Europe Economics

The Economic Review of Industrial Design in Europe — Final Report

MARKT/2013/064//D2/ST/OP

January 2015

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Contents

Abstract

This study reviews the economic contribution of design, how designs are protected, why they are protected in the ways they are protected, and certain complexities relating to enforcement and visible spare parts. It finds that 3.4m firms in design-intensive industries, employing 23m people, add around €1.7trn of value to the EU economy. It notes how firms have taken up OHIM community design registration as the route of choice when filing in multiple EU Member States.

However, it notes that only a minority of designs are formally protected. Many firms prefer informal protection via social and moral pressures from local networks, short product lifetimes, rapid innovation cycles or the complexity of manufacture. Others are simply unaware of industrial design protection. It is argued that this means that new technologies such as 3D printing offer the scope to overturn many existing business models and trigger much wider take-up of formal protection.

As regards visible spare parts used for repair, the study argues that, although there is no strong competition reason why a "repairs clause" is necessary, there is also no good intellectual property reason for protecting parts for repair, and recommends the introduction of a repairs clause across the EU.

1 Executive Summary

Europe Economics was engaged by DG Internal Market and Services to complete an "Economic Review of Industrial Designs in Europe". For the purposes of this study we understand the term "design" as it is defined in the Design Directive (98/71/EC):[1]

> "The appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation."

We use the term "industrial design" to refer to the formal legal right by which designs may be protected and the term "design" (without "industrial") to refer to the design itself, whether or not it is in practice protected by an industrial design.

The core objectives of the study are to understand the characteristics of design-intensive industries, the extent to which designs are developed and contribute to the economy, the method by which designs are protected (if any) and the rationale for the choice of protection strategy. We also assess the economic consequences of the non-harmonisation of spare parts legislation and the functioning of the enforcement of industrial designs. Finally, we develop a number of evidence-based suggestions for further action that could be considered concerning the functioning of the industrial design protection at national and EU levels.

1.1 Summary of method

Our approach to the study relied on gathering information and data from a wide variety of sources which were drawn together during the analytical phase of the study. More precisely, we reviewed literature that could inform a theoretical assessment of how those seeking protection for designs would choose which method of protection to seek.[2] It also provided some evidence of the relationship between protecting designs and factors such as economic growth, innovation, employment and competition.

We then gathered relevant data which enabled us to identify design-intensive industries in the EU, estimate their contribution to GDP and employment in the EU, and assess the extent to which they use industrial designs to protect designs.

We also designed and distributed an online survey of those companies that develop designs in Europe. The key purpose of the survey was to provide information on the development of designs and the rationale for the use of different types of intellectual property right (IPR) to protect designs by different companies. It also enabled us to gather information on the enforcement of industrial designs in Europe and the consequences of the non-harmonisation of spare parts legislation.

We secured further input from stakeholders through a series of structured interviews. Alongside a selection of companies who took part in our survey, the interviewees included organisations that are responsible for granting IPR for designs and professional associations at both national and European levels.

Finally, we drew together these earlier tasks in our economic analysis.

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[1] In general parlance there is no precise consensus definition of design. Even whether it is better understood as an activity or a discipline is contentious. A Design Council anniversary booklet offered 50 different definitions of design from a variety of individuals, ranging from designers to politicians. Some of those definitions were quite abstract — e.g. Michael Wolff defined design as follows: "*Design is a vision… Design is a process… Design is a result…*".

[2] A summary of key documents covered in the Literature Review appears in a separate Annex to this Main Report.

1.2 Design-intensive industries

We review two different methodologies that have been proposed for defining design-intensive industries:

- An algorithmic approach, proposed by a recent study published by EPO and OHIM, which seeks to identify and iterate through absolute and relative design intensity, and then to rank industries according to how focused they are on protecting the design side of the product — i.e. the design-intensive industries are those in which the most designs are formally registered for protection.
- An alternative approach, based on Haskel and Pesole, which builds a definition of design-intensive sectors from the sorts of workers design activities employ.

We argue that, for our purpose here, the approach used by the EPO/OHIM has a number of advantages.

- First, the definition proposed be EPO/OHIM is data-driven in the sense that the definition of a design intensive industry is derived objectively from an analysis of public data sources (albeit under a number of assumptions, such as that design-intensity should be defined as those that are above average). By contrast, in Haskel and Pesole, the definition of a design intensive sector is taken as a given and relies on the predefined NESTA Innovation Index.
- Second, the definition used by the EPO/OHIM has a broad European scope as opposed to being UK specific.
- Third, the NESTA classification on which Haskel and Pesole definition is based has recently been subject to criticism and is currently under revision in the UK (though we note that the EPO/OHIM definition has also been subject to some criticism).

For these reasons, we gather, wherever possible, data on the characteristics and economic contribution of design-intensive industries using the EPO/OHIM definition. This approach was feasible, for example, when gathering data from Eurostat as it was possible to identify the NACE code of the industry. Our firm-level analysis of design-intensive industries also drew on this definition. (Notwithstanding this, it was necessary in some instances to employ an alternative approach which relies on adopting sector definitions based on Locarno classification.)

1.3 Economic contribution of design-intensive industries

In this section we have reviewed existing studies that have investigated the contribution of design to the economy. Our judgement is that, among these studies, that conducted by the EPO/OHIM constitutes the deepest and most structured attempt to estimate the economic contribution that designs deliver to the European economy. Estimates vary between studies and particularly when they cover differing geographical scopes and are summarised in the table below.

Table 1.1: Summary

	EPO-OHIM, EU	Europe Economics (based on EPO/OHIM methodology)	Big Innovation Centre, UK	Danish Government, Denmark	Haskel and Pesole, UK
Value added	€1.6trn (13 per cent)	€1.7trn	7 per cent	5 per cent ("experienced economy")	
Trade	€724bn (53 per cent) of exports		35 per cent	25 per cent of design industry turnover	
Employment	27m (12 per cent), plus 12m indirectly	23m	11 per cent		55,000
Number of firms		3.4m		4,500	

We sought to build on the current understanding of design-intensive industries by developing a series of new quantitative analyses of those industries. We used Eurostat data on design intensive industries to provide an updated estimate (for the year 2011) of the contribution of design-intensive industries to EU employment and GDP using the same methodology as employed in the EPO/OHIM study. We found that total employment in design-intensive industries was greater in 2011 than in the years covered by OHIM's analysis (2008-2010) but that the contribution of those industries to GDP had fallen, perhaps reflecting the economic downturn.

We built on that analysis by providing a new comparison of the economic impact of sectors that employ designs in conjunction with other forms of IPR. We note that such information cannot directly be compared with the results of the EPO/OHIM study since the impact of various IP-intensive sectors was assessed separately in that report. The main conclusion we can draw from this analysis is that the GVA per employee in sectors where industrial designs are used in conjunction with patent, trademarks, or both trademarks and patents, is higher than in sectors that rely only on industrial designs. This may suggest the presence of some form of complementarity in the use of different forms of IPRs, and in particular between trademarks and industrial designs.

1.4 Protection of designs

Our analysis of how companies protect designs in practice drew on prior literature, data gathered from WIPO, a firm-level database and information provided in our survey of companies that operate in design-intensive industries and in interviews with stakeholders.

The aggregate level of filings (whether filed in a Member State or by firms from a Member State) reflects the size of the economy concerned — higher GDP is correlated with more filings. Larger economies have more firms to make filings and are more attractive as markets for firms making filings.

By contrast, the extent to which firms in any given Member State choose to seek protection in other EU Member States, or indeed outside the EU altogether, reflects GDP per capita not simply GDP levels. We interpret this as arising because firms in better-developed (and hence wealthier) economies are more likely to have the competence and connections that allow them to export.

In the first few years after OHIM was established, it came to almost totally dominate filings by non-European firms within the EU. Although for EU firms there remains significant demand for national filing from those

firms operating only domestically, where firms operate in multiple Member States, OHIM filing has become the route of choice.

The EU firms that file most outside the EU have, in recent years, been those operating in BRICS economies, particularly China.

1.5 Rationale for protection strategies

Prior literature had identified the following factors as being important determinants of whether companies choose to apply for registered design protection: the options available, the degree and credibility of enforcement, the cost of acquiring and enforcing registered protection, the size of the firm, research intensity, the degree of internationalisation and design complexity.

Evidence from our survey and interviews with companies that operate in design-intensive industries provided a more detailed understanding of the reasons underlying their decisions of how to protect designs, including with respect to:

- the decision to apply for design protection, irrespective of the method of protection;
- the decision of what type of design protection to seek; and
- the decision of unregistered industrial design over registered.

The most significant influence on decisions to apply to protect designs, irrespective of the method of protection, across all respondents is the level of protection it grants, while the least important factors are the costs of enforcing protection and the costs of obtaining protection. We found no substantial variation in the importance of the four factors across respondents from different sectors or regions.

In a previous study for the EPO and OHIM, Europe Economics used firm-level data to assess the contribution of industrial designs to firm performance. The analysis completed in that study found that those that use industrial designs have greater revenue per employee than those that have never used industrial designs. The results also showed that there are significant differences between SMEs and large companies with respect to the relationship between IPR usage and revenue per employee. In particular, the association between the use of industrial designs and firm performance is significantly greater for SMEs than for large companies: whereas SMEs that use only industrial designs have revenue per employee that is 17 per cent greater than those that have never used any form of IPR, there is no difference in performance between users of industrial designs alone and non-users of IPRs in the case of large firms.

Moreover, the analysis completed in our study for the EPO and OHIM found that is not only the use of industrial designs that is associated with superior firm performance but also the number of industrial designs held. In particular we found that there is a positive association between revenue per employee and the stock per employee of both national and Community industrial designs. Adjusting for the differences in pre-existing national and European stocks, the results show that for the average firm an additional European industrial design has approximately seven times the impact on revenue as an additional national industrial design, all else being equal.

We investigated variations in the costs of applying for design registration and for trademarks across EU Member States. We found considerable variability, with design registration costs varying from little more than €20 in Denmark, Estonia and Slovakia to more than €200 in Finland and Sweden.

Table 1.2: Administration fees for industrial design applications

MS	Fees for industrial design application	MS	Fees for industrial design application
AT	€87	**LT**	€138
BE	€158	**LU**	€108
CY	€85.43	**LV**	€106.72
CZ	€39.45 or €57.38	**MT**	€46.59
DE	€90 or €100	**RO**	€120 + 10 (2D design) / 100 (3D design)
DK	€26.88	**NL**	€158
EE	€26 or €105	**PL**	€77-84
EL	€100	**PT**	€104.50-209.00
FI	€267	**BG**	€178
FR	€38 + 22 (black or €white) / 45(color)	**SK**	€20 or €40
HR	€114	**SL**	€80
HU	€101 or €25	**ES**	€63.68 or €74.92
IE	€70	**SE**	€209
IT	€50 or €100	**UK**	€77

Note: For explanations see notes to Table 7.1 in Section 7.1.4.

Table 1.3: Administration fees for trademark applications

MS	Fees for trademark application	MS	Fees for trademark application
AT	€372	**LT**	€69
BE	€240 or €373	**LU**	€240 or €373 *
CY	€50	**LV**	€177.86 or €305.92 *
CZ	€200.82 or €380.13	**MT**	€116.47
DE	€290 or €300	**RO**	€250
DK	€315.88	**NL**	€240 or €373 *
EE	€190 or €240	**PL**	€140
EL	€120	**PT**	€123.67 *
FI	€215 or €345	**BG**	€311 or €566 *
FR	€200 or €225	**SK**	€166 or €332
HR	€143	**SL**	€250 or €400
HU	€236	**ES**	€122.89 or €245.76
IE	€320	**SE**	€198
IT	€101 or €337	**UK**	€220

Note: For explanations see notes to Table 7.2 in Section 7.1.4

In general, however, design registration was only around one third of the cost of trademark registration. In addition, registration at OHIM, being in cost terms, at €350, roughly equivalent to registration in three Member States, has become the option of choice for firms operating across multiple Member States.

In the view of the firms responding to our survey, the least important factor in deciding on the type of protection is, by a significant distance, the time between application and granting. Several of the other factors are viewed to have relatively similar levels of importance when viewed across the whole sample of firms, but the two most important factors stand out as being the level of lawyer fees and the geographical scope of protection. More generally, it is interesting to note that while cost factors are less important in the overall decision of whether to protect designs they gain greater importance in choosing between different types of design protection. The level of lawyer fees, renewal fees and application fees are all relevant considerations in choosing between different types of protection.

With respect to factors that could discourage the use of registered industrial design protection in favour of unregistered industrial design protection we find that, overall, the most important factors underlying such a decision are the avoidance of fees, administrative burdens and the complicated nature of the registered protection process. The more limited scope of unregistered protections and their appropriateness for the product's life cycle are seen to be the least important factors in respondents' decisions.

1.6 Enforcement and 3D printing

In order for any IPR framework to function properly, an efficient enforcement framework is required. Unless such a framework is in place, the incentives that are aimed towards innovators can be considered ineffective. An innovator is not in a position to appropriate the benefits of an invention in a setting where infringers are not expected to be punished.

We asked companies and trade associations to provide their perspectives on the issue. Our survey found that the initiation of enforcement actions was most common among firms in the field of manufacturing and least common in the field of professional, scientific and technical activities. The vast majority of respondents to our survey had not been subject to legal action. Of those that had been subject to such action, over half were alleged to have infringed national registered industrial design protection.

Both those that initiated legal actions and those that were subject to them were somewhat dissatisfied with the process. There are a number of possible explanations for this. One is that, although companies may be generally satisfied with the current functioning of national and EU industrial design protection there appears to be at least some concern about the difficulty of proving that an industrial design has been infringed. Another possibility is that enforcement is more generally ineffective in the EU at present. Common enforcement might be more efficient than lodging the same complaints in multiple countries as it will ensure that rights are enforced equally across Europe. Moreover, it would avoid differences in the evidence of infringement required by different Member States which make the enforcement procedures rather difficult and tiresome.

Enforcement may become even more complex in the future with the emergence of 3D printing. This technology makes it easier to breach industrial designs and hence it is necessary to question exactly how rights will be enforced in the future. A number of authors have identified a need for policy clarification across EU design legislation, including the Design Directive and the Community Design Regulation. Enforcing infringement laws is likely to become a complicated process with the decentralised nature of 3D printing counterfeit and piracy. Because so many transactions will happen online without the presence of central claimants, it is difficult to hold counterfeiters accountable. Furthermore, the anonymity and perception of safety that comes along with infringement inside private homes along with the ease and low-cost of 3D printers contributes to these complications.

As regards the consumer-level, there is the likelihood of disruption to certain business models. 3D printing is likely to allow much more precise customisation of products and business models may arise that focus upon assisting with such customisation. For example, 3D-printed household appliances could reflect very specific needs of consumers — a freezer that fits in precisely that awkward gap; a dishwasher with a space for that huge casserole dish you got as a wedding present. Or they could reflect very specific tastes or identifications consumers wished to express — a cappuccino machine where the froth comes out with a Liverpool Football Club logo; or a fridge that plays Jingle Bells when it is opened on Christmas Day.

One area in particular where consumer-driven infringement could become a material issue relates to visible spare parts. Consumers that have a part of a designed product break or be damaged may so automatically regard themselves as entitled to repair the product via a home-3D-printed spare part that they have no appetite to comply with any intellectual property rules that would notionally regard that as an IPR infringement.

In terms of the third of the motivations for enforcement we identified above — namely the incentivising of behaviours leading to social and economic benefit — there is likely to be a trade-off between the incentives to create core products (which might be damaged if customised 3D-printed versions were permitted that were based very closely upon core product design) and the incentives to facilitate widespread very detailed customisation (which might be damaged if customised 3D-printed versions were not permitted without paying large royalties to core product designers). Customisation is likely to create considerable added value.

A key issue will be to what extent that added value should be regarded as an enhancement or completion of the value inherent in the design of the core product and to what extent customisation should be regarded as adding value because it adds true novelty to the design.

New technologies such as 3D printing seem likely directly to create material and widespread consumer-driven infringements, of the sort seen in other sectors that led to the collapse of intellectual property regimes there, in only a few areas — the main one we have identified being the 3D printing of spare parts for repair should the use of spare parts for repair continue, in some Member States, to be an infringement.

A further likely enforcement-related issue arising from 3D printing is that, because many firms rely upon the complexity of reproducing designs and/or the speed with which products incorporating designs need to be produced in order to meet relevant consumer demand timelines, and because 3D printing has the capacity to make rapid duplication of even very complex designs feasible, informal design protection may become less common relative to formal registration. That could mean design registration and enforcement agencies should plan ahead and resource for much great demand for registration in the relatively near future.

It will also probably be necessary to clarify specific areas of uncertainty, related to 3D printing, in current European and national laws. It might also be necessary to consider adding a set of new digital rights that address management, production and infringement issues.

1.7 Industrial designs and visible spare parts

One of the most controversial issues during the legislative passage of both the Directive and the Regulation has been whether visible spare parts for complex products should also be eligible to be protected under the design protection Directive. At present, it is possible to protect such designs in some Member States but not in others. In 2004, the European Commission had proposed that there should no longer be industrial design protection for visible spare parts of complex products in the EU. Following a lack of progress at Council level, the specific proposal was withdrawn in May 2014 (though the European Commission has not dropped the general idea of liberalising the spare parts market in Europe).

As well as positions regarding the repairs clause differing between the laws of Member States, there are also considerable differences, within and across Member States, between stakeholders.

- Manufacturers of products for which visible spare parts are important tend to argue that it should be possible to protect the design of spare parts because they would otherwise be unable to receive all the benefits arising from their investment in design.
- Independent spare parts producers, by contrast, typically contend that it is unreasonable for a manufacturer of an original product to hold industrial design protection both for the original product and for visible spare parts which, by their nature, have a must-match requirement.

The facts and analysis presented in this report imply that although the use of registered design rights to restrict the manufacture, sale and use of visible spare parts should not be seen as implying any general anti-competitive creation of dominance, there is no good justification for permitting original manufacturers to deny the use of visible spare parts for repairs arising from either the intrinsic property contained in a design nor any good justification arising from broader economic grounds.

The use of registered design rights to restrict the manufacture, sale and use of visible spare parts should be regarded as creating an implicit contract, between the purchaser of an original product and the manufacturer, restricting repairs that require the replacement of components to be performed only by repairers licensed by the original product manufacturer. In our view, although such contracts should not necessarily be forbidden they should be established explicitly, not introduced implicitly and inefficiently via an intellectual property right.

Putting the point more bluntly, we do not claim that entering into an agreement to restrict the way a product is repaired should necessarily be forbidden or is necessarily anti-competitive, but if no such agreement to restrict repairs is entered into explicitly then repairs should be allowed. And if repairs are allowed, then the cheapest and most efficient means of repair must be allowed, including when that cheapest and most efficient means of repair involves a visible spare part.

We also believe that it is clear that a lack of harmonisation on this point undermines the Single Market by creating material differences in the meaning of property rights in different parts of the EU. A product that is purchased in one Member State might legally be able to be repaired by the same firm in some Member States but not others.

Furthermore, even were a repairs clause not introduced, we believe it plausible that in an age of widespread availability of 3D printing, many consumers would not accept that they were not entitled to produce their own 3D-printed spare parts for repair purposes, meaning that a de facto repairs clause might become inevitable anyway as it proved infeasible to enforce industrial designs against those infringing for the purpose of repair.

1.8 Further action that could be considered

Based on the analysis completed in this study we offer the following suggestions for further action that could be considered:

Further action that could be considered 1: Establish a best practice, at Community level, that small business and business start-up support programmes provided by national, regional and local authorities should (when the firms in question are in design-intensive sectors) include advice to firms on the availability, potential benefits and mechanisms for registering and enforcing national and Community industrial designs (see Section 10.5.4). This suggested action for consideration would tackle the problem that many companies are not aware of industrial designs and how they might help their business. By increasing awareness it is likely that more companies would make informed decisions of whether and how to protect their designs and this should help to improve the performance of firms that opt for such protection.

Further action that could be considered 2: Establish an information dissemination process, mediated via industry associations and other relevant stakeholder representatives, to promote knowledge and understanding of Community industrial designs and their potential value (see Section 10.5.4). This suggested action for consideration would tackle the problem that many trade associations lack knowledge of the industrial designs system within the EU and hence are unable to provide support to their member firms on such issues. Trade associations can play a key role in improving information flows to their members and so reduce the search costs associated with protecting designs which, in turn, should lead to companies making more informed decisions.

Further action that could be considered 3: Establish a Community-level body to support EU firms in applying for and enforcing industrial designs outside the EU (see section 8). This suggested action for consideration would help to reduce the barriers to entering markets in outside the EU by reducing the search costs associated with understanding the IPR frameworks of third countries. In turn, this should help to encourage more firms to enter non-EU markets and would thereby support the continuing success of EU businesses.

Further action that could be considered 4: Mandate the availability of e-application for industrial designs in every Member State (see section 10.5.4). This suggested action for consideration would reduce the cost of applying for protection and hence could be of particular benefit to SMEs (which typically are less able to bear such costs). It may also help to reduce the duration of the application process in countries that currently use paper registrations which may increase the number of products for which it is rational to seek registered protection of a design.

Further action that could be considered 5: Complete the establishment of a single portal at which potential design applicants or those considering enforcement action can review all designs registered anywhere in the EU (see sections 10.5.2 and 10.5.4). This suggested action for consideration also refers to the DesignView tool that is currently being implemented by OHIM which we consider would be of great benefit to companies that hold registered industrial designs and those that wish to oppose them given the current difficulties in sourcing information on granted industrial designs in certain countries.

Further action that could be considered 6: Conduct a legal review of the best mechanism for achieving a unified framework for Community industrial designs enforcement with a view to enactment (see sections 8 and 10.5.3). This suggested action for consideration is designed to tackle the problem that the process for enforcing industrial designs, and the associated costs, can differ substantially between Member States. The fact that industrial designs may be enforced separately in different countries creates a significant administrative burden for those that consider that their right has been infringed in multiple jurisdictions. Moreover, the fact that there are differences in the evidence requirements of different Member States means that different courts could potentially reach different decisions. The best mechanism for tackling this problem is not clear from the economic analysis and hence a detailed legal review should be conducted on the issue.

Further action that could be considered 7: Plan ahead and resource intellectual property offices for much great demand for design registration in the relatively near future (see section 8). We believe this is a plausible consequence of the wide-spread use of 3D printing, which (as well as necessitating the clarification of certain areas of legal uncertainty and potentially requiring new digital rights that address management, production and infringement issues) will render obsolete a number of the mechanisms of informal protection that firms have traditionally relied upon.

Further action that could be considered 8: With respect to visible spare parts, introduce a repairs clause at EU level, in the form of the "full liberalisation" option, and mandate its applicability throughout the Single Market (see section 9). We believe that, although the absence of a repairs clause is not intrinsically anti-competitive, there is no good intellectual property reason not to have a repairs clause and the effect of its absence is to force consumers into implicit ongoing contracts with original suppliers that consumers might not choose for themselves, that would be better explicit and that it is not the job of the intellectual property system to create.

2 Introduction

Europe Economics was engaged by DG Internal Market and Services to complete an "Economic Review of Industrial Designs in Europe". For the purposes of this study we understand the term "design" as it is defined in the Design Directive (98/71/EC):[3]

> "The appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation."

Throughout this report we shall use the term "industrial design" to refer to the formal legal right by which designs may be protected and the term "design" (without "industrial") to refer to the design itself, whether or not it is in practice protected by an industrial design.

The core objectives of the study are to understand the characteristics of design-intensive industries, the extent to which designs are developed and contribute to the economy, the method by which designs are protected (if any) and the rationale for the choice of protection strategy. We also assess the economic consequences of the non-harmonisation of spare parts legislation and the functioning of the enforcement of industrial designs. Finally, we develop a number of evidence-based suggestions for further action that could be considered concerning the functioning of the industrial design protection at national and EU levels.

2.1 Summary of method

Our approach to the study relied on gathering information and data from a wide variety of sources (see discussion below) which were drawn together during the analytical phase of the study. More precisely, we reviewed literature that could inform a theoretical assessment of how those seeking protection for designs would choose which method of protection to seek. It also provided some evidence of the relationship between protecting designs and factors such as economic growth, innovation, employment and competition.

We then gathered relevant data which enabled us to identify design-intensive industries in the EU, estimate their contribution to GDP and employment in the EU, and assess the extent to which they use industrial designs to protect designs.

We also designed and distributed an online survey of those companies that develop designs in Europe. The key purpose of the survey was to provide information on the development of designs and the rationale for the use of different types of IPR to protect designs by different companies. It also enabled us to gather information on the enforcement of industrial designs in Europe and the consequences of the non-harmonisation of spare parts legislation.

We secured further input from stakeholders through a series of structured interviews. Alongside a selection of companies who took part in our survey, the interviewees included organisations that are responsible for granting IPR for designs and professional associations at both national and European levels.

Finally, we drew together these earlier tasks in our economic analysis of the industrial designs.

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2.2 Key information sources

In this section we provide a brief description of the four key information sources that have been used to produce the qualitative and quantitative analysis presented in the main body of this report: literature review; WIPO data; survey data; and information from interviews with stakeholders.

2.2.1 Literature review

The aim of this initial task of the study was to provide a comprehensive review of the economic literature on five principal topics: the characteristics of design-intensive industries; the economic effects of design protection at the level of companies; the relationship between protecting designs (through industrial designs and/or other types of IPR) and economic growth, innovation, employment and competition; the enforcement of industrial designs; and the economic consequences of the non-harmonisation of spare parts legislation.

It is critical that any literature review is focused and well-directed so that the relevant theoretical and empirical materials are identified efficiently.

At the onset of the literature review we agreed on a set of search criteria, which encompassed search terms to be used (and their variants). Given the multi-national nature of our staff, where relevant, we were also able to search non-English academic databases and key words to ensure a complete coverage of the topic. The key words that we used, in each language, are presented in Appendix 1.

We used the internet as a search tool to identify relevant research, using search engines including Google Scholar, JSTOR, Ingentia, Interscience, REPEC and Citation databases, e.g. Web of Science. We also identified any relevant material from books and other types of publications. We have also checked references in the documents it reviews to establish whether there are any further studies which should be reviewed.

We drew on the academic expertise available to the project team. The project team has provided a list of relevant literature, drawing on their own research in the relevant fields. This has ensured that an appropriate list of documents was chosen for review, and that the conclusions which emerge from the literature review take account of the latest academic developments. Furthermore, the research published by members of the project team has itself formed part of the literature review. Thus we were able to develop a list of authors whose work would be most relevant for our work. This list is also presented in Appendix 1.

Below, we provide some examples of the type of literature we have reviewed for this task:

- Academic articles.
- Consultancy reports.
- Government publications.
- White papers.
- Publications by relevant institutions such as WIPO, IPO and EPO.
- Media articles.
- Working papers.
- Europe Economics past publications.
- Books.
- Legal documents.
- Previous court cases.
- Official government legislation for each country.

In total, more than 200 papers were reviewed in 10 languages (Danish, English, French, German, Greek, Italian, Portuguese, Romanian, Spanish and Swedish). Of these, approximately 90 were subject to detailed review. The long list and short list are presented as appendices to this report.

2.2.2 WIPO data

WIPO data was used to analyse how firms protect designs in practice. More precisely, the data were used to answer the following key questions:

- What are the recent patterns and trends in the use of industrial designs and at the Member State level, distinguishing between destination offices and country of origin?
- What are the recent patterns and trends in the use of industrial designs and by different Member States and Locarno classes?

The WIPO IP Statistics Data Centre provides a time series for a range of design indicators by Member State and by Locarno industrial classification. The WIPO database has a number of advantages over alternative data sources. More specifically:

- The data is compiled in close co-operation with IP offices around the world and it has a wide geographical coverage with data availability covering several years.
- The WIPO applies a consistent data gathering methodology and the data is harmonised to reduce the risk of comparability issues across countries.
- Some of the design data is provided as number of design counts in registrations (i.e., the number of designs contained in applications), which facilitates the comparison of designs registered across different national offices and following different routes[4].
- The data is available for design applications filed through different routes, i.e. the international the Hague route, and National direct route.

As a cross-check we compared data available from WIPO with the data collected directly from National Offices as available from DesignView.

2.2.3 Survey

The key purpose of the survey was to provide information that would help us to answer the following key questions:

- For what reasons are designs important to a company?
- How do companies protect the designs that they develop?
- Why do companies protect their designs in those ways?
- What have been respondents' experiences of enforcement?
- What have been respondents' experiences in the market for visible spare parts in the absence of harmonisation?
- How satisfied are companies with the current functioning of the system for protecting designs in Europe and what could be improved?

The questionnaire, which is presented in Appendix 4, was developed and agreed with DG Internal Market.

Sample selection

The target audience for the survey was those organisations who, according to the definition of design included in the Design Directive (98/71/EC), develop (or outsource the development of) their own original designs, as part of their business activities.

[4] Under the Hague system, design protection can be obtained for up to 100 industrial designs for products belonging to the same Locarno classification, with some national offices allowing applications to contain more than one design for the same product or within the same class, while other allowing only one design per application: see http://www.wipo.int/export/sites/www/freepublications/en/statistics/943/wipo_pub_943_2013.pdf, p3.

Prior research had identified 165 design-intensive sectors at the level of a four-digit NACE code: all firms that operate in these sectors were candidates for inclusion in the sample.[5] The sampling approach sought to achieve a broadly representative distribution across the EU with respect 165 design-intensive industries. Eurostat has data on the total number of enterprises in the EU as a whole, and for each Member State, for each of the 165 design intensive industries. We used these data to split the sample by industry, within each Member State, using the Member State level data. While there were some weaknesses in the data (i.e. the sum across countries is less than the EU total) we consider that the available data were sufficient for the purpose of identifying how many records should be purchased within each industry, in each country.

Once we had identified the total number of enterprises in each target sector in each country, it was necessary to split this total into size categories of firms within each country. Eurostat data does not show the percentage of enterprises in each size category for our 165 target sectors since this breakdown is only available at a higher level of business sector categorisation (two-digit NACE code level as opposed to the four-digit level at which design-intensive industries are defined). Design intensive industries are in many cases a small subset of these bigger groups and so, in the absence of a better approach, we assumed that the proportionate spread of enterprises at the level of our target audience is the same as at the four-digit NACE code level.[6]

Following discussion between the contractor and DG Internal Market, it was agreed that firms of all sizes should be included in the sample. We had some concern that many very small enterprises (0-9 employees) would not develop (or outsource the development of) their own designs and so would not be eligible to take part in the survey. In the absence of data that would assuage this concern, and given that micro-enterprises account for up to 80 per cent of firms in the target sectors, we considered that there was a significant risk that the vast majority of the sample would not be able to take part in the survey.

To mitigate this issue it was agreed that we should aim for a sample which would give a higher proportion of larger firms (i.e. those that are more likely to originate their own designs) than would be implied by Eurostat data on the size distribution of firms.

As described in greater detail below, a lack of responses from this sample meant that it was necessary to seek respondents via trade associations and hence the final sample differs somewhat from that which was expected at the outset of the survey.

Survey dissemination

We chose to disseminate the questionnaire online, partly because of convenience for the respondent and partly because the data obtained through online self-completion tend to be accurate and less subject to bias than alternative distribution methods.

More specifically, online self-completion also allows the respondent to choose the most convenient time to answer, rather than refusing an unexpected call or breaking a fixed telephone appointment due to other priorities. In addition, a number of the questions included in the questionnaire require the respondent to refer to records, consult with colleagues or require some time to consider the response. It is more difficult to obtain accurate feedback on these topics in a one-to-one telephone interview where the respondent may feel they have to give instant and less than fully considered responses.

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[5] The 165 sectors are listed in EPO / OHIM (2013), "Intellectual Property Rights Intensive Industries: Contribution to Economic Performance and Employment in the European Union. Industry-Level Analysis Report", Appendix 9.4, pages 127 to 131.

[6] It should be noted that there were some data gaps even at the two-digit NACE code level and so it was necessary to make a further assumption. In particular, the data do not show any 0-9 employee enterprises in the service sectors, which account for 37 of the 165 design intensive sectors. The Eurostat data do give a total number of enterprises in each of these 37 categories, which is much greater than the sum of enterprises in each size category. For the purpose of identifying the population of records to purchase (and sample of respondents to achieve) we assumed that the missing figures are enterprises with 0-9 employees.

An online self-completion methodology also helps to address the problem of postal self-completion, where the effort of completing and posting can deter respondents. Postal surveys are more likely to attract respondents who can be atypical of the survey population as they tend to be more positively or negatively motivated to respond.

Given the online approach, Accent programmed the questionnaire and then conducted a pilot with 30 respondents. Following changes post-pilot, all other target respondents were sent an email with a web hotlink, which allows them to access the web-based questionnaire.

Characteristics of respondents

The survey was distributed directly, in a series of tranches, to approximately 70,000 companies in design-intensive industries. Very few responses were received within the first couple of weeks following dissemination of the first tranches and so we employed a number of strategies to boost the response rate. These included:

- shortening the survey;
- engaging approximately 80 trade associations in relevant industries to disseminate the survey to their member on our behalf; and
- completing more than 2,000 telephone calls to individual companies to encourage participation.

Following the completion of these tasks, and an extension to the response deadline, a total of more than 1,300 companies accessed the online survey and reviewed its contents. Of these:

- 171 were not in scope because while they operate in design-intensive industries, they did not develop their own designs, outsource the development of designs, manufacture, or sell, or distribute spare parts of a complex product which are visible or otherwise use designs;
- 694 looked at the questionnaire but did not answer any questions;
- 240 completed less than 90 per cent of the survey; and
- 195 completed in excess of 90 per cent of the survey.

The response rate to the survey is, despite the substantial efforts to encourage companies to respond, some way below the total of 1,000 responses that we had hoped to gather during the course of the study. It is also the case that some sectors are over-represented amongst respondents (especially those sectors that have an interest in the protection of visible spare parts). These features mean that the sample of those that responded to the survey is biased, in particular towards those that have an interest in the issue. While this is clearly sub-optimal, and the caveat must be borne in mind when interpreting the results of the survey, it should nonetheless be noted that the sample would have been subject to bias even if 1,000 responses had been achieved. This is because respondents self-select into responding to the survey and hence those for which industrial designs are particularly important, and those that have had a positive or negative experience with industrial designs, are more likely to respond to the survey. Even with the full response rate, therefore, we would not be able to say that respondents were representative of the population of firms that operate in design-intensive industries and hence caveats would have been applied to our results even in that case.

Bearing these caveats in mind, responses to the survey are analysed in detail later in this report, broken down by NACE sector and geographic origin.[7] As shown in the charts below, while it was possible to identify the NACE sector for the vast majority of those that completed in excess of 90 per cent of the survey, the same cannot be said for country of origin. In particular, we could not identify the country of origin for those that

[7] The countries included in each region are as follows: Northern – DK, FI, SE; Central – BG, CZ, EE, HU, LT, LV, PL, RO, SK, SI; Western – AT, BE, DE, FR, IE, LU, NL, UK; Southern – CY, ES, GR, HR, IT, MT, PT. This is based on a classification presented in "Cities of tomorrow - Challenges, visions, ways forward" published by the European Union in 2011.

responded to a link circulated by trade associations and hence the total number of responses used to produce charts by country of origin is less than those used to produce charts broken down by NACE sector.[8]

Figure 2.1: Characteristics of respondents by sector

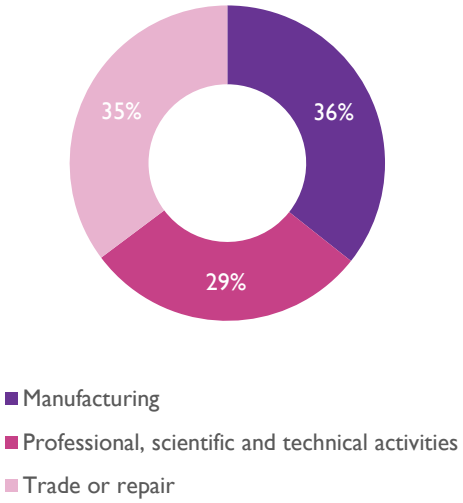
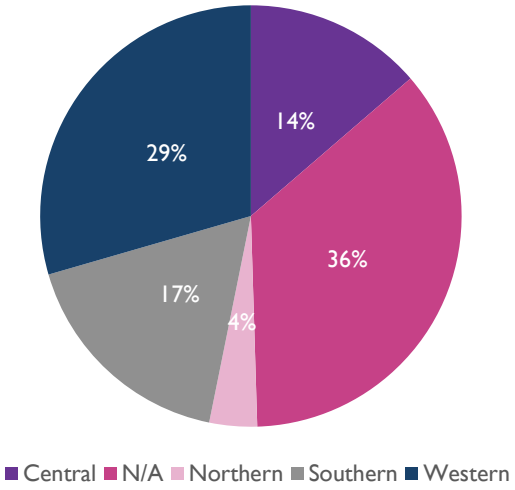


Figure 2.2: Characteristics of respondents by region



Some sectors were overrepresented amongst organisations that responded to the survey while others were underrepresented relative to the number of firms in each sector, as shown in the table below. The differences in the characteristics of those that responded to the survey and the total number of enterprises in the sectors are shown in the table below.

[8] A detailed breakdown of respondents by NACE sector and country is presented in the appendices (Section 14.2).

Table 2.1: Characteristics of respondents relative to industry characteristics

Sector	Number of EU enterprises in design-intensive industries	% of design-intensive enterprises	% survey respondents
Manufacturing	1,191,264	35%	46%
Wholesale and retail trade; repair of motor vehicles and motorcycles	1,281,785	38%	18%
Professional, scientific and technical activities	702,620	21%	36%

This shows that there was an over-representation of manufacturing companies amongst survey respondents. The same is true for companies involved in professional, scientific and technical activities while the wholesale and retail trade, repair of motor vehicles and motorcycles sector was under-represented.

To explore the impact of this over-representation, and to understand the impact on the overall conclusions, we calculated both a simple average of the percentage of designs that were protected by each type of IPR (based on information contained in survey responses) and also constructed a corrected average to account for this over- and under- representation (i.e. ensuring that each group had the weight in the overall average that corresponds to the percentage of design enterprises reported in the table above). The results of this analysis are shown in the table below.

Table 2.2: Simple and corrected averages

	Simple average	Corrected average
Industrial design - National, registered	17%	17%
Industrial design - National, unregistered	9%	8%
Industrial design - Community (OHIM), registered	8%	8%
Industrial design - Community, unregistered	8%	8%
Copyright	-	-
Trademark - National	29%	21%
Trademark - Community (OHIM)	22%	21%

It is clear that the correction has very little impact on the results, particularly in respect of respondents' use of industrial designs. On this basis, and because of the greater ease of interpretation, we report simple averages in the remainder of this report.[9]

2.2.4 Interviews

A survey is a useful way of collecting data from a relatively large sample of respondents. However, the drawback is that because of the relatively rigid format, the information retrieved in this way tends not to be very detailed or nuanced and can sometimes be difficult to interpret.

For this reason, we complemented the questionnaire responses with a series of semi-structured interviews with companies that had responded to the survey. The interviews were designed to allow us to secure a better understanding of the considerations that companies have in mind when deciding on how to protect designs and the perceived effectiveness of different forms of IPR for protecting designs. The interviews also enabled us to discuss the perceived strengths and weaknesses of industrial designs in Europe and to understand how those that operate in design-intensive industries consider that the system could be improved.

[9] It was not possible to complete the same correction by country of origin because, as noted above, we only have the necessary information for a subset of respondents.

We asked respondents to the online survey to indicate whether they would be willing to participate in a follow-up interview, which allowed us to clearly identify those that were willing to be contacted.

We also sought to arrange brief interviews with between other relevant key stakeholders, including trade associations and intellectual property offices. The key purpose of these interviews was to gather information on the general trends in the use of different types of IPR to protect designs (and the underlying causes of these trends), as perceived by those that have a broader understanding of such issues than individual companies. These interviews were also designed to be a key source of information for our assessment how the enforcement of industrial designs functions in practice at national and EU level, and the perceived advantages and disadvantages of the systems for different types of IPR.

Unfortunately, the interview programme proved to be less successful than we had hoped, although we had interesting and informative interviews with WIPO and OHIM. In general, trade associations considered that they did not have sufficient knowledge of industrial designs to participate in an interview and so despite inviting approximately 80 trade associations to participate in an interview, only four were willing to take part (one from the textiles industry, one from the furniture industry and two from the motor vehicles / spare parts industry). Similarly, survey respondents also tended to have little knowledge of industrial designs and many were unwilling to dedicate time to an interview given that they had already responded to a survey. Of those 10 companies that we successfully arranged interviews with, only a few had sufficient knowledge to provide detailed responses to some of our questions while most were unable to provide such information. The characteristics of the companies for which interviews were arranged are presented in the tables below.

NACE Code	Number of interviews
17.12 Manufacture of paper and paperboard	1
22.23 Manufacture of builders' ware of plastic	1
26.30 Manufacture of communication equipment	1
26.51 Manufacture of instruments and appliances for measuring, testing and navigation	1
28.13 Manufacture of other pumps and compressors	1
29.20 Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	1
45 Wholesale and retail trade and repair of motor vehicles and motorcycles	2
73.11 Advertising agencies	2

Note: The distribution of interviews reflects, as far as possible, the distribution of survey responses.

2.2.5 Interpretation of low response rate

As noted above, the response rate to our survey was lower than hoped or anticipated. There are four candidate plausible factors influencing this:

- It is possible that our method for identifying firms involved in design was less successful than expected. We know of no reason to believe that this was indeed an important factor but cannot altogether rule it out.
- The length of the survey deterred respondents. Even the shortened version of the survey had an average completion time of 34 minutes. The surveying rule of thumb is that a survey requiring more than 15 minutes to complete will entail a large drop-off in full response rate. The final survey was much longer than the survey we had anticipated distributing at the commencement of this study, largely because the required research scope turned out to be broader than we had originally anticipated but also because the data, from other sources than the survey, to answer certain important research questions turned out not to be available. It was agreed with the Commission that some compromise on likely achieved response rate was required in order to gather the data needed. It seems very clear from the very high proportion of those accessing the survey that did not attempt to complete it that the length of the survey was a relevant factor in the low response rate. We are sceptical, however, that it constitutes a complete explanation. This leads us to the other candidate factors below.

- A third possibility is that firms had little appetite for participating in the survey because they either were not aware of the option of protecting their designs via industrial design, or if they were aware of that they did not regard such protection as particularly useful or relevant to them, or because (although they did produce designs, by our definition here and by the definition of design used in specifying industrial designs) they did not think of themselves as involved in design. In our view this is likely to have been a significant factor and the low response rate is itself evidence. We shall see in later sections below that only a minority of those with designs obtain formal intellectual property protection of them and our experience in follow-up calls and other interactions with those approached for the survey is that many firms in sectors our evidence strongly suggests are design-intensive did not regard themselves as involved in design and had no interest in industrial designs.
- A fourth possibility is that, of those that are aware of the options for registering and protecting designs, a large portion are broadly content with matters as they are and are unaware of any specific proposals for change they would find disturbing. Those with the highest appetite to participate in surveys are always those with a specific concern — either a concern that matters should change or that they should not change in a particular way. Those broadly content with matters as they are and relaxed about incremental improvements are always less likely to complete surveys. A variant of this is where there are specific concerns but they are very long-standing and there is a strong view that nothing plausible can be done to address them — this view might be summarised as "'Twas ever thus and 'twill ever be so". In that sense a very low response rate can be regarded as evidence of passive contentment or at least resigned acceptance. We believe, again, that this perspective — that many designers are either content with the system or believe it cannot practically be changed in ways that would satisfy them — is plausible as a factor in the very low response rate. If discontent were more widespread and firms believed there were concrete and achievable ways to improve things that went beyond the incremental improvements they would expect bureaucrats to be progressing with anyway, there would be a higher appetite to participate in such surveys. An illustration of this is that, in the one particularly contentious area of the study — visible spare parts — participation was much higher including parties on both sides of the debate.

We emphasize, however, that although the response rate is low we do believe that we have obtained sufficient responses that the results we have presented here continue to be meaningful and informative for the purposes of the study. None of the results we present are reliant upon the views of only one or two firms or firms in only some particular Member State. They are the views of firms across a range of industries in a range of Member States and, although we do not rely solely upon the views expressed in the survey in producing our suggestions for further actions that could be considered, they are nonetheless useful context providing complementary data to that in the rest of our analysis — remembering always that our survey is only one of our four main sources of data and data as a whole sits alongside and is complemented by our economic reasoning.

2.3 Report structure

The remainder of our report is structured as follows:

- Section 3 considers how design-intensive industries should be identified.
- Section 4 discusses the economic contribution of design-intensive industries.
- Section 5 considers how designs can be protected.
- Section 6 considers how designs are protected.
- Section 7 considers why firms choose to protect designs in the ways that they do.
- Section 8 considers the enforcement of industrial designs and the implications of new technologies such as 3D printing.
- Section 9 considers the arguments for and against industrial design protection for visible spare parts.
- Section 10 presents our conclusions and suggestions for further actions that could be considered.

- Appendices set out our more details of our literature review, including search methods and document lists and describes the data sources used to produce the report (including the full survey questionnaire).

A summary of key documents considered in the Literature Review appears in a separate Literature Review Annex.

3 What is a "Design-Intensive Industry"?

This study concerns design-intensive industries. However, there is no clear consensus regarding the most appropriate definition of such industries. The problem of identifying a design-intensive industry is twofold. Firstly, the way of measuring or defining a specific sector or industry is not directly obvious. Secondly, there is not a single universal methodology employed by the literature for the purpose of defining a design-intensive industry thus it can be challenging to decide which measure to use. In what follows we present in detail two methodologies that have been suggested by the European Patent Office and OHIM (2013)[10] and the UK Intellectual Property Office (2011).[11] We focus on the methodologies in these two reports as they have had a significant influence upon other literature.

