement authorities.

There is another property right which can be infringed, leading to losses for both EU citizens and producers. In the EU, Geographical Indications (GIs) for wine, spirits, agricultural products and foodstuffs are protected intellectual property rights that act as certification that certain products possess particular qualities, characteristics or reputation attributable to their geographical origin and method of production. Consumers are often willing to pay a higher price for such products, compared with non-GI corresponding products. Therefore, if the product in question does not comply with the GI specifications, the consumer is deceived. In a 2016 study, EUIPO²⁵ estimated that the consumer loss (excess price paid for infringing GI products) arising from GI infringement totalled approximately €2.3 billion in 2014, representing approximately 4.8% of total GI product purchases in the same year. Infringement rates varied across GI products, ranging from 0.1% for beer to 12.7% for spirits. Whilst GI infringement is not included in Table 1 above, it is yet another example of the phenomenon that anytime consumers are prepared to pay a premium price for a brand they trust, or for a GI product, infringers are ready to exploit that willingness to pay and thereby defraud the consumers and the legitimate producers.

5.3 COSTS OF COMBATting IPR INFRINGEMENT

IPR infringement affects the private sectors in two main ways: the loss of sales discussed above, and the need to invest resources in detecting infringement and dealing with it. A study published by the EUIPO in 2017²⁶ seeks to supplement the analysis of the impact of counterfeiting and piracy by quantifying the costs borne by companies in dealing with infringement of their IP rights.

The study is based on a survey of 1,291 companies in 14 EU Member States, which provided a detailed picture of the resources used to detect and combat infringement by both small and large companies. The costs included in the survey were:

- cost of employee time dedicated to IPR enforcement;
- cost of external legal assistance;
- court fees in connection with infringement-related litigation;
- storage and destruction costs;

²⁵ - EUIPO 2016 – Infringement of Protected Geographical Indications for Wine, Spirits, Agricultural Products and foodstuffs in the European Union; available at https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/Geographical_indications_report/geographical_indications_report_en.pdf

²⁶ - EUIPO: Private Costs of Enforcement of IP Rights, March 2017. Available at: https://euiipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/div/Private%20Costs%20of%20Enforcement%20of%20IPR%20-%20FORMATTED.pdf.

- other infringement-related costs.

Overall, the average company in the sample spent EUR 115,317 per year on enforcement-related activities. However, there was a wide variation, depending on company size. In the case of small companies (i.e. those with fewer than 50 employees), the average outlay was EUR 83,653 per year. For medium-sized companies (those with 50-250 employees), the figure was EUR 103,166. Finally, for large companies, those with more than 250 employees, the enforcement costs amounted to EUR 159,132 per year.

In terms of cost categories, the annual employee cost was the largest component overall, accounting for 32 % of total costs. This was followed by storage and destruction costs, which accounted for 21 % of the total, and external legal assistance costs, which accounted for 17 %. This ranking of cost categories was consistent across the three size classes of companies. However, there was some variation in the figures. For example, the cost of internal employees accounted for 41 % of total enforcement costs for large companies, but was only 22 % for small firms. Conversely, storage and destruction costs were 24 % of the total for small firms, but only 17 % for large companies.

It is apparent from these figures that the costs of dealing with IPR infringement are particularly burdensome for small firms, those with 50 or fewer employees.

These estimates further corroborate the findings in the Intellectual Property SME Scoreboard 2016, which indicated that the cost of protection and enforcement of IP rights was a significant barrier to SMEs' use of those rights.

Given that IPR ownership is essential for SMEs to grow (as shown in the firm-level IP Contribution study, discussed above), this is particularly worrying. IPR infringement is a major threat to the development of innovative SMEs.

Summary of section 5: Economic consequences of IPR infringement

1. The volume of counterfeits in trade could be as much as 5% of total EU imports, or €85 billion.
2. The main producer of counterfeit goods is China, followed by India and Turkey.
3. A number of important transit countries have been identified, including Hong Kong, the UAE, Singapore and Panama.
4. The direct economic costs to legitimate industries in the EU arising from the presence of counterfeits in the EU marketplace amount to almost €59 billion per year in lost sales, corresponding to almost 435 thousand jobs.
5. The burden on dealing with IPR infringement is particularly onerous for smaller companies.