3.1 The European Patent Office and Office for Harmonisation in the Internal Market definition

The study conducted by the EPO/OHIM aims at identifying the impact that intellectual property rights have on the European economy (GDP, employment, trade and wages). The study uses IPR-intensive industries as an indirect way of measuring the effect of intellectual property rights on economic performance. The IP rights considered in this study comprise of trademarks, patents, designs, copyright and geographical indicators. The study defines IPR-intensive industries as "those having an above-average use of IPR per employee".

The unit of measurement of the industries considered in the study is determined by the NACE classification of Eurostat.[12] Following this method, total economic activity in a country is classified into 22 categories which are then further broken down into 88 divisions (2-digit level), 272 groups (3-digit level) and 615 classes (4-digit level). This particular study uses the NACE 4-digit level disaggregation to define the industries that will be analysed. However, sometimes this is not possible because a number of databases are used (EPO PATSAT database, ORBIS, COMEXT, National Statistics Offices) and not all of them contain data on that level of disaggregation. To deal with this issue the authors use 2 or 3 digit level NACE classifications whenever the data available are not sufficient.

The EPO/OHIM follow a number of very precise steps to identify design-intensive industries. Intensity is broken down into absolute and relative intensity.

To determine absolute intensity the authors:

- Filter the OHIM data warehouse[13] so that it only includes data between 2004 and 2008. For consistency purposes, the receiving date was considered rather than the filling date.

[10] EPO and OHIM (2013), Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union, Industry-level analysis report.

[11] Haskel, J. and Pesole, A. (2011), "Design services, design rights and design life lengths in the UK".

[12] http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-07-015/EN/KS-RA-07-015-EN.PDF.

[13] This database holds data on all the RCD applications that were filled directly with OHIM. In January 2013 this dataset included 700 000 records.

- To decrease the size of the dataset, all the designs which were never published were excluded from the analysis. The final dataset was then matched to the OHIM-ORBIS concordance table which is constructed in an earlier section of the study, thus harmonising all the individual variables.
- The output of this procedure is again filtered to keep only the applications of those who have at least one applicant residing in an EU Member State.
- For each application, the authors estimate a ratio of design intensity. This ratio is calculated by counting the number of applicants for each application and then assigning them equal weights. For instance, if for a given application there were 8 applicants involved then each applicant is assigned a weight of 1/8. Such fractions were only applied to the specific applications that could be identified by a NACE code.
- The final step aggregates all the fractional count for each NACE industry code.

Relative Intensity is defined as "the number of designs assigned to an industry, divided by the total employment figure for that industry". According to this definition, a design-intensive industry is one in which for every 1,000 employees the number of design applications is above the employment-weighted average for all the industries considered. The steps undertaken to estimate relative intensity are as follows:

- Employment data from the SBS dataset in Eurostat are extracted for the period between 2008 and 2010 for each industry classification. When data at a 4-digit disaggregation level were not available the authors would infer it by using the 2 and 3 digit level values.
- The authors deem it more appropriate to use average employment for each class between 2008 and 2010. This helps to reduce the effect of missing values for individual years and remove the idiosyncratic effects that some particular years may have.
- The refined SBS dataset is then combined with the absolute intensity dataset compiled before. Whenever data are not available for any NACE classification the Labour Force Study was used to fill the gaps.
- The public sector was disregarded because of the insignificant number of applications it exhibited. Including the public sector in the calculation of the average level of design intensity would have resulted in setting the threshold for design intensity too low and thus too many industries would have been classified as design-intensive. [14]

It is worth noting that the methodology employed in this study follows closely the one used by USPTO[15] in a study in 2012. The reason for doing so was to make the results of the two studies as comparable as possible.

The drawback of this methodology, as identified by the authors, stems from the definition of IPR intensity. Because intensity is defined in such a way as not to take into consideration the monetary value of an IP right but rather the total number of IP rights divided by the number of employees in the industry it runs the risk of ignoring industries that issue a small but monetary significant number of IPRs and employ a large number of employees. These industries would not be considered as IPR-intensive under the suggested definition even though they might have had a substantial contribution to the development of innovation.

Findings

The study finds that out of the 470 industries that use designs, 165 can be classified as design-intensive. The overall industry average is 1.61 per employee. The majority of these industries come under the manufacturing sector. For illustration purposes we provide a table with the top 20 design-intensive industries as estimated in the report:

[14] In section 5 we follow a similar approach as the one outlined in the EPO/OHIM report with more updated data.
[15] USPTO (2012), Intellectual Property and the U.S. Economy: Industries in Focus, March 2012, http://www.uspto.gov/news/publications/IP_Report_March_2012.pdf.

Table 3.1: Top 20 design-intensive industries

NACE Code	NACE Description	Total Employment	Design/1000 employees
26.52	Manufacture of watches and clocks	9 950	90.68
77.4	Leasing of intellectual property	16 150	78.59
25.71	Manufacture of cutlery	19 750	70.23
23.41	Manufacture of ceramic household and ornamental articles	66 850	70.23
46.48	Wholesale of watches and jewellery	54 650	66.24
27.4	Manufacture of electric lighting equipment	173 300	39.18
28.24	Manufacture of power-driven hand tools	25 500	36.98
14.11	Manufacture of leather goods	14 500	35.52
32.3	Manufacture of sports goods	42 500	30.79
27.51	Manufacture of electric domestic appliances	213 500	29.08
32.4	Manufacture of games and toys	52 000	26.25
28.14	Manufacture of other taps and valves	138 600	25.21
23.49	Manufacture of other ceramic products	8 400	24.36
32.99	Other manufacturing	140 550	23.7
23.42	Manufacture of ceramic sanitary fixtures	30 950	23.05
46.47	Wholesale of furniture and carpets	145 900	22.17
30.99	Manufacture of other transport equipment	6 100	22.13
25.72	Manufacture of locks and hinges	157 850	21.57
46.42	Wholesale of clothing and footwear	394 150	19.66
17.22	Manufacture of household and sanitary goods	79 800	17.08

3.2 The Haskel and Pesole definition of design-intensive industries.

This study sought to measure the contribution of the design/creative industry to economic performance. In order to do so the authors need to find an appropriate definition of what a design industry is. Having reviewed all the suggested definitions in the literature about the best way to define a design industry they proceed to suggest their own definition based on the type of employment in each industry.

The authors first introduce a general definition of the type of workers that produce designs. This definition comprises of architects, engineers and graphic, product, clothing and related designers. By using this definition the authors remain consistent with the knowledge investment measures recommended by the Imperial/NESTA Innovation Index. Nonetheless, the authors extend their analysis to include most forms of architecture and engineering. We note that these design professions are chosen *ad hoc* and for the rest of the paper they are assumed to be the main design industries. The classifications used for the type of industries considered as design industries are borrowed from the Standard Occupational Classification.[16]

The NESTA creative industry mapping[17]

We focus our attention on the NESTA studies and databases as Haskel and Pesole (2012) adopt the findings of these studies in their own report. The overarching aim of the NESTA study is to offer evidence on how innovative activities can boost UK's economic performance.

The model developed by this study concentrates on three types of creative employment: 'specialist' artists, professionals or creative individuals working in creative industries; 'support' staff in those industries providing

[16] http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/index.html.
[17] NESTA (2008), Beyond the creative industries: Mapping the creative economy in the United Kingdom.

management, secretarial, administrative or accountancy back-up; and creative individuals 'embedded' in other industries not defined as 'creative'. The authors further break down this workforce into six classifications: advertising and marketing; architecture, visual arts and design; film, TV, radio and photography; music and performing arts; publishing; and software, computer games and electronic publishing.

Findings

The mapping of the industries to the relevant occupations is illustrated below:

Table 3.2: Mapping of occupations to industries

Industry	Profession
Advertising	Advertising and public relations managers
	Marketing associate professionals
	Graphic designers
	Marketing and sales managers
	Sales representatives
	General office assistants/clerks
	Personal assistants and other secretaries
	Accounts and wages clerks, book-keepers, other financial clerks
	Arts officers, producers and directors
	Authors, writers
Recreational, Cultural and Sporting Activities	General office assistants/clerks
	Leisure and sports managers
	Accounts and wages clerks, book-keepers, other financial clerks
	Cleaners, domestics
	Sports and leisure assistants
	Receptionists
	Artists
	Marketing and sales managers
	Personal assistants and other secretaries
	Managers and proprietors in other services
Motion Picture and Video Activity	Leisure and sports managers
	Leisure and theme park attendants
	Photographers and audio-visual equipment operators
	Arts officers, producers and directors
	Broadcasting associate professionals
	Sales and retail assistants
	Customer care occupations
	Elementary personal services occupations
	Elementary office occupations
	Artists
Manufacture of jewellery and related articles	Goldsmiths, silversmiths, precious stone workers
	Production, works and maintenance managers
	Metal working machine operatives
	Sales and retail assistants
	Product, clothing and related designers
	General office assistants/clerks

Industry	Profession
	Precision instrument makers and repairers
	Labourers in process and plant operations
	Accounts and wages clerks, book-keepers, other financial clerks
	Assemblers (vehicles and metal goods)
Computer Software Consultancy	Software professionals
	IT strategy and planning professionals
	Information and communication technology managers
	Marketing and sales managers
	IT operations technicians
	Computer engineers, installation and maintenance
	Graphic designers
	Production, works and maintenance managers
	General office assistants/clerks
	Sales representatives
Architectual activity and related technical consultancy	Architects
	Personal assistants and other secretaries
	Graphic designers
	Architectural technologists and town planning technicians
	Design and development engineers
	General office assistants/clerks
	Draughtspersons
	Marketing and sales managers
	Product, clothing and related designers
	Town planners
Publishing	Journalists, newspaper and periodical editors
	Production, works and maintenance managers
	Sales representatives
	Marketing and sales managers
	General office assistants/clerks
	Managers and proprietors in other services
	Authors, writers
	Personal assistants and other secretaries
	Accounts and wages clerks, book-keepers, other financial clerks
	Graphic Designers

Comparison of the two studies

The two studies we have investigated, although similar in some respects reach different conclusions which are not immediately comparable. In terms of similarities, both studies seek to develop an appropriate measure of design/creative industries. The EPO/OHIM studies develops a methodology based on the design intensity ratio which them allows the authors to rank industries according to how focused they are on protecting the design side of the product. The study finds that the manufacturing industry is consistently the most design-intensive. On the other hand, the Haskel and Pesole (2012) study aims at simply identifying the design related industries and then measure their contribution to economic performance. The authors adopt the definition of design related occupations from the NESTA research and for the rest of the paper they assume that these are the relevant occupations and map them to the appropriate industry/sector. Inevitably

the sectors identified are dictated by the occupations chosen. These sectors are closely related to more creative industries such as publishing and architectural activity. Because the two studies are based on different assumptions and have differing purposes the results do not coincide and they are also not comparable.

3.3 Summary and conclusions

In this section we have reviewed two different methodologies that have been proposed for defining design-intensive industries, one proposed by a recent study published by EPO and OHIM and one based on Haskel and Pesole. We feel that, for the purpose of the current study, the approach used by the EPO/OHIM has a number of advantages.

- First, the definition proposed be EPO/OHIM is data-driven in the sense that the definition of a design intensive industry is derived objectively from an analysis of public data sources (albeit under a number of assumptions, such as that design-intensity should be defined as those that are above average). By contrast, in Haskel and Pesole, the definition of a design intensive sector is taken as a given and relies on the predefined NESTA Innovation Index.
- Second, the definition used by the EPO/OHIM has a broad European scope as opposed to being UK specific.
- Third, the NESTA classification on which Haskel and Pesole definition is based has recently been subject to criticism and is currently under revision in the UK (though we note that the EPO/OHIM definition has also been subject to some criticism).

For these reasons, we gather, wherever possible, data on the characteristics and economic contribution of design-intensive industries using the EPO/OHIM definition. This approach was feasible, for example, when gathering data from Eurostat as it was possible to identify the NACE code of the industry. Our firm-level analysis of design-intensive industries also drew on this definition.

Notwithstanding this, it was necessary in some instances to employ an alternative approach which relies on adopting sector definitions based on Locarno classification. This relates, in particular, to our analysis of WIPO data (see section 6.1.4) because detailed information on the number of design registrations and applications (broken down by country of origin and country of destination) is publicly available in this format, but the breakdown by NACE code is not available.

4 Design-Intensive Industries

Here we consider the economic contribution of the design-intensive industries to the wider economies of the European Union and its Member States. The definition of design-intensive industries and firms was considered in more detail in the previous chapter, but research by the European Patent Office (EPO) and the Office for Harmonization in the Internal Market (OHIM) categorises around half of European industries as IPR-intensive, which is unsurprising as the report's standard for IPR-intensive is that its use of IPR is above average.[18] That report and new updated estimates based on the same standard are cited below alongside other empirical analysis of the economic contribution of design-intensive industries.

We explore the economic contribution in terms of three macroeconomic variables – turnover, value added (or gross domestic product), trade and employment – and in terms of the contribution to the number of enterprises and innovation. We then consider why individual firms engage in design work, the economic contribution which they expect it to make to their business.

4.1 Contribution to turnover, value added / GDP, trade, employment, the number of firms and innovation

4.1.1 Turnover

An IPO study exploring the link between business performance and registered designs found that there was a strong positive correlation between a firm's performance (as measured in terms of sales per employee) and the number of designs that it held. The magnitude of this effect has fallen in recent years. Nonetheless, they argued that the importance of design at the firm level remains significant and worth exploring.

Haskel and Pesole (2011) estimated that, in 2008 in the UK an estimated £33.5bn was either spent on architectural and engineering design services or was produced in-house.[19] It should be noted however, that the £33.5bn estimate was a significant mark-up to the figure provided by NESTA's Innovation Index in 2010, which gauged UK businesses' investment in design-related assets to be about £23bn.[20]

In the Danish government white paper 'Design Denmark' in 2007, aggregated turnover in the design industry was found to have increased fourfold since the mid-1990s and exceed 3.5bn DKK.[21] The apparel industry accounted for DKK 20bn in 2005 and the furniture industry amounted to DKK 19bn.

4.1.2 Value added / GDP

The 2013 EPO-OHIM report finds that industries that are defined as design-intensive account for around 13 per cent of total EU GDP, or around €1.6trn.[22]

[18] EPO and OHIM (2013), Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union, Industry-level analysis report.
[19] Haskel, J. and Pesole, A. (2011).
[20] NESTA (2010) Innovation Index.
[21] The Danish Government (2007) "Design Denmark" http://erhvervsstyrelsen.dk/file/7260/designdenmark.pdf.
[22] EPO and OHIM (2013), Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union, Industry-level analysis report.

In a 2010 estimate of the value added in the UK economy by the Department for Culture, Media and Sport, the creative industries were found to account for 5.6 per cent of Gross Value Added (GVA) in 2008 while also accounting for 2.3 million jobs in the third quarter of 2010. [23] A different estimate found in *The Big Innovation Centre*'s report for the UK IPO is that design-intensive sectors account for 7 per cent of GVA and 11 per cent of its employment.[24]

In 2003, the Danish government conducted a survey-based report on the economic effects of design in Denmark. Within the last decade the industry has achieved 20 per cent annual growth and approximately 12 per cent of the employed in the private sector works in the experienced economy, in which the design industry is included, accounting for around 5 per cent of GDP[25].

In 2010, Indecon estimated that the craft sector of the Republic of Ireland, of which design is an important element, contributed €498m directly to GDP.[26]

We have analysed the economic contribution of all design intensive industries, as defined in the EPO/OHIM report. OHIM provided Europe Economics with its methodology for estimating employment and value-added in design-intensive industries alongside its calculation spreadsheet.[27] This allowed us to provide a direct update to OHIM's estimates of the economic contribution of design-intensive industries.

That new analysis using detailed structural business statistics finds that that around €123bn of value added is generated in industries which were intensive users of industrial designs only; around €115bn was generated in industries which were design- and patent-intensive; around €527bn was generated in industries which were design- and trademark-intensive; and around €924bn was generated in industries which were design-, patent- and trademark-intensive. Overall around €1.7trn of value added was generated in all design-intensive industries.

The same analysis finds that, although design-only industries employee more persons on average, the average GVA per employee in design-only industries is markedly lower than the average GVA per employee in industries that are intensive users designs in conjunction with other forms of IP. Therefore, value added from industries that intensively use only designs seem to generate value from employing more persons but adding less value per employee, while industries that use other forms of IP alongside designs tend to employee fewer people but add more value per employee.

4.1.3 Trade

The 2013 EPO-OHIM report finds that industries that are defined as design-intensive account for €724bn (53.4 per cent) of EU exports and €704bn (46 per cent) of EU imports, resulting in a positive trade balance of €20bn.[28]

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[23] DCMS (2010), Creative Industries Economic Estimates, Experimental Statistics, Full Statistical Release.

[24] Big Innovation Centre (2012) "UK design as a global industry: International trade and intellectual property", p24

[25] National Agency for Enterprise and Housing (2003) "The economic effects of design". http://erhvervsstyrelsen.dk/file/1924/the_economic_effects_of_design.pdf.

[26] Indecon (2010), "Economic Significance and Potential of the Crafts Sector in Ireland".

[27] As explained in detail in its report, for employment, OHIM simply took the average value for each design-intensive industry using SBS data at the four-digit NACE code level between 2008 and 2010. Our results show comparable values for 2011. For value added, OHIM did not use the direct 'value added at factor cost' data available in SBS. Instead, it applied two ratios to the SBS data at industry level. The first was the ratio of GVA in SBS to GVA in National Accounts (NA). This ratio differed for each NACE division (2-digits level), which is the most detailed information in NA. The second ratio was the GDP/GVA ratio in NA statistics, which is constant for all industries. We replicated this approach using 2011 data.

[28] EPO and OHIM (2013), Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union, Industry-level analysis report.

In 2012, the Big Innovation Centre found design-intensive sectors contribute 35 per cent of exports, a share higher than their shares of employment (11 per cent) or value added (7 per cent).[29] This report identifies six sectors which are particularly design-intensive: design services, dominated by small firms but with a high propensity to export; architectural and engineering services, one of the most design-intensive sectors and one in which the UK has a substantial trade surplus; computer and telecommunications services, a highly productive sector featuring high wages and often selling services to other businesses; printing and publishing, another sector in which the UK has a substantial trade surplus; fashion and craft, where core designers enjoy a substantial wage premium over others in the sector, who earn below average incomes; and advanced manufacturing, a sector which is highly 'export-facing' but where the UK has a trade deficit.

In 2010, Indecon estimated that the crafts sector of Ireland achieved exports of €124.5m.[30]

The report also finds that most of those exports are direct exporters – design-intensive industries sell their services abroad – rather than indirect exporters – design-intensive industries selling their services to UK manufacturers which then sell goods incorporating those services abroad. They found that the most important markets were "established UK trade partners in Europe and America", which were also the largest sources of design-intensive imports, but that developing economies were growing in importance.

The lack of international harmonisation may limit international trade to some extent, though firms may be able to find a way around such problems to some extent (for example, by registering with EU institutions). In a sample drawn from the IPO data on industrial designs and the annual respondent's database in 2009, registering industrial designs is associated with higher levels of export activity among firms. 6 per cent of service sector firms export, but 22 per cent of firms with IPO-registered designs export. 2 per cent of manufacturing sector firms export, but 21 per cent of manufacturing firms with IPO-registered designs export.

In the Danish government white paper 'Design Denmark' in 2007, 25 per cent of design industry turnover was found to be derived from exports.

4.1.4 Employment

Haskel and Pesole (2011) estimated that, in 2008, 55,000 people were employed in the "design sector", according to their definition, in the UK. Additionally, it was found that four employees were employed outside the "design sector" for every employee inside. In 2012, the Big Innovation Centre found design-intensive sectors contribute a much greater 11 per cent of employment.

Whicher, Cawood and Walters (2013) estimated employment in the design industries of Denmark, Estonia, Finland and the UK.[31] The estimates are shown in the table below.

Table 4.1: Employment in design

Country	Employment in design
Denmark	20,000
Estonia	463
Finland	1,566
UK	232,000

Source: Whicher, Cawood and Walters (2013).

A 2006 report published by the Bureau of European Design Associations (BEDA) provided estimates of employment of designers in many European countries.[32] It should be noted that the definition of design

[29] The Big Innovation Centre (2012) "UK design as a global industry: International trade and intellectual property".
[30] Indecon (2010), "Economic Significance and Potential of the Crafts Sector in Ireland".
[31] Whicher, Cawood and Walters (2013), "Design Policy Monitor 2012".
[32] BEDA (2006), "European Design Report".

employed in this study is not clear from the published report and hence we cannot assess the extent to which definitions were consistent across countries or the scope of the definitions used. Nonetheless, the figures presented in the table below demonstrate some interesting differences across countries.

Table 4.2: Employment of designers

Country	Employment of designers
Austria	9,500
Belgium	200,000 (note: figure shows jobs related to design)
Croatia	350
Czech Republic	3,680
Denmark	10,369
Estonia	630 (note: shows jobs in field of design)
Finland	865
France	12,000
Germany	130,000
Greece	8,500
Hungary	2,500
Iceland	>659
Ireland	8,000 (note: shows employment in design sector)
Italy	14,800
Latvia	480
Lithuania	250
Luxembourg	900
Netherlands	46,000
Poland	6,000
Portugal	6,000
Slovakia	2,250
Slovenia	300
Spain	20,000 (excluding employed / in-house designers)
UK	185,500

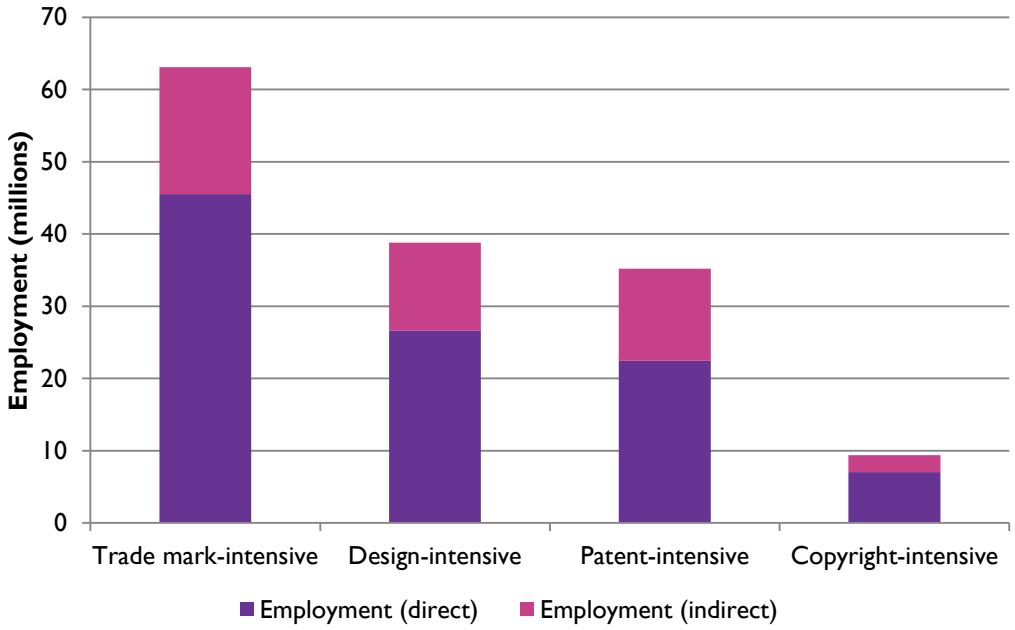
Source: BEDA (2006)

The 2013 EPO-OHIM report finds that industries which are defined as design-intensive account for 12.2 per cent of total EU employment, or around 27 million jobs.[33] A further 12 million jobs are created indirectly, for a total contribution to employment of around 39 million.

The largest industry found to be in the top 20 most design-intensive industries is wholesale of clothing and footwear, which employs nearly 400,000. The contribution of design-intensive and other IP-intensive industries is shown in Figure 4.1.

[33] EPO and OHIM (2013), "Intellectual property rights intensive industries: contribution to economic performance and employment in the European Union, Industry-level analysis report".

Figure 4.1: Contribution of IP-intensive industries in direct and indirect employment



Source: EPO-OHIM.

Our new analysis using detailed structural business statistics finds that approximately 2.6 million workers were employed in industries which were intensive users of industrial designs only; 1.8 million workers were employed in industries which were design- and patent-intensive; 7.6 million workers were employed in industries which were design- and trademark-intensive; and around 11.3 million workers were employed in industries which were design-, patent- and trademark-intensive. Overall there were around 23 million employees in all design-intensive industries.

In general, industries that are intensive users of only industrial designs employ more people, on average, than those that are intensive users of industrial designs in combination with trademarks, and those that are intensive users industrial designs in conjunction with both trademarks and patents. However, industries that are intensive users of both industrial designs and patents have the highest number of employees, on average.

4.1.5 Number of firms

New analysis using detailed structural business statistics finds that, across the EU, approximately 0.6 million enterprises were in industries which were intensive users of industrial designs only; 0.03 million enterprises were in industries which were design- and patent-intensive; 1.69 million enterprises were in industries which were design- and trademark-intensive; and around 1 million enterprises were in industries which were design-, patent- and trademark-intensive. This provides strong evidence for the complementarity of industrial design and trademark protection. Overall there were around 3.4 million enterprises in all design-intensive industries.

4.1.6 Innovation

One of the most common approaches to assessing the economic importance of designs is to examine the importance of design through the prism of innovation. For example, Birke and Swann (2005) cite a number of sources in support of the claim that design in itself constitutes an important source of innovation.[34] In making that claim, the commonplace assumption that R&D is the main source of innovation is countered.

[34] Swann, P and Birke, D., (2005), p16.

NESTA's 2011 innovation report[35] also identifies design as one of the key intangible assets driving growth forward through innovation.[36] Moreover, Dal Borgo et al (2011), investigating productivity and growth in UK industries, find that intangible investment was greater than tangible investment in 2008 with design constituting 17 per cent of that investment (compared to R&D's 11 per cent).[37]

4.2 Why firms use or produce designs

Gemser and Leenders sought to study the returns on design activity of that kind, in terms of increased firm growth, in two sectors in the Netherlands: home furniture and precision instruments.[38] The firms in their sample themselves believed quite strongly that industrial design investment was associated with a range of improvements in corporate performance. When asked for their agreement with the statement, on a scale up to five for total agreement – the average score was above three for improvement in product performance, improvement in corporate image and improvement in user friendliness of the product in both sectors. In the furniture sector it was also above three for improvement in functional product performance. Even on that point, the average score in the precision instruments industry was over two and a half. More firms expected to increase their use of professional design expertise in the future (58 per cent) than expected to decrease their use of it (38 per cent). That result was particularly strong in the precision instruments industry, with 65 per cent indicating they would make more use of professional design expertise in future, which might reflect the less mature use of such design expertise in that industry.

In research in Spain based on the Eurobarometer Enterprise survey, most firms studied considered design an important part of their business strategy, though that share declined from 68 per cent in 2005 to 60 per cent in 2008. The percentage of firms that have invested in developing new products with a strong design component has increased, from 53 per cent in 2005 to 59 per cent in 2008. The capital goods sector was the most likely to be developing new design-intensive products, with around two thirds of firms developing such products.

The most often cited reasons why design is seen as an important part of business strategy are that it improves the image of the company (63 per cent of those surveyed); that it increases sales (40.5 per cent); and that it can help with the development of new products and services (38 per cent). The function most likely to depend on design services is marketing (29 per cent of firms), but product development (14 per cent) and strategy (17 per cent) depended on design services in other firms. In 28 per cent of firms the dependence on design services was distributed across various departments.

Those businesses which have experienced a greater increase in their turnover in the last three years attached greater importance to design in their business strategy. Those firms that had seen the largest increase in their turnover in the last three years were the most likely to say that industrial design had contributed in a range of positive ways, such as increasing turnover and profits. The most important impact of design (based on the numbers rating this quality very or somewhat important) was felt to be improvements in improving brand image and the firm's reputation (around three quarters of respondents) and more than half also felt it improved customers satisfaction, communication with customers, turnover, profits, employee motivation, business productivity and allowed firms to access new markets.

[35] NESTA 2011 Innovation Index.

[36] The Big Innovation Centre (2012), "UK design as a global industry: International trade and intellectual property", UK IPO Publication, p15.

[37] Dal Borgo, M. et al (2011), Productivity and Growth in UK industries: An Intangible investment approach.

[38] Gemser, G. & Leenders, M. A. A. M. (2001), "How integrating industrial design in the product development process impacts on company performance", *Journal of Product Innovation Management*, 18(1), January 2001, pp28–38, http://www.sciencedirect.com/science/article/pii/S0737678200000692.

As part of our survey of design-intensive companies, respondents were asked about why designs are important to their business. More precisely, we asked respondents to indicate, on a scale of one to five, the importance of several specified design related factors.

In Figure 4.2, we break down responses by the NACE sector in which respondents operate. Of the three NACE classifications, firms in the field of professional, scientific and technical activities provided the highest ratings of importance across all seven factors, followed by manufacturing firms and then trade or repair firms. These results indicate that, overall, designs are considered to be a slightly more important influence on business success by amongst respondents from the professional, scientific and technical activities sector than those from other sectors.

Respondents' views about the relative importance of one design related factor relative to another design related factor were fairly consistent across sectors. Respondents from all sectors, for example, considered improved access to finance as the least important reason for design, and by quite some margin. Similarly, all sectors rated the need to differentiate products from competitors as the most important reason for design. There are no significant differences in opinion across firm types for any of the seven factors covered in the diagram.

Perhaps of greatest interest is the finding that respondents consider the role of design in securing access to finance to be relatively limited. This may be considered to be a somewhat surprising finding given that a design can help to improve the performance of the firm, create a market niche, add value to the product and help entry into new markets. It might be expected that a superior product performance would go hand in hand with easier access to finance since lenders would perceive lower risk associated with lending to organisations that have an asset (i.e. a design) that can help to increase revenue.

One possible explanation for the lack of impact on access to finance could be that lenders do not consider that a design actually reduces the risk of lending (i.e. they are not convinced by the claims of the company that the design will lead to increased sales). This may be because the lender is concerned about the potential for copying if the design is not protected, which would lead to an erosion of the potential benefits of the design. Protecting the design through an industrial design may help to overcome that issue and hence increasing awareness amongst companies of the potential benefits of industrial designs may have a positive impact on their access to finance.

Indeed, in Bulgaria for example design rights can be used as collateral or as an object of pledge to secure financial support. Furthermore, the rights stemming from an industrial design are considered as assets in the case of a firm's bankruptcy.[39] Denmark is taking steps to support the development of IP marketplaces while Germany is in the process of finalising the 'Wissensbilanz' which would assist the financial analysis of individual firms.

On the other hand, one explanation for our survey finding could be firms may tend to get protection for those designs of which the value of the design is clearest. In such a case, financiers might be willing to invest because of the clear value of the design itself, anticipating being able to secure intellectual property protection (if required) in due course.

[39] http://www.internationallawoffice.com/newsletters/Detail.aspx?g=14ed6c07-0e7a-4477-9126-325b881e24de.

Figure 4.2: Importance of design related factors, by NACE category

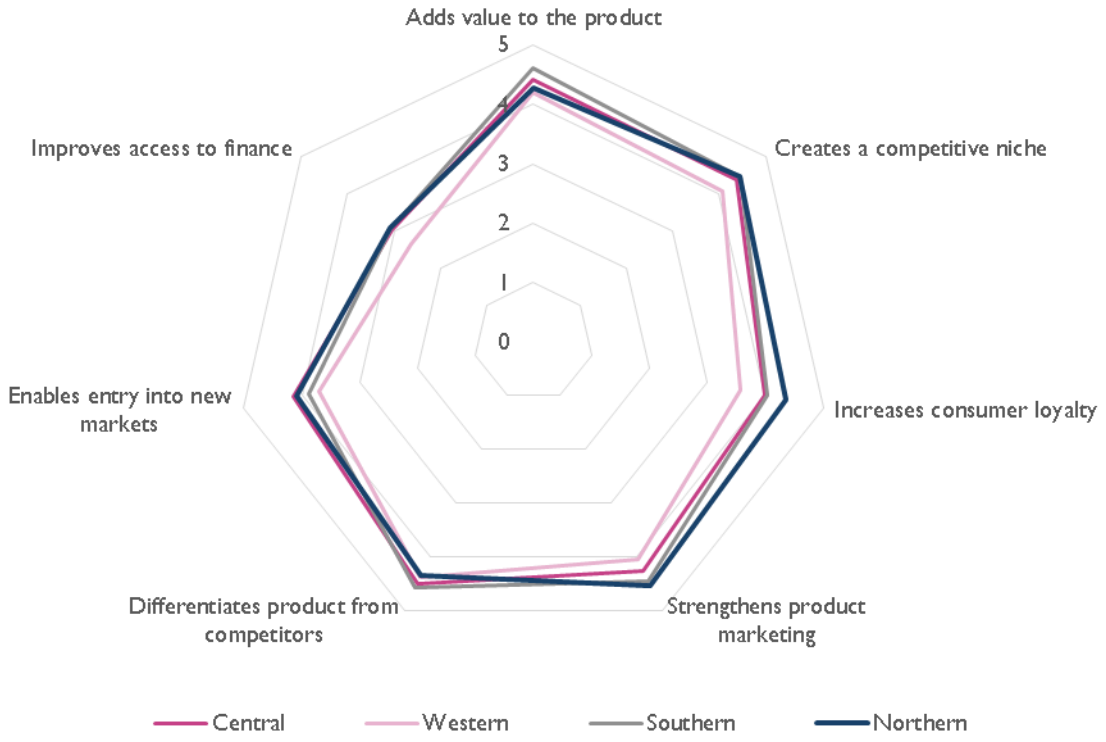
Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. Starting from the factor "Adds value to the product" and moving clockwise, the number of responses on which the above graph is based is the following, 173, 172, 171, 172, 173, 170 and 161.

When the data are broken down by origin of respondent, however, there is not the same consistency about the importance of one design related factor relative to another, as evidenced by the more regular crossing of lines in Figure 4.3. Firms in Northern Member States rate the importance of increased consumer loyalty more highly than firms from other regions, but these same firms rate the importance of differentiating products from competitors lower than any other group.

For the majority of factors, firms from Western Member States were the most pessimistic about their importance, while firms in Northern Member States graded several factors most highly.

In terms of the single most important rationale for design, firms in Central and Western Member States emphasise the differentiation of one's products from competitors, Southern Member State firms stress the added value it brings to the product, and Northern Member States highlight the strengthening of product marketing. Again, however, respondents report that designs have little impact on access to finance.

Figure 4.3: Importance of design related factors, by origin of respondent



Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. Starting from the factor "Adds value to the product" and moving clockwise, the number of responses on which the above graph is based is the following, 173, 172, 171, 172, 173, 170 and 161.

4.3 Summary and conclusions

In this section we have reviewed existing studies that have investigated the contribution of design to the economy. Our judgement is that, among these studies, that conducted by the EPO/OHIM constitutes the deepest and most structured attempt to estimate the economic contribution that designs deliver to the European economy. Estimates vary between studies and particularly when they cover differing geographical scopes and are summarised in Table 4.3.

Table 4.3: Summary

	EPO-OHIM, EU	Europe Economics (based on EPO/OHIM methodology)	Big Innovation Centre, UK	Danish Government, Denmark	Haskel and Pesole, UK
Value added	€1.6trn (13 per cent)	€1.7trn	7 per cent	5 per cent ("experienced economy")	
Trade	€724bn (53 per cent) of exports		35 per cent	25 per cent of design industry turnover	
Employment	27m (12 per cent), plus 12m indirectly	23m	11 per cent		55,000
Number of firms		3.4m		4,500	

We sought to build on the current understanding of design-intensive industries by developing a series of new quantitative analyses of those industries. We used Eurostat data on design intensive industries to provide an updated estimate (for the year 2011) of the contribution of design-intensive industries to EU employment and GDP using the same methodology as employed in the EPO/OHIM study. We found that total employment in design-intensive industries was greater in 2011 than in the years covered by OHIM's analysis (2008-2010) but that the contribution of those industries to GDP had fallen, perhaps reflecting the economic downturn.

We built on that analysis by providing a new comparison of the economic impact of sectors that employ designs in conjunction with other forms of IPR. We note that such information cannot directly be compared with the results of the EPO/OHIM study since the impact of various IP-intensive sectors was assessed separately in that report. The main conclusion we can draw from this analysis is that the GVA per employee in sectors where industrial designs are used in conjunction with patent, trademarks, or both trademarks and patents, is higher than in sectors that rely only on industrial designs. This may suggest the presence of some form of complementarity in the use of different forms of IPRs, and in particular between trademarks and industrial designs.

5 The Options for Protecting Designs

5.1 Industrial designs

Industrial designs can be used to protect the intellectual property of a design. An unprotected design could be copied by other parties, to the detriment of the original inventor who will enjoy significantly reduced benefits (if any) from his development activity. An intellectual property right (IPR) protects the innovator's creation from being copied by third parties, thereby preventing third parties from free-riding on the activities of others. In addition, an industrial design transforms the design into a tradable asset, which could be licensed by the rights holder. This can be viewed economically as an incentive mechanism to potential inventors.

There are currently four ways in which industrial designs can be secured in the European Union.[40] These are:

- Registered community design (RCD) with OHIM: A design can be registered for protection with OHIM. The protection is valid in all countries of the EU for a duration of five years. An RCD can be renewed for up to 25 years. There is a grace period for registering a community design with OHIM is of one year after it is publicly available for the first time.
- Registered design at national office: Protection will be of a domestic nature (or with a regional territorial scope, in the case of Benelux) and its length as well as the renewal options are the same as for Registered community designs.
- Unregistered community design: (UCD): Certain designs are automatically protected in the European Union even if not registered. Protection in this case is valid for three years after the design was first made available to the public in the EU and is not renewable. It covers the design only from "bad-faith" copying practices.[41] Moreover, for the protection to be valid, the UCD holder must be able to prove that the design has been disclosed (with the corresponding date) and that "interested circles within the Community could have been aware of the disclosure itself".[42]
- International design application to the World Intellectual Property Organisation (WIPO) under the Hague Agreement: Industrial design protection is offered to the "Contracting Parties" of the Hague Agreement and can be obtained through a single international application. An International design registration produces the same effects as a Community or national design registration in each of the designated Contracting Parties. However, we note that this is only an alternative route for the application of design protection. The protection itself would be identical to that given in the designated jurisdictions.

The United Kingdom allows for the possibility of protect a design through the following additional option:

- Unregistered national design protection: This form of protection requires no registration and the specifics governing its requirements, scope and application are determined at the national level.

5.2 Protecting designs using alternative forms of IPRs

Industrial designs are just one type of intellectual property right. It is possible to protect formally the appearance of a product without using an industrial design. In particular, it is possible to protect some designs

[40] Industrial designs are defined in the Introduction.

[41] Bad-faith copying, according to OHIM, occurs when "knowing of the existence of the earlier design". Source: https://oami.europa.eu/ohimportal/en/designs-in-the-european-union.

[42] https://oami.europa.eu/ohimportal/en/unregistered-community-design.

(or at least certain aspects of them) using utility models, trademarks and copyright. Each right is designed for a specific purpose, as summarised in the table below.

Table 5.1: Characteristics of alternative types of intellectual property rights

IPR	Patents	Trademarks	Designs	Utility Models	Copyrights
Subject	Inventions	Distinctive signs that identify certain goods or services and distinguish them	Appearance of an industrial article or product	Inventions	Literary and artistic works
Requirement	Novelty, inventive step, industrial applicability	Distinctiveness, absolute and relative grounds for protection	Novelty, individual character	Novelty, industrial applicability, less stringent than patents	Originality
Acquisition of right	Examination by the patent office	For registered trademarks, examination by the IP office. For unregistered, use in commerce. Registration is optional but confers advantages	Registered: examination by the IP office (either formalities only, or a more substantive examination on novelty) Unregistered: automatically acquired through the disclosure of the design Registration is optional but confers advantages	Examination by the patent office, in some countries substance is not examined prior to registration. Thus process is simpler and faster than patenting.	A created work is considered protected by copyright as soon as it exists.
Conferred right	Exclusive right to make, use and sell the innovation	Exclusive right to use and prevent use of the trademark by others	Exclusive right to use and prevent use of the design by others	Exclusive right to make, use and sell the innovation	Exclusive right to use or authorize others to use the work on agreed terms
Duration	Typically 20 years from filing, subject to payment of renewal fees	Registered: 10 years from filing , renewable indefinitely, subject to fees	Registered: Up to 25 years in 5 year terms or 3 years when unregistered community design	Shorter than patent, typically between 7 and 10 years	70 years after creator's death or longer, according to national law

Sources: For patents, trademarks and designs Munari (2012),[43] for utility models, WIPO website[44] and for copyrights EU Copyright Office website.[45]

[43] Munari, F. (2012), "Review of Literature on the Use and Impact of IPRs at the Firm Level: Patents, Trademarks and Designs", Prepared for the EU Observatory on infringements of intellectual property rights.

[44] http://www.wipo.int/sme/en/ip_business/utility_models/utility_models.htm.

[45] http://www.eucopyright.com/en/copyright-and-related-rights.

5.2.1 Utility models and industrial designs

Utility models represent a form of intellectual property protection. They are defined as "any new and useful technical solution of a technical nature affecting shape, construction, or durable assembly of an object".[46] They are very similar to patents but usually last for shorter durations and are easier to obtain. It seems that utility models are more frequently used in Asia than in EU. Countries employing utility models include Philippines,[47] Japan[48] and Malaysia.[49] In US there is no utility model system.[50]

In the EU, industrial designs can be used to substitute for utility models. This means that it is possible to claim protection under the European design regime for minor innovations because of the broad definition of the design term under law. The definition of "design" is broad enough to include all types of products together with the parts that may be needed to assemble a complex product.

At the moment there is no uniform basis for utility model protection across the EU. Because of this lack of uniformity across the legal systems in Europe, data on the extent of use of utility models to protect designs is limited.

Utility models represent an interesting case in the intellectual property rights domain. This is because there is an overlap between using utility models and industrial designs — businesses can choose to use either industrial designs or utility models or both.[51]

5.2.2 Trademarks and industrial designs

The most obvious overlap between trademarks and industrial designs is in the case of a logo:

- Logos can be protected as industrial designs (class 32 of the Locarno classification) or as trademarks. How the company chooses to protect its logos depends on its business strategy. Industrial designs protect what you see and hence a logo protected with an industrial design can be applied to any product. On the other hand, trademark protection is restricted to certain products or services.
- Two similar logos having separate trademarks with respect to different goods and services can coexist whereas two industrial designs that look very similar cannot.

Trademarks last indefinitely whereas industrial designs are limited to a maximum of 25 years. However, trademarks are more costly than industrial designs and also their registration process takes a relatively longer time.

According to OHIM (through an interview completed for this study) it is therefore reasonably common for firms to first acquire industrial designs for their logos etc. and test them in the market. Whichever logo is then the most successful is subsequently protected by trademark.

5.2.3 Copyrights and industrial designs

An interesting aspect of industrial designs is the fact that in numerous countries across the EU there is an overlap between copyrights and industrial designs. This means that the appearance of a product may be protected by either a copyright or an industrial design or both. An extensive study by the International Association for the Protection of Intellectual Property (AIPPI) analyses this issue and the implications that

[46] http://www.managingip.com/Article/3263205/Utility-models-vs-industrial-designs-in-Poland.html.
[47] http://www.wipo.int/wipolex/en/details.jsp?id=12784.
[48] http://www.jpo.go.jp/english/faqs/searching.html.
[49] http://www.kass.com.my/articles/utility-models-industrial-design/.
[50] http://unctad.org/en/Docs/iteipc20066_en.pdf.
[51] It would be useful to have data on the number of applications for utility models in order to be able to understand the extent to which they are used as substitutes for industrial designs. Such data is not available at the moment.

such overlaps can have on a number of countries. The study was issued in 2012. The sample of countries includes 16 countries of the European countries and other big economies such as USA, Japan, China and Mexico.[52]

The way that the study was conducted was by means of a survey where a sample of experts on intellectual property rights issues from each country were asked a number of questions regarding the presence of any overlaps between industrial designs and copyrights in their countries as well as their opinion on the qualitative effects of this overlap. The objectives of the survey were to identify:

- whether industrial products can be protected by both an industrial design and a copyright in the countries participating in the survey;
- whether the scope of the copyright protection for industrial products is different than that for other ordinary artistic products;
- whether market participants felt that there should be any cumulative protection for both industrial designs and copyrights; and
- the measures that should be taken to improve the interaction between industrial rights and copyrights.

The findings of the survey provide interesting insights into the interaction between industrial designs and copyrights across the Member States. In the EU, under the Design Directive every Member State has to provide simultaneous protection for both designs and copyrights. However, even if the law makes it fundamentally possible to enjoy protection both through an industrial design and through copyright law, in practise this may not be the case. In Germany, for example, the requirements for protecting an industrial product under design law are different than the ones for protecting a product under copyright. Thus, it may not always be possible to protect a product with both forms of protection. The majority of the countries participating in the survey state that the criteria for assessing whether infringement of copyright protected industrial products has occurred are different from the criteria for assessing infringement of an industrial design. Notably, access to the protected work is an important requirement for copyright infringement, but not for the infringement of registered industrial designs. Finally, the majority of the respondents agreed that cumulative protection by both copyright and industrial designs should be available for industrial products and that the scope of copyright protection for an industrial product should not differ from the scope of protection normally conferred by copyright law.

5.3 Informal protection

As an alternative to the registered/legal types of protection set out here, many forms of intellectual property are instead protected informally. Informal ways of protecting intellectual property include head-starts, complexity of design and secrecy. A head-start involves bringing to the market an innovation as soon as possible in order to benefit from a first-mover advantage. Finally, design complexity is a less common way of protecting novelty whereby firms make the design of a product so complex that it impairs their competitors from recreating the product at no cost. Secrecy means keeping the details of how to create a product confidential before it is put on the market.

Secrecy is less immediately applicable to industrial design than to many forms of IP, since industrial design intrinsically involves non-secret elements of a product — its shape and colour. Insofar as secrecy is relevant here, it would relate mainly to production methods — e.g. if it were difficult to produce a certain shape and colour, the way it was done might be kept secret. Thus secrecy interacts with complexity — it is a way of making complexity effective.

[52] https://www.aippi.org/?sel=questions&sub=dissolvedcommittees&viewQ=231#231.

5.4 Section summary

In this section we have described various approaches that may be used by companies to protect designs. The Unregistered Community Design applies automatically within Europe but offers a relatively limited scope of protection for designs. This level of protection will be appropriate for some designs but designers may seek enhanced protection in other cases.

Depending on the characteristics of the design, a variety of registered protection options are available, including registered Community industrial designs, registered national industrial designs and registered trademarks at Community and national level. While trademarks can only be used for some types / aspects of designs (e.g. logos) they do represent a viable alternative to registered industrial designs in such cases.

Decisions of how to protect designs will be influenced by a range of factors, including the characteristics of the design, the business model of the firm, the geographic scope of the company's operations and the cost of protection. The extent to which each of these influences applies in practice is address in later sections.

6 How Designs are Protected

6.1 The findings of previous studies

6.1.1 Findings from studies focused upon various countries

France

When analysing the ways firms protect innovations, it is natural to imagine that the processes for the firm mirror the clarity of the conceptual categories of the analyst. There is a phase of producing an innovation. There is a decision about whether formally to protect the innovation. There is a decision of how to protect the innovation. There is the act of protecting it.

Yet the findings of previous studies suggest once we reflect upon how firms that produce designs do so in practice, we see that the intermingling of activities may be a key factor in explaining how firms act. Laperche (2009) analysed strategies adopted by French craft enterprises towards intellectual property rights, including industrial designs.[53] The study finds that much of a small firm's innovation or broader "intellectual heritage" arises spontaneously, on a daily basis, in response to demand rather than from a broader innovation strategy. As a consequence, more often than not, craft enterprises do not possess a systematic and strategic process by which to manage their 'knowledge capital' / intellectual property. Firms are aware of owning such an 'intellectual heritage', but do not translate it into 'knowledge capital'.

The study argues that the relative attraction for IP protection is contingent upon various factors, such as market size, scale of production, and the nature of the idea. Ideas that are used only in local markets are protected less formally, because competitors and clients that are part of local community networks would lose more in terms of reputation than they would gain by copying the invention or know-how of other network members. In that sense, protection become necessary if the company is exporting, but less so if the market is local. In contrast, for bigger SMEs protection serves as a tool of dissuasion.

Craft companies that own intellectual property rights make use of different instruments, such as industrial designs, trademarks and patents. The use of sophisticated IP portfolios is not only limited to high-tech start-ups. IP protection is not only part of a commercial strategy, but also one of internationalisation.

A common theme in previous studies (and, as we shall see below, in our own survey) is that the benefits of intellectual property rights are mostly perceived as theoretical/potential, whereas their cost is real, in spite of interest free loans provided by the state. In addition, it is argued that small firms face numerous hurdles to defend themselves in case of counterfeit/imitation. Similarly, if the counterfeiter is a small firm, the lawsuit might not be profitable as the counterfeiter may not have the resources to pay compensation. Another concern in relation to industrial designs is that one small change can allow a competitor to secure a new design and pattern. Laperche (2009) argue that this reduces the efficiency of industrial design protection.

More generally, when analysing statistics on industrial design fillings, it is important to note the difference between national and international applications. For instance, French fillings at OHIM are made by French firms, whereas applications at INPI also include international firms. That said, the vast majority of fillings at the INPI are made by French firms: 97 per cent of applications were made by French nationals.[54] Interestingly, registrations at the INPI increased between 2000 and 2009, despite of the emergence of the OHIM. France possesses a strong tradition of registering designs at the INPI and French companies and French lawyers may

[53] Laperche, B. (2009), " L'usage de la propriété intellectuelle dans les entreprises artisanales innovantes en France".
[54] Intellectual Property Office (2011), "Design rights, an international comparison: UK, France and Germany".

have been reluctant to switch to the Community Design system. It is also notable that the implementation of Unregistered Community Designs rights at the EU level had little impact in France given its particular "unité de l'art" principle because the ownership of unregistered designs could already be defended under copyright law in most instances.

Sweden

The Association of Swedish Patent Bureaus (SEPAF) has recently reported that companies are active in registering patents, design- and trademark protection, and applications for industrial design protection in particular increased significantly in the year to May 2014.[55] More precisely, the proportion of applications for industrial design protection increased by 5 per cent during the three months to May 2014 compared to the same period the previous year. The applications for registered trademarks (varumärkeskydd) increased by 12 per cent during the same period as compared to the previous year.

This development has been put down to three main factors by SEPAF:

- increased awareness of the importance and value of protecting design in Sweden but especially in foreign markets;
- design has gained an increase importance in the value of companies' products and services; and
- increased sense of optimism among Swedish companies.

Another key driver of the increase in industrial design registration has been the realisation, based on experience, that it is easier to copy design than innovations protected by patents. As a result, the demand for registered design protection has risen.[56]

Other authors have noted an overlap between industrial designs and copyrights in Sweden. More precisely, designs are protected through mönsterskyddslagen (industrial designs) but upphovsrätt (copyright) can also be used to protect the appearance of 'utility goods', including mobile phones and reading devices.[57] However, low requirements for copyright of utility design, limited precedent and lack of established practice from the Swedish Supreme Court' may be a source of uncertainty when dealing with industrial designs and protection.[58]

Box 6.1: Case study: Designers Revolt[59]

In the case of Designers Revolt in May 2014, Swedish firms used national industrial designs legislation to target what they considered to be illegal infringement on intellectual property by the company Designers Revolt.

One of the most interesting features of the case is that Designers Revolt (whose business idea was centred upon the production and selling of copies of designer furniture) had sought to make use of British and EU law in order to circumvent the stricter Swedish one.

By registering in the UK, where — in the view of Dagens Industri — industrial design protection is relatively weak, and making use of EU regulation on the free movement of goods, the company sought to avoid being held liable under Swedish industrial designs regulation.

The prosecutor argued that the choice to target the Swedish market meant that national intellectual property rights still prevailed and that the registration of the company in the UK was irrelevant.

[55] SEPAF (2014), "Registrering av designskydd från svenska företag ökar - "mer medvetna om värdet för produkten".
[56] The theme that designers may, in the future, materially increase the degree of registration is explored in more detail in Section 8.5.
[57] Sandström, R. (2013), "Smart designskydd: Hur och I vilken omfattig skyddas mobiltelefoner och läsplattor?".
[58] Odsell, E. (2011), "Designskydd under förändring – en komparativ studie mellan mönsterrätt och upphovsrätt".
[59] Dagens Industri (2014, "Polisen slog till mot möbelkopior".

United Kingdom

Haskel and Pesole (2011) found the level of uptake of UK design registration to be rather low, at 15 per cent (which was stated to be in line with previous studies).[60] The results from an earlier study (Kenchatt and Robson, 2010) are in the table below and clearly show that that the uptake of industrial design protection is significantly lower than all other forms of protection.

Table 6.1: Percentage of firms reporting protection of innovation

IPR	10-250 employees	250+ employees	All
Registered industrial design	1	3	1
Registered trademark	5	10	5
Applied for a patent	3	7	3
Copyright eligible material	6	7	6

Source: Kenchatt, M. and Robson, S. (2010), "First findings from the UK Innovation Survey 2009", Economic & Labour Market Review, 4.3, p33.

Thus in the UK, we observe that despite the perceived benefits of registering designs in terms of longer protection (up to 25 years) and monopoly rights covering the entire appearance of the design, the numbers of registered designs are far lower, compared to the size of the design industry, than in other countries.[61] One interpretation of this would be that there may be problems with either design registration or design right enforcement that are the cause of a low take up of registered designs. On the other hand, it is also possible that the nature of designs in the UK is different in some relevant way that means that either firms need less protection at all or that unregistered protections, or alternative forms of registration, are adequate.

It is interesting to note that a significant number of designs in the UK are registered on Anti Copying in Design (ACID), an alternative register to the UK Intellectual Property Office (UKIPO), which provides information on design ownership but does not protect designs. Approximately ten times more design applications were received by ACID than by UKIPO in 2009.[62]

Another UK study identifies three broad business models though which firms monetise their design activity: selling goods and services themselves; licensing designs to other firms; and selling design as a service to other companies producing goods and services.[63] The study highlights also that firms often use other rights as a complement or substitute to industrial designs, e.g. unregistered industrial designs, copyright, trademarks and patents.

We note below[64] that the UK has the highest proportion of designs in the EU that are regarded as "complex" and that, since this makes infringement more difficult, that might be a factor explaining why UK proportions of formal registration are relatively low.

[60] Haskel and Pesole (2011), p3.

[61] For example, a recent study on the use of designs in Spain ("Estudio del impacto económico del diseno en Espana" (2008)) found that 22 per cent of companies protected their designs with registered rights, having been around 30 per cent in 2005.

[62] Cook, L. (2012), "Registered designs: an overlooked asset".

[63] The Big Innovation Centre/UK IPO (2012), "UK design as a global industry: International trade and intellectual property".

[64] See Section 7.1.8.

Box 6.2: Case study: The LEGO Brick

The LEGO Brick is an interesting example of how a company can benefit from different intellectual property rights. LEGO has obtained exclusive rights for the shape of the brick under several IP rights. Lundahl (2012) argues that the reason for the brick to fall under different IP rights is the fact that it is a technical solution and has a certain design. The standard bricks and the basic building sets have been patented worldwide for the technical idea. However, many of the patents that LEGO holds have been outdated and new strategies are needed to keep the market position intact. They have argued that the brick should be protected by trademark law, copyright law and unfair competition law.

The LEGO trademark is registered in more than 150 countries all over the world and includes a range of different trademarks. In some countries, the LEGO 2x4 brick, the "minifigure" and the knobs are protected as trademarks. LEGO have won many of their legal disputes, although the ones regarding trademark have often been lost. According to Lundahl (2012), the modern trademark regime indirectly allows protection for a technical function since it is possible to register a shape of a product which does not aim at a technical result. This is something LEGO has often argued in court. However, the claim that trademarks protect functional characteristics of the product is very controversial.

There has been diverse reasoning among courts in different countries regarding protection of the shape of LEGO Brick under trademark or copyright laws. Some courts have considered the shape as a functional or technical solution and thus not eligible for trademark or copyright protection whereas some have argued that the Brick contains non-technical features and thus is eligible. The Brick has been protected by patent for its technical idea, by copyright for the works of applied art and by trademark with the argument that the shape of a product helps distinguish the product from the competitors' products.

Copyright protection can be used to protect industrial designs but the product needs to be considerably original to be granted protection. Under this law, technical solutions can never be protected as it only protects the expression and not ideas or motifs. In the Chinese court the LEGO Bricks were granted copyright protection under the Bern Convention as works of applied art.

6.1.2 Protection and company size

Given that there is no accepted universal rule as to what the ideal percentage of design registrations should be, most studies have attempted to explain the differences between different types of users in different regions. One of the most common themes in that domain is whether company size influences the decision to seek registered protection.[65]

Using data from the third Community Innovation Survey, Bordoy et al (2007), examine the usage of patents, industrial designs, trademarks and copyrights, in 15 EU countries.[66] Their conclusion is that, on average, five times as many large companies, compared to SMEs, had applied for one of the mentioned protection types.[67] Amara et al. (2008) presents results that confirm the importance of firm size as a determinant of what type of protection to use.[68] Even though there is no explicit comparison between SMEs and larger firms, their results indicate that size is positively associated with the usage of designs patterns, patents and trademarks.

[65] Given that many users may consciously opt against obtaining a design but in favour of obtaining an alternative kind of protection, the research cited below will not only cover design protection.

[66] Bordoy, C., Arundel, A., and Hollanders, H. 2007, "Patent Application by SMEs: an analysis of CIS-3 data for 15 countries, 2006 Trend Chart Report.

[67] Munari (2012), p31.

[68] Amara, N., Landry, R., and Traore, N. 2008, "Managing the protection of innovations in knowledge-intensive business services, Research Policy, 37 (9), p1530-1547.

Gallie and Legros (2009) explored how French companies' characteristics can affect their IP strategy, and found that size is an important factor. They suggested this could be explained by the fact that smaller firms look at informal protection more favourably than larger ones.[69] INSEE's research found that the majority of French firms that make use of IP protection are large companies: the percentage of firms involved in IP policy is eight times greater for larger firms compared to SMEs.[70] Among entities of over a thousand employees, 90 per cent have at least one brand, 70 per cent use at least one form of protection of innovation (patents, designs), and 30 per cent are holders of copyrights. Furthermore, one in five is active in all areas of IP.

Lallement (2009) suggests that counterfeiting is a growing threat in the increasingly digitalised economy, and estimates that, in France, between 30,000 and 38,000 jobs are lost per year due to its negative impact.[71] The paper notes that intellectual property rights such as industrial designs can help SMEs both to partner with larger firms in 'open innovation' while avoiding the risk of imitation. The paper notes that most innovative SMEs in France do not make 'ground-breaking innovations', but rather minor discoveries, which are often non-technological (i.e. commercial or organisational). Consequently, when they use IP rights, it is most often for industrial designs, copyrights and 'neighbouring rights'.

Due to the fact that most French SMEs innovate in non-technological sectors, they make extensive use of trademark and industrial design protections. Indeed, from an international viewpoint, the report notes that French SMEs make great use of industrial design and trademark protections, especially in the food and luxury sectors.

Going further back, the IPR (2007) report explains such differences by noting that larger companies are more likely to have specialised departments to deal with IP related issues. On the other hand, SMEs may encounter more challenges with the day-to-day management of their business thereby be discouraged by added IPR-related complexities. The report also states that companies that are more sales oriented are more likely to depend on designs and cites a 2002 OHIM survey, prior to the introduction of the Community design, which had a high SME sample density and outlined the following equally important reasons for not protecting designs:[72]

- not to company's benefit;
- lifespan of design is very short;
- high costs;
- design is not innovative; and
- protection is not profitable.

Contradictory evidence was presented by Jensen and Webster (2004) who did not find any particular disadvantage that would justify decreased use of IPRs by SMEs in Australia. More specifically, they claimed that:[73]

"It is possible that many of the anecdotally cited disadvantages of using the IP system claimed by the SME sector apply equally to large firms."

6.1.3 Other influences on design protection

The 2012 report by the UK IPO provides alternative explanations as to the observed differences in design protection across firms. More specifically, they cite evidence from both CIS and IPO/ARD data which support

[69] Gallie and Legros (2009), p10.
[70] INSEE (2007), "L'immatériel, au cœur de la stratégie des entreprises".
[71] Lallement, R (2009), "Propriété intellectuelle, innovation et développement des PME en France".
[72] IPR (2007), p17.
[73] Jensen, P. and Webster, E. (2006), p54.

the view that registered industrial designs are associated with firms that are more export-facing.[74] Moreover, the fact that industrial designs only cover the appearance of products rather than their functional aspects is mentioned as a reason for reduced demand for design registration.[75]

Another explanation offered for the limited uptake of design protection can be found in Hackett (2011) where a model of the fashion industry is presented. In this case, fashion leaders knowingly allow imitation to continue as they stand to gain more by doing so. Even in cases when enforcing their protection rights would carry benefits, licensing, rather than litigating, is viewed as their best course of action.[76]

The fourth chapter of the UK IPO research in design economics attempts to make an international comparison by investigating the current state of play in France, Germany and the UK. A number of factors are listed and are divided into three categories: industrial; legal; and administrative. Industrial factors include sectorial composition, industry structure, and awareness and knowledge of design IPR while administrative factors include the simplicity and ease of the application procedure and the registration cost. The legal factors, which are explored below, included the legal traditions of the different countries, the enforcement regimes and the efficacy of competing private databases.[77]

The same report makes a useful comparison of the enforcement regimes in the three countries of focus. In particular, Germany appears to have a more favourable enforcement framework entailing lower enforcement costs, and greater severity of punishment. This framework is accompanied by a wealth of private initiatives aiming to support IPR enforcement (e.g. Messe Frankfurt and Plagiarius).[78]

The effectiveness of the prevailing IPR framework is a very important consideration for firms contemplating whether to register their designs or not. The incentive to officially protect one's design is minimised if this protection is not binding and infringements are expected to be allowed to go unchallenged. When the enforcement framework is ineffective, the costs of protection are more likely to outweigh the benefits (which are not enjoyed).

In an attempt to explain the lack of legal cases around industrial design enforcement, Hackett (2011) claims that legal scholars have offered various explanations, including:[79]

- standards of eligibility are low;
- confidential settlements are often reached; and
- In Europe there is a lower tendency to pursue legal actions to court than is the case in the US.

[74] The Big Innovation Centre (2012), p68.
[75] The Big Innovation Centre (2012), p74.
[76] Hackett, P.J. (2011), "Cutting Too Close? Design Protection and Innovation in Fashion Goods", CESifo Conference Centre, Munich, p4.
[77] BOP Consulting (2011) "Design Rights, an international comparison", UK IPO Publication, p14.
[78] BOP Consulting (2011) "Design Rights, an international comparison", UK IPO Publication, p1.
[79] Hackett, P.J. (2011), p4.

Box 6.3: Designs and other intellectual property rights overlap – the UK fashion industry[80]

The fashion industry is an Intellectual Property-intensive industry which contributes significantly to the UK economy.[81] It is estimated that the fashion industry adds about £6.6 billion to the UK economy every year.[82] However, the literature also estimates that small and medium sized enterprises (SMEs) stand to lose over £100,000 per firm every year because of copycats, rising to £500,000 per firm per year as businesses mature.[83] This gives birth to the need protect adequately any new designs and inventions, thus a protection of the design with both industrial designs and copyright would be ideal.

The study conducted by the UK centre for fashion enterprise offers a number of reasons why intellectual property rights within the fashion industry are important. These reasons include:

- Ownership of intellectual property rights provides positive signals and incentives to investors and venture capitalists to invest in a given fashion company.
- Ownership of intellectual property rights offers the holder the ability to expand into new markets through licensing, franchising or entering joint ventures.
- Intellectual property rights protect the holder for revenue losses arising from copies of the original design.

The intellectual property rights relevant to this industry include trademarks, copyrights, and industrial designs. Patents are excluded from our analysis because they are much more expensive to obtain and the standards of obtaining a patent are particularly high. We identify the following overlaps between industrial designs and other intellectual property rights in the fashion industry:

- Copyright: an overlap between copyrights and industrial designs is possible with respect to 2-dimensional prints such as graphic print.
- Trademarks: in UK it is possible to register a graphic image or logo as a trade mark but also have design protection on it. This is because the shape of the garment or its packaging can be also registered as a three dimensional trademark along with acquiring an industrial design. Provided that the shape does not add value to the garment or have a technical function then it can be registered both as an industrial design and as a trademark.

There are a number of famous court cases that evolve around the fashion industry and relate to the overlap between industrial designs and other intellectual property rights. For example, see Société Yves Saint Laurent Couture S.A. v. Société Louis Dreyfus Retail Mgmt. S.A[84]. In 1994, Yves Saint Lauren successfully sued the American designer Ralph Lauren for copying a popular design for a tuxedo dress in French court under copyright law.[85]

6.1.4 Summary of key findings of previous studies

In this section we have reviewed prior literature on the strategies employed by designers to protect their designs. The key findings of that literature include:

[80] http://www.fashion-enterprise.com/files/2010/09/CFE-IP-DesignRights-Download1.pdf.
[81] http://ec.europa.eu/internal_market/intellectual-property/docs/joint-report-epo-ohim-final-version_en.pdf.
[82] http://britishfashioncouncil.co.uk/news_detail.aspx?id=623.
[83] http://www.fashion-enterprise.com/?s=copy.
[84] Société Yves Saint Laurent Couture S.A. v. Société Louis Dreyfus Retail Mgmt. S.A., [1994] E.C.C. 512, 514 (Trib. Comm.) (Paris).
[85] Elman, Victoria and Cindy Abramson (2009) "Mixed Signals: takedown but don't filter? A case for constructive authorization" Intellectual property and entertainment law ledger, New York University http://jipel.law.nyu.edu/wp-content/uploads/2012/01/NYULedger_Winter_2009.pdf.

- The uptake of registered industrial designs is low relative to other IPRs amongst firms of all sizes. For example, five times more UK SMEs held a registered trademark than a registered industrial design in 2009 while the corresponding figure for large firms was more than three times.
- Firm size is an important determinant of design protection strategies. Small firms protect designs less frequently than do large companies. There are a number of possible explanations for this, including that small firms more often operate purely locally (and as such have their intellectual property protected by moral pressure in local social networks), that small firms lack the IPR expertise of large firms (and may not be aware of industrial designs), that the cost per industrial design is greater for small firms as a proportion of turnover and that small firms may simply view informal protection more favourably.
- Registered Industrial Designs are taken up more by firms that are more export orientated or that operate in multiple Member States.
- The effectiveness of the IPR enforcement frameworks (and differences between the enforceability of industrial designs and trademarks in particular) is an important determinant of firms' strategies for protecting designs. The greater the enforceability of an industrial design, the more likely a firm is to protect designs through this method, all else being equal.

In the following section we cross-check the findings from the literature review using information gathered in our survey.

6.2 How do firms protect designs in practice? — New analysis

6.2.1 Analysis of aggregate data

The first step towards understanding the way in which firms protect design in Europe is to obtain an overview of the intensity and scope with which registered industrial designs are used across Member States.

Data sources and methodology

The analysis provided in this section is based primarily on the WIPO IP Statistics Data Centre which provides a time series for a range of design indicators by Member State and by Locarno industrial classification. The WIPO database has a number of advantages over alternative data sources. More specifically:

- The data is compiled in close co-operation with IP offices around the world and has a wide geographical coverage with data availability covering several years.
- The WIPO applies a consistent data gathering methodology and the data is harmonised to reduce the risk of comparability issues across countries.
- The data is available for design applications filed through different routes, i.e. the international, the Hague route, and National direct route.

WIPO provides two design indicators that could be potentially useful for the analysis: design registrations and design applications. However, the use of design registration data is problematic because one international design application may result in several international registrations (i.e. a 'family of designs'). In order to overcome this problem, one should have information on the number of priority design applications by country of origin. Since available databases do not provide such information, we have opted for carrying out the analysis based on design applications. More specifically, we have used figures on design applications filed either directly or via the Hague System in order to avoid potential bias that might arise due to the fact that Austria and the UK are not member of the Hague Agreement and that Denmark joined it only in 2008.
We aimed to gather data for these variables for the period 2004-2014. This time period is sufficiently long to allow the identification of recent trends whilst avoiding any structural break in the data associated with the introduction of registered Community Industrial design and the subsequent increase in design activity

associated with filings to OHIM.[86] We note, however, that data recorded at WIPO is limited to the period of 2004-2013.

Analysis by Member State

The analysis by Member State is meant to provide an overall picture of the use of design in Europe. More specifically, we aim to answer the following questions:

- Which Member States are most attractive to European design-intensive firms at present? How has the landscape evolved in the last ten years?
- Which member states are most attractive to non-European design intensive firms at present? How has the landscape evolved in the last ten years?
- Which countries in Europe are most design-intensive at present? How has the landscape evolved in the last ten years?
- In which geographical areas is design protection typically sought? How has the landscape evolved in last ten years?
- In relation to non-domestic filings in Europe, which Member States prefer the OHIM route versus multiple national routes at present? How has the landscape evoked in the last 10 years?

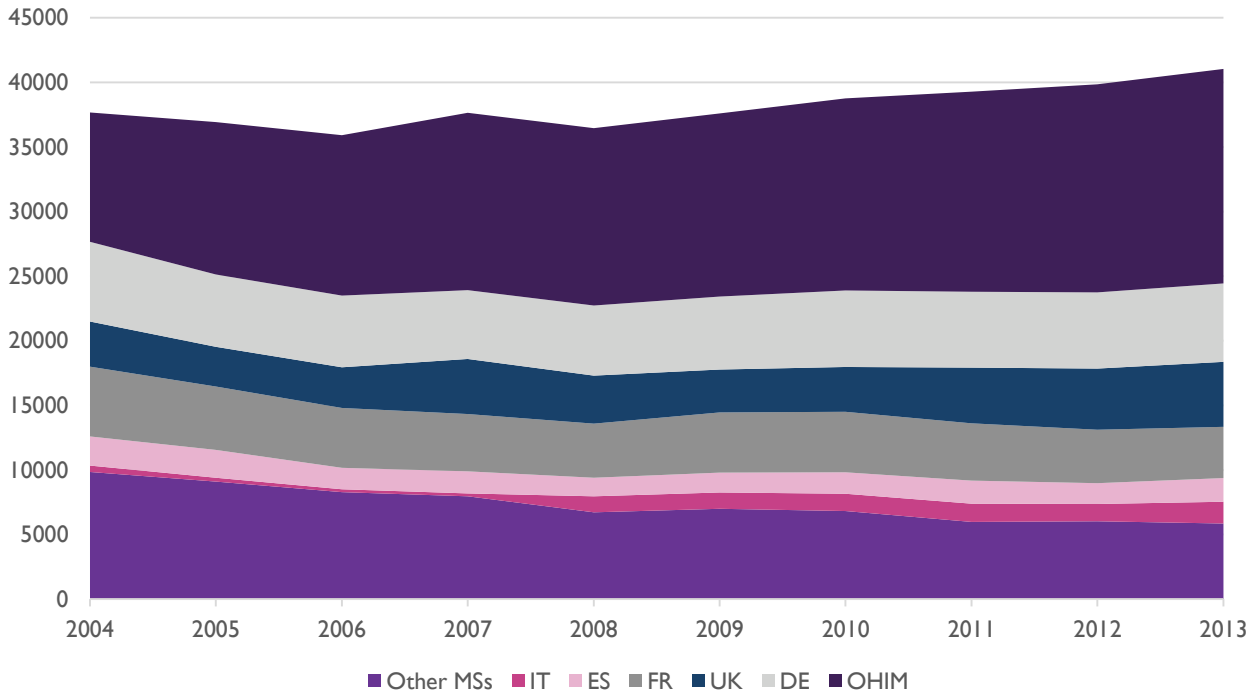
Which Member States are most attractive to European design-intensive firms at present? How has the landscape evolved in the last ten years?

The primary data source to answer this question is represented by the total number of design applications (direct and via the Hague system) filed to European offices by European applicants. The use of application data (as opposed to number of industrial designs being in force) is more appropriate as it reflects firms' intention to seek design protection (as opposed to the success in obtaining such protection). For the period 2004-2013 these figures are provided below.[87]

[86] The Community Design right came into force on 1 April 2003.

[87] For clarity purposes we have grouped Member States with low the design application rates in one category labelled "Other MSs".

Figure 6.1: Number of design applications filed at European offices by European applicants (2004-2013)



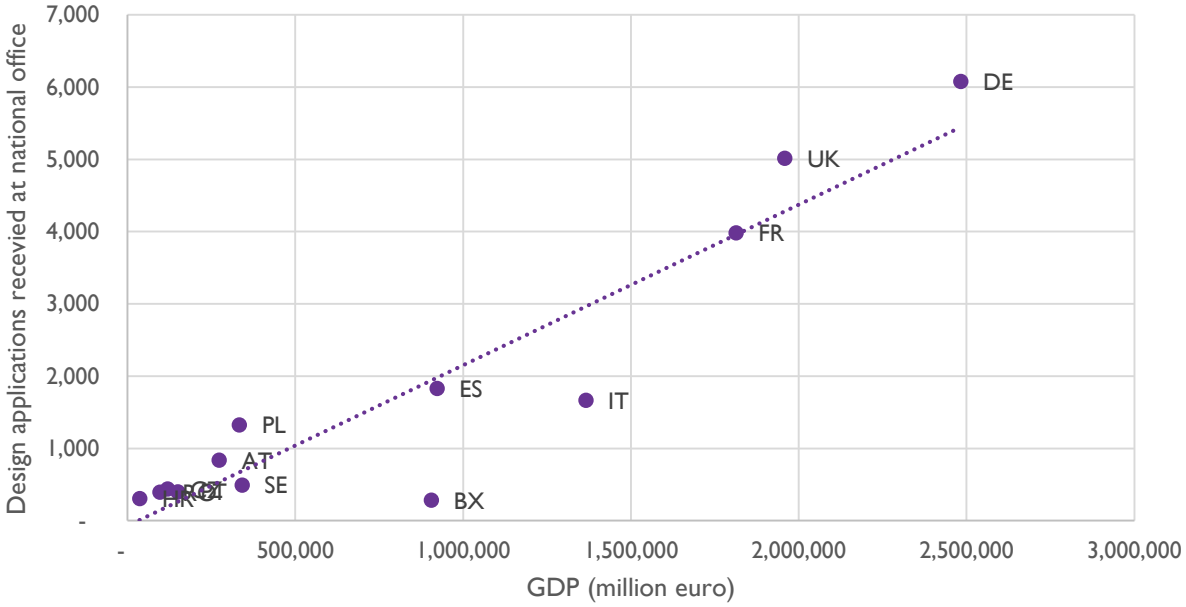
Source: WIPO and Europe Economics calculations.

Figure 6.1 indicates that the total number of design filings (submitted by European applicants) in Europe has remained relatively stable over the last decade. In 2004 a total of 37,667 designs were filed in Europe by European applicants compared to a total of 41,036 filings in 2013. The clearest pattern that can be observed from the data is the slow but steady increase in share of filings at OHIM in the last ten years. Filings at OHIM accounted for only 27 per cent of total filings submitted by European applicants in 2004 (with a total of 10,001 designs applications filed at OHIM for that year), whereas by 2013 OHIM accounted for 40 per cent of total filings (with a total of 16,594 filings). The increased popularity of OHIM as a destination office among European applicants can be generally explained by a decrease in filings at most National offices but changes of filings at national offices in Germany, UK, France, and Spain (i.e. the second, third, fourth and fifth, most popular destination offices in 2013) are very different. More specifically, filings to the German office have remained very stable over the period 2004-2013 (with a decrease in filings of only 2 per cent), filings to the UK office have increased (in 2013 the number of filings was 44 per cent higher compared to 2004), whilst filings in France and Spain experienced a decrease of respectively 26 and 19 per cent

As one would expect the attractiveness of filing at a given national office largely depends by the size of that national market. This intuition is confirmed by Figure 6.2 and Figure 6.3 where we plot, for each national office, the total number of design applications received against the GDP of the corresponding country[88] (for clarity we have plotted two separate charts on including the 14 national offices that received the large number of filings in 2014, and one including the 14 national offices with the lowest number of filings). Both charts confirm the strong positive (and fairly linear) relationship between market size and aggregate number of design applications received at the national office.

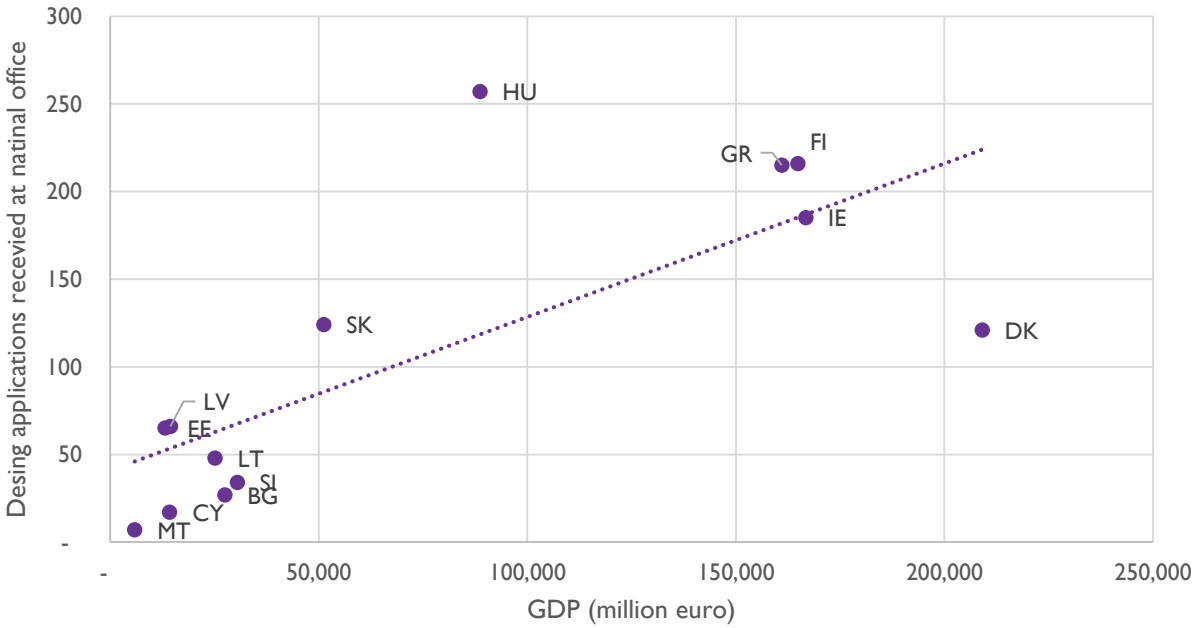
[88] For the Benelux office the corresponding GDP figure is the aggregate GDP of Belgium, Luxembourg and the Netherlands.

Figure 6.2: Relationship between GDP and aggregate number of design applications received by national office (13 national offices with the highest number of filings, 2013)



Source: WIPO, Eurostat, and Europe Economics calculations.

Figure 6.3: Relationship between GDP and aggregate number of design applications received by national office (13 national offices with the lowest number of filings, 2013)

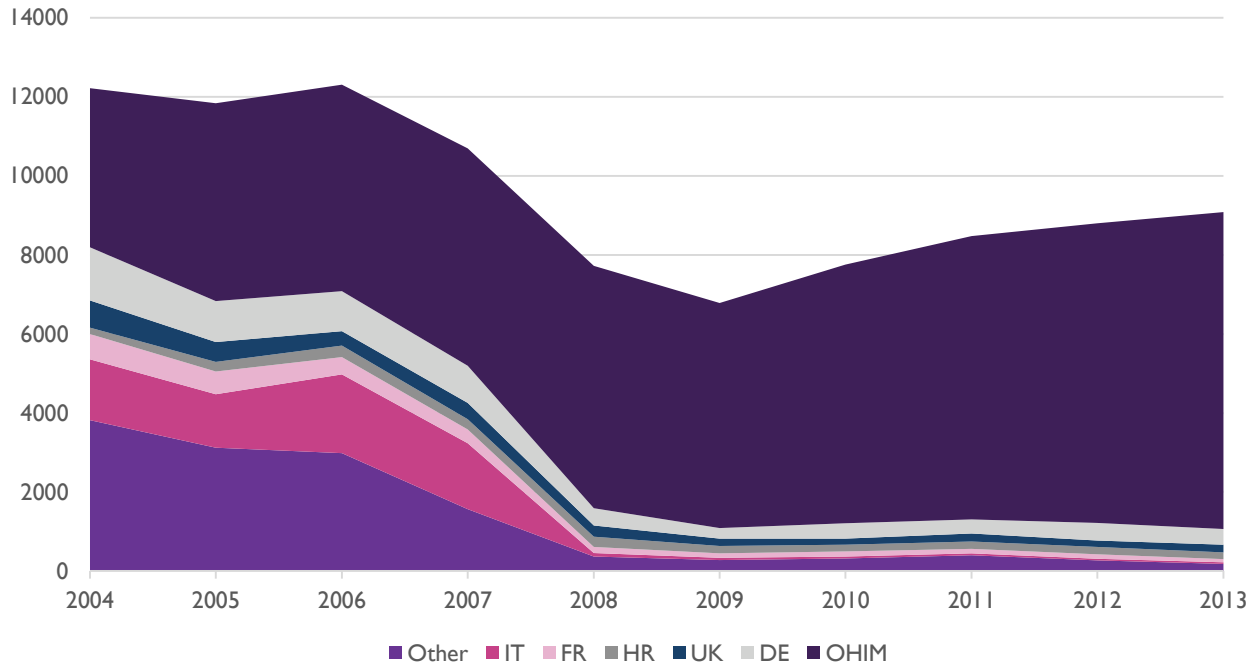


Source: WIPO, Eurostat, and Europe Economics calculations.

Which Member States are most attractive to non-European design intensive firms at present? How has the landscape evolved in the last ten years?

When we consider the design applications filed in Europe by non-European applicants (see Figure 6.4 below) we obtain a very different picture from that depicted in Figure 6.1.

Figure 6.4: Number of design applications filed at European offices by non-European applicants (2004-2013)



Source: WIPO and Europe Economics calculations.

Whilst in 2004 OHIM accounted for only 33 per cent (i.e. 4,025 applications out of a total of 12,219) of design applications filed in Europe by non-European firms, by 2013 it accounted for 88 per cent of total filings (i.e. 8,022 of the total 9,086 applications filed). Although filings at almost all national offices declines markedly, the most significant patterns observable in Figure 6.4 are the dramatic decline in the number of filings at the Italian and Swedish offices and the reduction at the German office. Among national offices, the Italian office attracted the largest number of non-European applications in 2004 (13 per cent of total applications in Europe), however, by 2013, its significance in number of filings had become negligible (with only 0.4 per cent of applications filed there). Despite declining significantly, as of 2013, the national office with the highest share of filings from non-European applicants is the German office (representing approximately 4 per cent of all applications filed in Europe by non-European applicants).

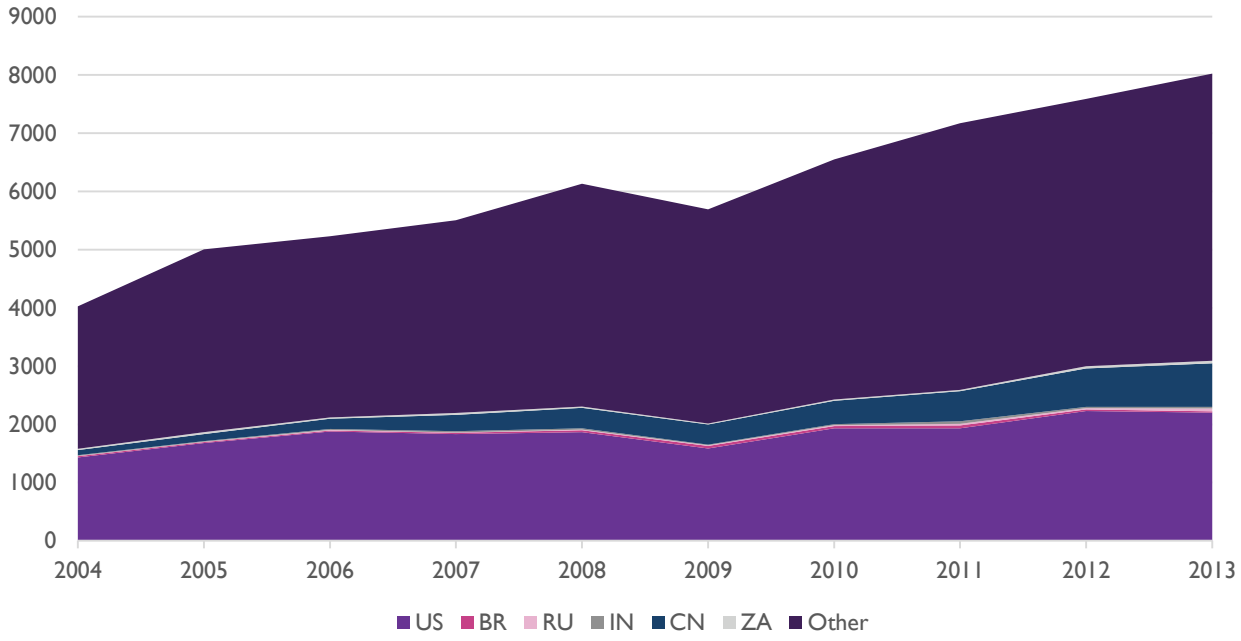
OHIM filing became available from mid-2003. Although there is some year-to-year variation for particular Member States, the essential pattern in Figure 6.4 is that, after OHIM filing became available, over the next few years it almost entirely displaced national office filing for non-European applicants. The most natural interpretation of this is that non-European applicants, despite intending to operate in multiple Member States and thus being natural candidates for OHIM filing, may not initially have been aware of / familiar with the option of OHIM filing or had some internal inertia with changing filing processes / cultures within their businesses, and so did not immediately switch to OHIM when that option became available. But over the following few years, they became used to or aware of the OHIM option and, having done so, took it up to the exclusion of national office filing.

Having concluded that OHIM currently represents the primary filing destination office for non-European applicants, it is interesting to further investigate what are the non-European countries from where design applications to Europe are originated. Given the large number of countries of origin covered by WIPO,[89] we report filing data separately for the US, and the BRICS countries (i.e. Brazil, Russia, India, China, and South Africa), but we group filings from any other non-European country as 'Other'. The evolution of the number

[89] The WIPO database covers 151 different non-European countries or origin.

of design applications filed at OHIM by non-European applicants over the period 2004-2013 are reported below in Figure 6.5.

Figure 6.5: Number of design applications filed at OHIM by non-European applicants (2004-2013)



Source: WIPO and Europe Economics calculations.

The main points worth noting from Figure 6.5 are the following:

- In the last ten years there has been a steady increase in design applications to OHIM from non-European countries (with the exception of 2009, a time of global economic contraction). In fact, the number of design filings has doubled over the period considered: there were 4,025 non-European applications to OHIM in 2004, compared to 8,022 applications in 2013.
- Applications from US and BRICS countries have consistently accounted for approximately 40 per cent of all non-European applications filed at OHIM over the period considered.
- Whilst the primary destination country remains the US, there has been a steady increase in the share of applications coming from China. In 2005 Chinese applications accounted for only 4 per cent of total non-European filings at OHIM, whilst as of 2013 Chinese applications account for 15 per cent of total filings. In contrast, the number of filings from Brazil, Russia, India, and South Africa, has been and remains marginal.
- The drop in filings observed over the 2008-2009 period (and which can be observed also in Figure 6.6) is probably attributable to the global recession.

For completeness we report in the table below the 2013 figures for the number of design applications by destination office, distinguishing between applications received from European and non-European applicants.

Table 6.2: Number of design applications by destination office (2012)

Office	Domestic	Other MS	Total EU	US	BR	RU	IN	CN	ZA	Other non-EU	Total non-EU	Total applicat-ions
AT	451	388	**839**	2	0	0	0	0	0	0	**2**	**841**
BG	273	10	**283**	1	1	0	0	0	0	20	**22**	**305**
BX	0	27	**27**	0	0	0	0	0	0	11	**11**	**38**
CY	17	0	**17**	0	0	0	0	0	0	0	**0**	**17**

Office	Domestic	Other MS	Total EU	US	BR	RU	IN	CN	ZA	Other non-EU	Total non-EU	Total applicat-ions
CZ	420	18	**438**	0	0	1	0	0	0	2	**3**	**441**
DE	5871	210	**6,081**	59	0	4	1	159	0	172	**395**	**6,476**
DK	93	28	**121**	0	0	0	0	0	0	13	**13**	**134**
EE	51	14	**65**	0	0	0	0	0	0	6	**6**	**71**
ES	1806	27	**1,833**	6	1	1	0	0	0	13	**21**	**1,854**
FI	201	15	**216**	0	0	0	0	0	0	6	**6**	**222**
FR	3900	84	**3,984**	10	0	10	0	21	0	34	**75**	**4,059**
GR	191	24	**215**	0	0	0	0	0	0	8	**8**	**223**
HR	214	94	**308**	7	0	0	0	0	0	168	**175**	**483**
HU	251	6	**257**	1	0	0	0	0	0	10	**11**	**268**
IE	183	2	**185**	0	0	0	0	0	0	0	**0**	**185**
IT	1644	21	**1,665**	6	0	1	0	2	0	30	**39**	**1,704**
LT	28	20	**48**	0	0	0	0	0	0	7	**7**	**55**
LV	63	3	**66**	0	0	0	0	0	0	6	**6**	**72**
MT	5	2	**7**	0	0	0	0	0	0	0	**0**	**7**
PL	1317	9	**1,326**	4	0	7	0	0	0	17	**28**	**1,354**
PT	387	13	**400**	0	0	0	0	0	0	0	**0**	**400**
RO	375	19	**394**	0	0	0	0	0	0	18	**18**	**412**
SE	494	1	**495**	0	1	1	0	0	0	5	**7**	**502**
SI	0	34	**34**	0	0	0	0	0	0	15	**15**	**49**
SK	101	23	**124**	0	0	0	0	0	0	1	**1**	**125**
UK	4997	17	**5,014**	47	0	0	0	12	0	136	**195**	**5,209**
OHIM	NA	NA	**16,594**	2,199	26	49	26	750	41	4,931	**8,022**	**24,616**

Source: WIPO and Europe Economics calculations.

Which countries in Europe are most design-intensive at present? What is the geographical scope of protection typically sought after? How has the landscape evolved in the last ten years?