6. ACTIONS TO COMBAT IPR INFRINGEMENT

A large number of issues relating to the production, distribution and consumption of counterfeit goods and illicit digital content have been discussed through this report. In this final section, a review of the actions being taken by various actors in response to these issues is presented, with particular emphasis on the activities of the EUIPO.

1. The EUIPO is working with the European Commission on assisting European innovative SMEs with the management and protection of their IPRs. Attention is being directed at assisting SMEs with monitoring the integrity of their IPRs and in the event of infringement, examining tools and mechanisms which would help these companies, often hindered by the lack of available resources, to effectively defend the integrity of their innovative asset.
2. EUIPO's Enforcement Database is a free service which allows rights owners to establish a secure line of communication with customs officials and police to protect products against counterfeits. The service allows right owners to upload data on their IPRs along with contact information and product details, making it easier for authorities to identify counterfeits and to take action.
3. Complementary support is offered through the EUIPO's ACRIS and ACIST databases, which provide European companies with information on the IPR landscape in third countries and information on the detentions, at borders and in the internal market, of articles that are suspected of infringing IP rights. This information and data can assist companies with risk management of their IPRs, identifying geographical areas and products of high risk for their protected IPR.
4. One of the findings of the 2016 SME Scoreboard was that SMEs believed that they could better manage infringement issues if they had better access to IPR databases. Currently, companies are able to access information on trademarks and designs for most of the world's important economies through EUIPO's TMView and DesignView facilities. This assists companies with understanding the existing IPR landscape, helping them avoid conflict and promote original innovation.
5. Both the 2017 EUIPO-Europol situation report and EUIPO's research with the OECD on counterfeits lead to calls for a co-ordinated response to the work of criminal gangs, and to reduce the ease with which these goods are produced and distributed across the EU.
6. In response to the threats identified above, EUIPO funds Europol's Intellectual Property Crime Coordination Centre (IPC3), which provides a robust and multi-pronged response to the issue of IP crime. The unit aims to stem the tide of IP crime within and outside the EU by:
 - Facilitating and co-ordinating cross-border investigations;
 - Monitoring and reporting online crime trends and emerging *modi operandi*;

- Enhancing the harmonisation and standardisation of legal instruments and operating procedures to counter intellectual property crime globally; and
 - Providing training to law enforcement on combating IP crime.
7. A series of coordinated, global-scale operations are carried out periodically by law enforcement authorities around the EU and across the world, coordinated by Europol and Interpol. Recent examples include:
- Operation Pangea X in September 2017, coordinated by Interpol and targeting the criminal networks behind the online sale of illicit medicines and medical devices, with the participation of 197 enforcement authorities from 123 countries. The operation resulted in some 400 arrests world-wide and the seizure of more than USD 51 million worth of potentially dangerous items;
 - Operation Opson VI in early 2017, a joint Europol-Interpol initiative tackling counterfeit food and drink, which resulted in the seizure of more than 13.4 tonnes of potentially harmful food items and 26.3 million litres of potentially harmful drink products, worth an estimated EUR 230 million;
 - Operation In Our Sites, finalised in November 2017, which led to the seizure of over 20,520 domain names illegally selling counterfeit merchandise online to consumers. The operation was carried out in 27 countries, and was jointly coordinated and supported by Europol, US Immigration and Customs Enforcement - Department of Homeland Security Investigations (ICE – HSI) and Interpol.
8. EUIPO is seeking to address the demand for counterfeits and the related issues highlighted in the two IP Perception studies. In particular, EUIPO is focussing its attention on the attitudes and perceptions of younger people, who have indicated a significant propensity to intentionally purchase counterfeit products or access digital content through unauthorised services. However, studies have also shown that there is a significant percentage of citizens, in particular young people, who are uncertain as to whether a source from which they access digital content is authorised or not. In response to this challenge, EUIPO has launched a European online content portal, *agorateka*, which offers individuals a way to identify legal online content in participating EU Member States. The EUIPO, through the Observatory, also raises awareness of the value of Intellectual Property through the series of economic reports discussed in the body of this synthesis. Other activities include holding periodic workshops to bring together young European influencers and multipliers to actively discuss ways to generate interest and engagement on creativity, innovation and entrepreneurship and to further probe the issues raised in EUIPO’s IP perceptions studies. Finally, through its grant scheme, EUIPO supports awareness-raising efforts in the Member States.
9. In response to the wide use of different business models, the European Commission has adopted the “follow the money approach” to combating counterfeiting. This Commission brokered initiative seeks to establish voluntary agreements between rights owners and other actors, including internet platforms, the digital advertising community, payment providers, and transport companies. These agreements all aim at disrupting the revenue streams to the counterfeiters and hamper their ability to deliver the fakes to the end consumer.