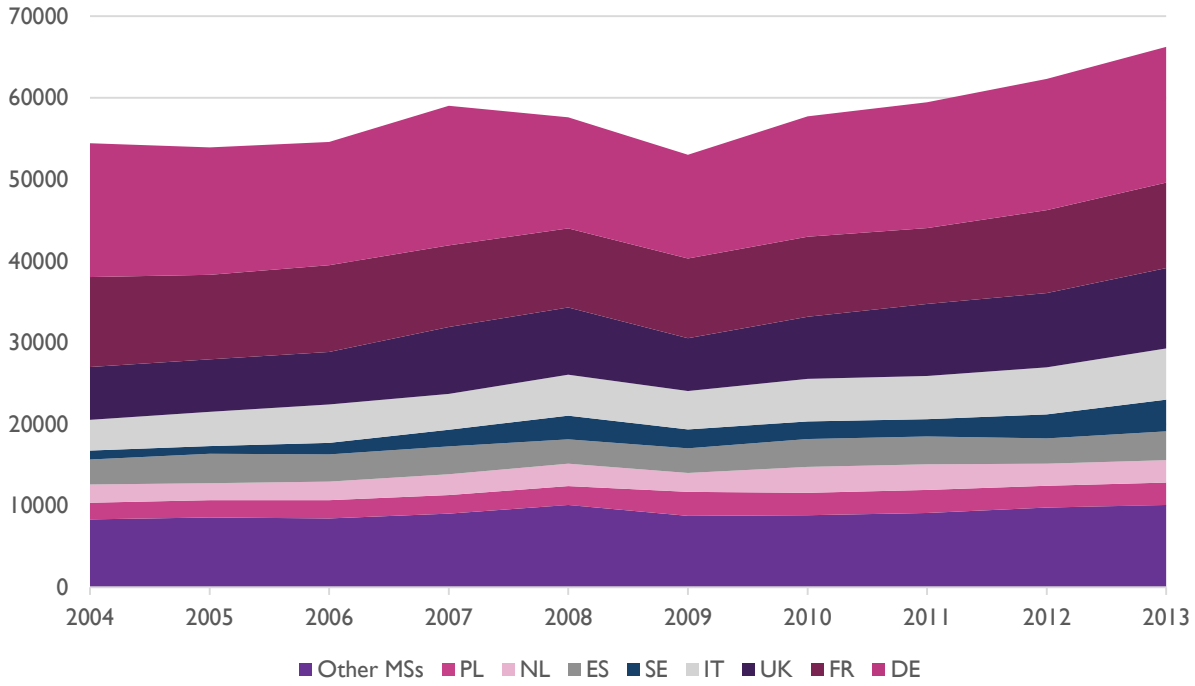
The analysis provided above has been carried out from a destination perspective as this allows us to assess how attractive Member States are to the design industry (European and non-European). In order to assess the intensiveness of design activity across Member States, the analysis we carry out next is from a country of origin perspective. We look at the number of design applications originating in different Member States as this provides a good indication of the importance of design activity, and how this varies across Member States. More specifically, we analyse design activity at the Member State level by looking at:

- The total number of design applications filed — this number represents the simplest indicator of design activity.
- The share of design applications filed domestically versus those filed at OHIM or at the national office of another Member State — this indicator (which we refer to as 'non-domestic EU filings') provides information as to whether industries in each Member States tend to seek protection domestically or within the internal market.
- The share of design applications filed in Europe (national routes or through OHIM) and those filed outside Europe — this indicator provides information as to whether the industries of different Member States tend to seek protection beyond the internal market.

Total number of design applications generated

We start by analysing the total number of design applications by Member State of origin (member States from where a relatively small number of designs is originated are labelled as "Other MSs").

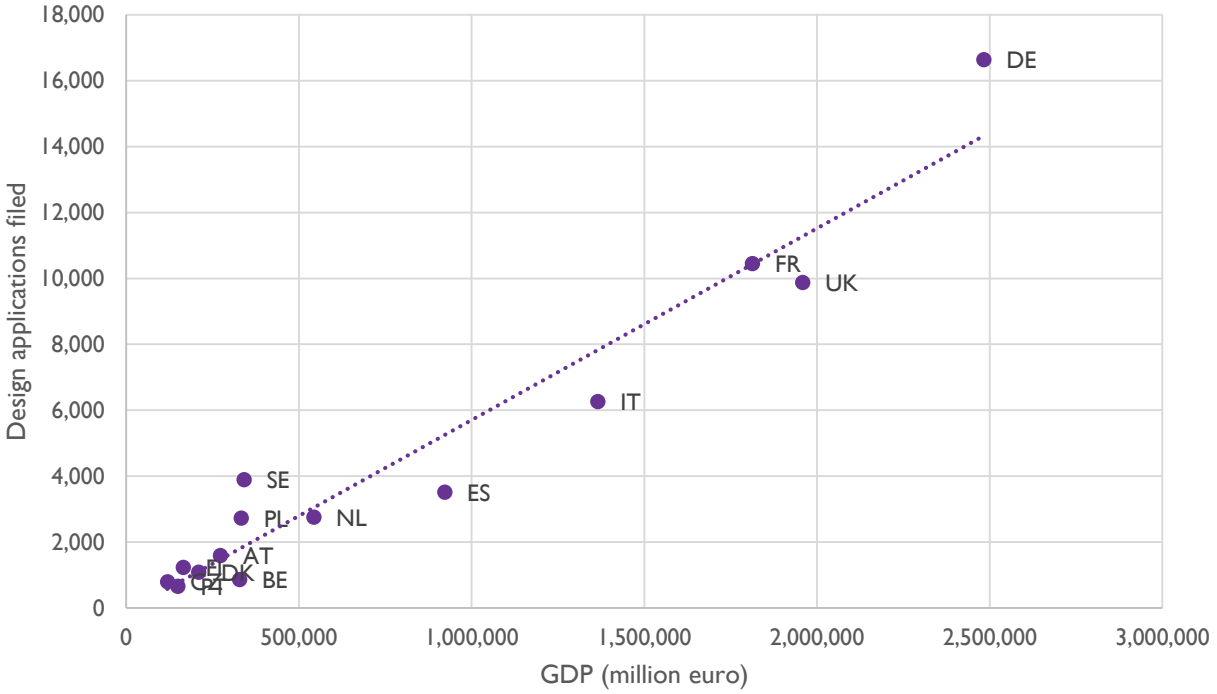
Figure 6.6: Total number of design applications (filed in Europe and outside Europe) by European country of origin (2004-2013)



Source: WIPO and Europe Economics calculations.

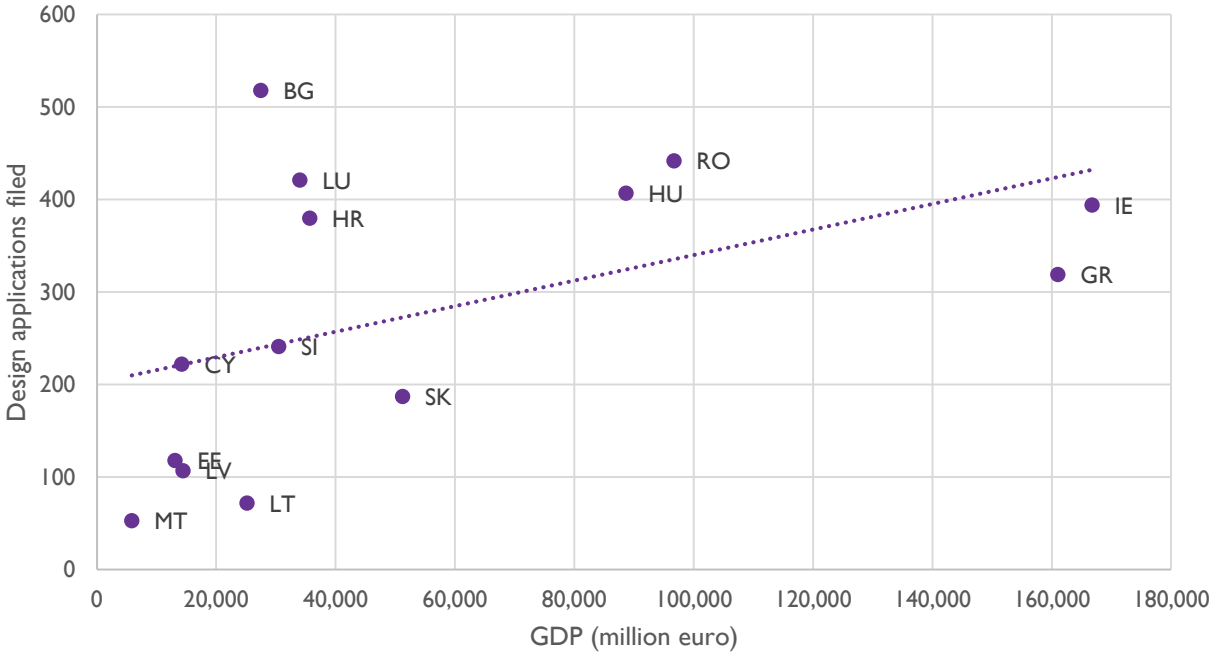
We can deduce from Figure 6.6 that there is a close positive relationship between Member States' size (in terms of GDP) and number of design filings generated. In 2012, the four Member States with the largest GDP (i.e. Germany, France, UK, and Italy) are those generating the largest number of design applications. We explore this point further by providing scatter diagrams that relate the size of a Member States (measured in terms of GDP) to the aggregate number of design applications generated. For clarity, the scatter diagrams related to 2013 data are provided separately for the 14 Member States with the highest number of design applications filed (Figure 6.7) and for the 14 Member States with the lowest number of design applications filed (Figure 6.8).

Figure 6.7: Relationship between GDP and aggregate number of design applications for the 14 Member States with the highest number of design applications filed (2013)



Source: WIPO, Eurostat, and Europe Economics calculations.

Figure 6.8: Relationship between GDP and aggregate number of design applications for the 14 Member States with the lowest number of design applications filed (2013)

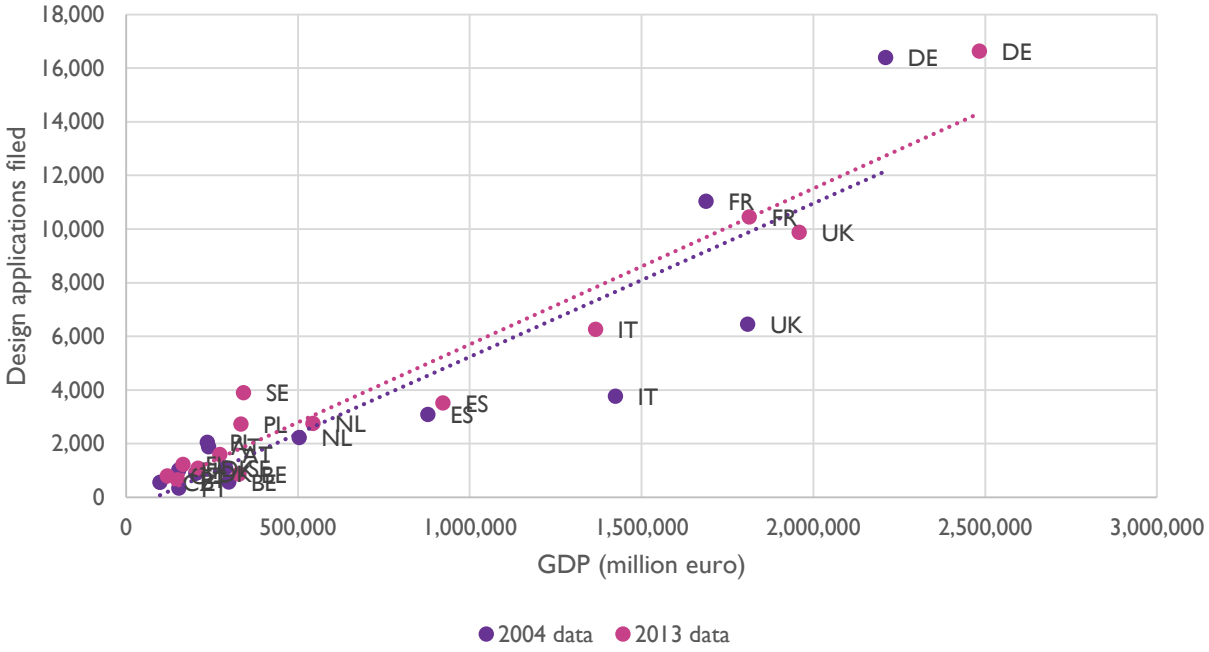


Source: WIPO, Eurostat, and Europe Economics calculations.

We can see from Figure 6.7 and Figure 6.8 that there is a clear positive and fairly linear correlation between GDP and the aggregate number of design applications, though we note that that relationship appears to be more clearly linear for countries with a larger number of design applications filed.

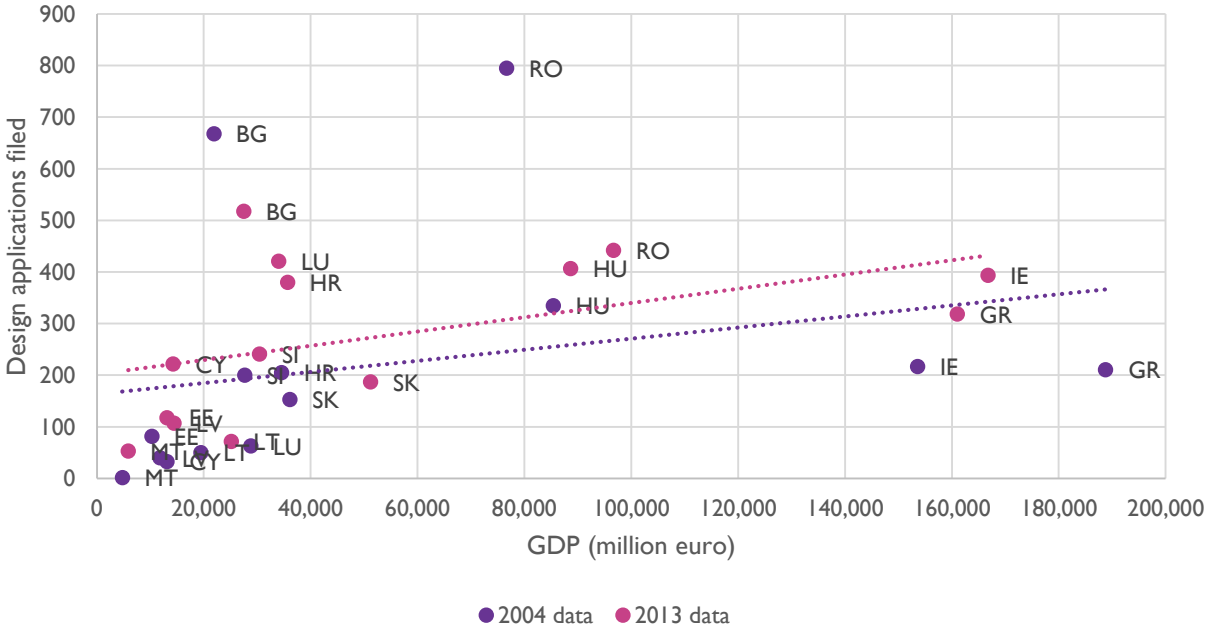
We have also tested whether the positive relationship between GDP and design applications filed in 2013 was present also in 2004. In Figure 6.9 and Figure 6.10 the scatter diagrams based on 2013 data are compared to those based on 2004 data. We can see that for both sets of data the linear relationship remains broadly intact.

Figure 6.9: Relationship between GDP and aggregate number of design applications for the 14 Member States with the highest number of design applications filed (2004 vs 2013)



Source: WIPO, Eurostat, and Europe Economics calculations.

Figure 6.10: Relationship between GDP and aggregate number of design applications for the 14 Member States with the lowest number of design applications filed (2004 vs 2013)



Source: WIPO, Eurostat, and Europe Economics calculations.

Finally we note that we have reproduced the figures above using GDP per capita as opposed to GDP. The linear relationships we found are however much less decisive (indeed even negative when considering 2004

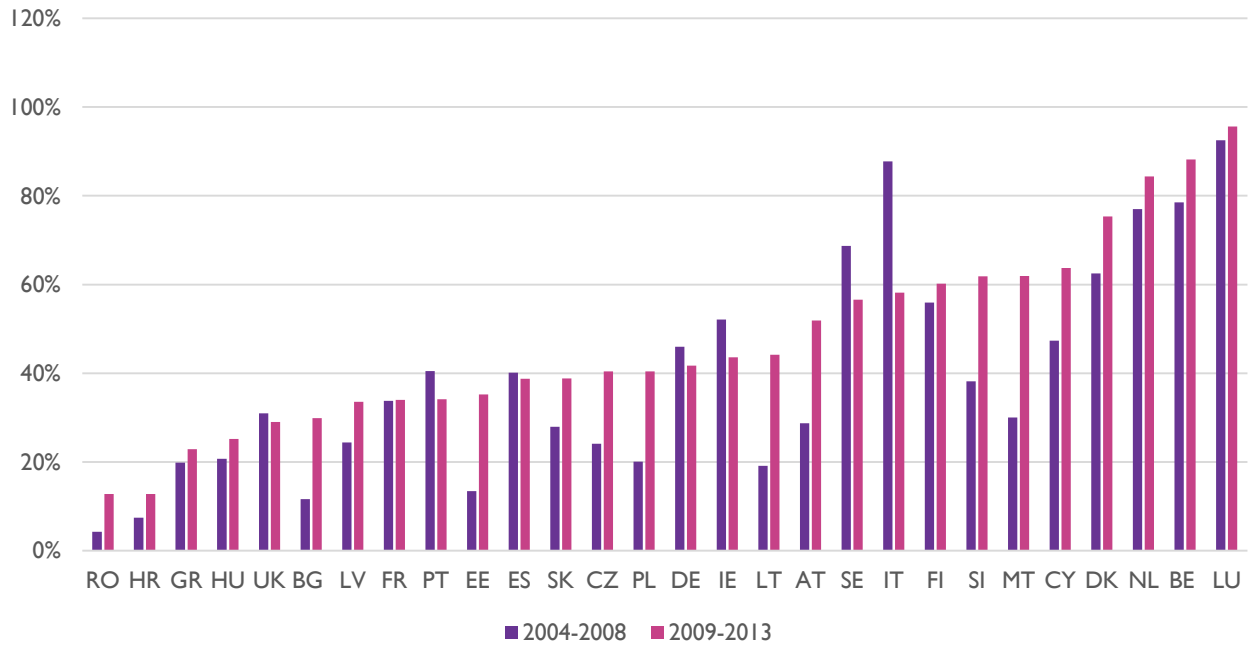
data for the Member States with the lowest number of design applications filed), and we therefore conclude that the absolute size of the domestic market (as measured by GDP) is a better explanatory factor for cross-country differences in the number of design applications than wealth (as measured by GDP per capita).

Non-domestic design applications filed in the EU

We now move to assess the relative importance of non-domestic European filing (i.e. filing in a Member State other than the EU Member State in which the filer is based) by Member State. In order to do so we report in Figure 6.11, the share of applications filed at OHIM or at the national office of a foreign Member State, over the total number of applications filed in Europe for two different time periods: the period 2004-2008, and the period 2009-2013.[90,91]

The overall pattern that can be observed in Figure 6.11 is that non-domestic European applications are particularly important (as they account for more than 50 per cent of all applications filed in Europe) for Benelux countries (Belgium, Netherlands and Luxembourg), Scandinavian countries (Denmark, Finland, and Sweden), and some of the smaller Member States (namely, Cyprus, Malta, Slovenia, and Austria). Among the Member States that are responsible for originating the largest number of design applications (i.e. Germany, France, the UK, and Italy, as per Figure 6.6), Italy is the only one for which non-domestic applications account for more than 50 per cent of total filings in Europe (though the share has decreased significantly from 88 per cent over the period 2004-2008, to 58 per cent over the period 2009-2012). In contrast, domestic markets remain the primary European filing destinations for Germany, France, and the UK (e.g. in 2013 in Germany, France, and the UK shares of non-domestic European applications over the total number of filings in Europe were respectively 42 per cent, 39 per cent, and 29 per cent).

Figure 6.11: Share of non-domestic applications filed in Europe (over the total number of applications filed in Europe) by European country of origin (aggregate values for the periods 2004-2008, and 2009-2012).



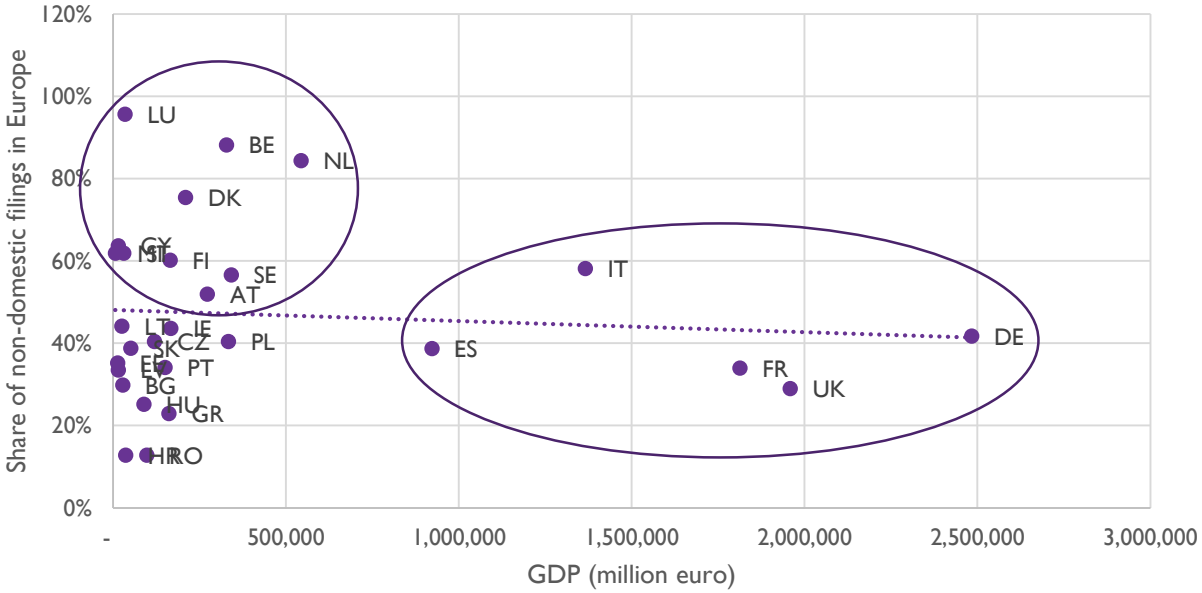
Source: WIPO and Europe Economics calculations.

[90] We report average across four years as these smoothed figures provide a better indication of the importance of non-domestic European filings.

[91] UK figures are not reported because we do not have data on the number of domestic filings made by UK applicants at the UK-IPO.

A potential explanation for the patterns observed in Figure 6.11 is that non-domestic European filings are more common among those Member States for which the size of the domestic market is too small to justify economically a large number of domestic filings. To a certain extent this is confirmed by the following chart where (for the period 2009-2013) the share of non-domestic European filings is plotted against absolute GDP levels.

Figure 6.12: Relationship between share of non-domestic applications filed in Europe and GDP by country of origin (period 2009-2012).

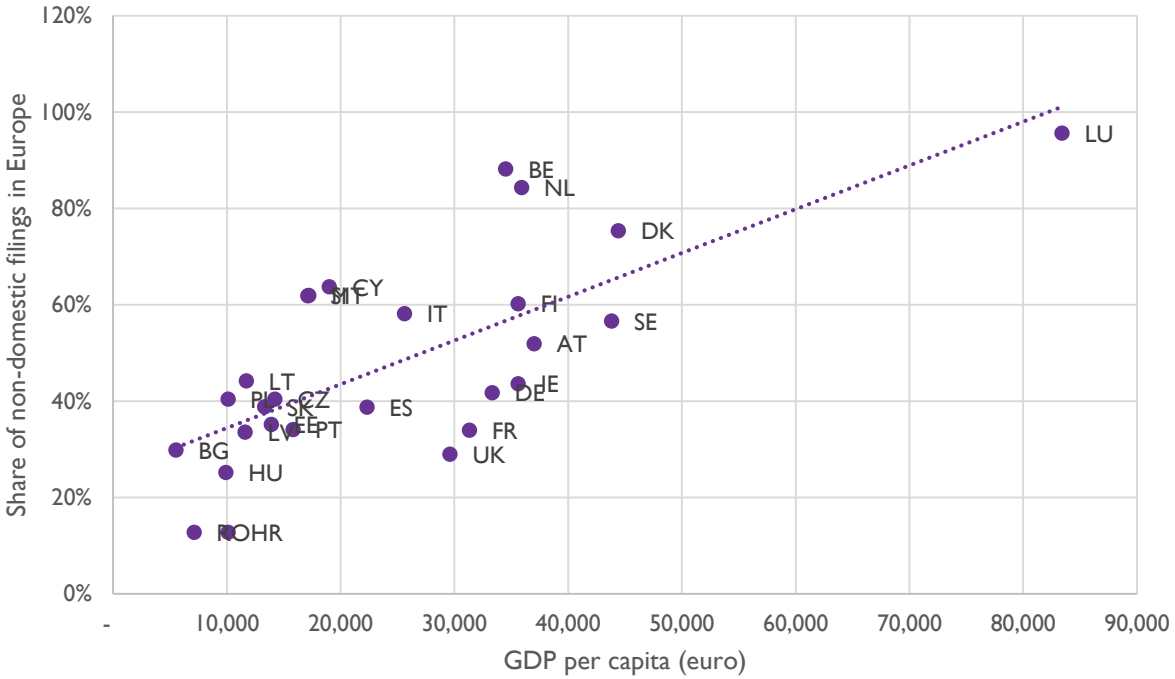


Source: WIPO, Eurostat, and Europe Economics calculations.

We can see that there appears to be a negative correlation between market size (measured by GDP) and the share of non-domestic EU filings. However the relationship is weak and likely to be driven mainly by the fact that the largest countries (Germany, UK, France, Italy and Spain) have relatively modest shares (e.g. below 50 per cent) of non-domestic filings (one expectation being Italy). Moreover, in Figure 6.12, the Member States with the highest shares of non-domestic EU filings almost all appear to be outliers relative to the best-fit putative linear relationship. This suggests that the GDP has little power in explaining cross-country differences in the share of non-domestic European filings.

However, when we plot the shares of non-domestic European filings against GDP per capita (as opposed to absolute GDP levels) we obtain a much stronger relationship (this is depicted below in Figure 6.13). Such a positive relationship remain valid also we consider data for the period 2004-2008 (see Figure 6.14).

Figure 6.13: Share of non-domestic EU fillings (2009-2013) against average GDP per capita[92]



Source: WIPO, Eurostat, and Europe Economics calculations.

Figure 6.14: Share of non-domestic EU fillings (2009-2013 vs 2004-2008) against average GDP per capita[93]

Source: WIPO, Eurostat, and Europe Economics calculations.

We notice from the findings of Figure 6.13 and that the Member states where firms are more likely to seek protection within the broader internal market (as opposed to domestically) tend to be Member States with a relatively small population size (e.g. Benelux and Scandinavian countries) and a high GDP per capita. We

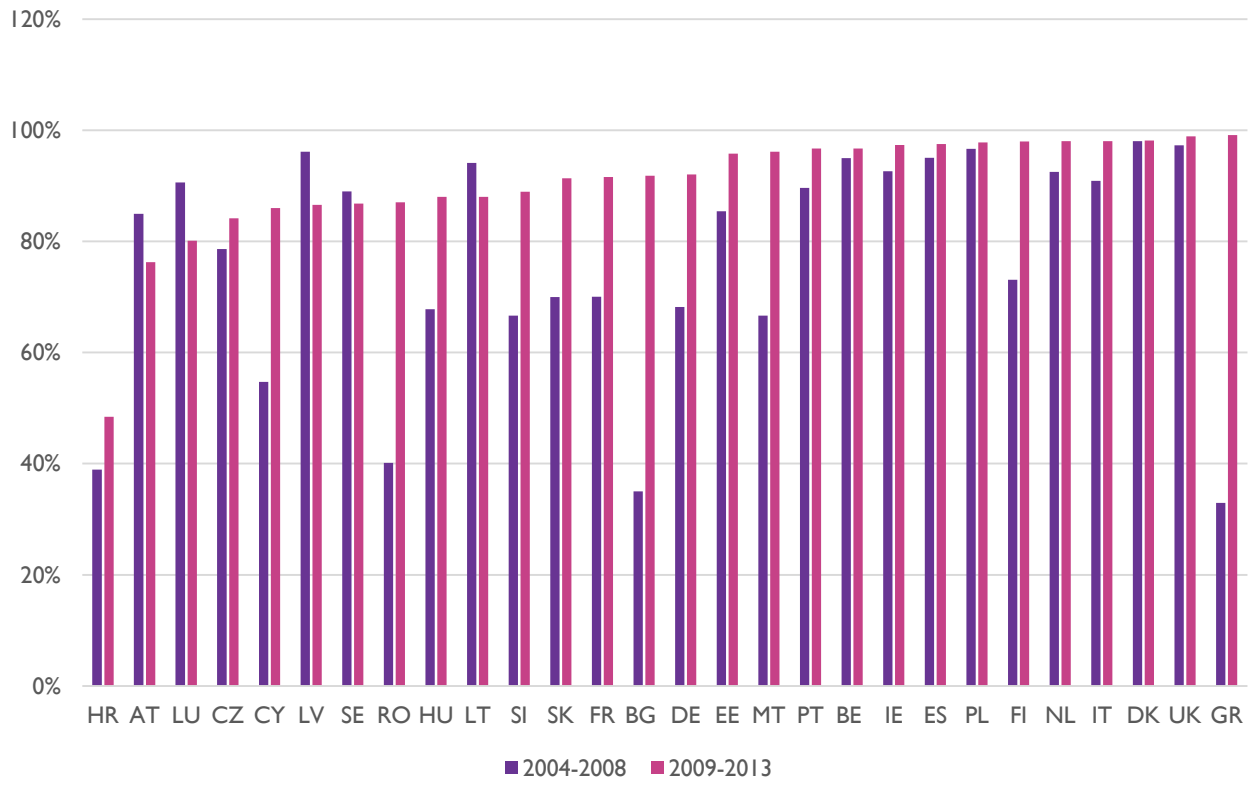
[92] GDP per capita figures refer to 2013.

[93] For the period 2004-2008, the GDP per capita figures used are those of 2008.

rationalise this finding as follows. A small domestic population size means that seeking protection domestically is of limited economic value and therefore it becomes more vital for firms to seek protection beyond the national borders. However, the ability to exploit cross-cross border protection requires also that firms have a well-established commercial presence in multiple Member States, which is more likely to be true for firms based in well-developed and wealthy Member States (i.e. those with a high GDP per capita).

Firms seeking protection non-domestically in Europe can file at OHIM or file at the national offices of other Member States. In order to assess the extent to which the OHIM route is preferred over non-domestic national routes, we have calculated the shares of OHIM applications over the total number non-domestic applications filed in Europe. These aggregate figures for the periods 2004-2008 and 2009-2013, are provided below in Figure 6.15. We can see from Figure 6.15 that in recent years the OHIM route has become the preferred route when seeking protection non-domestic in Europe: over the 2009-2013 period, more than 80 per cent of non-domestic design applications in Europe were filed at OHIM (this is true for all member States with the exception of Austria, for which the share is just below 80 per cent, and Croatia for which the share is around 50 per cent). By contrast, over the period 2004-2008 the use of OHIM was generally lower and much less homogenous across Member States. More specifically, the share of OHIM filings over non-domestic European filings was particularly low (e.g. below 40 per cent) for Croatia, Romania, Bulgaria and Greece).

Figure 6.15: Share of applications filed at OHIM (over the total number of non-domestic applications filed) by European country of origin (2004-2008, 2012-2013)

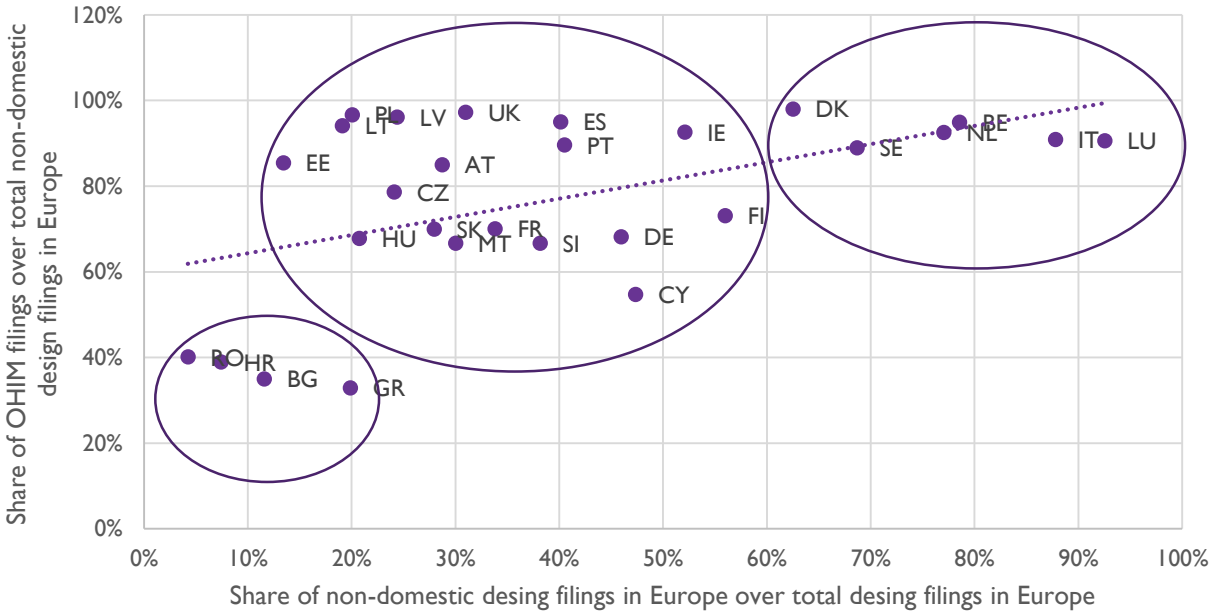


Source: WIPO and Europe Economics calculations.

Figure 6.15 indicates that the use of the OHIM filing route is currently the preferred choice when seeking protection non-domestically in Europe. This could be due to a number of factors. First it might due to necessity, e.g. for firms that sell products in a large number of Member States, obtaining European-wide protection with a single filing is clearly preferable to making a larger number of national applications (*ceteris paribus*). Second, it might be due to convenience, e.g. even for firms that have sales operations in a small number of Member States the centralised filing procedure offered by OHIM entails a number of advantages

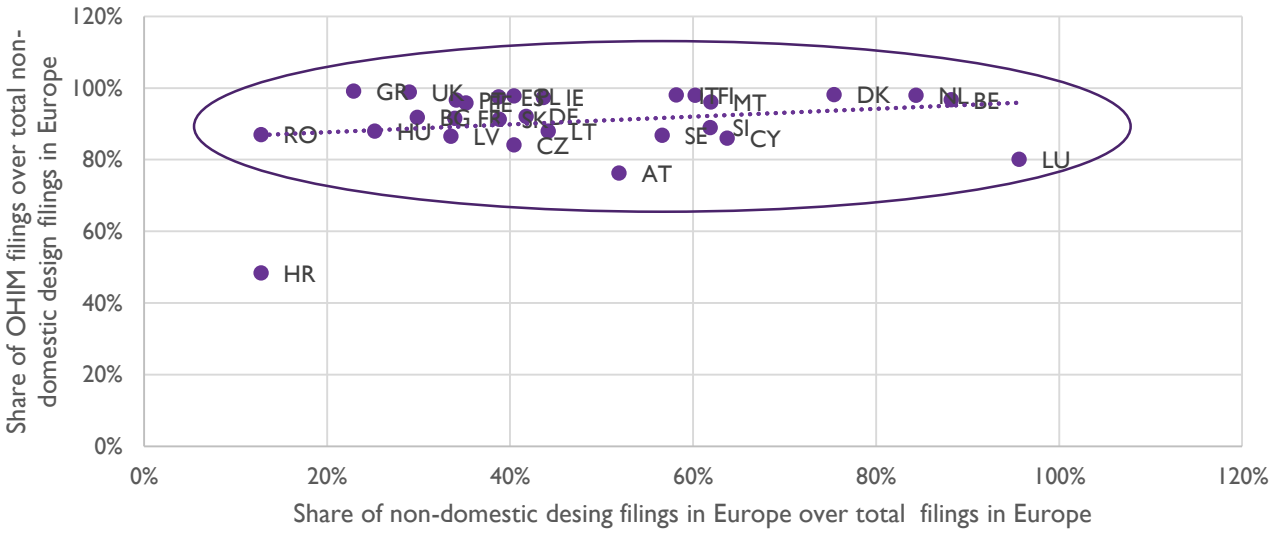
over national routes (e.g. lower language barriers and the option of expanding sales in other member States at a later stage without the need of making further application to seek protection there). Although the aggregate nature of the WIPO data does not allow us to determine the precise reason behind the increased popularity the OHIM filing route, we can, however, draw more conclusions on the evolution of the use of OHIM over time. We do this by plotting, for each Member State, the share of European filings that use the OHIM route against the share of non-domestic European filings. These scatter diagrams for the period 2004-2008 and the period 2009-2013 are provided in Figure 6.16 and Figure 6.17 below.

Figure 6.16: Share of OHIM filings over share of non-domestic filings (2004-2008)



Source: WIPO, Eurostat, and Europe Economics calculations.

Figure 6.17: Share of OHIM filings over share of non-domestic filings (2009-2013)



Source: WIPO, Eurostat, and Europe Economics calculations.

Figure 6.17 we can draw the following conclusions:

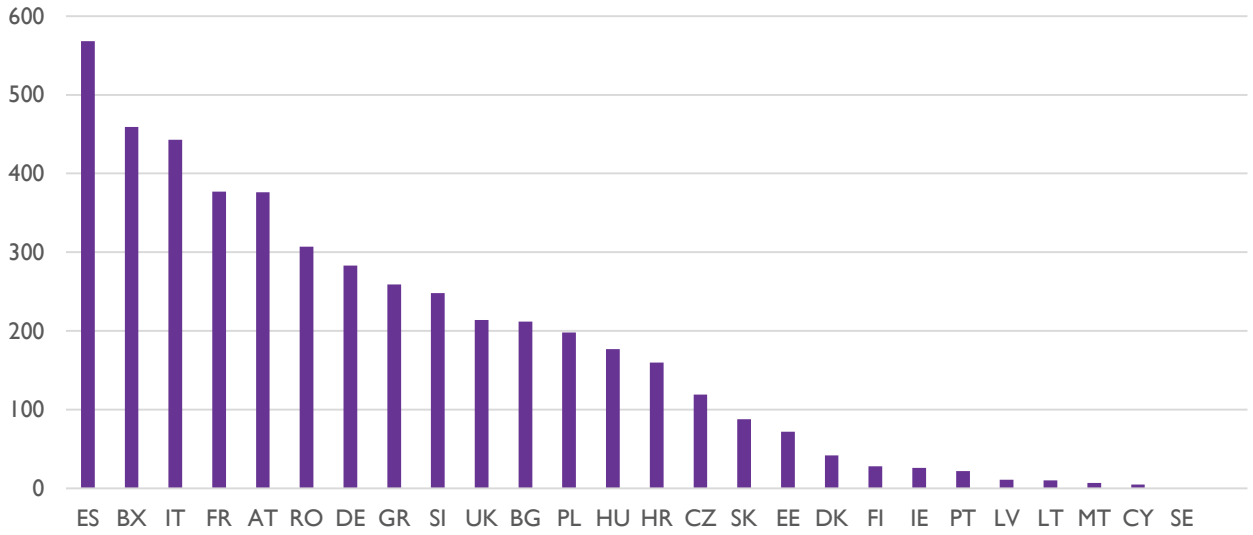
- Over the 2004-2008 period (Figure 6.16) there was a positive relationship between the share of non-domestic filings in Europe and use of the OHIM route. In particular, for all Member States for which

non-domestic European filings accounted for more than 60 per cent of all filings in Europe (i.e. Luxembourg, Italy, Belgium, the Netherlands, Sweden and Denmark) the OHIM route was already the predominant non-domestic filing route (with more than 80 per cent of non-domestic European applications being filed at OHIM). In contrast, for Member States where filings were predominantly domestic (i.e. Romania, Croatia, Bulgaria, and Greece), non-domestic filings were made primarily through national routes (OHIM filings accounting for less than approximately 40 per cent of all non-domestic applications). It is also interesting to see that there was still significant variation in the use of OHIM across those Member States with an intermediate share of non-domestic European filings. For example, even though Ireland and Cyprus had a similar share of non-domestic applications made in Europe (52 percent and 47 per cent, respectively), the OHIM route was used for 93 per cent of non-domestic applications in Ireland, but only for 55 per cent of non-domestic applications in Cyprus.

- Over the more recent period 2009-2013 (Figure 6.17) we can observe a very strong convergence in the use of OHIM for non-domestic filings in Europe across almost all Member States (as also illustrated by the flattening of the trend line compared to the one depicted in Figure 6.16). Irrespectively of the importance that non-domestic filings play within each Member State, the OHIM route is always used from more than 80 per cent of non-domestic applications in all but two Member States (Austria — where the share is however very close to 80 percent — and Croatia). In fact, the only outlier in Figure 6.19 is Croatia which is most naturally attributed to the fact that this Member State has joined the EU only recently and that the shares figures presented are calculated across five years (i.e. converting a period in which Croatia was not yet a EU Member).[94]

Finally, the fact that OHIM appears to have become the preferred filing route for European applicants seeking protection in other Member States rises the questions of what are these Member States. This question can be answered only indirectly because when filing at OHIM applicants do not need to provide a list of designated EU Member States where protection is sought after. We have therefore analysed, for each national office, the total number of non-domestic filings received by European applicants in 2004 (when the practice of filing at OHIM was less established). The figures are provided below.

Figure 6.18: Non-domestic filings received by European applicants (2004)



Source: WIPO and Europe Economics calculations.

We notice that, in addition to some large Member States (e.g. Spain, the Benelux bloc, Italy, and France, Germany and the UK), also some smaller Member States (namely Austria, and Slovenia, and Greece) used to

[94] In fact, considering only 2013 data, the share of OHIM filings over the total non-domestic applications made in Europe for Croatia is 80 per cent, thus already in line with those of other Member States.

among the top ten destination offices of European companies seeking protection in another Member States. We have also analysed from where the majority of such cross-border applications were originated from and, as indicate in below, they were to a large extent originated from Germany, France and Italy.

Table 6.3: Non-domestic filings received by top 10 destination offices by country of origin (2004)

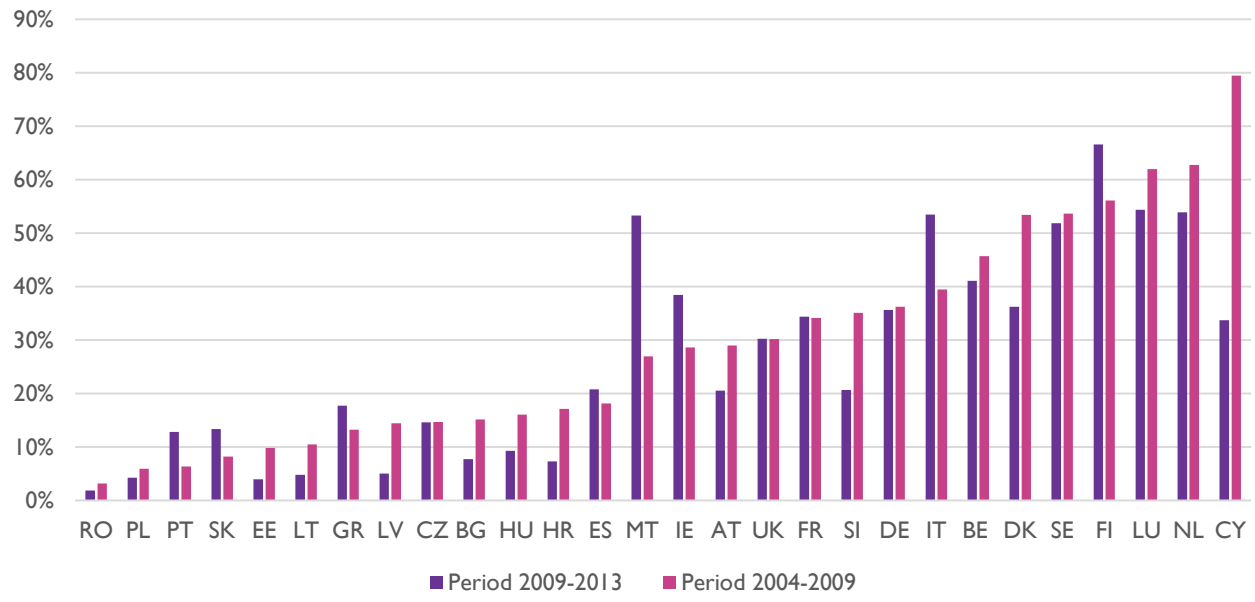
Office	Total	Share of filings by country of origin			
		DE	FR	IT	Other MSs
ES	568	51%	39%	1%	9%
BX	459	42%	40%	10%	8%
IT	443	49%	43%	n.a.	8%
FR	377	58%	n.a.	14%	28%
AT	376	85%	2%	3%	10%
RO	307	55%	22%	11%	12%
DE	283	n.a.	69%	17%	14%
GR	259	42%	47%	8%	2%
SI	248	73%	11%	8%	8%
UK	214	23%	26%	8%	43%

Source: WIPO and Europe Economics calculations.

Non-European design applications

Having analysed the extent to which design applications originated in each member States seek protection in Europe, we conclude the analysis of design applications by origin by looking at the share of non-European design applications over the total number of applications filed. This type of analysis provides us with indications as to whether European firms seek design protection beyond the internal market. The share of applications filed by European applicants outside Europe (over the total number of applications filed) is reported for 2004 and 2012 in Figure 6.19.

Figure 6.19: Share of applications filed outside Europe by European country of origin (2004, 2012)[95]

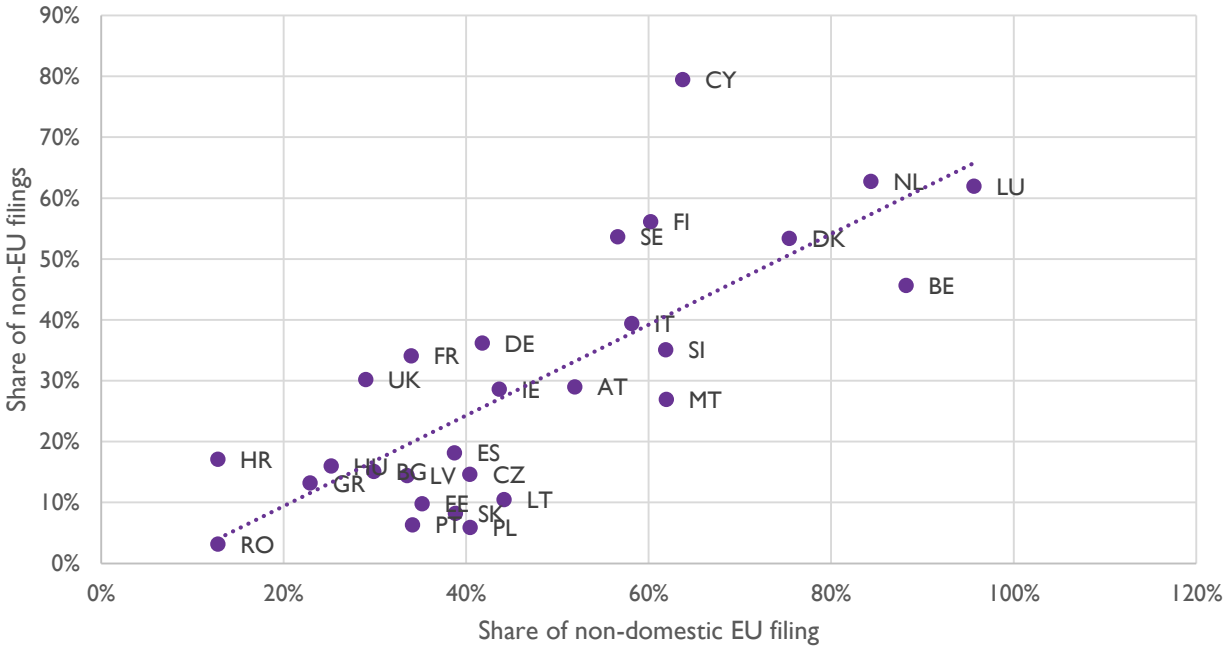


Source: WIPO and Europe Economics calculations.

[95] We stress that the big changes in the shares observable for Malta and Cyprus are due to the fact that these Member States generate a small number of designs and therefore the resulting share values are volatile to small changes in the number of filings made within Europe and outside Europe.

There are a number of similarities between the patterns in Figure 6.19 and those observable in Figure 6.11. More specifically, in those countries where firms were more likely to seek non-domestic protection in Europe — during the 2009-2012 period — (i.e. Cyprus, Benelux countries, Scandinavian countries, and Italy — as indicated in Figure 6.11) are also those in which firms were more likely to seek protection outside Europe. In fact, there is strong positive relationship between the prevalence of non-domestic filings within the internal market and the prevalence on design filings outside Europe, as it is clearly illustrated in Figure 6.20.

Figure 6.20: Relationship between non-European filings and non-domestic European filings (2004, 2012)



Source: WIPO, Eurostat, and Europe Economics calculations.

We have also analysed the most common non-European countries where firms apply for design protection. For the period 2009-2013 and for each Member State, we report in the table below the share of non-European applications over the total number of applications filed, and the shares of non-European filings made in the US, Brazil, Russia, India, and China, and other countries.

Table 6.4: Share of applications to non-EU countries by Member State and destination office (2009-2013)

	Share of non-EU applications (over total applications)	Share of applications to non-EU countries (over total non-EU applications)						
		US	BR	RU	IN	CN	ZA	Other
AT	29%	35%	4%	3%	2%	14%	3%	38%
BE	46%	31%	4%	6%	4%	14%	2%	39%
BG	15%	5%	0%	12%	3%	2%	2%	76%
CY	79%	0%	3%	26%	7%	8%	0%	56%
CZ	15%	9%	1%	9%	8%	44%	0%	30%
DE	36%	22%	4%	5%	6%	24%	1%	37%
DK	53%	25%	3%	5%	4%	22%	0%	41%
EE	10%	27%	3%	25%	0%	10%	0%	34%
ES	18%	17%	6%	5%	4%	22%	0%	47%
FI	56%	18%	5%	10%	8%	18%	1%	40%
FR	34%	17%	4%	4%	3%	16%	0%	56%
GR	13%	26%	4%	5%	11%	14%	0%	39%
HR	17%	3%	0%	2%	0%	0%	2%	93%

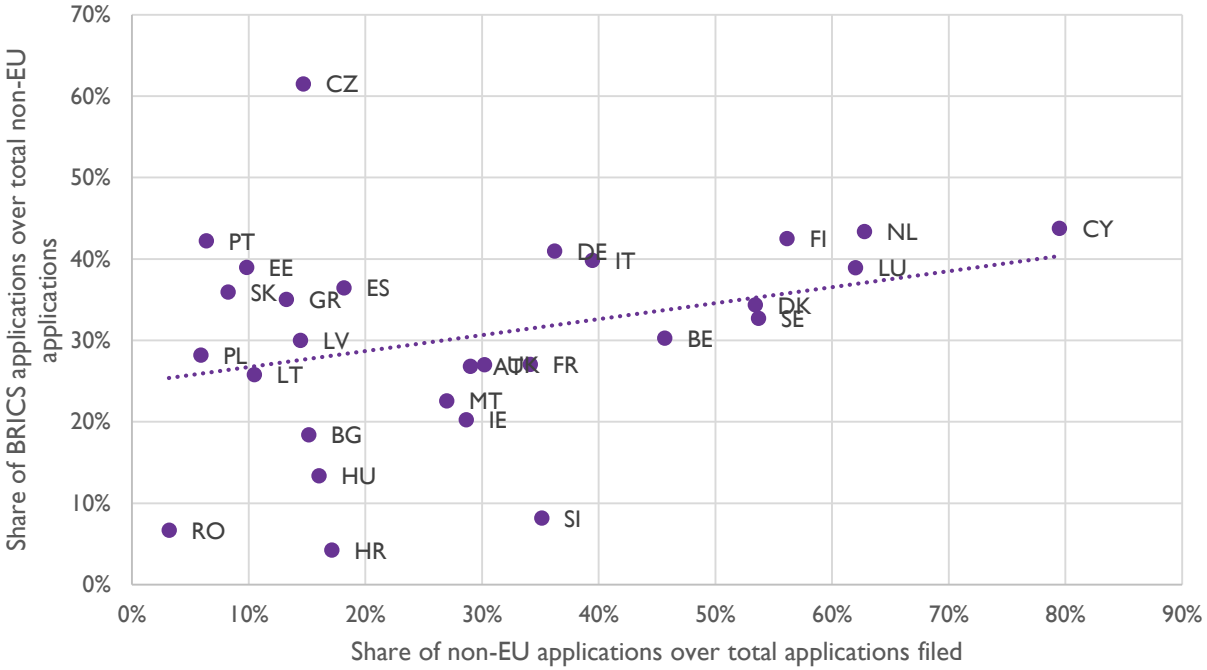
	Share of non-EU applications (over total applications)	Share of applications to non-EU countries (over total non-EU applications)						
HU	16%	18%	1%	6%	1%	5%	0%	69%
IE	29%	40%	2%	0%	5%	13%	0%	39%
IT	39%	26%	4%	6%	4%	24%	1%	34%
LT	10%	6%	0%	16%	0%	10%	0%	68%
LU	62%	7%	3%	3%	6%	27%	1%	54%
LV	14%	8%	0%	24%	0%	6%	0%	62%
MT	27%	55%	0%	0%	0%	10%	13%	23%
NL	63%	10%	9%	8%	8%	18%	1%	47%
PL	6%	16%	1%	15%	2%	10%	0%	56%
PT	6%	28%	25%	2%	2%	11%	3%	30%
RO	3%	5%	0%	0%	0%	7%	0%	88%
SE	54%	15%	5%	6%	5%	14%	3%	52%
SI	35%	11%	0%	2%	0%	5%	0%	81%
SK	8%	33%	3%	16%	5%	13%	0%	31%
UK	30%	34%	2%	2%	6%	13%	3%	39%

Source: WIPO, and Europe Economics calculations.

We first notice that, generally, the US and China represent the primary countries of destination for non-European design applications. This is not surprising given these two countries are the first and second biggest economies in the world. We also notice that politico-cultural ties and geographical proximity play a role. For example, Russia is either the first or the second most popular filing destination for the Baltic States, and Brazil is the second most popular destination for Portugal.

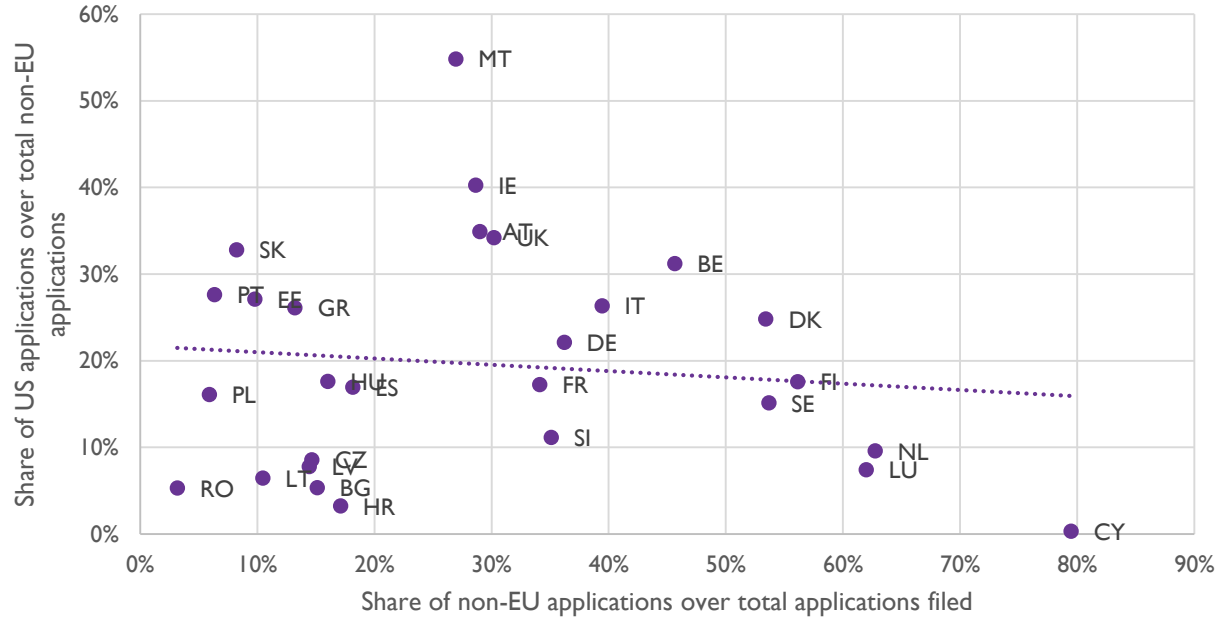
An interesting features of the data displayed in Table 6.4 is the relationship between share of non-EU applications (over total applications filed) and share of non-EU applications filed to BRICS countries. As illustrated in Figure 6.21 there is a positive relationship between the two variables, meaning that firms that are more likely to seek protection outside the EU tend to do so in emerging markets. This findings of Figure 6.21 are particularly interesting when contrasted with those reported in Figure 6.22 where the share of non-European filings is plotted against the share of non-EU filings made in the US. We can see from Figure 6.22 that the linear trend line is downward sloping, meaning that, in countries where firms are less likely to seek protection outside Europe, if they decide to do so they are more likely to do that in the US.

Figure 6.21: Relationship between share of non-EU applications by EU applicants (over total applications) and share of applications in a BRICS country (over non-EU applications by EU applicants) (Period: 2009-2013)



Source: WIPO, Eurostat, and Europe Economics calculations.

Figure 6.22: Relationship between share of non-EU applications by EU applicants (over total applications) and share of applications in the US (over non-EU applications by EU applicants) (Period: 2009-2013)



Source: WIPO, Eurostat, and Europe Economics calculations.

We interpret the findings of Figure 6.21 as implying that Member States where the firms have the greatest appetite for-non European protection are also those in which firms have been able to capitalise on the increasing importance of emerging markets (China in particular). The negative relationship in Figure 6.22 is more problematic to explain. Our tentative hypothesis is that this may be because when firms operate in

the US at all, they tend to focus upon the US amongst their international operations. By contrast, firms that do not operate in the US need to be more globally footloose, willing to operate in multiple jurisdictions as opportunity allows. On the other hand, another possibility is that the relationship is non-linear — e.g. a humped curve would fit the data more closely.

Conclusions

- The aggregate level of filings (whether filed in a Member State or by firms from a Member State) reflects the size of the economy concerned — higher GDP is correlated with more filings. Larger economies have more firms to make filings and are more attractive as markets for firms making filings.
- By contrast, the extent to which firms in any given Member State choose to seek protection in other EU Member States, or indeed outside the EU altogether, reflects GDP per capita not simply GDP levels. We interpret this as arising because firms in better-developed (and hence wealthier) economies are more likely to have the competence and connections that allow them to export.
- In the first few years after OHIM was established, it came to almost totally dominate filings by non-European firms within the EU.
- For EU firms there remains significant demand for national filing from those firms operating only domestically. But where firms operate in multiple Member States, OHIM filing has become the route of choice.
- The EU firms that file most outside the EU have, in recent years, been those operating in BRICS economies, particularly China.

6.2.2 Firm-level analysis: survey findings[96]

Method of protection

First, we asked respondents to identify the methods through which they protect their designs, if any. Figure 6.23 shows that, on average, respondents have protected approximately one-fifth of their designs using a Community trademark. This result is consistent across industrial sectors but there is considerable inter-industry variation in the case of national level trademarks. In particular, only 13 per cent of designs in the trade or repair sector are protected through national trademarks compared to almost half of designs in professional, scientific and technical activities. No survey respondents indicated the use of copyright in design protection.

As noted above, the potential for using trademarks to protect designs is restricted to certain types of designs. Logos are the prime example of a design that could be protected by an industrial design and/or a trademark but 3D trademarks permit a wider range of designs to be protected through IPRs other than industrial designs. It is clear that there is awareness of such possibilities, and practical use of the option, amongst those that responded to our survey but we note that this finding may not hold amongst those that did not respond to the survey. There are numerous possible factors that might explain why companies choose one type of IPR over another and we explore these issues in detail in Section 7.

In terms of industrial design protection, it is apparent that registered national level industrial design protection is more commonly used by survey respondents than registered Community level protection across different NACE sectors. Registered Community level protection is particularly rare in the professional, scientific and technical activities, with registered national level protection the most common form of industrial design protection for this industry group. More generally, companies from this industry group tend to make relatively little use of industrial designs. This may potentially be explained by the nature of firms in the sector (e.g. design consultancies are unlikely to retain the IPR for their designs, which would instead be transferred to their clients) or by the activities completed by those firms (e.g. companies may typically be engaged in the

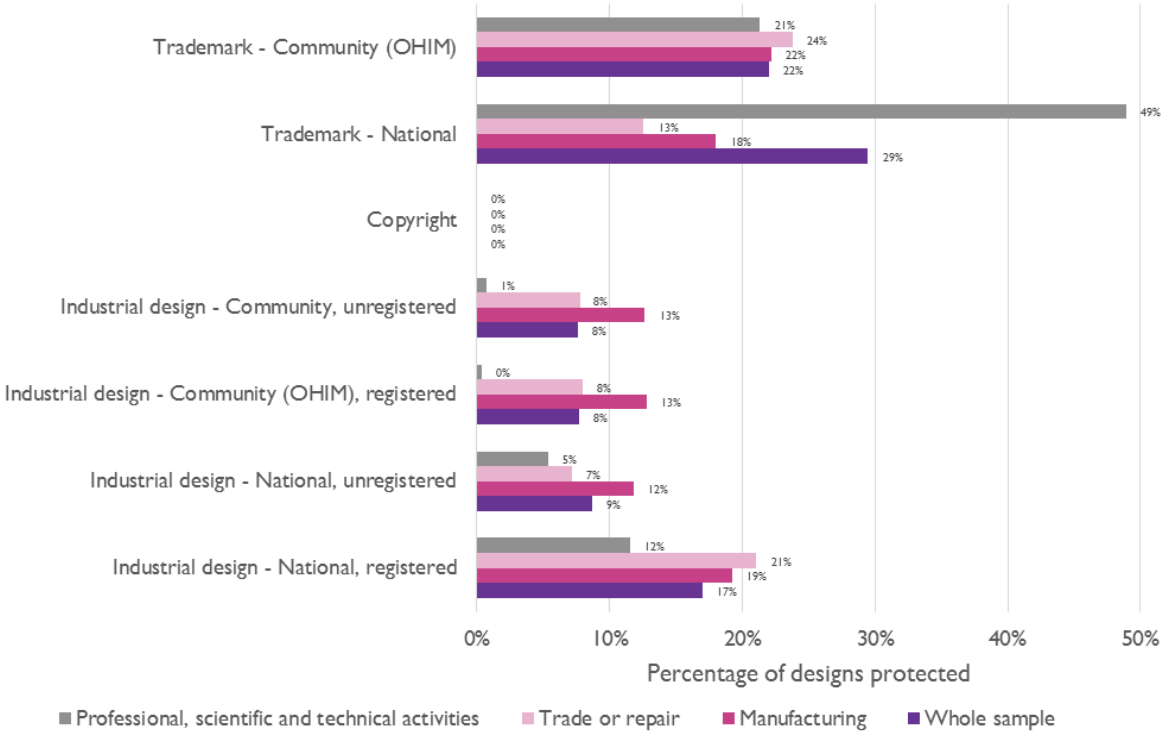
[96] Please see section 2.2.3 for a detailed description of the survey.

production of logos, which can be protected by trademark, whereas companies from other industry groups may typically be engaged in design activities that can only be protected by industrial designs).

Overall, the figure indicates that, amongst our survey respondents, at the Community level, trademarks are more commonly used to protect designs than are registered industrial designs. The same is true at the national level, with the exception of the trade and repair sector, which has a tendency to protect designs at national level through industrial designs rather than trademarks.

The prevalence of using trademarks to protect designs, despite the existence of an industrial design for precisely that purpose, is an interesting and somewhat surprising finding. We explore the reasons for such decisions in the next chapter.

Figure 6.23: Type of design protection, by NACE classification



Note: There were no respondents indicating that they protected their designs through copyrights. Going from bottom to top, the results presented rely on 84, 79, 83, 82, 0, 86 and 91 responses.

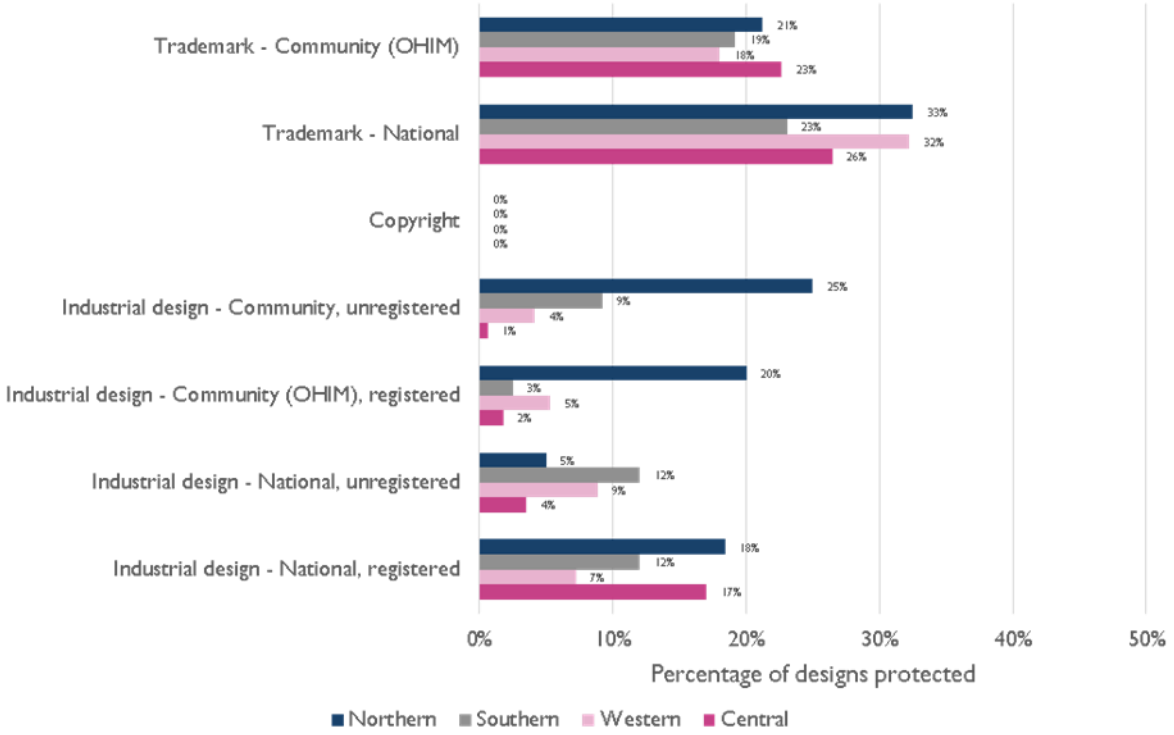
Figure 6.24 displays the same data but broken down by origin of respondent. There appears to be much more consistency in the use of trademarks across geographical areas than in the use of industrial designs across geographical areas. For example, Community trademarks are used to protect 21 per cent of designs by firms from Northern Europe and 23 per cent in Central Member States, but the corresponding figures for registered Community level industrial designs are 20 per cent and 2 per cent respectively.

The use of Community level industrial designs, both registered and unregistered, is significantly more common in Northern Member States than in any other Member State grouping. However, Northern Member States make relatively less use of national level industrial design, while all other areas of Member States make more significant use of national level industrial design, both registered and unregistered. While these results may in part reflect the relatively small number of respondents from Northern Member States, it may also potentially reflect the relatively small size of the markets in Northern Europe and hence the need of companies based in those countries to seek sales in other European countries. It is interesting to note that (as discussed above) evidence from several studies in our literature review support this hypothesis as they found that registered design rights are associated with firms that are more export-facing. Moreover, the

fact that design rights only cover the appearance of products rather than their functional aspects is mentioned as a reason for reduced demand for design registration.[97]

It is clear that the preference for trademarks over registered industrial designs is not restricted to particular regions. Indeed, there is a strong preference Community trademarks over Community industrial designs in all regions except Northern Europe while there is a preference for national trademarks over registered national industrial designs amongst respondents from all regions.

Figure 6.24: Type of design protection, by origin of respondent



Note: There were no respondents indicating that they protected their designs through copyrights. Going from bottom to top, the results presented rely on 84, 79, 83, 82, 0, 86 and 91 responses.

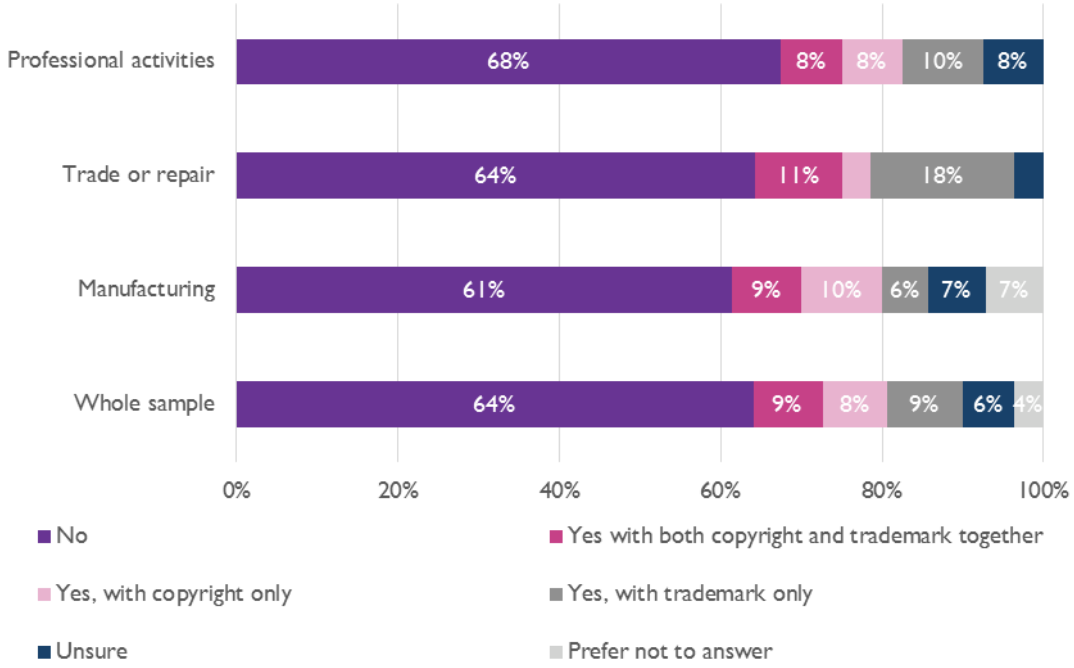
Use of industrial designs in combination with other IPRs

The evidence presented above illustrated the extent to which different types of intellectual property rights are used to protect designs. That leads to the question of whether firms see different types of rights to be substitutes or complements.

Figure 6.25 explores this issue, indicating that in around two-thirds of cases, industrial designs are used by survey respondents as the sole method of protection whereas in the remainder of cases an industrial design is supported by either trademark or copyright.[98]

[97] E.g. see The Big Innovation Centre (2012), p74.
[98] Please see section 2.2.3 for a detailed description of the survey.

Figure 6.25: Use of industrial design with other types of protection, by NACE classification



Note: The results presented rely on 139 responses for the whole sample, 70 for the manufacturing, 28 for the trade or repairs and 40 for the professional, scientific and technical activities subsamples.

Although subject to certain caveats[99], the results indicate that the manufacturing and professional activities sectors are fairly comparable in their use of industrial design protection in conjunction with copyright only (ten per cent and eight per cent respectively) and with both copyright and trademark (nine per cent and eight per cent). Trade or repair firms are a little different, with 18 per cent using trademarks and 11 per cent using both copyright and trademark in conjunction with industrial designs.

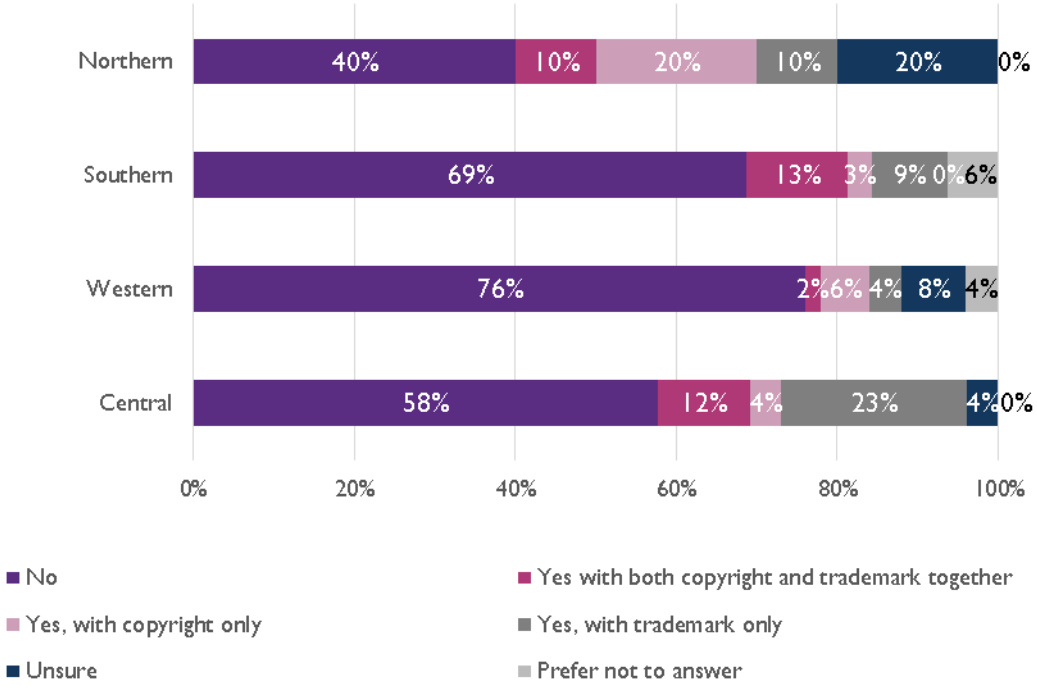
Overall, these results indicate that some companies consider there to be complementarity between industrial designs and other types of IPRs for the purpose of protecting designs whilst the majority do not. It is clear that some designs cannot be protected by trademark and in such cases the two types of IPR are neither complements nor substitutes for the purpose of protecting design (although they may be complementary in other respects, such as protecting different aspects of a product). In cases where designs can be protected by either industrial design or trademark, the two IPRs may be perceived by some to be complementary because of differences in the cost of securing the right and duration in force (i.e. industrial designs are typically cheaper to obtain but can be maintained in force for a maximum of 25 years whereas trademarks can be maintained indefinitely). Hence, companies may consider the IPRs to be complementary because they can be used at different stages of the product's life. Alternatively, companies may consider them to be substitutes which reflect a trade-off between factors such as cost, coverage and enforceability. While we do not have evidence to test these hypotheses, they represent an interesting avenue for future research.

In contrast to the consistency of exclusive industrial design protection across industries, there is substantial variation by origin of respondent as shown in Figure 6.26. Only 40 per cent of surveyed firms in Northern Member States use industrial design as a sole protection of design, in contrast to 76 per cent of surveyed

[99] The fact that respondents referenced copyright protection here, but not when asked about methods used to protect designs, suggests that some may have failed to read the survey question properly. The question asked about conjoint use of IPRs for the purpose of protecting a single design and, given the responses above, we know that no respondent protects designs using copyright. Therefore, it appears that some respondents interpreted the question more broadly than was intended.

firms in Western Member States and an average of 64 per cent across the whole sample. However, this is, to some extent, compensated for by the relative large proportion of Northern Member State firms (20 per cent) who make simultaneous use of copyright and industrial design protection (although the results for Northern Member States may reflect the relatively small number of respondents from that region). Another notable observation in Figure 6.26 is the large proportion (almost one-quarter) of firms from Central Member State who make use of industrial design and trademark only.

Figure 6.26: Use of industrial design with other types of protection, by origin of respondent



Note: The results presented rely on 26 responses for the central, 50 for the western, 32 for the southern and 10 for the northern subsamples.

Section summary

In this section we have described how companies that responded to our survey protect designs in practice.

One important finding from this section is that it is not at all uncommon for respondents to protect designs using trademarks. Such a strategy is likely to be particularly prominent in the case of logos but a wider range of designs may also be protected by trademark, particularly given the availability of a 3D trademark. There are numerous possible explanations for this finding, including the longer possible duration of protection afforded through a trademark and, potentially, easier enforceability of a trademark. The following chapter of the report considers the factors that have influenced companies' strategies in practice, based on responses to our survey.

Another key finding is that while some respondents consider that there is some complementarity between trademarks and industrial designs, others do not. Such differences in opinion are likely to reflect the characteristics of the firm and the industry in which it operates (there are some designs that will not be suited to protection by trademark, for example, and this may influence firms' perceptions). Views on whether trademarks and industrial designs are complements or substitutes appear to differ between firms, which may potentially be explained by differences in design protection strategies and the relative importance of cost, duration of protection and enforceability in forming such strategies.

The following section builds on this firm-level analysis, focussing on industrial designs.

6.2.3 Firm-level analysis: EPO/OHIM dataset

In this sub-section, we present an analysis of a firm-level dataset based on the EPO/OHIM definition of design-intensive industries, as proposed in its industry-level study. The unique firm-level database on which this analysis is based was developed during a recent Europe Economics study for the EPO and OHIM in collaboration with those organisations.

High-level analysis

Table 6.5 provides information on the characteristics of companies in design intensive and non-design intensive industries based on the EPO/OHIM definition. We include in the calculation both companies that use intellectual property rights and those that do not, reflecting the fact that even in design-intensive industries, for example, some companies will choose not to apply for registered protection of their designs.

Table 6.5 Descriptive statistics of design intensive and non-design intensive industries, averages

	Design intensive industries	Non design intensive industries
Number of employees	324	333
Revenue (€'000)	83,073	76,988
Revenue per employee (€'000)	282	252
National industrial designs	0.80	0.12
European industrial designs	1.05	0.09
National industrial designs per employee	0.04	0.03
European industrial designs per employee	0.01	0.00

Note: the student's t-test indicates that design-intensive an non-design-intensive industries are significantly different in terms of the stock of national and European industrial design (p-value is 0.00 in each case). There is no significant difference in respect of number of employees, revenue, or revenue per employee.

As shown in the table above, companies that operate in non-design intensive industries have a greater number of employees and total revenue, on average, than do those that operate in design intensive industries. However, revenue per employee is higher for design intensive industries, indicating higher productivity of labour amongst design-intensive companies.

By definition, design-intensive industries have a greater number of registered industrial designs at the European level than do non design-intensive industries. The table illustrates that, amongst such industries (i.e. those with a greater number of European-level registered industrial designs) there is also a greater number of national-level registered industrial designs (and vice versa). The use of a European-level industrial design would be compatible with the suggestion from the past literature, discussed earlier, that formal design protection may be more associated with exports than local sales, but an alternative hypothesis would be simply that the design-holder is contemplating operating (locally, not via exports) in more than one Member State. Furthermore, this may reflect the fact that in design-intensive industries there is greater knowledge and awareness of the system for protecting designs — e.g. in terms of knowing that applications to OHIM can be cost-effective where protection is sought in more than one country. Both of these factors may help to explain the relative preference for European industrial designs amongst those from design-intensive industries and the relative preference for national industrial designs amongst those from non-design-intensive industries.

It is also interesting to note that while, in absolute terms, European industrial designs dominate national industrial designs in design intensive industries the reverse is true when the number of designs is measured in per-employee terms. While this result may at first seem surprising, it could be explained by the fact that larger firms tend to have a preference for protection at the European level as they are more likely than SMEs to operate across several European countries.

To investigate differences in strategy between companies of different sizes we present in the table below information on the characteristics of SMEs and large companies in design intensive and non-design intensive industries.

Table 6.6 Descriptive Statistics of SMEs and large firms in design intensive and non-design intensive industries, averages

	SMEs in design intensive Industries	SMEs in non-design intensive Industries	Large firms in design intensive Industries	Large firms in non-design intensive Industries
Number of employees	265	273	579	635
Revenue (€'000)	65,801	56,535	156,466	180,526
Revenue per employee (€'000)	280	244	290	291
National industrial designs	0.81	0.13	0.76	0.11
European industrial designs	0.94	0.09	1.49	0.13
National industrial designs per employee	0.05	0.04	0.01	0.00
European industrial designs per employee	0.01	0.00	0.01	0.00

Note: SMEs and large firms in design intensive industries are significantly different to each other in all cases except the stock of European industrial designs (p-value of 0.00 in each case). The same conclusion can be drawn for non-design-intensive industries.

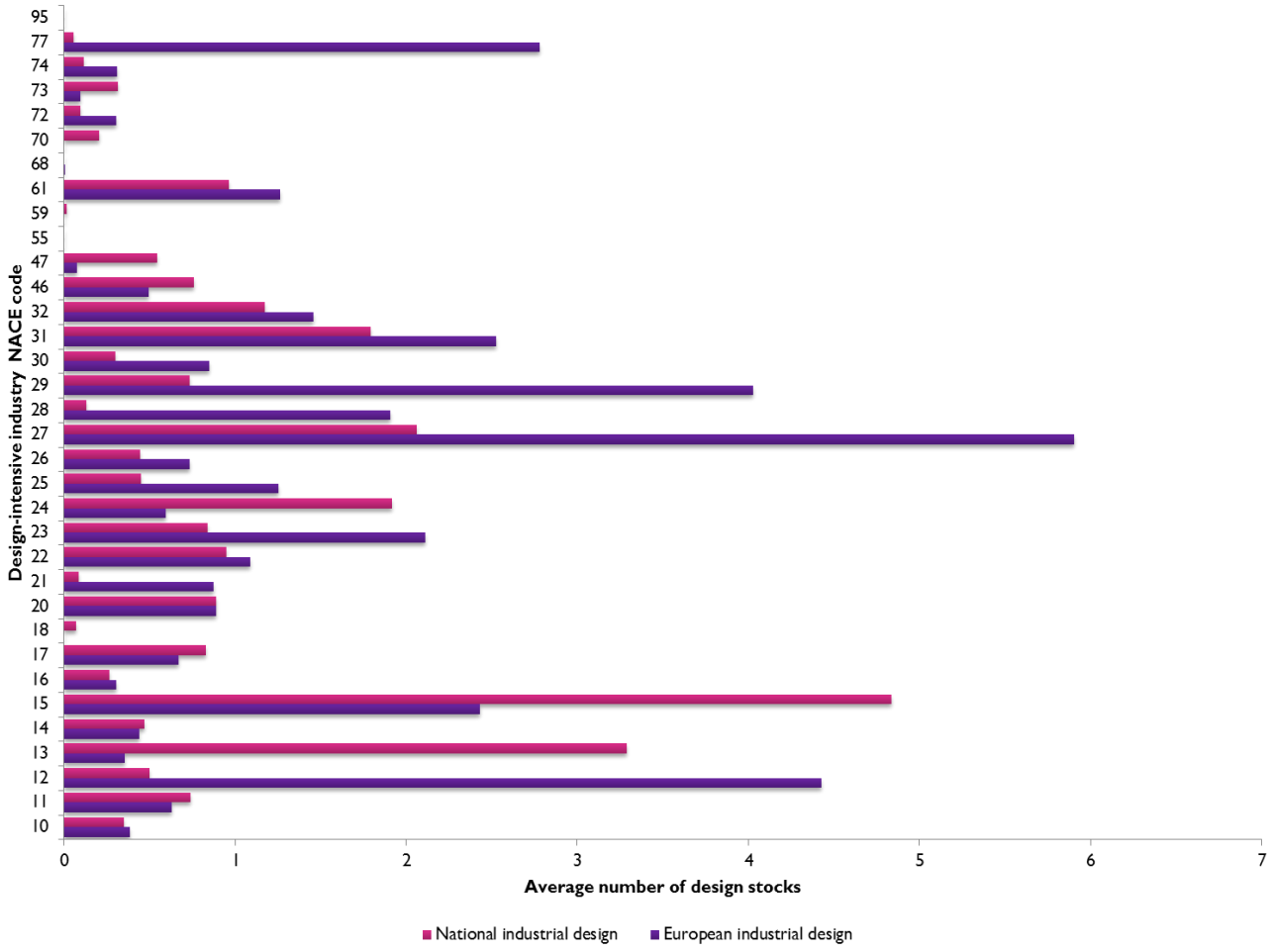
The table above show that SMEs that operate in design intensive industries have higher revenues and higher revenue per employee compared to those that operate in non-design intensive industries. While large companies that operate in design intensive industries also have greater revenue, on average, when compared to large companies that operate in non-design intensive industries there is little difference between industries in terms of revenue per-employee. The average number of employees is lower for both SMEs and large firms that operate in design intensive industries than for equivalent firms in non-design-intensive industries.

The results also confirm our above hypothesis about differences in the intellectual property strategy of SMEs and large companies. More precisely, SMEs that operate in both design intensive and non-design intensive industries hold a greater number of national industrial designs than European industrial designs, in stark contrast to the finding for the whole sample of companies. By contrast, both design intensive and non-design intensive large companies hold a greater quantity of European industrial designs, compared to national industrial designs. This is likely to be explained by the fact that large companies are more likely to have a presence in multiple countries.

Detailed analysis by design-intensive industry: industrial designs held

In this section we analyse the number of European and national industrial designs held by SMEs and large firms by industry. As noted above, design-intensive industries were defined using the four-digit NACE code, giving a total of 165 design-intensive industries. It is not possible to present such detailed information on a chart, however, and so we calculated averages for the design-intensive industries within each two-digit NACE code. The results of this analysis are presented in the figure below.

Figure 6.27: Average number of National and European industrial designs in design intensive industries



In most design intensive industries, companies hold more European industrial designs than national industrial designs. This is in accordance with the results presented above which showed that the average number of European industrial designs held (1.1) is slightly higher than the average number of national designs held (0.8). However, the design-intensive elements of the textile industry (NACE code 13) and the footwear and luggage industry (NACE code 15) represent significant exceptions to this general rule. In those industries, the average number of national industrial designs significantly dominates the European industrial design stock, which may potentially reflect a more domestic focus of firms that operate in such markets.

To understand the extent to which there are differences in the strategy of SMEs and large firms in each industry, we present below charts of the average stocks of national and European industrial designs for SMEs and large companies.

Figure 6.28: Average number of national and European industrial designs in design intensive industries (SMEs)

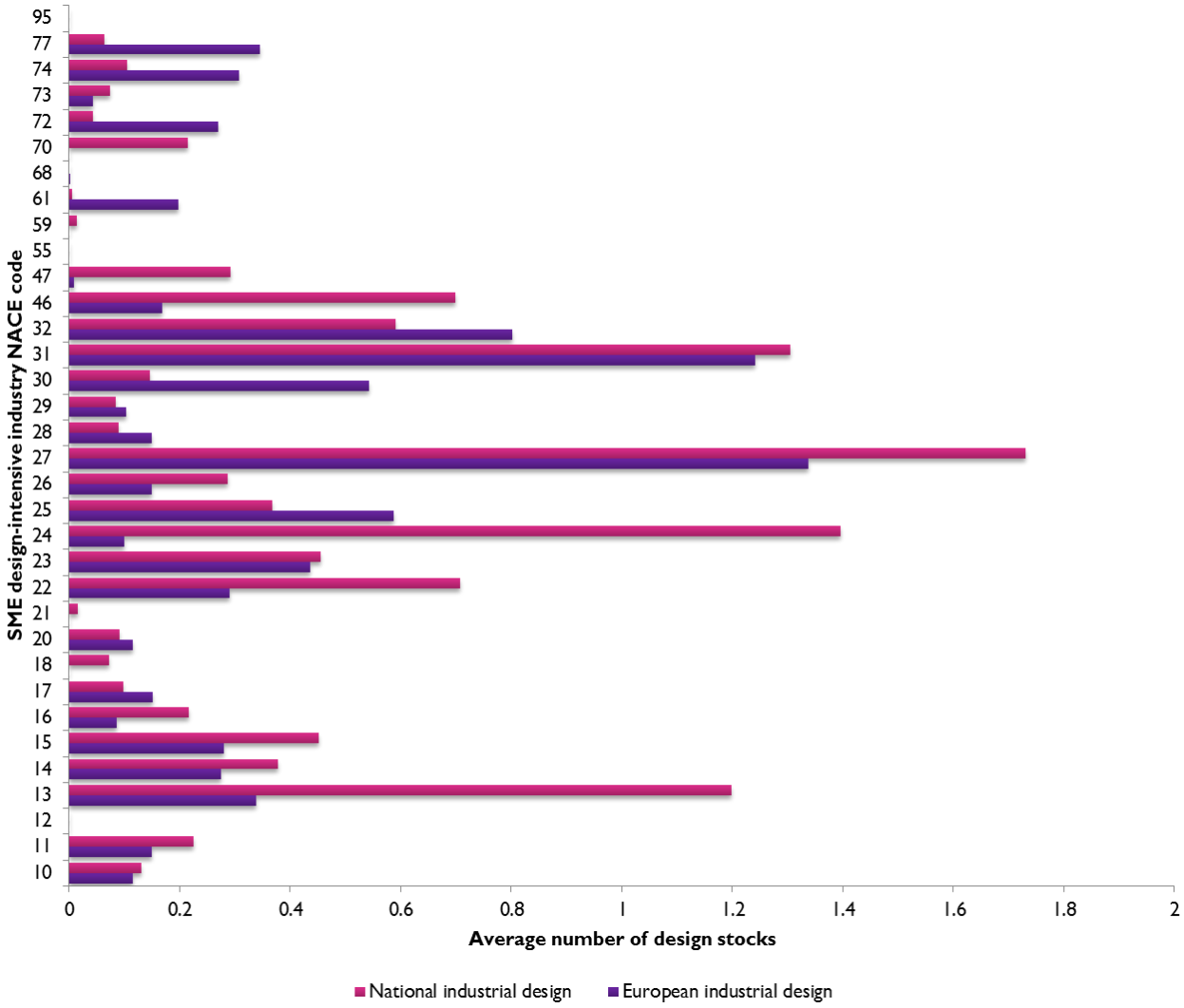
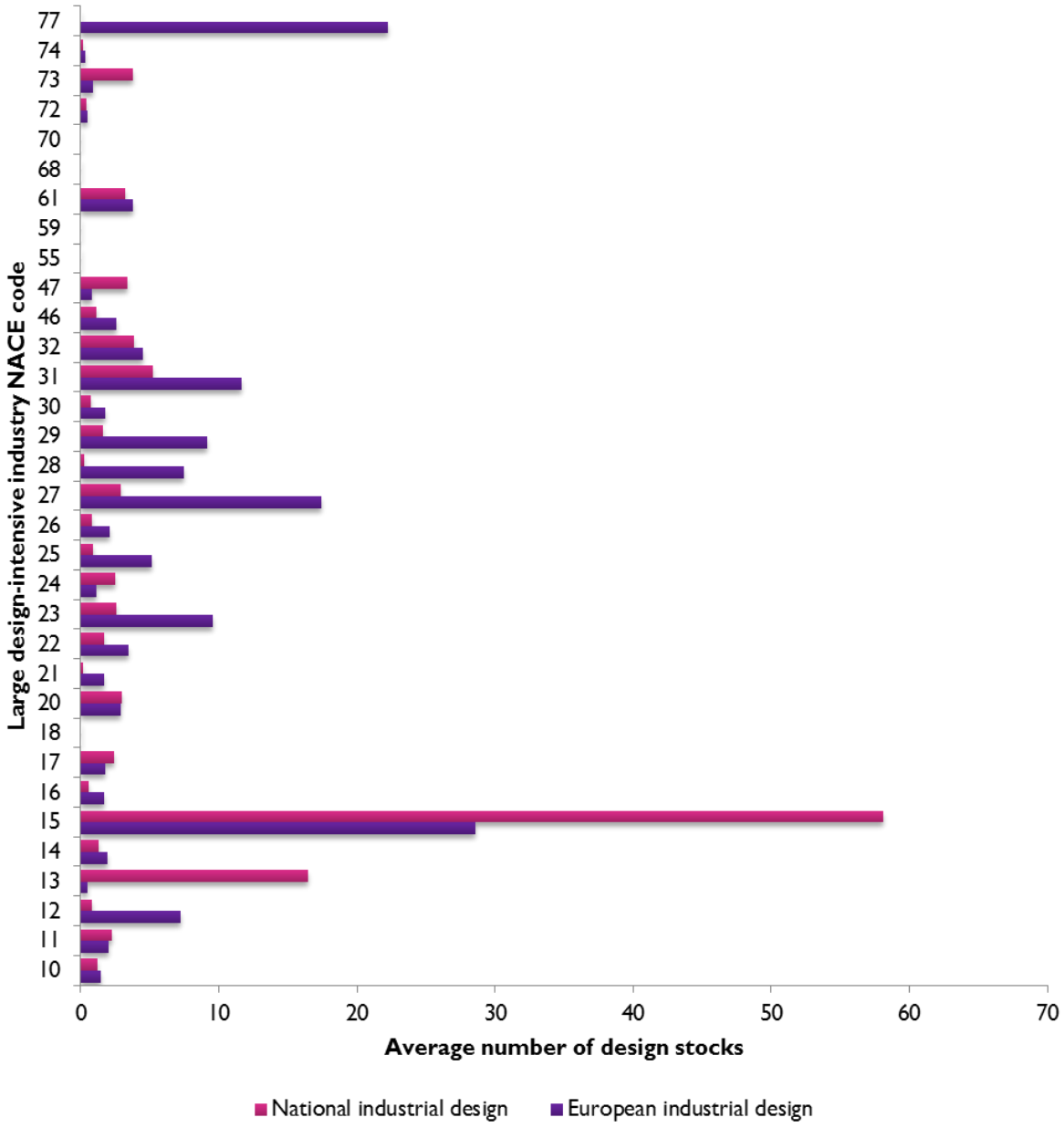


Figure 6.29: Average number of national and European industrial designs in design intensive industries (large firms)



For SMEs that operate in most design-intensive industries, the mean national industrial design stock is higher than the European industrial design stock. Figure 6.28 shows that there are a number of industries in which protecting designs at the European level is common practice for SMEs, the most prominent of which are design-intensive elements of the manufacture of other transport equipment (NACE code 30), telecommunications (NACE code 61), scientific research and development (NACE code 72) and rental and leasing activities (NACE code 77). In our dataset, the number of SMEs in these industries is relatively large and hence they exert a relatively large influence on the calculation of the overall average number of industrial designs held by SMEs.