10. The OECD has set up a Task Force on Combating Illicit Trade (TF-CIT), gathering public and private stakeholders from OECD member countries, including the EU and several EU Member States. The joint EUIPO-OECD studies on counterfeit trade referenced above are carried out in the framework of this task force. Furthermore, TF-CIT facilitates research in other kinds of illicit trade (such as narcotics smuggling, human trafficking and trade in endangered species), adopts policy recommendations and promotes best practices to combat trade in counterfeit goods and other types of illicit trade.

In addition, numerous actions are carried out by Member States²⁷ and by private stakeholders²⁸, on both national, European and global level.

Notwithstanding the actions being taken, and despite the volume of evidence demonstrating the scale and impact of IP crime on the EU economy and society, the current approach to the problem still needs to be strengthened. Those at the forefront of fighting IPR crime operate under a number of constraints and face specific challenges, such as the need to coordinate cross-border investigations and tackle new technologies that criminals are using to hide their locations and activities.

Low penalties render IPR crime attractive to criminals and, with the prospect of punishing a defendant with an extremely low penalty, pursuing such cases in the first place may not appeal greatly to certain authorities in some Member States.

Terrorism, cybercrime, migrant smuggling, drug trafficking, and other areas of criminal activity have all moved centre stage in the global law enforcement environment and IPR crimes have become less of a priority, as evidenced by the absence of IPR crime among the priorities in EU's 2017 Serious and Organised Crime Threat Assessment (SOCTA). However, IPR crime is still one of the most lucrative criminal enterprises, and it continues to be closely linked to other criminal activities.

Therefore, closer coordination among EU institutions and bodies involved in the fight against IPR infringement, and closer collaboration at the enforcement level are essential elements in the effort to curtail this problem.

²⁷ - See, for example, <http://www.stoppiratkopiering.dk/>, a Danish campaign against purchasing counterfeit goods and accessing illicit content, a joint effort by 12 ministries and agencies, ranging from the Ministry of Culture to the national police.

²⁸ - An example is the International Chamber of Commerce, <https://iccwbo.org/global-issues-trends/innovation-ip/counterfeiting-piracy/>, or Legalna Kultura, <http://www.legalnakultura.pl/pl>, a Polish database of legally available films, music, books, journals, photographs, games and other types of digital content, created by a public-private partnership.

7. CONCLUSION

The EUIPO, working through the Observatory, has taken a wide and detailed approach to understanding the importance of IPR and various aspects of IPR infringement.

A large volume of evidence has been generated, covering the economic value of IPRs, the extent to which this value is exploited by counterfeiters, the cost to companies of dealing with infringement, and the vulnerabilities of companies and individuals to this exploitation.

A range of measures has been put in place to assist both large companies and especially SMEs to defend the integrity and value of IPRs, including assistance with the monitoring of innovative assets through the use of a number of proprietary databases, as well as work with EUROPOL and other partners to address the supply of counterfeit goods, within and outside the EU. In several EU Member States there have been a number of high profile initiatives, to address the issue of digital copyright infringement, such as the closure of file-sharing sites, the introduction of the “three strikes” HADOPI policy in France (withdrawal of individuals’ Internet access as a result of downloading or accessing copyrighted content illegal three times), and cooperation with search engines and platform to more proactively remove infringing content.

To aid the policy debate, EUIPO will examine the efficacy of placing estimates of the economic costs arising from infringement in a formal context as provided by structures offered by National Accounts. This appraisal will consider the benefits of highlighting the importance, concepts and principles underlying IPR infringement to a wider policy audience and bringing the issue into the scope of the core economic policy debate. Raising the profile of these measurements will incentivise additional investment in infringement research by public bodies and academia, thereby developing the infringement evidence base.