Large companies in most design intensive industries hold, on average, more European industrial designs than national industrial designs. However, in the design-intensive elements of the textile industry (NACE code 13) and the footwear and luggage industry (NACE code 15), the stock of national industrial designs dominates

European industrial design stocks. This provides further support for our hypothesis that these markets are more domestic in character than are other design-intensive industries.

Detailed analysis by design-intensive industry: industrial designs per employee

Figure 6.30 shows the average number of national and European industrial designs per employee in design intensive industries. In most design-intensive industries, national industrial designs dominate European industrial designs on a per employee basis, although there are a few exceptions. For example, companies that operate in the design-intensive elements of the scientific research and development industry (NACE code 72) hold substantially more European designs per employee than national designs per employee, on average.

This finding that national industrial designs dominate European industrial designs on a per employee basis contrasts markedly with that when the number of industrial designs was presented in absolute terms: Figure 6.27 showed that in most of the design intensive industries, companies hold more European industrial designs than national industrial designs.

This difference can be explained by the influence of large firms. Large firms are likely to hold more industrial designs than are smaller firms and, as demonstrated above, large firms tend to prefer to secure protection at the European level. Therefore, the strategies of large firms have a significant influence on the average total stock presented in Figure 6.27. The influence of large firms on the average stock of industrial designs per employee is much more muted, however. This is because while large firms are likely to hold more industrial designs than are small firms they also, by definition, employ more people. Therefore, small companies may, in principle, have the same per-employee stock of industrial designs as a large company even if the large company holds a substantially greater number of industrial designs.

We explore the difference in per-employee industrial design holdings between small and large firms in greater detail below.

Figure 6.30 Average number of National and European industrial designs per employee in design intensive industries

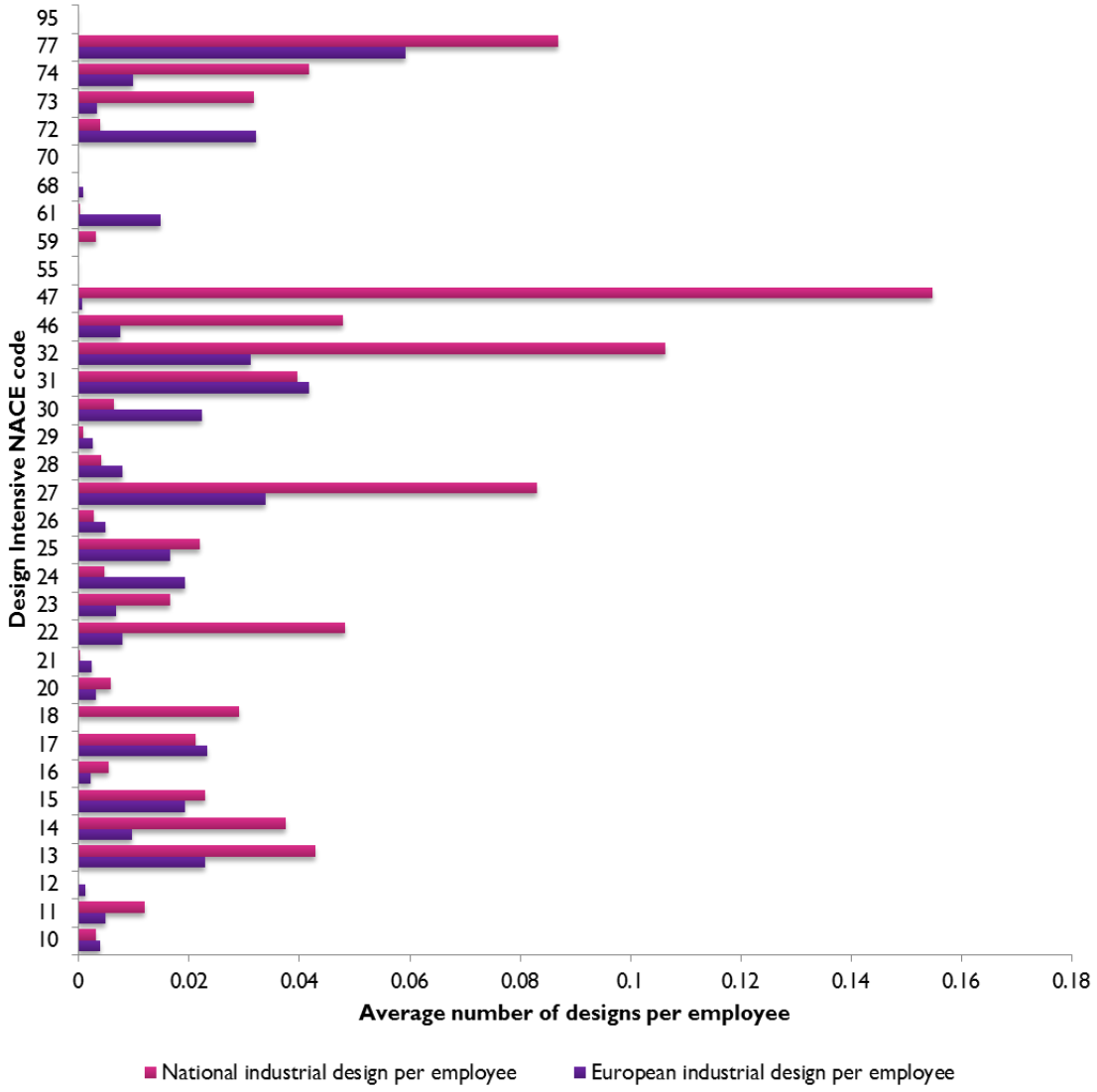


Figure 6.31 shows the variation in the number of national and European industrial designs held per employee by SMEs that operate in design intensive industries while Figure 6.32 shows the same statistics for large firms. The preferences of SMEs for protection at the national level and the preferences of large companies for European protection are again clear from these figures.

Figure 6.31 shows that there are three design-intensive industries in which the average firm has more than 0.1 national industrial designs per employee. These are the design-intensive elements of the following industries: electrical equipment (NACE code 27); other manufacturing (NACE code 32); and retail trade except of vehicles and motorcycles (NACE code 47). SMEs in the former two industries have a relatively large number of industrial designs measured in absolute terms whereas the latter industry has a relatively small stock of industrial designs but also a relatively small number of employees.

Amongst large firms, Figure 6.32 shows that the design-intensive elements of the leather industry (NACE code 15) has the greatest number of national and European industrial designs per employee. The second highest number of European designs per employee is in the rental and leasing industry (NACE code 77) while the second highest number of national designs per employee is in the design-intensive elements of the textiles industry (NACE code 13).

Figure 6.31 Average number of National and European industrial designs per employee in design intensive industries (SMEs)

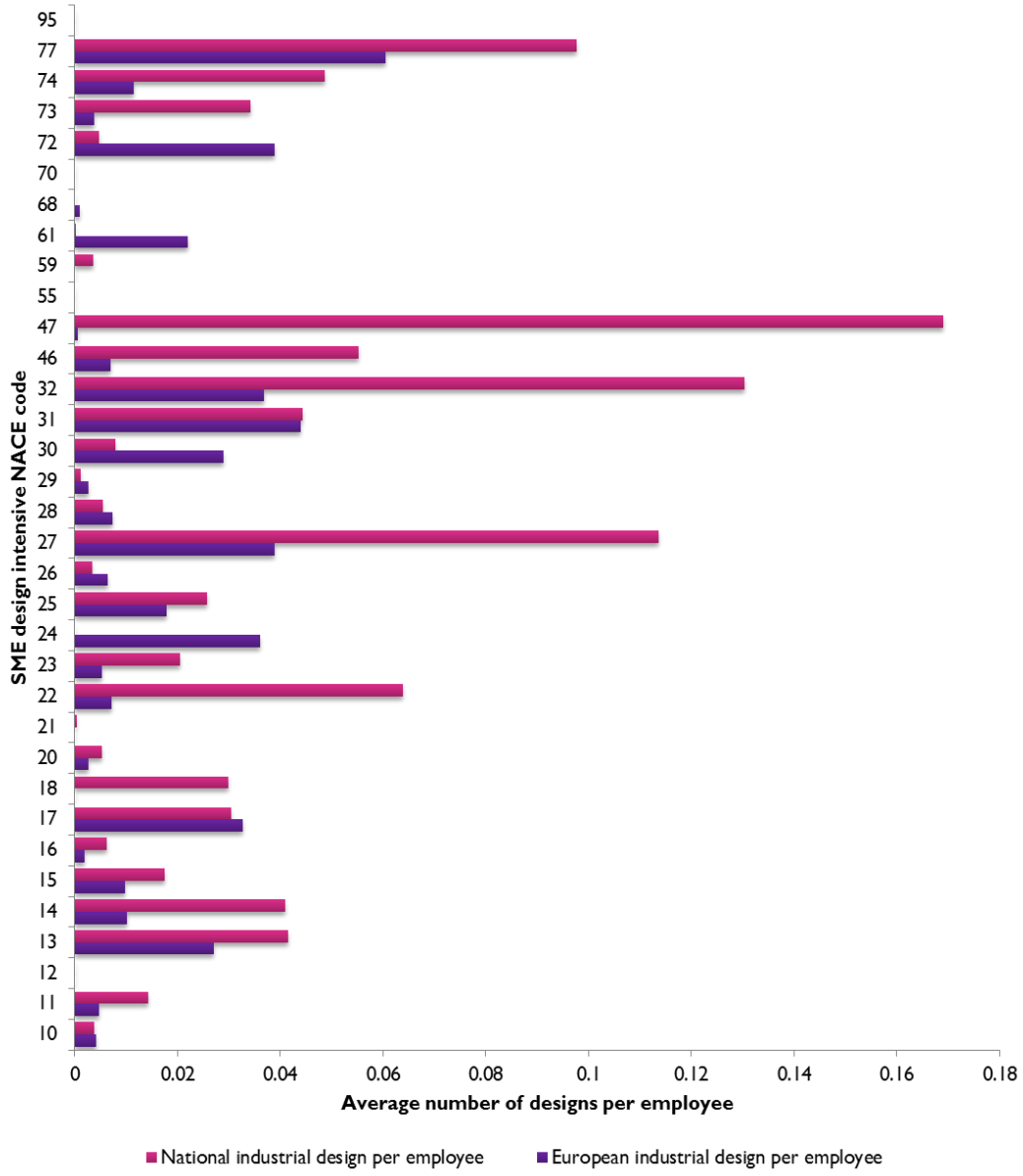
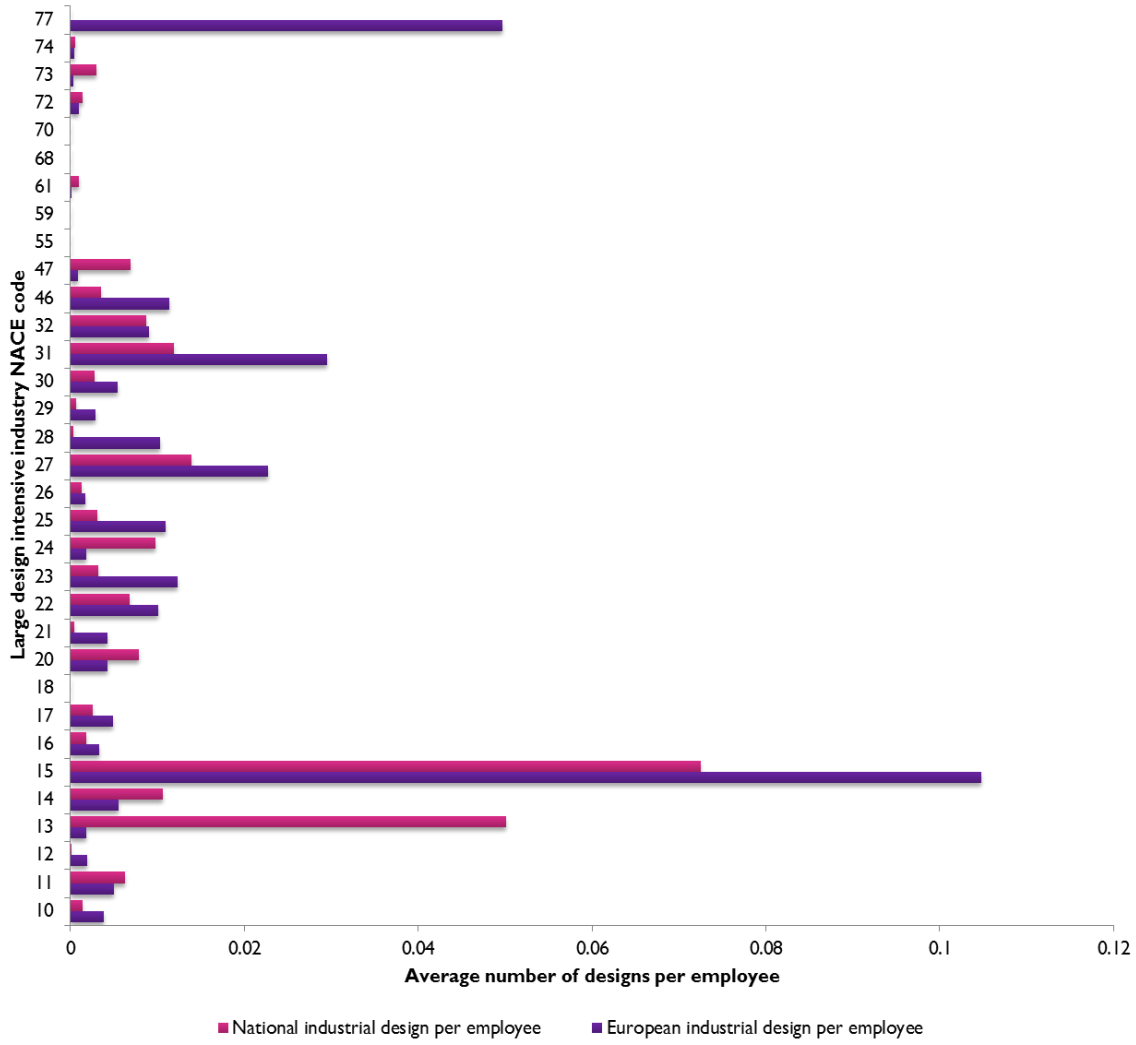


Figure 6.32 Average number of National and European industrial designs per employee in design intensive industries (large firms)



Section summary

This subsection has presented the results of a firm-level statistical analysis of industrial designs held by companies in design-intensive and non-design-intensive industries. The following key findings can be drawn:

- companies that operate in design-intensive industries hold more national and European industrial designs than those in non-design-intensive industries;
- in design-intensive industries companies hold, on average, more European industrial designs than national industrial designs while the opposite is true for non-design-intensive industries;
- SMEs typically hold more national industrial designs than European ones, whereas the reverse is true for large companies (which are more likely to operate in more than one country); and
- there are some exceptions to the general rule, such as the fact that in the design-intensive elements of the textile industry and the footwear and luggage industry, the stock of national industrial designs held by large companies dominates European industrial design stocks (suggesting that these markets are more domestic in character than are other design-intensive industries).

6.3 Summary and conclusions

In this chapter we have investigated how companies protect designs in practice, drawing on prior literature, data gathered from WIPO, firm level data, and information provided in our survey of companies that operate in design-intensive industries and in interviews with stakeholders. Our key findings include:

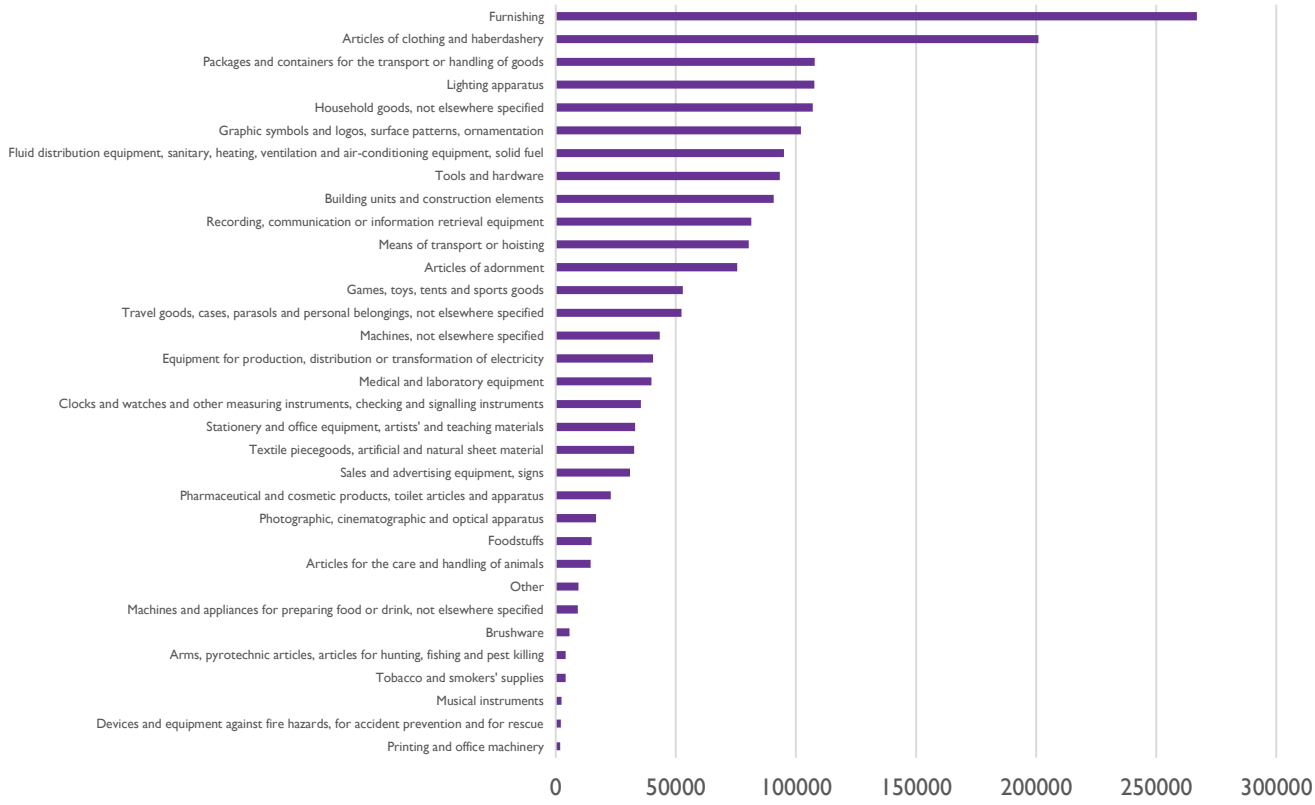
- Higher GDP is correlated with more filings in aggregate (whether filed in a Member State or by firms from a Member State). By contrast, the extent to which firms in any given Member State choose to seek protection in other EU Member States, or indeed outside the EU altogether, reflects GDP per capita not simply GDP levels.
- The EU firms that file most outside the EU have, in recent years, been those operating in BRICS economies, particularly China.
- In the first few years after OHIM was established, it came to almost totally dominate filings by non-European firms within the EU. For EU firms there remains significant demand for national filing from those firms operating only domestically. But where firms operate in multiple Member States, OHIM filing has become the route of choice.
- Companies that operate in design-intensive industries hold more national and European industrial designs than those in non-design-intensive industries.
- The uptake of registered industrial designs (whether national or European) is low relative to other IPRs amongst firms of all sizes.
- Firm size is an important determinant of design protection strategies and (potentially connected to this) Registered Industrial Designs are taken up more by firms that are more export orientated or that operate in multiple Member States.
    - Small firms protect designs less frequently than do large companies.
    - SMEs also typically hold more national industrial designs than European ones, whereas the reverse is true for large companies (which are more likely to operate in more than one country).
    - There are some exceptions to the general rule, such as the fact that in the design-intensive elements of the textile industry and the footwear and luggage industry, the stock of national industrial designs held by large companies dominates European industrial design stocks (perhaps reflecting the more domestic character of these industries).
- The greater the enforceability of an industrial design, the more likely a firm is to protect designs through this method.
- It is not at all uncommon for firms to protect designs using trademarks, especially for (but not restricted to) logos. While some firms consider that there is some complementarity between trademarks and industrial designs, others see them as substitutes.

Section Appendix: Analysis by industrial classification

For completeness, we provide below an analysis of design applications (direct and via the Hague System) by Locarno classification as provided by WIPO. Since multiple classes can assigned for a single design application, the aggregate figures provided in this sub-section are not directly comparable to those provided above in the main body of the section. Also, whilst it would be of interest to have information on added value and employment by industrial classification, the lack of an harmonisation table to map Locarno Classes to NACE codes (for which employment and added value data is available) makes this task unfeasible.

We first depict the total number of design applications originated in Europe (and filed anywhere) by Locarno class as per 2012.

Figure 6.33 Design applications originated in Europe by Locarno classes (2012)



Source: WIPO and Europe Economics calculations.

We noticed that the prevalence of Locarno classes across designs applications display a broadly exponential patterns: out of the 33 classes[100] depicted in Figure 6.33 the top seven classes account for 53 per cent of all designs applications within the EU, and the top two classes (i.e. Furnishing and Articles of Clothing and Haberdashery), account for 25 per cent of the total.

We have compared the evolution of the shares of design applications by each Locarno class for the period 2004-2008. These are reported in the table below. We notice that, whilst the top three classes by number of applications (i.e. Furnishing, Articles of Clothing and Haberdashery, and Packages and containers for the transport or handling of goods) have remained relatively constant, the prevalence of other classes has changed more materially. For example, the class Graphic Symbols and Logos, Surface Patterns, Ornamentation, which accounted for less than one per cent of design registrations in 2008, has become the fourth most common class of registration (with 7.5 per cent of designs registered in this class) in 2012.

Table 6.7: Percentage of designs applications originated in Europe by Locarno classes (2008-2012)

Locarno Class	2008	2009	2010	2011	2012
Furnishing	14.2%	11.4%	13.9%	12.5%	14.2%
Articles of clothing and haberdashery	10.2%	4.9%	11.3%	6.3%	10.7%
Packages and containers for the transport or handling of goods	5.9%	9.6%	6.9%	8.1%	5.7%
Lighting apparatus	5.9%	5.0%	6.0%	4.9%	5.7%
Household goods, not elsewhere specified	7.2%	4.7%	5.8%	6.4%	5.7%
Graphic symbols and logos, surface patterns, ornamentation	0.7%	4.5%	5.0%	5.1%	5.4%

[100] There are 32 named Locarno classes plus an additional "Other" class.

Locarno Class	2008	2009	2010	2011	2012
Fluid distribution equipment, sanitary, heating, ventilation and air-conditioning equipment, solid fuel	8.1%	4.5%	6.4%	5.2%	5.1%
Tools and hardware	4.5%	4.8%	4.9%	4.7%	5.0%
Building units and construction elements	5.4%	5.3%	5.6%	4.6%	4.8%
Recording, communication or information retrieval equipment	4.2%	4.3%	3.7%	3.8%	4.3%
Means of transport or hoisting	4.1%	4.1%	4.1%	5.1%	4.3%
Articles of adornment	4.7%	4.3%	3.5%	3.5%	4.0%
Games, toys, tents and sports goods	3.5%	3.9%	3.3%	3.5%	2.8%
Travel goods, cases, parasols and personal belongings, not elsewhere specified	2.7%	3.8%	2.5%	3.5%	2.8%
Machines, not elsewhere specified	2.2%	1.5%	2.1%	2.2%	2.3%
Equipment for production, distribution or transformation of electricity	2.1%	2.6%	1.7%	2.0%	2.2%
Medical and laboratory equipment	1.6%	1.5%	1.6%	2.1%	2.1%
Clocks and watches and other measuring instruments, checking and signalling instruments	2.5%	4.0%	1.6%	2.4%	1.9%
Stationery and office equipment, artists' and teaching materials	2.6%	6.1%	2.4%	2.6%	1.8%
Textile piecegoods, artificial and natural sheet material	1.5%	0.8%	0.9%	2.7%	1.7%
Sales and advertising equipment, signs	1.3%	1.7%	1.4%	1.7%	1.6%
Pharmaceutical and cosmetic products, toilet articles and apparatus	1.0%	1.2%	1.0%	1.3%	1.2%
Photographic, cinematographic and optical apparatus	1.0%	0.5%	0.8%	0.8%	0.9%
Foodstuffs	0.5%	1.2%	0.7%	0.9%	0.8%
Articles for the care and handling of animals	0.5%	0.8%	0.8%	0.7%	0.8%
Other	0.0%	0.6%	0.0%	0.9%	0.5%
Machines and appliances for preparing food or drink, not elsewhere specified	0.4%	0.4%	0.6%	0.5%	0.5%
Brushware	0.4%	0.4%	0.5%	0.5%	0.3%
Arms, pyrotechnic articles, articles for hunting, fishing and pest killing	0.2%	0.7%	0.3%	0.5%	0.2%
Tobacco and smokers' supplies	0.3%	0.4%	0.3%	0.2%	0.2%
Musical instruments	0.2%	0.1%	0.1%	0.2%	0.1%
Devices and equipment against fire hazards, for accident prevention and for rescue	0.2%	0.2%	0.2%	0.3%	0.1%
Printing and office machinery	0.3%	0.0%	0.1%	0.2%	0.1%

Source: WIPO and Europe Economics calculations.

As one might expect, there exists a significant degree of specialisation across Member States with respect to the class in which most designs are applied for. In order to illustrate this point we report in Table 6.8 the top class for number of designs applications originated in each Member State with the corresponding shares of design applications filed in these classes.

Table 6.8: The shares of designs applications in the top Locarno class originating in each Member State (2012)

MS	Top Locarno Class	Market share of the top Class in which designs are applied for
AT	Lighting apparatus	16.9%
BE	Household goods, not elsewhere specified	17.3%
BG	Packages and containers for the transport or handling of goods	34.5%
CY	Packages and containers for the transport or handling of goods	73.2%
CZ	Articles of Adornment	24.1%

MS	Top Locarno Class	Market share of the top Class in which designs are applied for
DE	Furnishing	17.5%
DK	Furnishing	16.2%
EE	Furnishing	25.1%
ES	Articles of Clothing and Haberdashery	18.8%
FI	Recording, communication or information retrieval equipment	13.6%
FR	Articles of Clothing and Haberdashery	23.3%
GR	Furnishing	25.7%
HR	Packages and containers for the transport or handling of goods	28.7%
HU	Furnishing	24.9%
IE	Fluid distribution equipment, sanitary, heating, ventilation and air-conditioning equipment, solid fuel	13.8%
IT	Furnishing	17.1%
LT	Furnishing	19.1%
LU	Articles of Clothing and Haberdashery	22.9%
LV	Building Units and Construction Elements	41.6%
MT	Furnishing	30.6%
NL	Furnishing	17.6%
PL	Furnishing	15.7%
PT	Articles of Clothing and Haberdashery	48.9%
RO	Packages and containers for the transport or handling of goods	20.4%
SE	Recording, communication or information retrieval equipment	11.2%
SI	Building Units and Construction Elements	33.1%
SK	Graphic symbols and logos, surface patterns, ornamentation	16.3%
UK	Furnishing	10.3%

Source: WIPO and Europe Economics calculation.

We can see from Table 6.8 that, of all Locarno classes, only ten represent the top destination class for design filings across all 28 Member States and, among these, three classes (i.e. "Furnishing", "Articles of Clothing and Haberdashery", and "Packages and containers for the transport or handling of goods") represent the primary filing destination for applications originated form 19 member States (see Table 6.9).

Table 6.9: Count of top Locarno class in which Member States file design applications (2012)

Locarno Class	Number of MS in which the class is the primary class of destination for applications filed	Member States
Furnishing	11	DE, DK, EE, GR, HU, IT, LT, MT, NL, PL, UK
Articles of Clothing and Haberdashery	4	ES, FR, LU, PT
Packages and containers for the transport or handling of goods	4	BG, CY, HR, RO
Building Units and Construction Elements	2	LV, SI
Recording, communication or information retrieval equipment	2	FI, SE
Articles of Adornment	1	CZ
Fluid distribution equipment, sanitary, heating, ventilation and air-conditioning	1	IE
Graphic symbols and logos, surface patterns, ornamentation	1	SK

Locarno Class	Number of MS in which the class is the primary class of destination for applications filed	Member States
Household goods, not elsewhere specified	1	BE
Lighting apparatus	1	AT

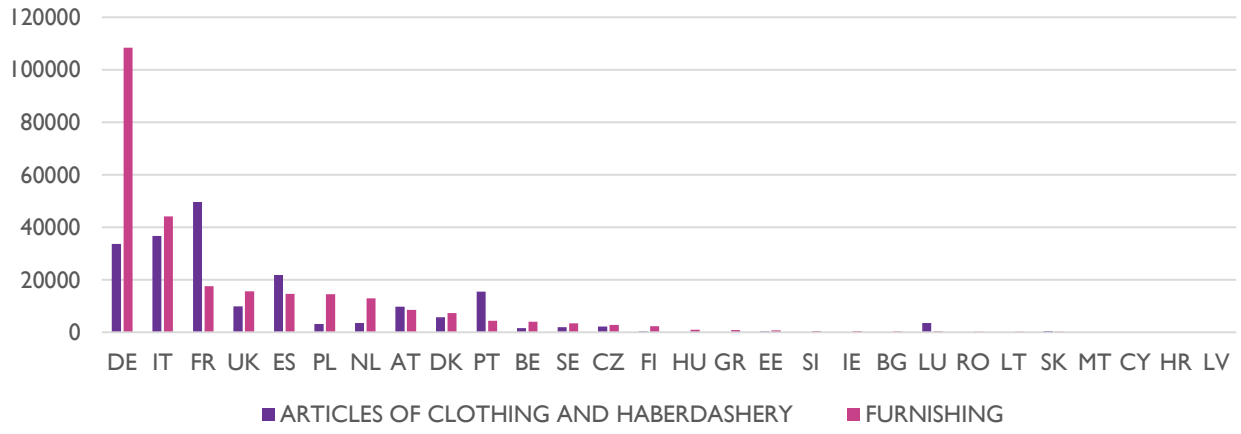
Source: WIPO and Europe Economics calculation.

From Table 6.9 we can also observe the following patterns with regard to geographical specialisations in design activity:

- The popularity of "furnishing" as a top class for design applications is geographically very sparse. In fact, this class accounts for the majority of design applications originated Scandinavian countries (e.g. Denmark), Baltic countries (e.g. Lithuania), Eastern European countries (e.g. Poland), middle European countries (e.g. Germany), and Southern European countries (e.g. Italy).
- "Articles of clothing and haberdashery" is particularly popular in South-west Europe (Luxembourg, France, Spain, and Portugal).
- "Packages and containers for the transport or handling of goods" is the primary class of destination for designs originated primarily in the Eastern European/newer Member States (e.g. Bulgaria, Croatia, and Romania).

We conclude the analysis of design applications by Locarno classes by providing a more detailed figure for the two most popular classes, i.e. "furnishing" (Class 6) and "articles of clothing and haberdashery" (Class 2). More specifically, we analyse the number of design applications in these classes from both a destination office and country of origin perspective.

Figure 6.34: Design applications in Locarno Class 2 and Locarno Class 6, by country of origin (2012)



Source: WIPO and Europe Economics calculation.

From Figure 6.34 we can notice that, with regards to "furnishing" class, Germany is the country that in 2012 filed the largest number of design applications (design applications from Germany account for 41 per cent of all design applications filed in Class 6). However, filings in this class are also material for a number of other Member States. For example, filings from Italy account for 17 per cent of all filings in Class 6, and a non-negligible number of filings in this class originate in France, the UK, Spain, Poland and the Netherlands). The situation for "Articles of Clothing and Haberdashery" class is somewhat different. Filings in this class do not overwhelmingly originate in a single country. Despite the fact that filings originating in France, Italy, and Germany account for 60 per cent of all filings in Class 2, the differences in the number of filings across these three countries are not too marked (e.g. France accounts for 25 per cent of all filings, Italy, 18 per cent and Germany 17 per cent).

7 Why do Firms Choose to Protect Designs in the Ways that they do?

As noted in Section 5, firms have a number of options for protecting designs, including a range of registered protections (e.g. the industrial design, trademarks and others) and informal methods (including head-starts, complexity — so even when a design is seen it is not easily copied — and secrecy — likely to be of limited direct relevance to design but potentially interacting with complexity if the process of producing a complex design can be kept secret).[101]

In this section we explore in more detail why firms choose the forms of protection that they do. We first identify eight factors that economic reasoning and the previous literature have suggested might be expected to be relevant. We go on to consider in more detail why it is believed that the registration of designs is of value. We then consider to what extent the relevance of our eight factors is borne out in practice, via the results from our survey of firms.

7.1 Eight factors affecting the choice of protection

In this section we analyse potential reasons why firms choose one form of design protection over another or why they choose informal forms of intellectual property protection instead of registered forms. We identify the following factors that prior literature and economic theory indicate may affect this decision:

- The formal options known to be available.
- The expected private value of having the registered right.
- Degree and credibility of enforcement.
- Expected and actual costs of acquiring and enforcing formal protection.
- Firm size.
- Research intensity.
- Degree of internationalisation.
- Design complexity.

We consider each of these factors in turn.

7.1.1 Formal options available and knowledge thereof

Firms will only have those formal options available to them that the law and regulation allows and that they are (or become) aware of. As set out in Section 5, the legislative framework sets the range of possible forms of protection. Not only do these alternatives provide a number of substitute protection methods but, as the literature points out, it is possible to use some forms of protection in conjunction with one another.[102]

[101] It is worth observing that past studies have found that the use of informal methods is increasing relative to formal methods – e.g. see Cohen, W. M., Nelson, R. R., & Walsh, J. P. (2000). "Protecting their intellectual assets: Appropriability conditions and why US manufacturing firms patent (or not)", (No. w7552), National Bureau of Economic Research; Levin, R. C., Klevorick, A. K., Nelson, R. R., Winter, S. G., Gilbert, R., & Griliches, Z. (1987), "Appropriating the returns from industrial research and development", *Brookings papers on economic activity*, 783-831.

[102] Graham and Somaya (2006), "Vermeers and Rembrandts in the Same Attic: Complementarity between Copyright and Trademark Leveraging Strategies in Software", Georgia Institute of Technology TIGER Working Paper.

Awareness is important for any legal instrument, but may be of particular significance for designs because of their intrinsically abstract nature. A designer that is already familiar with some legal instruments (e.g. a trademark or copyright as versus a design; or a national design registration as opposed to an OHIM registration) may naturally tend to deploy what is familiar, even if it would not be the best instrument to use.

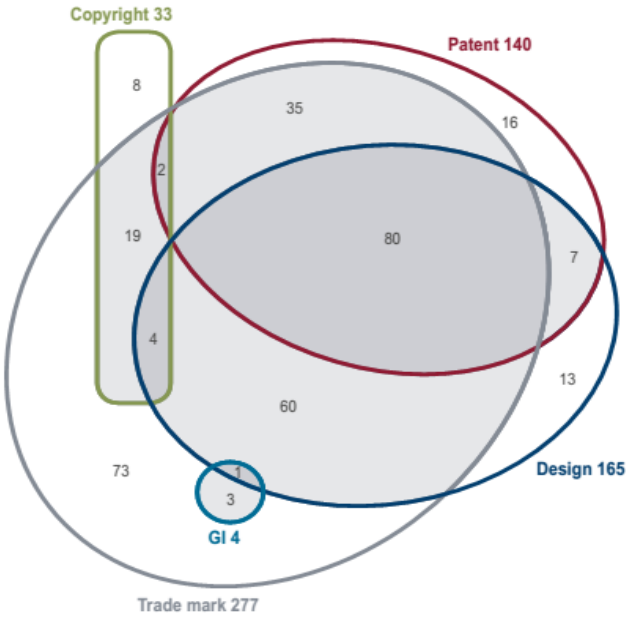
A connected point is that there may be related formal requirements or entitlements that sit naturally at the same national degree to the intellectual property right. For example, if a kite-mark (e.g. relating to the safety of the product) associated with a design is provided at European level, it might be most natural and convenient to register that design at the European level rather than at the national level.

Munari (2012) conducted a literature review on the use and impact of IPRs at the company level. Based on evidence from Munari and Santoni (2010) the author notes that firms with a large number of suppliers are more likely to combine patents with designs and trademarks. The rationale for this statement is that the large number of suppliers makes monitoring more difficult therefore making IPRs more desirable.[103] Munari also cites evidence from Thomas and Bizer (2012), who focused on small firms in Germany, that innovators combining several formal and informal methods of IPR have very high innovation expenditures compared to other groups. The evidence from Munari and Santoni (2010), who studied Italian SMEs, finds that firms that use patenting concurrently with trademarks or designs exhibit superior economic performance.[104]

An alternative to IPRs (whether formally or informally protected) that is, for example, used in the fashion industry is that of constant innovation. As Caulkins et al (2005) put it, when the costs of innovation are sufficiently low, fashion leaders engage in constant innovation through the implementation of fashion cycles.

The following figure, obtained from the EPO-OHIM report, depicts the overlaps that occur between the different IPR-intensive industries. It can be observed that design very often overlaps with patents and trademarks while merely 13 out of the 165 design-intensive industries are only design-intensive.

Figure 7.1: Overlap in IPR-intensive industries



Source: EPO/OHIM.

[103] Munari (2012), p33.
[104] Munari (2012), p36.

7.1.2 Expected private value of the registered right

Intellectual property rights can help to ensure that companies secure appropriate returns on their investments by providing protection against the unauthorised use of intellectual property by competitors. In the absence of such rights, there would be nothing to stop competitors from free-riding on the innovations of others, meaning that the original designer would not obtain the benefits that flow from his design and hence the incentives to engage in research and development would be dulled. In theory, therefore, intellectual property rights should benefit those that hold them through greater revenue than would otherwise be the case.

However, registered rights may not be of value to all those that are engaged in the development of designs. Whether or not registered protection is of value will depend on factors such as the business model of the company, the characteristics of the product and the characteristics of the market(s) within which the company operates. Examples of potentially relevant scenarios in this context include:

- The case of a product sold in a market in which the sales lifecycle is materially less than the research, reproduction or manufacturing cycles. (An extreme example of this might be merchandise sold on the day of a sports event or pop concert that celebrates that specific event.) In such a market registered protection may be of no relevance because the product's lifecycle will be at an end by the time potential competitors have observed and sought to copy a design.
- A self-produced (i.e. not commissioned) design that the designer seeks to exploit commercially only by selling the industrial design to some other company (e.g. a manufacturer or investor). In such a case the design has value at all only to the extent that the right to its use can be formally traded. We note in this context that, in our survey, relatively few firms indicated that they regarded the production or registration of design as a means to obtain finance.
- As we shall explore in more detail below (and later in Section 8), products that are highly complex and difficult to replicate may be less vulnerable to copying and hence the manufacturers of such products may decide that the benefits of registered protection do not exceed the costs.

While it is clear that some companies believe that registered design protection is of benefit while others do not, it is extremely challenging (if not impossible) to identify the extent to which registered IPRs benefit the company (as distinct from the product itself) using empirical data. To put this more clearly, even if an empirical analysis finds that companies that hold registered IPRs perform better than those that do not, it is not possible to identify whether the result is because:

- companies only register protect designs that are likely to be successful (and hence success drives protection); or
- designs that are protected generate superior returns than those that do not (and hence protection drives success).

This problem is not unique to industrial designs: it applies equally to research on the so-called 'patent premium' and to research which seeks to identify the impact of trademarks on firm performance.

Despite the challenge of identifying the direction of causality, economic theory permits us to draw some tentative conclusions on whether or not the registered protection of designs is of value.

The theory of revealed preference implies that those that hold designs do so because the expected benefit to the firm exceeds the expected cost of obtaining and enforcing the rights. For such firms, we could therefore conclude that industrial designs are believed to have value. For other firms, the industrial designs may have a value but it does not exceed the cost of acquiring the right; while for still others industrial designs may hold no value at all (e.g. because of the length of the product cycle). In each of these cases, firms would choose not to hold industrial designs.

Furthermore, firms do not have perfect information and foresight and hence their expectation of the sales that would achieved with and without the registered industrial design may be some way from those which would be predicted under perfect information. Aside from the information problem associated with expectations, it is quite possible that some companies simply do not know about industrial designs and the potential benefits that they could bring.

The implication of imperfect information is that some companies for which industrial designs are of value do not hold them while some companies hold them even though the value is lower than the cost of obtaining them.

While it is not possible to estimate the proportion of the 35,130 filings made by European companies in 2012 for which the value lay below cost, it is possible to assess whether or not such errors are likely to exceed those that derive from non-application. Given the relatively limited knowledge of industrial designs amongst companies and trade associations (as demonstrated in our survey and interviews) it seems reasonable to believe that the scale of the former set of errors is lower than the latter and hence the potential value of industrial designs has not been fully realised to date (although there is no hard evidence to support this hypothesis). In any case, it is unlikely that all firms that hold industrial designs do so mistakenly and hence the theory of revealed preference indicates that protecting designs can be of value.

The higher the expected value to a firm or individual of having a registered right, as opposed to relying upon informal protection or simply having a design copied (i.e. being completed unprotected), the more likely firms are (*ceteris paribus*) to seek protection. It is particularly important to recognise that for firms that see no value in having registered design protection, even if the costs of seeking such protection are very low and the credibility of the system is very high, they are still unlikely to find it attractive to seek a registered industrial design.

7.1.3 Degree and credibility of enforcement

A third factor will be the robustness of the enforcement framework. If industrial designs are not formally protected by the courts and enforcement agencies do not in practice stand behind registered rights adequately and/or do not impose adequate remedies or punishments upon those violating registered industrial designs, firms are more likely to seek informal methods of protection.

We analyse enforcement credibility issues in more detail in Section 8.

7.1.4 Costs of acquiring and enforcing registered protection

The costs of registration and enforcement are mentioned in many studies as a factor in favouring informal over registered types of IP protection.[105]

We have reviewed the costs of registered designs at each EU national offices, and compare them in the table below with the €350 cost of registering at OHIM and with the cost of applying for a trademark.

[105] e.g. in respect of design this is noted as an issue by:

- IPR Expert Group, (2007), A memorandum on removing barriers for a better use of IPR by SMEs, Report for the Directorate General for Enterprise and Industry, Pro-Inno Europe, June 2007, p17.
- *Design Economics*, UK IPO 2011, chapter 4 — http://www.ipo.gov.uk/ipresearch-designsreport4-201109.pdf.
- *UK design as a global industry*, The Big Innovation Centre (2012), p66.

Table 7.1 Administration fees for industrial design applications

MS	Fees for industrial design application	MS	Fees for industrial design application
AT	€87	**LT**	€138 *
BE	€158	**LU**	€108
CY	€85.43	**LV**	€106.72 *
CZ	€39.45 or €57.38 *	**MT**	€46.59
DE	€90 or €100 *	**RO**	€120 + 10 (2D design) / 100 (3D design)
DK	€26.88	**NL**	€158
EE	€26 or €105	**PL**	€77-84
EL	€100	**PT**	€104.50-209.00 *
FI	€267	**BG**	€178
FR	€38 + 22 (black or €white) / 45(color)*	**SK**	€20 or €40 *
HR	€114 *	**SL**	€80
HU	€101 or €25 *	**ES**	€63.68 or €74.92 *
IE	€70	**SE**	€209
IT	€50 or €100 *	**UK**	€77

Note:
CZ: the fee is lower if where the author(s) is (are) the only applicant(s).
DE: the fee depends if the application is submitted electronically or via post.
ES: the fee depends if the application is submitted electronically or via post.
FR: €38 is the flat fee. The additional fee depends if the reproduction is furbished in black and white or in colour.
HR: the applicant who is also the designer shall pay fees reduced by an amount of 50%.
HU: the fee is €101 if applicant is not the designer €25 if the applicant is the designer.
IT: the fee depends if the application is submitted electronically or via post.
LT: the amount of the fees for the filing of an application, fees for granting patent or registration design shall be reduced by 50% for natural persons who patent inventions and register an industrial design in their names.
LV: designers - individual authors, who are applicants of the design, have to pay 40% of the respective fees; designers - pupils, students and pensioners, who are applicants of the design, have to pay 20% of the respective fees.
PT: the fee depends if the application is submitted electronically or via post.
SK: the fee depends on if the applicant is a natural or legal person.