EUIPO acknowledges that the current provision and support offered to European companies is subject to continued review and evaluation, as the IPR infringement landscape becomes more complex, as for instance, technological developments continue to offer new opportunities for criminals to infringe IPRs and to distribute their goods more widely and via ever changing routes and shipments.

The Observatory will therefore continue to use the evidence captured via its databases and through interactions with its key stakeholders to keep pace with this evolving landscape, to ensure that in the future both EU companies and citizens continue to benefit from the economic value, employment and innovative investment associated with intellectual property.

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9. ANNEX: DIRECT INFRINGEMENT ECONOMIC COSTS BY SECTOR AND MEMBER STATE

Direct infringement economic costs by sector and Member State. Data in million euros, as a percentage of sales and per inhabitant (2012-2015)

	Million EUR														% of sales	Euros per inhabitant
	Cosmetics & Personal care	Clothing, Footwear and Accessories	Sports goods	Toys & Games	Handbags & Luggage	Jewellery & Watches	Recorded Music*	Spirits & Wine	Pharmaceuticals	Pesticides & Agrochemicals	Smartphones*	Batteries	Tyres	Total all sectors		
Austria	94	587	15	53	19	16	4	19	134	10	74	3	13	1.041	6,9%	121
Belgium	240	596	4	15	36	68	5	70	879	35	76	4	27	2.055	6,8%	183
Bulgaria	66	83	3	15	9	9	0	66	266	14		6	14	552	19,8%	77
Cyprus	36	69	1	7	9	17		12	30	3	8	1	5	198	15,1%	234
Czech Republic	51	219	2	22	9	20	1	41	222	27	62	4	56	737	8,6%	70
Germany	726	4.228	37	276	149	105	41	235	1.500	224	564	58	183	8.326	5,9%	103
Denmark	110	347	4	2	23	12	3	39	534	3	52	3	13	1.147	6,0%	203
Estonia	3	46	1	2	3	2		8	34	3	10	0	3	115	8,9%	87
Greece	195	394	4	8	29	34	1	50	490	38	90	6	19	1.359	12,3%	125
Spain	933	2.063	33	129	204	89	9	581	1.432	78	386	38	198	6.175	9,3%	133
Finland	30	138	6	5	9	5	3	14	109	2	42	2	14	380	4,0%	69
France	988	2.795	51	144	148	126	34	235	1.396	213	380	39	223	6.773	5,8%	102
Croatia	35	129	2	8	0	6	0	22	136	10	45	0	6	398	12,6%	94
Hungary	47	219	3	5	18	10	1	53	443	17	92	15	13	936	12,2%	95
Ireland	62	228	3	17	15	8	2	47	617	4	52	3	10	1.069	6,3%	231
Italy	685	3.175	44	174	427	171	17	387	2.276	152	885	36	191	8.620	7,9%	142
Lithuania	38	61	1	3	2	6		16	112	13	17	1	10	279	15,7%	96
Luxembourg	18	44	1	2	5	2		8	6	1	3		1	90	7,8%	159
Latvia	18	63	1	3	3	4		8	17	8	15	1	4	145	12,7%	73
Malta	9	48	0	1	2	2		4	13	0		0	1	82	10,1%	191
Netherlands	98	898	9	29	24	17	11	52	518	11	110	6	7	1.790	5,2%	106
Poland	276	595	12	43	73	61	5	313	997	56	215	15	69	2.731	11,8%	72
Portugal	129	342	16	17	33	21	1	60	269	23	73	5	23	1.013	8,2%	98
Romania	94	161	26	19	39	49		75	976	28	128	3	42	1.641	22,5%	83
Sweden	102	630	14	13	20	10	7	41	252	5	107	16	30	1.248	5,0%	128
Slovenia	35	78	4	2	34	4		6	61	4	24	2	23	276	13,4%	134
Slovakia	38	137	3	10	14	18	0	33	276	10	40	2	18	600	15,3%	111
United Kingdom	672	4.874	39	139	189	111	43	249	1.956	69	660	24	139	9.163	8,1%	141
EU28	5.828	23.247	338	1.164	1.548	1.006	188	2.744	15.953	1.061	4.212	295	1.355	58.937	7,5%	116

* Figures from these two sectors refer to 2015 only.

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