Table 7.2: Administration fees for trademark applications

MS	Fees for trademark application	MS	Fees for trademark application
AT	€372	LT	€69
BE	€240 or €373	LU	€240 or €373 *
CY	€50	LV	€177.86 or €305.92 *
CZ	€200.82 or €380.13 *	MT	€116.47
DE	€290 or €300 *	RO	€250
DK	€315.88	NL	€240 or €373 *
EE	€190 or €240 *	PL	€140
EL	€120 *	PT	€123.67 *
FI	€215 or €345 *	BG	€311 or €566 *
FR	€200 or €225 *	SK	€166 or €332 *
HR	€143	SL	€250 or €400 *
HU	€236	ES	€122.89 or €245.76 *
IE	€320	SE	€198
IT	€101 or €337 *	UK	€220 *

Note:
CZ: the fee depends on filing individual or collective trademark.
DE: the fee depends if the application is submitted electronically or via post.
EE: the fee depends on filing individual or collective trademark.
EL: the fee includes application and administrative fees.
FI: the fee depends on filing individual or collective trademark. It also depends on if the application is submitted electronically or via post.
FR: the fee depends if the application is submitted electronically or via post.
IT: the fee depends on filing individual or collective trademark.
LU: the fee depends on filing individual or collective trademark.
LV: the fee depends on filing individual or collective trademark.
NL: the fee depends on filing individual or collective trademark.
BG: the fee depends on filing individual or collective trademark.
PT: the price covers only 1 class, each additional class costs €31.35.
SK: the fee depends on filing individual or collective trademark.
SL: the fee depends on filing individual or collective trademark.
ES: the fee depends on filing individual or collective trademark. The price covers 1 class; each additional class costs EUR 79.61-159.21 depending on individual/collective trademark.
UK: the price covers only 1 class, each additional class costs €65.

We note the following from these tables:

- In 23 of the 28 Member States, Industrial design applications are less expensive than (usually significantly less expensive than, often of the order of one third the price of[106]) trademark applications.
- At €350 the cost of a Registered Community Design is similar to or less than the costs of three national registration at all offices except the lower-cost options of Cyprus, Denmark, Estonia, France, Ireland, Malta, Poland, Slovakia, Slovenia, Spain and the UK. Hence if firms are intending to operate across multiple Member States, it will often be less costly to obtain a single Community registration. Many companies now apply for European protection as standard even if they only operate in one Member State at present, possibly because they may consider expanding their operation in the future.

In addition to the monetary cost of protection, time costs can also be important factors in determining the manner in which designs are protected. OHIM informed us that some firms prefer to apply for Registered Community Designs because it is cost effective and also because the process is very quick. It is possible to file and register designs in just two working days and this is sometimes very important to certain companies who want immediate protection (particularly those engaged in fast-moving product markets).[107] The

[106] The (unweighted) average ratio across all 28 Member States is 0.35. The average ratio across Member States where industrial designs are less expensive is 0.3.

[107] For a registration within two days the industrial design application needs to meet certain criteria. Application should be made online, payment should be made immediately with a current account and product and its design should be described clearly, using the terminology of the internationally agreed 'Locarno' classification of products so that it can be auto-translated into different languages. Moreover, supporting documents should be submitted with the

application process takes significantly longer in some Member States and it is not always possible to file electronically. This means that the time costs of delay are greater and administration costs may also be higher with paper-based systems.

An additional factor is the various external costs firms face, such as lawyers' fees or translation costs. We explore these further below.

7.1.5 Firm size

As noted by Neuhaeusler (2009)[108] large companies have access to larger pools of funds and thus are in a better position to enforce their rights than smaller firms in case of litigation. Additionally, obtaining registered forms of protection is expensive and time consuming. Hanel (2006) notes the SMEs do not usually have the necessary resources to spend on such activities.[109] On the other hand, for the use of informal instruments, firm size should not matter. This is because the costs and benefits are similar when choosing to protect a product through informal mechanisms. More specifically, the costs of protecting products through informal methods of protections are identical for both large and small firms while the probability of being outpaced by a competitor does not vary with size. The empirical evidence in Neuhaeusler (2009) provides strong support to this hypothesis.

7.1.6 Research intensity

Suppose the resources needed to invest in R&D increase more than proportionally with research intensity (i.e. that there are no economies of scale in design). Then firms that have invested intensively in R&D have a much stronger incentive to protect their innovations from being copied by their competitors. Further, the higher the research intensity the higher the probability of generating inventions that may not directly contribute to the firm's profits but can still be used to restrict the ability of competitors to gain market share.[110]

7.1.7 Differences in the degree of internationalisation

The importance of registered protection increases with the degree of globalisation (Arundel et al. 1995).[111] Arundel and Kabla (1998)[112] find that firms that owe a significant portion of their sales revenues to the US and Japanese markets are more likely to protect their products through registered means. This is explained by the fact that competition intensity increases with the penetration into new markets (Blind et al 2006).[113] Moreover, registered methods of protection such as industrial designs are registered on a territorial basis. Therefore (setting aside international agreements that establish common intellectual property areas or mutual recognition) every time a firm would like to expand its operations into a new country it has to file for a new industrial design that covers the geographic territory of the new market. This reinforces the hypothesis

application for it to be considered fast track. Once the submitted application meets the above criteria, the design can be registered extremely quickly.

[108] Neuhaeusler, P. (2009). *Formal vs. informal protection instruments and the strategic use of patents in an Expected-Utility framework* (No. 20). Fraunhofer ISI discussion papers innovation systems and policy analysis.

[109] Hanel, P. (2006). Intellectual property rights business management practices: A survey of the literature. *Technovation*, *26*(8), 895-931.

[110] Neuhaeusler, P. (2009) investigates this but finds insufficient empirical evidence to prove it.

[111] Arundel, A., van de Paal, G., & Soete, L. (1995). *Innovation Strategies of Europe's Largest Industrial Firms: Results of the PACE Survey for Information Sources, Public Research, Protection of Innovation and Government Programmes*. EC.

[112] Arundel, A., & Kabla, I. (1998). What percentage of innovations are patented? Empirical estimates for European firms. *Research policy*, *27*(2), 127-141.

[113] Blind, K., Cremers, K., & Mueller, E. (2009). The influence of strategic patenting on companies' patent portfolios. *Research Policy*, *38*(2), 428-436.

that the higher the degree of internationalisation, the more frequent the use of registered methods of intellectual property protection.[114]

Another reason internationalisation is potentially a factor is that for designs used purely locally there may be more opportunity to prevent, deter or at least limit copying by moral censure and blacklisting via local social and business networks — in a local network everyone will know if a design is copied, whereas outside that local area (e.g. internationally) such awareness will be lower.

As well as affecting the nature of the IPR protection chosen (e.g. informal protection, industrial design, trademark etc) the degree of internationalisation may also affect the form of any given IPR chosen — in particular whether an industrial design (or other IPR) is registered nationally or at European level.

7.1.8 Design complexity

Bordoy et al. (2006) summarised results from the Eurostat publication on the use of the four legal IP rights and three informal protection methods.[115] Their estimates are based on data for size classified firms from 13 EU Member States plus Iceland and Norway. The estimates are the percentage of innovative or all firms by country and number of employees, that have applied for a patent and which reported the use of specific protection methods between 1998 and 2000.

The estimates for design complexity, including all firms, range from 1.2 per cent (Bulgaria) to 11.7 per cent (Germany) for SMEs and between 0 per cent (Iceland) and 40.8 per cent (UK) for large firms. Corresponding estimates for lead time range from 0.5 per cent (Greece) to 24.6 per cent (Germany) for SMEs and 2.5 per cent (Greece) to 52.9 per cent (Germany) for large firms.

The study also shows the results for a sample including only innovative firms classified into three categories; small, medium and large. Greece has the lowest percentage of firms using design complexity as protection with the estimates of 9 per cent, 8 per cent and 15 per cent for the small, medium and large firms. The UK has the highest percentage of firms using the same protection method with the estimates of 45 per cent, 58 per cent and 71 per cent respectively — this may be an important factor in explaining why the UK has a relatively low level of formal registration of designs. Regarding lead time as a form of protection, Greece has the lowest estimates of 1 per cent, 4 per cent and 3 per cent respectively and the UK has the highest estimates of 55 per cent, 67 per cent and 78 per cent respectively.

Box 7.1: Why does LEGO choose to protect its intellectual property in the ways that it does?

Lundahl (2005) completed a case study *"The LEGO Brick in the borderzone between forms of protection"* on the legislative framework of intellectual property rights and how they sometimes overlap. The study draws conclusions on the implications of overlap and how LEGO has taken advantage of that. Several reasons for using the different IP methods were also given. The study concludes that:

"Even though for example design protection might provide the most efficient protection of a certain product shape that protection must be weighted against copyright or trademark protection, if available, considering that the latter forms of protection mostly grant longer term of protection."

The key reasons for using the IPRs other than industrial designs to protect designs, as explained by Lundahl (2005), are summarised below.

Reasons to use patents:

[114] Neuhaeusler, P. (2009) investigates the importance of this factor statistically and finds it strongly supported.

[115] Bordoy, Catalina, Arundel, Anthony and Author, Charles (1995) "2006 TrendChart report: Patent applications by SMEs: An analysis of CIS-3 data for 15 countries", Maastricht Economic and social Research and training centre on Innovation and Technology.

- During patent protection you can build a brand around a product which puts you ahead of your competitors considering brand loyalty among costumers.

Reasons to use trademarks:

- Trademarks can last indefinitely although in the Community the limit is 10 years but it can be renewed. The disadvantage is that trademarks can also be revoked if they become a generic name.[116]
- The modern trademark regime permits protection indirectly for technical function since it is possible to register a shape of a product which does not exclusively aim at a technical result.
- Protection from unprivileged imitation of competitors to prevent reputation parasitism.
- Both patent and design protection are limited in time in order to prevent production monopolies. Consequently, when the protection expires, the proprietor of the object in question might find it crucial to maintain the exclusivity to use the particular shape.

The reasons to use copyright as protection for designs:

- Copyright protection can last for a longer term. The Berne Convention for the protection of literary and artistic works must grant protection of at least for a 25 year term for photographic work, at least 50 years for cinematographic work and at least 50 years after the death of the author for all other work.
- There are no requirements for registration since copyright is formless, i.e. copyright is automatic when a work satisfies the conditions for protection.

Summary

Overall, this paper demonstrated that there are a range of factors that affect designers' decisions of how to protect designs and noted that the characteristics of each type of IPR can be important factors in such decisions.

Box 7.2: Combining design and trademark rights to defend design creations

For a firm, the choice between design and trademark rights to protect a design creation is not a trivial one and can have significant implications for the future of the company. An article written by Evelyn Roux in 2013[117] argues that the optimal way of protecting designs is to use a combination of industrial designs and trademarks. Roux contends that industrial designs are not frequently used as inventors tend not be very aware of them. Further, a lack of standardisation of national laws (length, novelty requirements and costs) makes the choice of industrial designs versus alternative forms of IP less attractive.

The intuition behind the choice of the relevant IP protection is summarised as follows:

- Patents protect novel industrial inventions.
- Trademarks make a particular product or service easily recognisable to consumers (branding).
- Industrial designs protect the external appearance and features of a product.

The article focuses on the benefits that an industrial design can bring to the acquirers, providing incentives to inventors to use designs instead of other IP protection tools. Such benefits are said to include:

- Designs come at a lower cost than patents or trademarks.
- They have a simpler registration process.

[116] https://oami.europa.eu/tunnel-web/secure/webdav/guest/document_library/contentPdfs/law_and_practice/trade_marks_practice_manual/wp_2_2014/14_part_d%20cancellation_section_2_substantive_provisions_en.pdf.

[117] http://www.worldtrademarkreview.com/issues/article.ashx?g=39a44e56-c3ab-4876-9516-77d621ebb19f.

- Designs allow all the views of a product to be protected from being copied. This property is much more difficult to achieve with a three-dimensional (3D) trademark.
- Designs, as opposed to trademarks, are not revoked if they become generic.
- Designs, as opposed to trademarks, are not revoked if they are not used.[118]
- Designs allow the establishment of a filing date in order to offer the inventor more time to develop the product before openly disclosing its design to the public, thus offering a competitive advantage to the inventor. This sort of strategy would not be possible with trademarks, since these are available on official or private databases within a few days of the application being filed.

The article proceeds to offer practical advice to inventors on which type of protection they should choose whenever the option of having both trademarks and industrial rights is not available or applicable. When only one option is available, inventors should choose the one that will prove stronger in the event of any proceedings, but without risking a backfiring of the initial strategy and thus having to defend for potential invalidity arguments. It is possible to invalidate designs when they are not new or do not present the required individual characteristics. On the other hand, trademarks can be invalidated where their essential features make them exclusively a functional shape necessary to obtain a technical result or when that feature becomes a substantial part of the object's value (for example the 'shape of a knife' judgment of the General Court of Justice in Case T 164/11, September 19 2011).

The choice of IP protection chosen should also depend on the nature of the likely violations. For example, could potential infringements be more likely on the premise of copying a single word on the brand or would it be more possible to copy the entire packaging of the product. In Europe, court disputes focused on industrial designs are still rare with the first ruling being in the PEPSICO Case that illustrates the complexity involved in invoking one type of right against another and in combining the criteria of trademark law with those of design law.

Roux illustrates the complexities involved in these legal issues with an example from the Lego world. The Lego brick first filed and obtained an industrial design in 1958. This industrial design expired after the agreed period of time. In 1996, Lego filed an application with OHIM to register a red toy building brick as a Community trademark. The trademark was rejected by OHIM even after several attempts by Lego to obtain the trademark right. Subsequently, Lego brought an appeal before the European Court of Justice. In its ruling (Lego Juris A/S v OHIM, Case C-48/09, September 14 2010), the court decided that: "When the shape of a product merely incorporates the technical solution developed by the manufacturer of that product and patented by it, protection of that shape as a trademark once the patent has expired would considerably and permanently reduce the opportunity for other undertakings to use that technical solution."

The conclusion Roux draws from the court's ruling is that its intentions were to prevent the extension of protection through trademarks when the design protection has already expired. The ruling added that "signs which consist exclusively of the shape of goods which are necessary to obtain a technical result are not to be registered". This decision now means that a trademark application should only be refused when all the critical features of the 3D sign are functional. Furthermore, a trademark registration should be accepted even if the shape of the product incorporates another major non-functional element, such as a decorative/design one, which plays an important and/or distinctive role.

Another reason why one form of IP protection may be chosen in favour of another is because the types of infringement may differ for each case. This is further explained by a study conducted by WIPO in 2012.[119]

[118] A Community trademark can be revoked in the absence of genuine use. The law establishes that a Community trademark must be put to genuine use in the European Union in the five years following its registration. Moreover, use must not be interrupted for over five years. (See https://oami.europa.eu/ohimportal/en/invalidity-and-revocation#9.2).

[119] http://www.wipo.int/export/sites/www/freepublications/en/intproperty/791/wipo_pub_791.pdf.

To elaborate, design infringement lets the Court decide whether the respondents' products embody the registered design or a design very similar to the registered design. It appears that the Court is not merely looking for any differences but for substantial differences. On the other hand a trademark infringement test does exactly the opposite and looks for signs of deception. In other words, was the product created in such a way as to deceive the consumer that it is the original one? The design test is much closer to the patent infringement test. Thus a potential company when deciding what form of protection they would undertake needs to consider what type of infringement they are more vulnerable to.

Summary

Overall, Roux (2013) explored the implications of protecting designs using industrial designs and compared those implications with trademarks. The key conclusions to be drawn from the study is that different types of IPRs will be appropriate for protecting different designs: there is no 'one rule for all' solution. Decisions will necessarily be based on the characteristics of the different IPRs in the countries in which protection is sought, including costs, ease of enforcement and potential for revocation.

7.2 Analysis of stakeholder input

Within Europe, some companies choose to protect products using industrial designs at the national level while others choose to protect at European level and others use only informal protection methods (if any). As noted in Section 7.1, the decision of whether and if so how to protect depends on a range of factors, including the degree of internationalisation of the company and, more generally, the characteristics of the product market. In interviews with trade associations we found a mixed picture in practice across industries. For example:

- One stakeholder contended that companies that wish to protect a design tend to do so by applying for an industrial design. Some companies apply for protection at the national level, others at the European level. The judgment will be made on the basis of whether the company wishes to focus on the domestic market or to operate more widely across Europe. This stakeholder perceives no clear difference between SMEs and large companies: there are very few large companies in the furniture field and hence most companies are SMEs. In other words, size is not really a determinant of whether a company focuses on the domestic market or across Europe. It is notable, however, that design often takes place in a different country to manufacturing (e.g. Netherlands focuses on design; Italy on manufacture). The stakeholder further noted that some companies will choose not to apply for registered protection, for example because they expect their product only to be on the market for a short time and hence the benefit does not justify the cost of applying for protection (both monetary and in terms of time/administration). (cf the discussion of this point at Section 7.1.2 above.)
- Another stakeholder claimed that firms in its industry tend to apply for protection at the European level, irrespective of their size. The rationale for this strategy is that the products concerned have an associated CE kite-mark that is provided at the European level and so it does not make sense, in parallel, to apply for protection at national level.
- Several stakeholders stated that some companies lack knowledge of industrial designs and this may be an important factor explaining why many companies choose not to apply for industrial design protection. Evidence from our interviews with companies corroborated this perception: some of those that we spoke to lacked understanding of the best approach to protecting designs in particular circumstances. Some companies rely on the advice of external consultants to overcome this difficulty, which is probably an efficient solution for small companies with limited resources. Others, however, will not have access to such advice and hence they may make a relatively uninformed decision of how to protect their designs.

To gain a more detailed understanding of the reasons underlying firms' decisions of how to protect designs, survey respondents were asked to indicate their views on:[120]

- the decision to apply for design protection, irrespective of the method of protection (Figure 7.2 and Figure 7.3);
- the decision of what type of design protection to seek (Figure 7.4 and Figure 7.5); and
- the decision of unregistered industrial design over registered (Figure 7.6 and Figure 7.7).

These are discussed in turn.

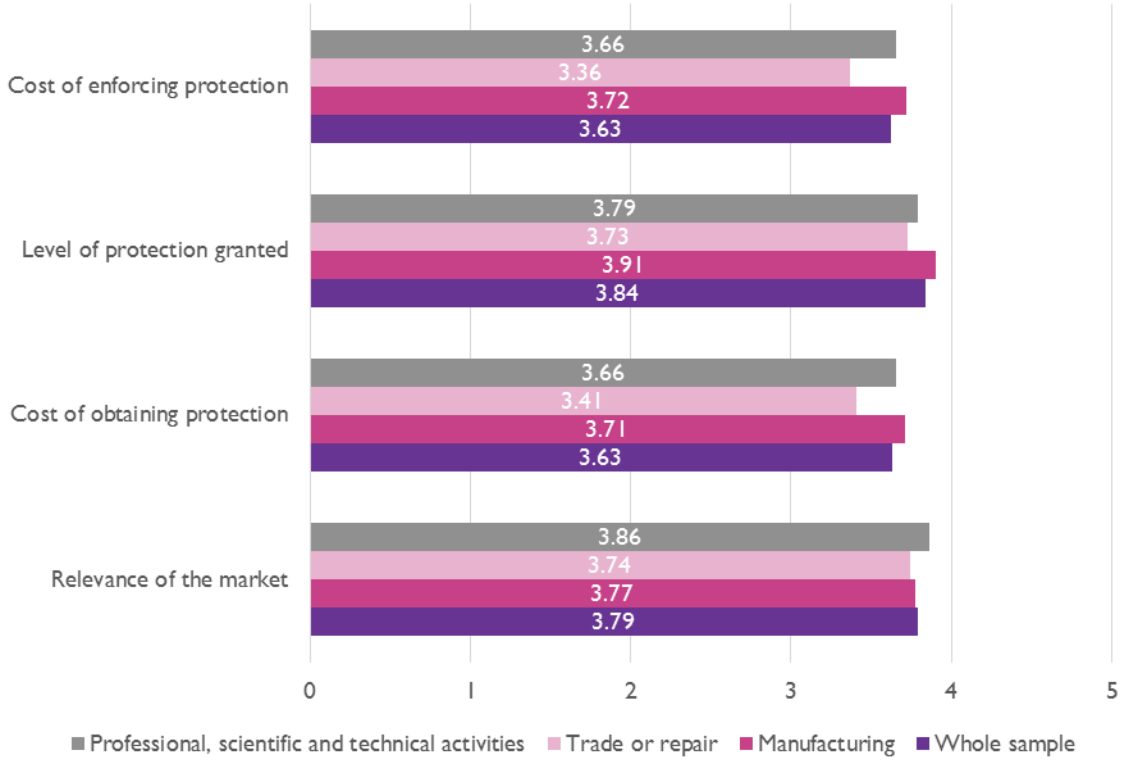
7.2.1 Whether to apply for protection of designs

In Sections 7.1.2 to 7.1.4 we have discussed how the expected value, relative to cost, might be a factor in the decision about what form, if any, of design protection to seek. Our survey included questions exploring this issue. As evidenced in Figure 7.2 and Figure 7.3, the most significant influence on decisions to apply to protect designs across all respondents is the level of protection it grants, while the least important factors are the costs of enforcing protection and the costs of obtaining protection.

There is no substantial variation in the importance of the four factors across respondents from different sectors or regions. However, Figure 7.2 shows that trade / repair firms consider all four factors to be slightly less important than firms in professional activities or manufacturing, which may reflect the relatively significant use of registered industrial designs – particularly at the national level – by respondents from the trade and repair sector. Furthermore, with the exception of the relevance of the market, it is the manufacturing firms that find the factors to be most important, which again may reflect this sector's relatively low use of registered industrial designs. Trade / repair firms are of the view that the relevance of the market is the most important feature in influencing the decision to apply for design protection while manufacturing firms consider the level of protection granted to be the most important factor and professional firms consider the relevance of the market to be of greatest importance.

[120] Please see section 2.2.3 for a detailed description of the survey.

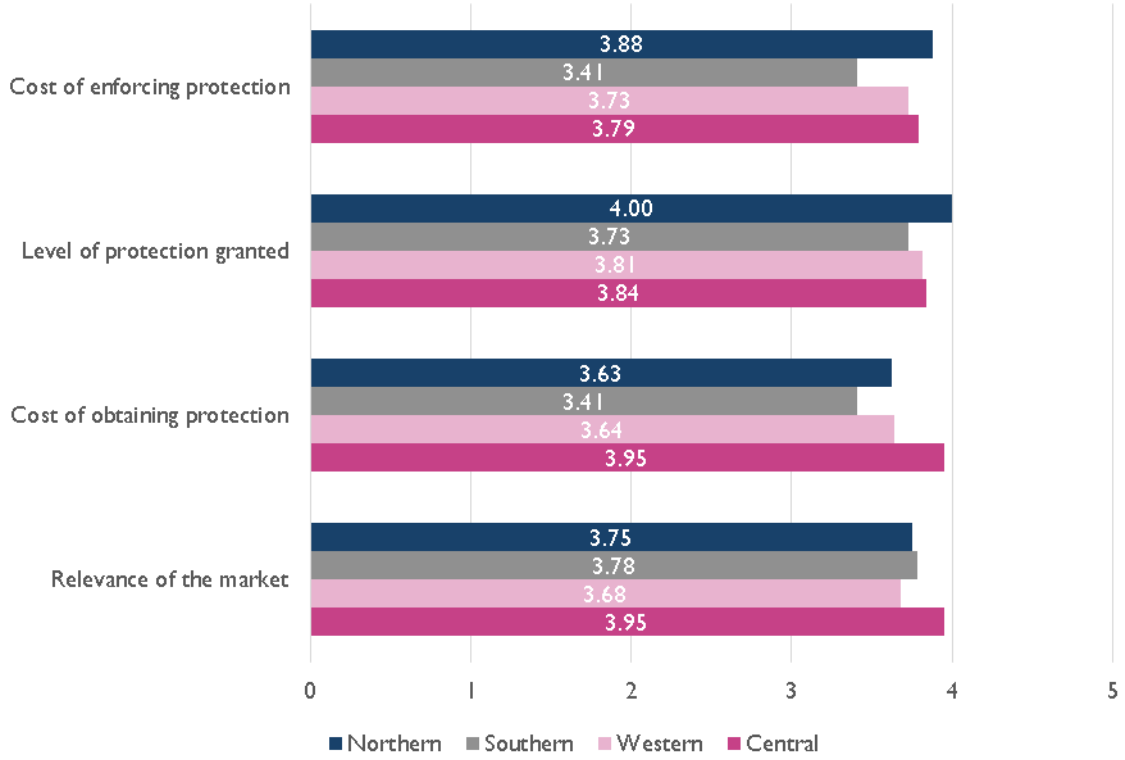
Figure 7.2: Factors influencing decision to apply for design protection, by NACE classification



Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. The figure presented above relies on a minimum of 103 valid responses for the whole sample, 52 responses for the manufacturing, 22 for the trade or repairs and 29 for the professional, scientific and technical activities subsamples.

Figure 7.3 represents the same information as above but by origin of respondent. Respondents from Northern and Western Member States consider the level of protection granted to be the most important factor in the decision to protect designs. This is in contrast to respondents from Central and Southern Member States who consider the relevance of the market to be of prime importance. With the exception of respondents from Central Member States, the cost of obtaining protection is considered the least, or joint least, important feature across regions.

Figure 7.3: Factors influencing decision to apply for design protection, by origin of respondent



Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. The figure presented above relies on a total of 83 valid responses (19 for the central, 36 for the western, 22 for the southern and 8 for the northern subsamples).

7.2.2 Type of protection

Figure 7.4 and Figure 7.5 show that the least important factor in deciding on the type of protection is, by a significant distance, the time between application and granting. Several of the other factors are viewed to have relatively similar levels of importance when viewed across the whole sample of firms, but the two most important factors stand out as being the geographical scope of protection and the level of lawyer fees.

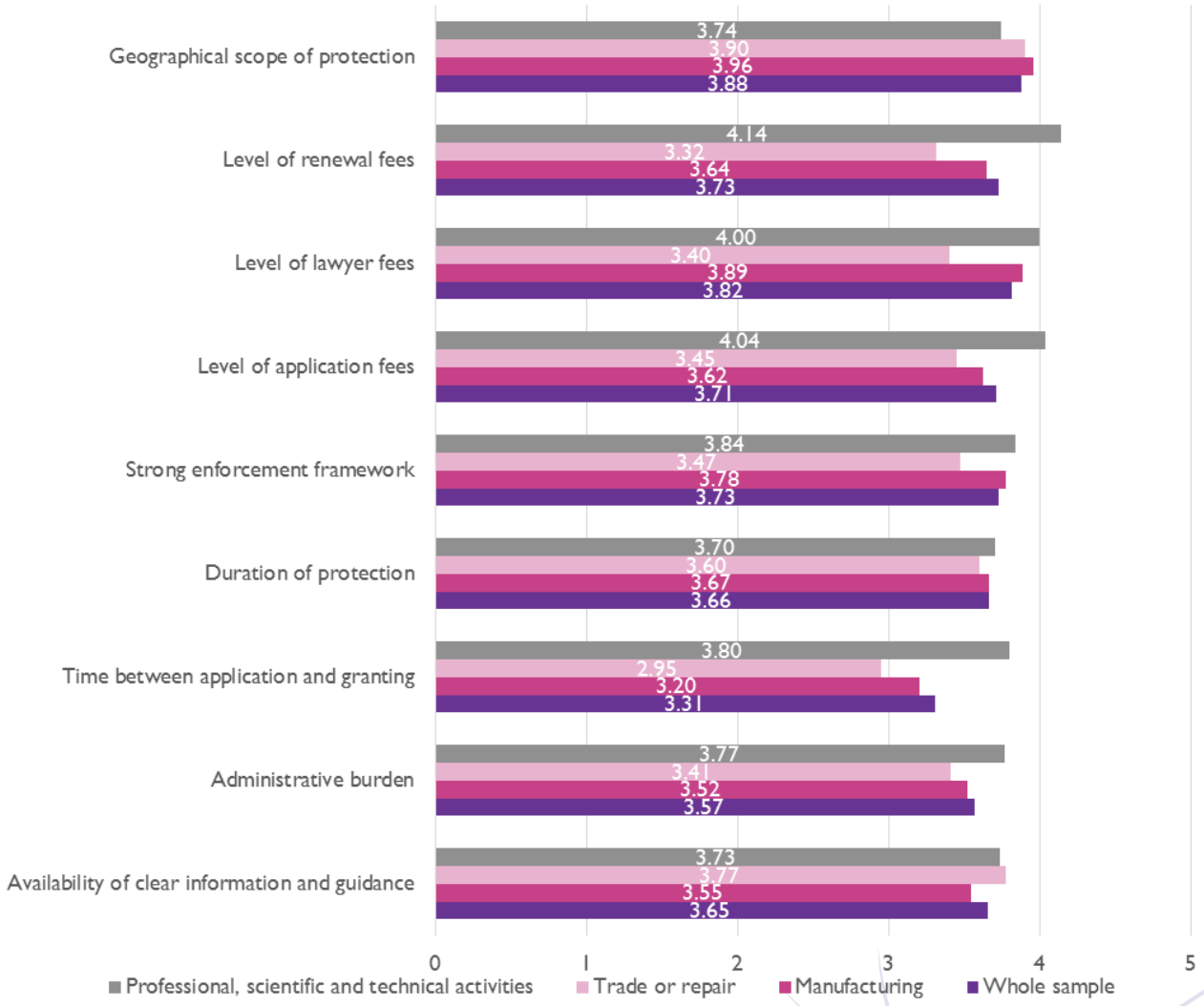
As in Figure 7.2, Figure 7.4 shows that aside from the geographical scope of protection and the availability of clear information and guidance, trade / repair firms view all other factors as having less importance compared with the views of other firm types. Firms operating in professional, scientific and technical activities, on the other hand, tend to have the highest view of importance across each individual factor. These firms view the level of renewal fees as most important, compared with the geographical scope of protection for trade / repair firms and manufacturing firms.

Factors for which there is a greater consensus of opinion across sectors are the geographical scope of protection (range of 0.22), the duration of protection (range of 0.10) and the availability of clear information and guidance (range of 0.22). This is in contrast to the level of renewal fees and the time between application and granting, for which there are significantly greater differences in opinions, with ranges of 0.82 and 0.85 respectively.

While it is clear from Figure 7.2 that the cost factors are less important in the overall decision of whether to protect design, Figure 7.4 suggests that in choosing between different types of design protection cost factors do gain greater importance. This is particularly true in the case of lawyer fees and, to a slightly lesser extent, for the level of renewal fees and the level of application fees.

The great importance placed on geographical scope of protection may initially seem in tension with Figure 6.23 which shows that, for all firm types, there is greater use of national level industrial design protection than Community level protection. However, in contrast to manufacturing and trade / repair firms, companies in the field of professional, scientific and technical activities make very little use of Community level industrial design protection and this indeed could be a reflection of the low importance they place on geographical scope of protection relative to other factors. This group of firms also makes substantially greater use of national trademark protection than community level protection, again consistent with the less emphasis they place on the scope of protection.

Figure 7.4: Factors influencing decision of what type of protection to seek, by NACE classification



Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. The figure presented above relies on a minimum of 89 valid responses for the whole sample, 44 responses for the manufacturing, 19 for the trade or repairs and 25 for the professional, scientific and technical activities subsamples.

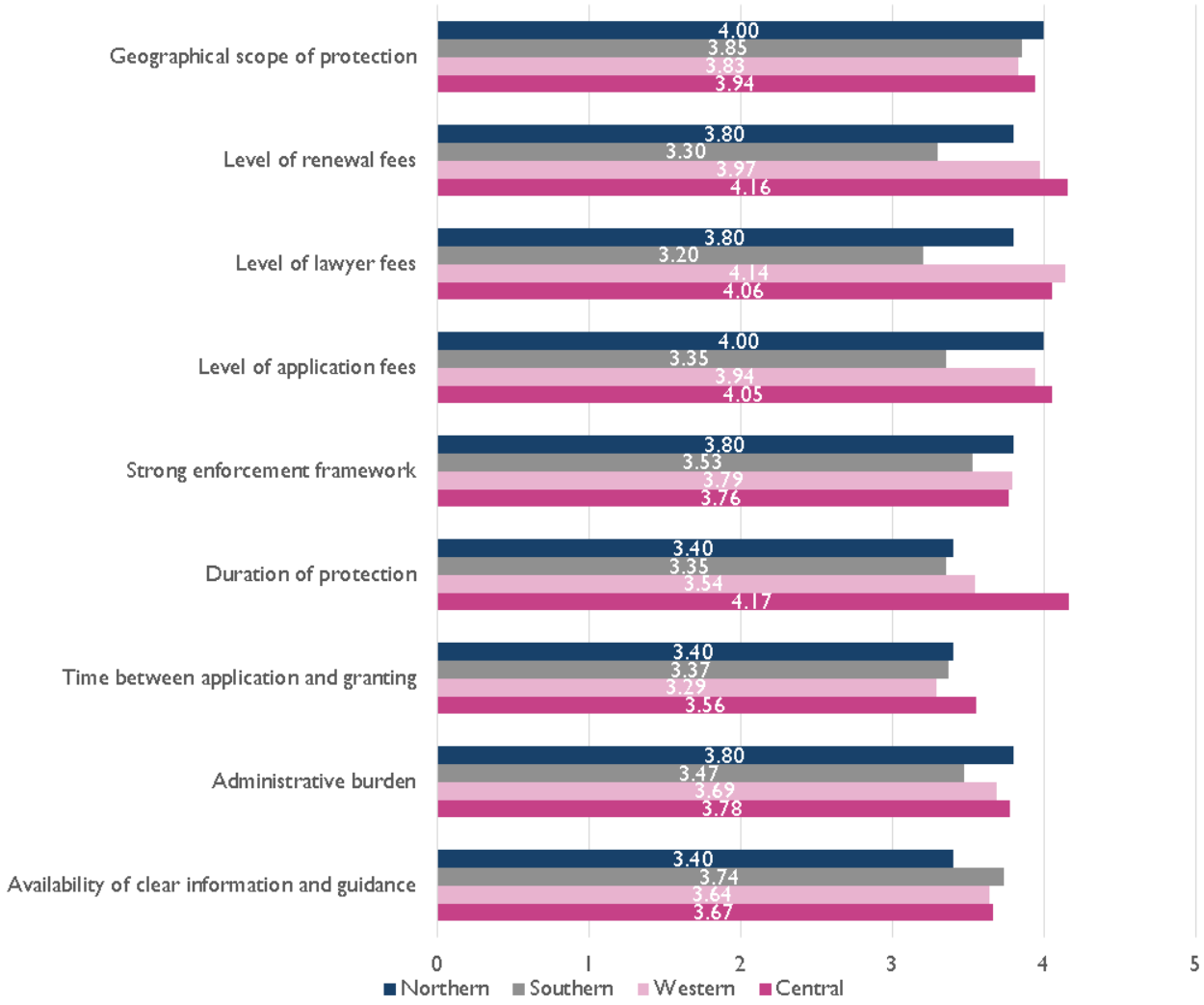
Figure 7.5 shows that respondents from Northern and Southern Member States consider the geographical scope of protection to be the most important factor in terms of selecting appropriate protection. For firms from Northern Member States, this view is consistent with the finding in Figure 6.24 which shows that firms in these Member States have significantly more designs protected under Community level industrial design protection than under national level protection. However, it is not consistent with the experience of firms in Southern Member States, for whom the use of national level protection is more frequent.

Although respondents from Western Member States consider the level of protection offered to be the most important factor in deciding whether to protect a design, it is the three cost factors that are most important when it comes to choosing between different types of protection, namely – in order of importance – the level of lawyer fees, renewal fees and application fees. The emphasis placed by firms in Western Member States on the cost factors may, in part, explain why over three-quarters of respondents from this region have not used industrial design protection with other forms of protection, i.e. copyright and/or trademark. It may be that these firms consider protection via multiple channels to be excessively costly and, therefore, a more significant proportion chose not to use industrial design with other forms of protection.

Another standout feature of Figure 7.5 is the importance placed on the duration of protection by respondents from Central Member States. These firms deem duration to be the most important factor in differentiating between types of protection and consider it to be significantly more important in this regard than firms from other areas.

In terms of variation, it is clear from the chart below that the importance of the cost factors exhibit the greatest variation in opinion across origin of respondent. For more technical matters, like the time between application and granting and administrative burden, there is much greater consistency in opinion across different origins of respondent.

Figure 7.5: Factors influencing decision of what type of protection to seek, by origin of respondent



Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. The figure presented above relies on a total of 75 valid responses (17 for the central, 34 for the western, 19 for the southern and 5 for the northern subsamples).

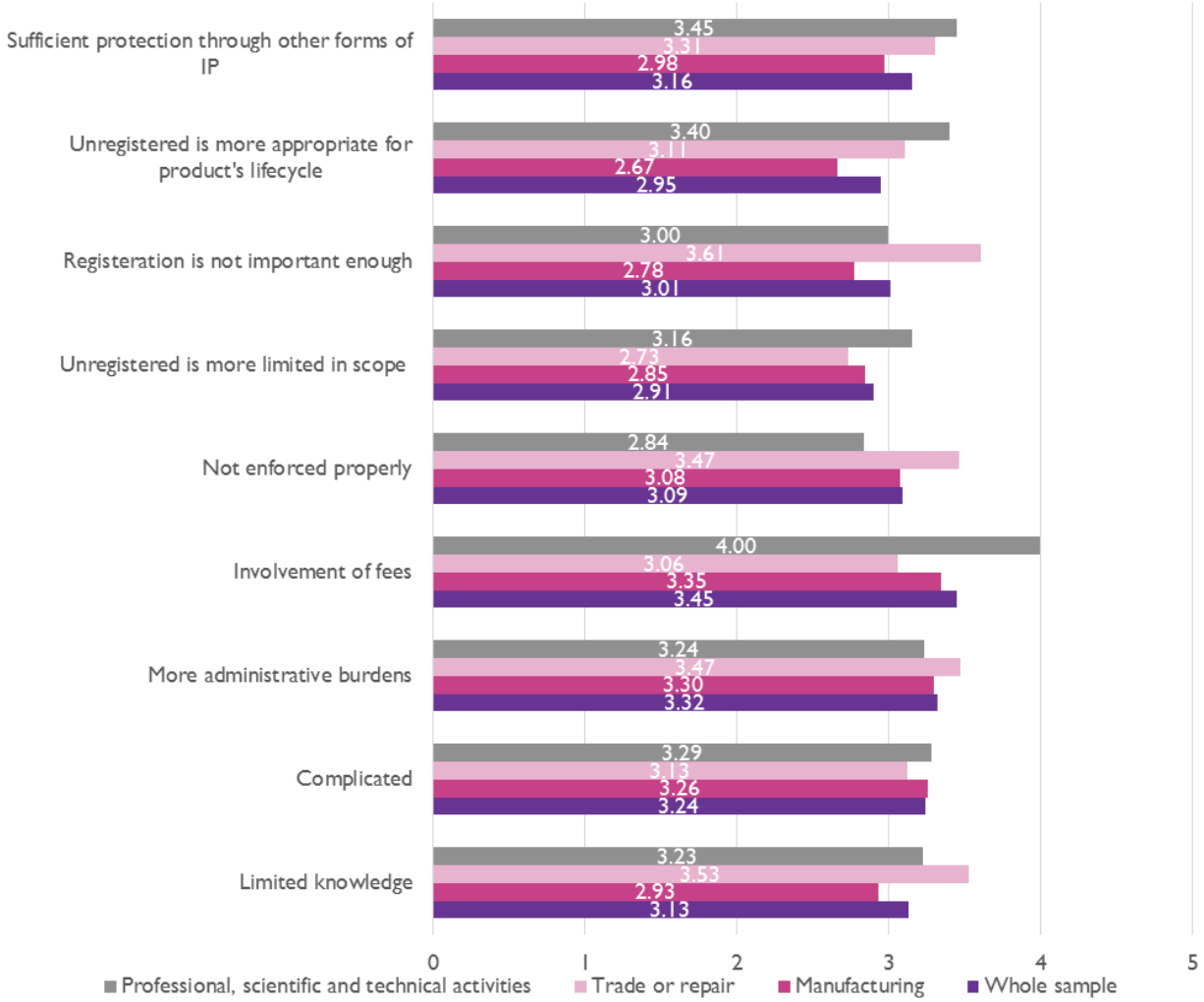
7.2.3 Factors influencing choice between registered and unregistered industrial designs

Figure 7.6 and Figure 7.7 analyse the factors that could discourage the use of registered industrial design protection in favour of unregistered industrial design protection. Across the whole sample, the most important factors underlying such a decision are considered to be the avoidance of fees, administrative burdens and the complicated nature of the registered protection process. The more limited scope of unregistered protection and their appropriateness for the product's life cycle are seen to be the least important factors in respondents' decisions.

Figure 7.6 shows that the most important factor for firms in the field of professional, scientific and technical activities or the field of manufacturing is the avoidance of fees by switching from registered to unregistered protection. This is in contrast to firms operating in the trade / repair sector for whom the involvement of fees is the second least important of all factors. This appears to be consistent with the findings in Figure 7.2 and Figure 7.4 which show that firms in trade / repair deem cost factors much less important as drivers of their design protection decisions relative to the two other types of firm. For trade / repair firms, the most

important factor is instead that registration is not important enough which is in sharp contrast to other firms who see this as one of the least important factors.

Figure 7.6: Factors causing respondents to avoid seeking protection through registered industrial designs and instead leading to the use of unregistered industrial design protection, by NACE classification



Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. The figure presented above relies on a minimum of 74 valid responses for the whole sample, 40 responses for the manufacturing, 15 for the trade or repairs and 19 for the professional, scientific and technical activities subsamples.

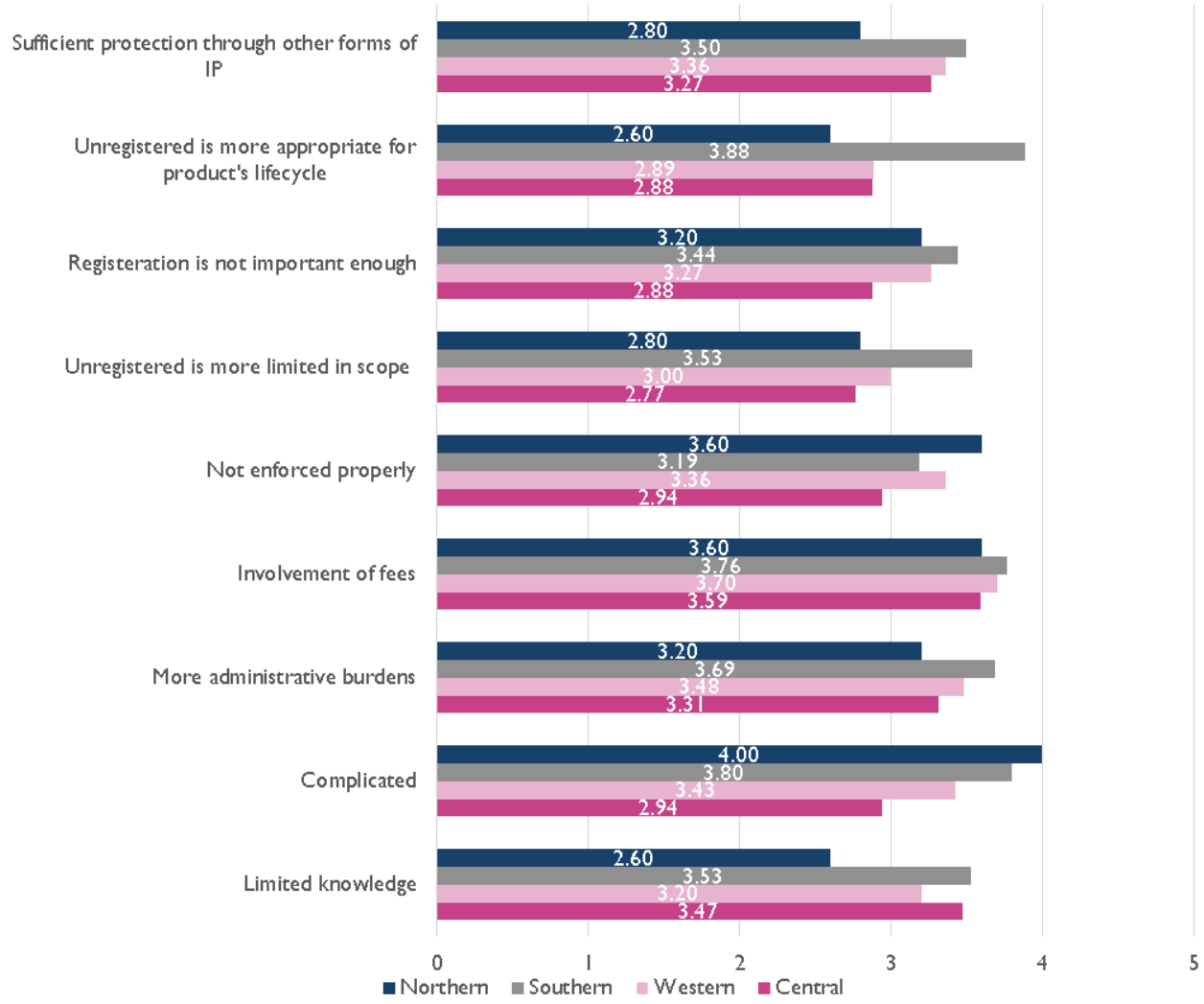
Figure 7.7 portrays some sharp differences in opinion across firms from different areas of Member States. For example:

- for firms in Southern Member States, the notion that unregistered protection is more appropriate for the product's lifecycle is deemed the most important factor, which is in direct contrast to firms in Northern and Western Member States for whom this factor is considered to be of the least importance; and
- for firms in Central Member States, limited knowledge of the registered protection process is the key reason for opting for unregistered protection, but firms in Northern Member States judge this factor to be of joint least importance.

More generally, there is much greater variation of opinion across origin of respondent than there is across NACE classification (seen in Figure 7.6), or than there was across origin of respondent with regard to the factors determining the choice of protection (seen in Figure 7.5). The only factor for which there is a fairly consistent view of importance across origin of respondent is the importance of fees. In contrast, there is a much more significant range of opinions with regard to the importance of the product's lifecycle, with firms

in Southern Member States considering this to be a much more important influence than the average firm, and with regard to the importance of the complicatedness of registered protection, with firms in Northern Member States considering this to be more important than the average firm.

Figure 7.7: Factors causing respondents to avoid seeking protection through registered industrial designs and instead leading to the use of unregistered industrial design protection, by origin of respondent



Note: Respondents were asked to answer on a 5 point scale where 1 means a factor is not at all important and 5 means it is extremely important. The figure presented above relies on a total of 58 valid responses (13 for the central, 25 for the western, 15 for the southern and 5 for the northern subsamples).

7.3 Summary and conclusions

This chapter has considered the factors that underlie companies' decisions of how to protect designs. Prior literature had identified the following factors as being important determinants of whether companies choose to apply for registered design protection: the registered options available, the degree and credibility of enforcement, the cost of acquiring and enforcing registered protection, the size of the firm, research intensity, the degree of internationalisation and design complexity.

Evidence from our survey and interviews with companies that operate in design-intensive industries provided a more detailed understanding of the reasons underlying their decisions of how to protect designs, including with respect to:

- the decision to apply for design protection, irrespective of the method of protection;

- the decision of what type of design protection to seek; and
- the decision of unregistered industrial design over registered.

The most significant influence on decisions to apply to protect designs, irrespective of the method of protection, across all respondents is the level of protection it grants, while the least important factors are the costs of enforcing protection and the costs of obtaining protection. We found no substantial variation in the importance of the four factors across respondents from different sectors or regions.

The least important factor in deciding on the type of protection is, by a significant distance, the time between application and granting. Several of the other factors are viewed to have relatively similar levels of importance when viewed across the whole sample of firms, but the two most important factors stand out as being the level of lawyer fees and the geographical scope of protection. More generally, it is interesting to note that while cost factors are less important in the overall decision of whether to protect design, they gain greater importance in choosing between different types of design protection. The level of lawyer fees, renewal fees and application fees are all relevant considerations in choosing between different types of protection.

With respect to factors that could discourage the use of registered industrial design protection in favour of unregistered industrial design protection we find that, overall, the most important factors underlying such a decision are the avoidance of fees, administrative burdens and the complicated nature of the registered protection process. The more limited scope of unregistered protections and their appropriateness for the product's life cycle are seen to be the least important factors in respondents' decisions.

8 Enforcement

8.1 Why enforcement matters

8.1.1 General principles

A law or regulation that no-one obeys or abides by is empty. Any law or regulation must be both enforceable and enforced to be operative and valuable. The Danish king Cnut the Great famously demonstrated to his overly-flattering advisors the limits of enforceability by commanding the tide not to come in. Avoiding the hubris and vanity of attempting to "turn back the tide" of technological or social developments is a concern for all wise policy-makers.

Enforcement of a property right has at least three potential motivations. First, there may be a moral claim. Property is a moral concept that is often argued to be conceptually prior to legal property rights — the legal right exists, in part, to protect the moral claim. In the first instance, law and regulation protects my property because it would be wrong for me to be denied the peaceful and orderly use of my property or for others to use it without my permission.

Second, there is the issue of order. At a general level, if the laws and regulations of some agency are flouted without consequence then the credibility of that agency is damaged. More specifically, those that violate property rights might be involved in other criminal activity — e.g. counterfeiters might also participate in organised crimes such as drugs or human trafficking or terrorism.

Third, property rights might be structured so as to create socially or economically beneficial incentives. For example, certain kinds of property right might be legally created, even when there was no corresponding moral property claim, so as to incentivise investment or innovation.

The process of enforcement can be treated via a balance of four connected elements:

- the costs[121] and rewards for infringers of undetected or unpunished infringement;
- the feasibility and cost to enforcement agencies of achieving any given probability of detection and level of punishment;
- the chosen probability of detection; and
- the chosen level of punishment.

For a law to be enforceable, it must be feasible for enforcement agencies to achieve, at a manageable cost, a sufficiently high probability of detection and level of punishment, relative to the net benefits of undetected infringement, that infringement is deterred sufficiently that infringing behaviour is kept modest relative to non-infringing behaviour.

8.1.2 Specific challenges related to intellectual property rights

Enforcement of intellectual property rights can raise particular complexities because they are abstract. In the first instance, their abstract nature creates uncertainties regarding the moral property claims involved. This has consequences both for the definition of the property right and for the awareness and attitude of actual or potential infringers.

[121] Note that even unpunished infringement will typically carry costs (e.g. the cost of manufacturing counterfeit products, the risks of socialising with criminals, or the psychological and spiritual costs of immoral conduct) as well as rewards.

The moral definition of an abstract property right can involve a number of fine judgement calls. Consider, for example, the distinction between a theorem of mathematical logic— e.g. Gödel's First Incompleteness Theorem — and a piece of classical music — e.g. the Allegro movement from Mozart's Piano Sonata No.16 in C major. A theorem of mathematical logic is usually regarded as a discovery, not a creation, with first discovery not usually regarded as sufficient to endow a moral property claim. Thus, whilst Gödel might morally be recognised as the first discoverer — e.g. by those that used his theorem naming it after him — even when he was still alive and the proof was new, there would have been no question of those that appealed to his theorem in their own proofs being charged for its use.

By contrast, a piece of music is usually regarded as a creation and the composer is (at least for a time) typically able to charge for the use of that music — even though a classical composition such as Mozart's Piano Sonata No. 16 can be seen as a mathematical possibility within the framework of classical composition rules just as Gödel's First Incompleteness Theorem was a mathematical possibility within the framework of formal logic. Nonetheless, the possibility of regarding a piece of music as in some sense a discovery remains important in the definition and enforcement of property rights relating to music. For example, where two pieces of music are very similar, the question of whether a later-composed piece was produced entirely independently or was (directly or indirectly) influenced by the earlier-composed piece is a well-known common issue of legal dispute.

The challenge of defining moral claims relating to abstract ideas spills over into enforcement in at least two ways. First, an infringer that does not regard some abstract idea as the kind of thing that can morally be owned may simply be unaware that a legal intellectual property right could exist with respect to it. Second, an infringer that does not regard some abstract idea as the kind of thing that can morally be owned may have few, if any, moral qualms about infringement. For example, if I steal someone's coat I may feel guilty about the possibility that she might be cold without it but if I steal someone else's idea I am not specifically denying him anything concrete in the same way. Intellectual property right violators often may take the view that "nobody is harmed" by their actions.

The abstract nature of intellectual property rights means that mass violations, that rapidly destroy order and the credibility of rights-enforcement agencies, are much more feasible than for more concrete pieces of property. For example, no more than one thief can possess my one coat at any one point in time, but a million people could steal my idea simultaneously.

Lastly, the abstract nature of intellectual property rights means the costs and incentives-related social and economic benefits of enforcement versus non-enforcement can change rapidly with technological or social developments. A non-moral intellectual property right, created to achieve some social purpose, might be socially useful at one point but then have no value only a few years later.

8.2 What the current enforcement regimes are

8.2.1 General overview

Differences in the national legal frameworks means enforcement of design rights across EU countries is complex. Differences in the "novelty" requirements for a producer to be able to apply for a industrial design as well as the degree of enforcement power that the various jurisdictional bodies have, may cause confusion amongst applicants and reduce the value that industrial design rights add to a firm.

Typically, in order for a design to be protected by the law it must firstly be officially registered. Generally, the key requirement for a product to be *registrable*, is that its exterior appearance is "new" or "novel". Member States have varying definitions of such terms. Additionally, the registration process varies significantly across countries. In the EU provided that a design is officially registered, then the responsible

enforcement/legal bodies must protect that design for five years, with the possibility of further periods of renewal up to, in most cases, 15 years.

Furthermore, depending on the particular national law, a design can also be protected by copyright law. In some countries, such as France and Italy, industrial design protection and copyright protection can exist concurrently. On the other hand, other countries make it practically impossible to choose both types of protection. Less commonly and under very specific circumstances, a design can also be protectable under unfair competition law. Nonetheless, the novelty requirements, rights and remedies ensured tend to be considerably different.[122]

Typically, a design right can only be protected by the enforcement authorities in the country in which protection is granted. However, under the Hague Agreement concerning the International Registration of Industrial Designs, it becomes possible to follow a procedure for an international registration of the design of a product. Following the Hague Agreement, an applicant may file a single international application with WIPO and designate as many Contracting Parties as it wishes.

8.2.2 Enforcement regimes in specific member states

Germany

Similar to many other countries, industrial design applications to the German intellectual property office are not examined for novelty and individual character prior to registration. Hence, in cases of litigation regarding infringements or claims of invalidity, it is of the utmost importance that the individual character of designs is proved. Even though there has been some guidance from the European court on how to interpret novelty and assess the scope of protection of designs, there are no unified laws and principles that would allow an easy traversing through the maze of European design law. Hence, this can be a substantive issue in industrial design enforcement, where the judgement falls mainly at the discretion of the respective courts.

When an infringement is eventually proven, the penalty to the accused party includes a mixture of civil, penal and administrative remedies such as damage compensation, ruling for destruction of infringing products, border seizure etc. Among various options for determining damage compensation, the most popular is the payment of infringers' profits to the claimant as it does not allow the infringer to deduct costs from the sales figures except in exceptional circumstances when the costs are directly attributed to the infringed products.

In Germany, an industrial design infringement case is heard in up to a maximum of three court instances. However, it is vital to provide all the evidence against infringement in the first instance, as the second round court of Appeal does not conduct a full trial and only analyses new information, not presented in the first instance due to a valid reason other than negligence on the part of the claimant or defendant. It is quite rare for design cases to go to the third instance to the Federal Supreme Court.

Trials normally last for six to nine months on average if no appeal is lodged after the first instance and can go up to two years if the defendant appeals to the Federal Supreme Court after the decision of the second instance. Where documentary evidence is not available, oral testimony is accepted and it quite uncommon to request the services of a design expert in assessing the novelty and character of designs. In most of the industrial design cases, decisions are based on written presentations and oral hearings rather than requesting formal evidence. As the litigation process is time consuming, interim enforcement of the decision after the first or the second instance can take place, usually with a request from the claimant when the matter is considered urgent. However, in such cases, the petitioner needs to deposit a security amount to cover the costs and penalty payments of the defendant in the potential likelihood of the petitioner losing the case. The

[122] German IP (2011): Design Protection under Unfair Competition Law in Germany.

amount of the security deposit required is at the discretion of the relevant court who takes into account the potential costs of litigation and the damage compensations the defendant would have to pay.

Moreover, preliminary relief can be granted to the claimant without any hearing with the defendant present where the claimant presents sufficient evidence for the validity of its designs and infringement. However, in such cases, the defendant after receiving a warning letter with a cease-and-desist declaration to cease production of the infringed product, can immediately call for a protective brief, which often will cause the court to refuse to issue a preliminary injunction before the hearing. Despite this possibility of blockage from the defendant, preliminary reliefs are very popular with industrial design holders as they are a means of providing relatively fast relief from infringers abusing the industrial design when compared to the main court proceedings, which can take a couple of years to settle.

Apart from the lengthy court proceedings, the costs of the litigation process can also be significant depending on the complexity of the case and the value in litigation. In Germany, the statutory costs to both the parties are approximately €25,000 in the first instance and €30,000 in the second instance.[123] These fees eventually accumulate to the losing party. However, the losing party is only responsible for paying the statutory rates and the actual fees paid can exceed the statutory rates depending on the case complexity. Hence, in practise, not all the costs of litigation are reimbursed for the winning party.

While German industrial designs provide protection in Germany, Community designs provide EU wide protection and hence an infringement in one territory leads to an injunctive relief in the whole of the EU. Infringement of a Community design in German territory can be brought to the specific German Community court having community wide competence. The rulings of this court will however only be applicable to the entire EU area only if the claimant or the defendant is domiciled in Germany or the EU. If this is not the case, then the European Community court in Alicante should be consulted for Community wide competence. In addition to this, if an infringement case is taken to the national courts of the country and not to the Community design courts then the competence applies only to the national territory. Moreover, as each Member State has its own judicial system, the sanctions vary from country to country.

UK

The cost of civil proceedings is very high in the UK when compared to other European countries such as Germany and hence may act as a deterrent to IP enforcement. However, this problem has been mitigated to some extent by the £50,000 cap on recoverable costs introduced by the Patents County Courts (PCC).[124] This is still a significant amount of money and hence while helping large firms, the cost of legal proceedings can still act as a potential deterrent for SMEs who are hesitant in taking the infringers to court even if there is only a remote possibility of losing the case and having to pay huge compensation fees. In order to help the SMEs, the government incorporated the small claim pack into the PCC.[125] However, this cannot be used for claims relating to registered UK or community designs.

Apart from the cost of the legal proceedings acting as a hindrance to industrial design enforcement, some aspects of the UK design registration process itself can deter firms from going to the court. For instance, the UK like Germany does not check for the validity and novelty of designs while registering them. Hence,

[123] Bardehle Pagenberg, Design Protection in Europe http://www.bardehle.com/fileadmin/contentdocuments/broschures/Design_protection.pdf.
[124] Cook, L. (2012), "Registered designs: an overlooked asset".
[125] HM Court and Tribunals service 2014, Guide to the Intellectual property Enterprise Court Small Claims Track.

some designers might be hesitant in taking their infringers to court for the sheer uncertainty regarding the proof of originality of their designs.

However, the intellectual property bill that came into effect in May 2013 tried to improve the industrial design enforcement system to some extent. For instance, it aimed to tackle the problem of high costs of industrial design enforcement by seeking to create a non-binding Opinions Service which provides assessment on the strength of the case before commencing with legal proceedings.[126] The services of the Opinions Service are, however, not free of charge. The bill also introduced criminal penalties on industrial design infringements most likely in the hope that these act as a potential deterrence to industrial design violations.

Bulgaria

Recent developments in Bulgaria's economy are reflected in the recognition of an industrial design as part of a company's intangible assets.[127] According to the International Law Office, in Bulgaria an industrial design and its related rights status can be put forward as collateral while the rights relating to an industrial design may be dealt with as assets in the event of a company's bankruptcy. (This is of particular interest to note in the context of the theoretical prior, discussed in previous sections, that one motivation for registering formal industrial design rights is that they might be used as collateral.)

In order to protect the significance of this type of intellectual property, enforcement authorities have focused extensively on the provisions for cancelling the registration of an industrial design. An industrial design registration may be declared inoperative at the request of "any party that is able to demonstrate (i) a legal interest in the design, and (ii) prior industrial property rights under the relevant legislation or prior copyright under the amended Copyright and Related Rights Law".

Article 60(a) of the Bulgarian Intellectual Property Law provides a detailed description of the enforcement measures available to the police, the Prosecutor's Office, courts and customs authorities in the fight against design piracy. Furthermore, the Bulgarian legislative system takes a proactive stance towards design rights infringement by stating:

> "In the event of the violation of a registered design right, in circumstances where there is reason to consider that such an infringement will be committed, or if it suspects that evidence will be lost, invalidated or falsified, the court may, at the request of the rights holder or the exclusive licensee...order preventative measures."

Such measures include:

- An order to cease an action which allegedly constitutes the illegal use of industrial design. Such order must be issued by the court.
- The confiscation of products that are allegedly produced through copying a protected design.
- The sealing of premises in which it is alleged that an infringement has been committed or may be committed.

The Civil Procedure Code governs the authorization, enforcement and cancellation of such measures.

Further measures to improve the enforcement of design rights in Bulgaria include Articles 66 to 70 and the modified Article 65 of the Bulgarian Intellectual Property Law. These Articles provide a detailed description of the procedure to be followed for establishing an administrative infringement of rights. In turn this ensures this provides confidence into the legal system by reducing uncertainty regarding the validity of the acquired IP right.

[126] 2013, Intellectual Property Bill.
[127] http://www.internationallawoffice.com/newsletters/Detail.aspx?g=14ed6c07-0e7a-4477-9126-325b881e24de.

Under Article 66(1), an infringement must be investigated under a written order produced by an officially appointed person designated by the chairman of the Bulgarian Patent Office. Under Article 67(1) this official has the right to require access to any documents or material related to the the investigation, and take possession of these for official assessment. Moreover, under Article 66, a party under investigation should provide unhindered access to the documents or the material under investigation.

The penalties set out under Article 65 are consistent with the Tax Procedure Code and the provisions of the Administrative Penal Law. They are designed in such a way as to increase the costs of infringing design rights while reducing the benefits from copying the design of products. Such penalties include the following:

- Any person or who, without the consent of the rights holder, manufactures a product by copying or using a protected design - or puts on the market or stocks such a product - will be fined between Lev500 and Lev1,500. Any legal entity that breached the industrial design law will be liable to the confiscation of property to the value of between Lev1,000 and Lev3,000.
- Following a subsequent infringement of the same intellectual property law within one year of the penalty being issued, the fine will be raised to between Lev1,500 and Lev3,000. The confiscation of property will be to the value of between Lev3,000 and Lev5,000.
- In addition to property confiscated as part of the penalty, the illegal products will be destroyed.

The new industrial design legislation has brought Bulgaria's protection of this aspect of intellectual property up to date. It is now fully harmonized with recent international and regional conventions, directives and regulations.

Romania

In Romania, infringements of intellectual property rights, whether industrial property rights or copyright and related rights, are subject to civil, criminal and administrative sanctions.

- Civil proceedings
  In Romania, civil proceedings can be initiated before the ordinary courts. The Law on Judicial Organisation of 29 June 2004 introduces courts that are specialised in intellectual property rights infringements. It is also expected that in the future, the Municipality Court and the Court of Appeal of Bucharest will have specialised chambers which will hear intellectual property cases.
  In case that an infringement of industrial property rights is identified, injunctions and damages can be obtained can be obtained through civil proceedings. The available remedies resulting from civil proceedings include triple damages, award of assets acquired through the infringement as well as the forfeiture of infringing material or the publication of the judgment in the press.
- Criminal proceedings
  It is also possible for criminal sanctions which may be ordered by the Court in case that an infringement of design rights is identified. Such sanctions include fines and imprisonment. Enforcement power is given to a by a specialised police service that is able to conduct investigations under the supervision of the public prosecutor. At present, there is one specialised prosecutor for intellectual property cases in the General Prosecutor's Office in Bucharest who overlooks all IP enforcement actions throughout the country.
  In practice, only a limited amount of criminal cases reach the court stage. This is because most cases come to a halt before that stage. The key reasons advocated for this behaviour is for lack of social harm, against payment of an administrative fine and without any criminal record. Where cases reach the courts, fines often range at the lower levels and prison sentences have always been suspended.
- Administrative proceedings
  Enforcement of design rights can also be seen through Administrative proceedings that play an important role in Romania. These increase the cost of copying a protected design. At the moment, the Romanian Patent Office, OSIM, has no investigation powers and thus it is not allowed to apply fines while the

Romanian Copyright Office, ORDA, was given large investigation powers together with the possibility to apply fines.
Furthermore, the National Authority for Consumer Protection and the Directorate on Unfair Competition have both been given powers to enforce infringements in their respective domains and to apply administrative fines. However, empirically it often becomes difficult to distinguish competences as ORDA is not only given enforcement powers in administrative proceedings, but also in criminal proceedings together with the police.

In Romania, customs authorities have the power to suspend customs clearance of goods infringing an IP right on application of the right holder or his legal representative or ex officio. According to Romanian authorities, "goods infringing an intellectual property right" are counterfeit goods, pirated goods, goods infringing patents or complementary protection certificates and goods infringing geographical indications. More specifically, any mould or matrix which is specifically designed or adapted for the manufacture of a counterfeit trademark, for the manufacture of goods bearing such trademark, for the manufacture of pirated goods or for the manufacture of goods infringing a patent, a complementary certificate or a geographical indication is treated as infringing good.

The provisions of the law apply on the whole territory of Romania, including free zones, to goods under importation or exportation.

In the case where the customs authorities initiate ex officio actions, using the data base provided by the OSIM or the collecting societies, the right holder must, within three days lodge the application for action by the customs authorities, including proof of payment of the fees stipulated in Art.

The customs authorities have the right to seize and destroy the infringing goods if by final and irrevocable decision of the court, a right holder's complaint is accepted. The customs authorities also have the right to refuse re-exportation of goods susceptible to infringe an IP right and not grant another customs regime until the penal complaint is settled according to the law.

Insufficient enforcement is a major issue for the Romanian IP system.[128] It has been reported that large scale infringements remain largely unprosecuted. Moreover, enforcement actions, whenever they occur, focus on minor infringements which, in a considerable number of cases, are settled with a small fine.

Police and customs in Romania have benefited greatly from training and therefore are expected to be largely familiar with the enforcement of intellectual property rights. However, due to the frequent moves of trained staff to other services outside the intellectual property field, the successful enforcement of intellectual property rights is hindered.

The report prepared by Kunze et al. for the United Nations Economic Commission for Europe identifies another obstacle to successful enforcement that develops at the judicial and prosecutor level. It is claimed that judges in general apply penalties which cannot constitute a deterrent to counterfeiting and piracy. Furthermore, the authors suggest that the recent appointment of the specialised prosecutor in IP rights in the General Prosecutor's Office constitutes a sign of progress. Nonetheless, the new prosecutor will require significant human and financial resources to have an impact which are unlikely to be offered to him/her.

The introduction of specialised court departments for intellectual property rights is another positive development which can however only produce positive effects if the judges serve continuously in these specialised chambers and receive sufficient training.

[128] Gerd F. Kunze (2004): Intellectual Property Protection in Romania.

8.2.3 How harmonised is the enforcement framework across Europe and what are the implications?

The IPR Enforcement Directive adopted in April 2004 aimed to increase the extent to which there enforcement frameworks of different Member States share characteristics. While the Directive did not seek full harmonisation of enforcement frameworks, it required Member States to establish "proportionate, civil measures, procedures and remedies to enforce intellectual property rights against those engaged in counterfeiting and piracy".[129] In other words, the Directive required Member States to introduce similar sets of civil measures, procedures and remedies.

This should make it somewhat easier for rights holders to defend industrial designs if they have been infringed in multiple jurisdictions, which is particularly relevant given the introduction of the registered Community industrial design in 2003. Greater similarity between the enforcement frameworks of different countries should help to reduce the costs of enforcing rights in multiple countries. In particular, the search costs associated with understanding the rules and procedures governing enforcement in each country should fall. This would lower the total expected costs of enforcement and hence, for a given level of expected benefit (i.e. the potential additional sales that could be gained by eliminating an infringer from the market), a greater number of rights holders would be expected to launch infringement proceedings (since the expected benefits would outweigh the expected costs in a greater number of cases).

Importantly, however, the Directive does not include provisions related to criminal procedures, penalties and offences and hence these elements of the enforcement framework can differ significantly between countries. This somewhat limits the benefits of greater similarity and hence the current degree of harmonisation may have only a slight impact on total enforcement costs (as rights holders will still face substantial search costs in understanding the criminal procedures, offences and likely penalties in each country).

The impact of a lack of harmonisation on search costs is not, of course, unique to industrial designs. Such issues are pervasive in many aspects of the European economy but it can certainly be stated that a lack of common enforcement standards is a classic Internal Market issue.

In common with similar Internal Market issues, the duplication of search costs can be expected to have a greater impact on the enforcement behaviour of SMEs than large firms since smaller firms are generally less able to bear substantial administrative costs than are larger firms. Larger firms will not be oblivious to this fact and can sometimes engage in strategies to exploit their smaller competitors' inability to bear administrative costs and so gain a stronger market share for itself.

The literature on industrial designs has found evidence of larger firms exploiting the lack of harmonisation. For example, SMEs in Germany have suggested that infringement actions are often utilised by larger firms in order to generate barriers in the market.[130] It was argued that larger firms take advantage of the high costs involved in litigation procedures in order to deter smaller companies from contesting in the market of interest.

In addition to the direct impact on enforcement actions, the expected cost of enforcing rights across Europe can have an important impact on the decision of whether or not to apply for registered protection of an industrial design in the first place. Prior literature has identified the cost of implementing an IP protection strategy as one of the main factors affecting the choice between registered versus informal IP systems.[131] Clearly, enforcement costs are not the only costs involved in implementing one's strategy but constitute a sizeable portion.

[129] https://oami.europa.eu/ohimportal/en/web/observatory/ip-in-europe.
[130] IPR Expert Group (2007), p13.
[131] IPR Expert Group (2007), p42.

In addition to enforcement costs, another challenge with the present system is proving infringement. OHIM does not examine applications for registered industrial designs for novelty and individual character prior to registration and neither do many European countries. Hence, in cases of litigation regarding infringements or claims of invalidity, it is of utmost importance to prove the individual character of designs.

Even though, there has been some guidance by the European court of law on how to interpret novelty and assess the scope of protection of designs, there are no unified laws and principles set to easily traverse through the maze of European design law. Hence, this can be a substantive issue in industrial design enforcement, where the judgement falls mainly at the discretion of the respective courts.

Moreover, while a single application for a Community registered design can provide protection across the EU, responsibility with enforcement lies with individual Member States. In the event that a Community industrial design has been infringed in the territory of an EU Member State, there are several options for taking enforcement action. First, an action could be filed to the Community Court[132], which has community wide competence. The rulings of this court will, however, only be applicable to the entire EU area only if the claimant or the defendant is domiciled in the EU. If this is not the case, then the European Community court in Alicante should be consulted for Community wide competence. In addition to this, if an infringement case is taken to the national courts of the country and not to the Community courts then the competence applies only to the national territory. It is also notable that as each Member State has its own judicial system, the requirements for evidence and the sanctions imposed vary from country to country.

Key differences and similarities

It is worth highlighting certain key differences and similarities between the enforcement regimes we have sketched above.

The key similarity between the UK, Germany and the EU (OHIM) enforcement procedures is that none of them checks the validity or novelty of national or community designs while registering them. Hence, some designers might be hesitant in taking their infringers to court for the sheer uncertainty regarding the proof of originality of their designs.

The key differences in enforcement relate to the timings, costs and sanctions of legal proceedings. For instance:

- The cost of civil proceedings is very high in the UK when compared to Germany and hence is likely to act as a deterrent to IP enforcement.
- UK, unlike Germany, has a non-binding Opinions Service which provides assessment on the strength of the case before commencing with legal proceedings.
- In Germany, penalty on design rights infringements to the accused party includes a mixture of civil, penal and administrative remedies whereas UK has criminal penalties on design right infringements.
- Romania also employs border controls as a way of enforcing design rights with officers that are specifically trained to deal with intellectual property issues. We have not identified this as a practice common elsewhere.
- In Germany design rights are also protected through the unfair competition law. That does not appear to be a common practice elsewhere.

[132] A Community Court is designated by the Member State government as court competent to hear and judge upon issues relating to EU-wide design rights with EU-wide applicability.

8.2.4 Recent European policy developments

In a 2012 report by the European Commission, six strategic actions were identified as necessary in order to improve the design industry's position in the economy.[133] The first strategic action was related to the differentiation of European design within a global setting. In particular, sub-action three stressed the requirement for "*zero tolerance of infringement*" with recommendations regarding the training of judges at the national level and the issue of IP protection from non-EU members.[134]

More recently, a July 2014 communication of the European Commission described an action which it considered would lead to better enforcement and protection of IP rights across the EU: the EU action plan on the enforcement of intellectual property rights. While not specifically targeting industrial designs, the action aims to help to improve the protection and enforcement of industrial designs at both the European and national level.

The EU action plan adopts a comprehensive strategy focused on curbing commercial scale IP-infringements. The main aim of the plan is to reduce the incentives for copyright infringements rather than penalising an individual for infringing IP rights. It plans to achieve its objective using a variety of different actions, ranging from initiatives to reduce online profits of commercial scale IP infringements to encouraging sector specific IP enforcement training programs for Member States. It plans to promote awareness campaigns highlighting the benefits of adhering to IPRs and highlighting the health and safety hazards of purchasing counterfeit items. Through these campaigns, it seeks to reduce the revenue stream of the IPR infringers and hence reduce their incentives to infringe.

Also, for the first time, it pressures all the stakeholders in the value chain of IP-intensive products to apply due diligence at every step as a means to avoid infringements. It then seeks to collect information from the volunteer stake holders in order to develop an EU wide due diligence scheme in the future.

Even though there appears to be room for improvement in European IP systems, the situation is compared favourably to that in the United States. Beltrametti (2010), in his evaluation of the Design Piracy Prohibition Act, points out that the legislative situation in the US is not as favourable and that "*much can be gained from looking at the European experience*".[135]

8.3 How firms view enforcement

8.3.1 The findings of OECD (2011), "OECD Studies on SMEs and Entrepreneurship Intellectual Assets and Innovation"

In 2011 the OECD published a study with the overarching aim of contributing to the current understanding of the relationship between SME intellectual management, innovation and competitiveness. In order to achieve this goal the study utilised insights from different national contexts on the ability of SMEs to access and effectively use the intellectual property system to protect their rights. Specific focus was placed on the mode in which the various intellectual property legislations promote SMEs' exploitation of their own innovative and creative capacity from a firm's point of view. These questions were addressed via a survey of 59 companies operating within the OECD. The majority of the companies participating in the survey had had experience with enforcement. More specifically, these companies had taken alleged infringers to court, despite enforcement of IPR being expensive and time consuming. Interestingly, the same companies that took

[133] European Commission (2012), "Design for Growth & Prosperity".
[134] European Commission (2012), p52.
[135] Beltrametti, S. (2010). Evaluation of the Design Piracy Prohibition Act: Is the Cure worse than the Disease? An Analogy with Counterfeiting and a Comparison with the Protection available in the European Community. Northwestern Journal of Technology and Intellectual Property, 8(2):147{173".

action to enforce their rights are also very IPR intensive within their industry. Some of these firms have noted that their efforts to enforce their rights were worthwhile.

Nonetheless, the responses to the survey conducted by the OECD confirm the view that businesses regard the competence of the courts as a considerable obstacle to enforcing their intellectual property rights because judges are often not up to date on the legislation and they very rarely have an in-depth understanding of the IPR discussed. In fact, in the Nordic countries, issues on IPR are handled by the general courts and the judges that are to handle a case of IPR often do so for the first time.

The key findings of the study regarding the way that firms view enforcement are summarised below:

- Enforcement seems to be the most important factor cited by firms when deciding whether to acquire a formal intellectual property right. Cost and time for application can also acts as deterrents but the significance attributed to these factors is not as high. More specifically, a number of SMEs has stated that they are discouraged from using the IP system due to a lack of confidence in enforcement mechanisms and the perception of high costs of monitoring and litigating.
- In Australia none of the cases involved in the study had experienced any litigation with respect to IP. However, all the firms involved in the survey stated that they felt confident that they could enforce their IP rights should the situation arise. They justified this by saying that the Australian Law is relatively clear and provides sufficient protection and there are "solid industry standards and accepted practices".
- In Italy, the firms that were planning an expansion in international markets and thus directly competing with larger firms expressed their lack of confidence or negative experience with enforcement processes.
- The survey discusses how the perceived high costs of enforcement can also result in peculiar preventive self-defence strategies by firms. These strategies build on the awareness of IP relevance for the firm competitiveness in open markets. A more specific example presents a company that has chosen to adopt a more proactive "intelligence" strategy that involved training employees to recognize imitation. In particular, trained technicians were to visit the major trade fairs with the objective of identifying possible cases of intellectual property infringement. Whenever counterfeit products were spotted, the "patrol workers" would report the incident to the head office, which would then communicate and clarify the issue with the owner of the investigated firm. The strategy hence aims at preventive extra-judicial solutions to infringement.

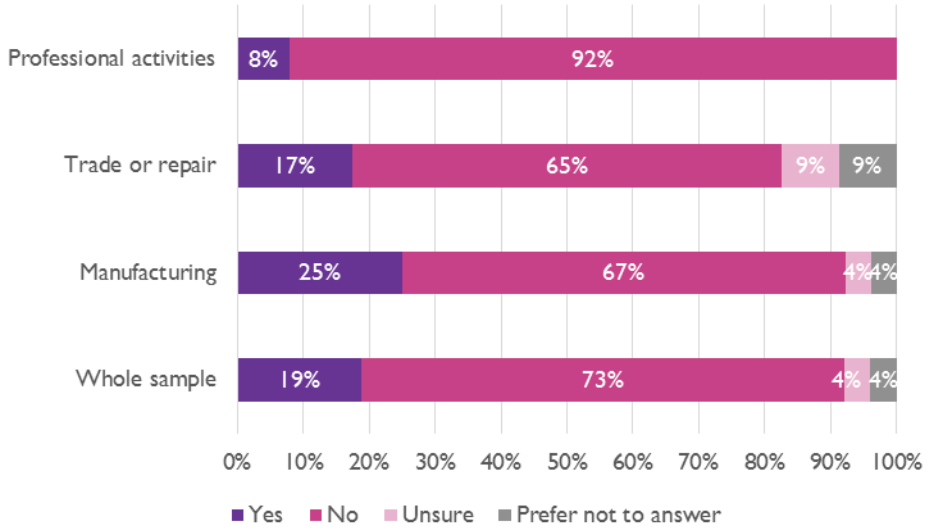
8.3.2 Survey and interview responses

To gain more detailed information on enforcement issues we asked respondents to our survey about their experiences both with regard to the initiation of legal action and with regard to being subject to legal action.[136]

Figure 8.1 shows that less than 25 per cent of respondents for each firm type have initiated legal action to enforce protection of their designs. Enforcement is most common among firms in the field of manufacturing, where 25 per cent of respondents had initiated such a process and least common in the field of professional, scientific and technical activities, where just eight per cent of respondents had initiated such an action.

[136] Please see section 2.2.3 for a detailed description of the survey.

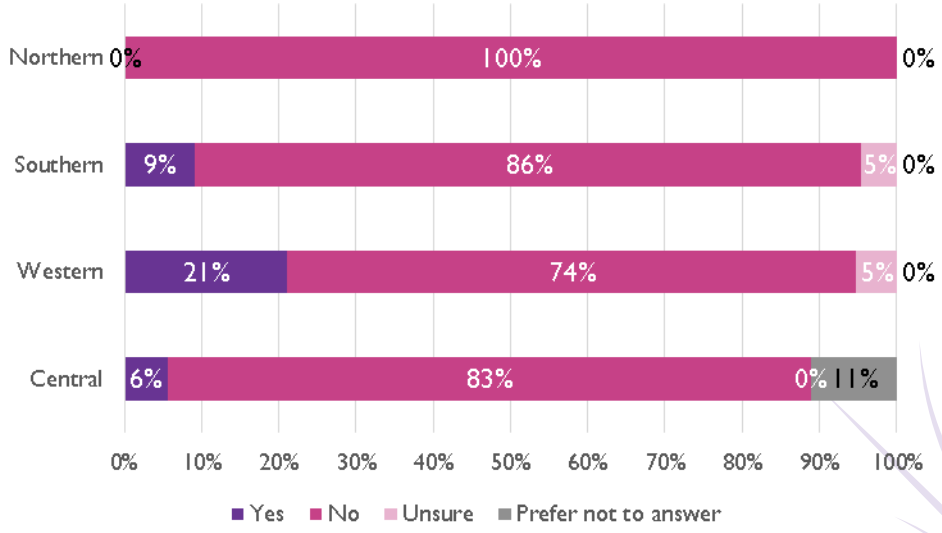
Figure 8.1: Have you initiated legal action against third parties to enforce protection of your designs, in the last 5 years? (By NACE classification)



Note: The results presented rely on 101 responses for the whole sample, 52 for the manufacturing, 23 for the trade or repairs and 25 for the professional, scientific and technical activities subsamples.

Breaking these data down by origin of respondent (see Figure 8.2) we find that for all categories of firms, the vast majority have no experience of initiating legal action against third parties. Indeed, no respondent from Northern Member States had initiated such an action and less than 10 per cent of respondents from Southern and Central Member States have initiated legal action. The practice was more common among respondents from Western Europe, however, amongst whom 21 per cent had taken enforcement action.

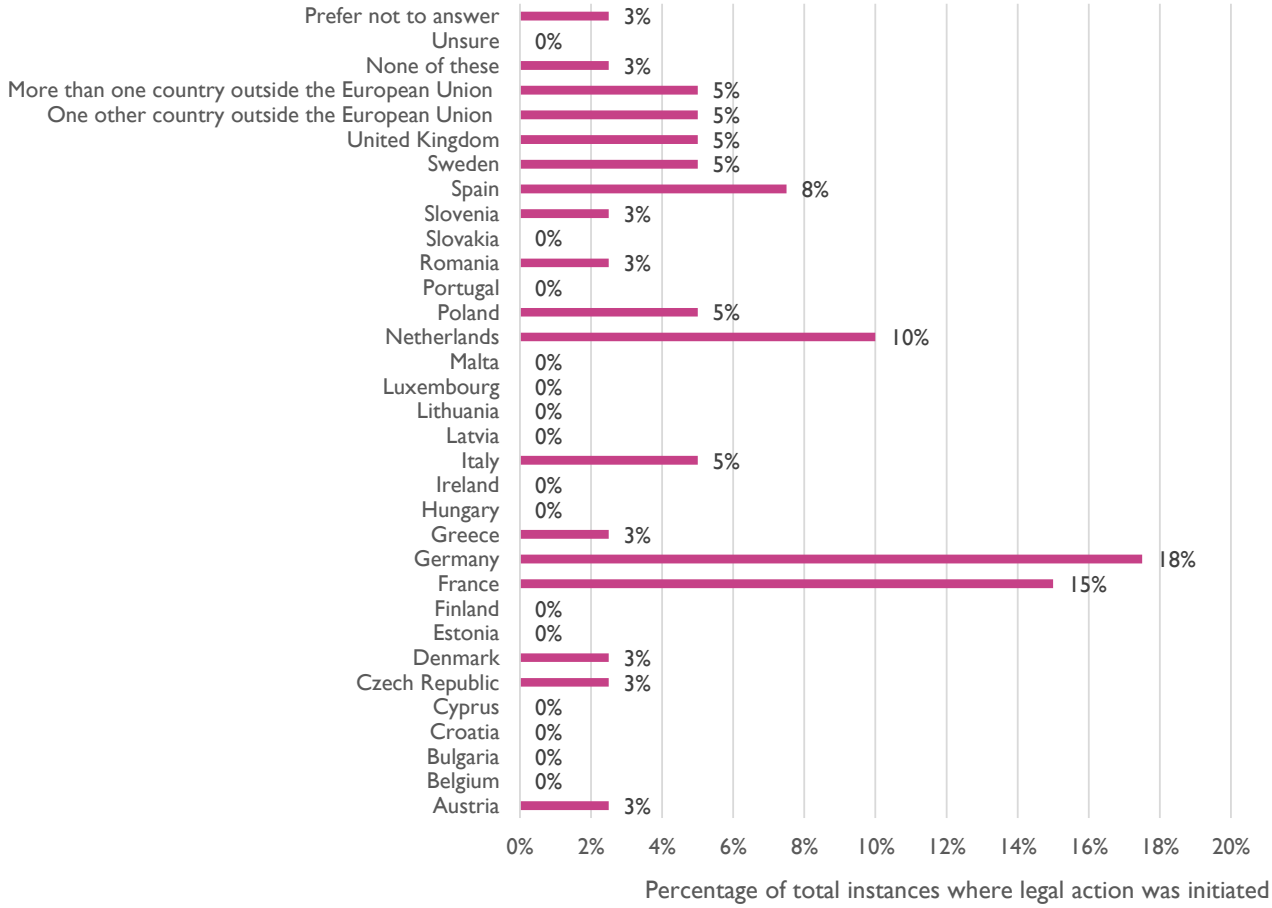
Figure 8.2: Have you initiated legal action against third parties to enforce protection of your designs, in the last 5 years? (By origin of respondent)



Note: The results presented are based on 18 responses for the central, 38 for western, 22 for southern and 10 for the northern subsamples.

Figure 8.3 shows the distribution of legal action across countries over the last five years. Based on the sample of respondents, 10 per cent of legal action was found to have been initiated in non-EU countries while no legal actions had been initiated in exactly half (14) of EU Member States. The Member States accounting for the highest proportion of initiated legal actions were Germany (18 per cent), France (15 per cent) and Netherlands (10 per cent).

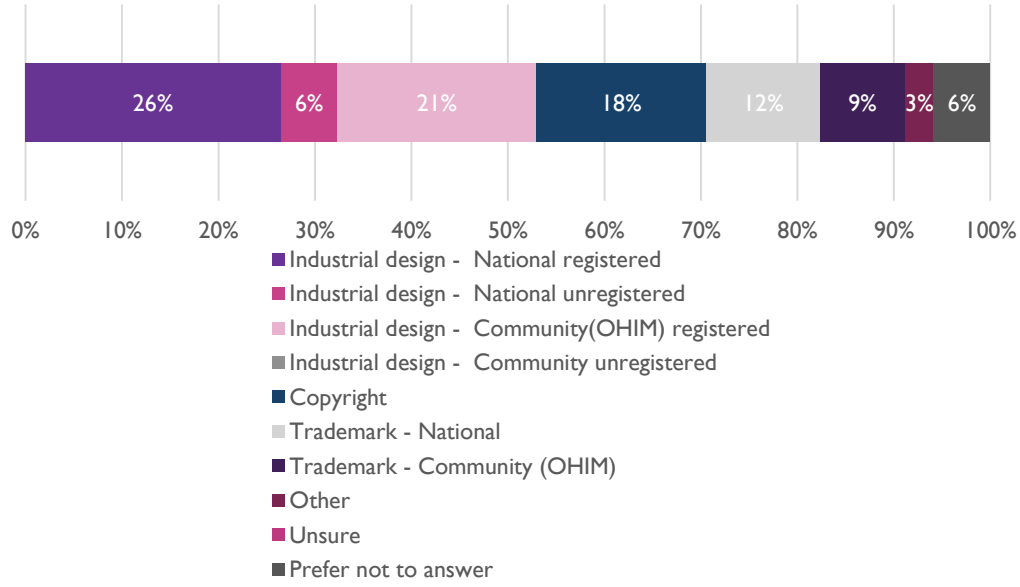
Figure 8.3: In which countries did you initiate legal action?



Note: Results derived from 40 valid responses of 19 respondents who indicated they had initiated legal action against third parties in past 5 years.

The most common form of protection underpinning legal action over the preceding five years was national registered industrial design protection (26 per cent) followed by Community (OHIM) registered industrial design protection, as evident in the figure below. In total, industrial design protection accounted for 53 per cent of legal action for infringement of designs, trademark for 21 per cent and copyright for 18 per cent.

Figure 8.4: Which of the following forms of protection did you use to initiate legal action against third parties?



Note: The results presented rely on 34 valid responses from 19 respondents who indicated they had initiated legal action against third parties in the last 5 years.

Table 8.1 combines the data from Figure 6.23 and Figure 8.4 to analyse whether certain types of protection are over or underrepresented in cases of legal action. It shows that four types of protection are overrepresented, namely:

- registered industrial designs;
- national industrial designs;
- community industrial designs; and
- copyright.

Registered industrial design protection, in particular, is overrepresented in cases of legal action (relative to the proportion of firms who protect design using this tool). Trademarks and unregistered industrial design protection, on the other hand, are underrepresented in cases of legal action.

Table 8.1: Comparison of design protection method and legal actions initiated

Type of protection	Percentage of designs protected by this method*	Percentage of legal action initiated against this method**	Overrepresented in legal action?
Industrial design registered (Community + national)	25	47	✓
Industrial design unregistered (Community + national)	17	6	✗
Industrial design national (registered + unregistered)	26	32	✓
Industrial design community (registered + unregistered)	16	21	✓
Trademark national	29	12	✗
Trademark community	22	9	✗
Copyright	0	18	✓
Total national	55	44	✗
Total community	38	30	✗

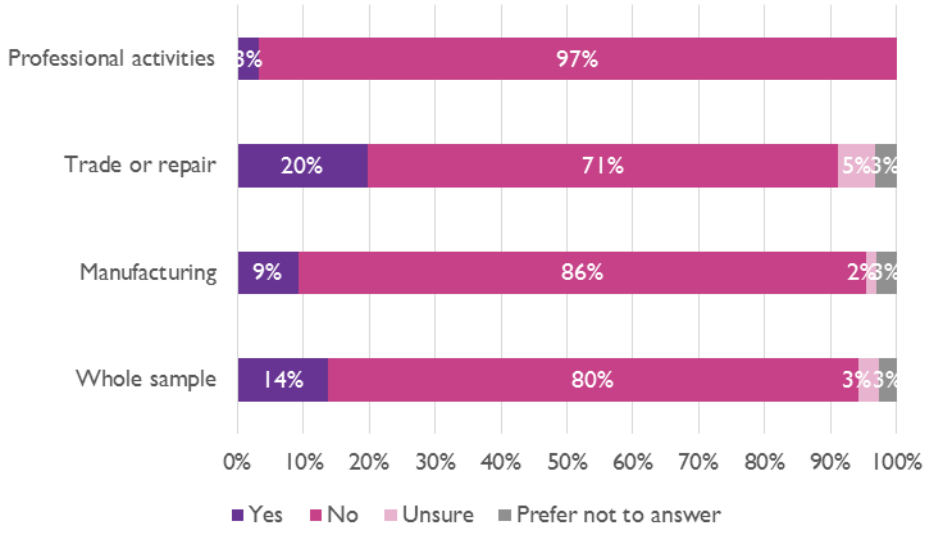
* Data from **Figure 6.23**; ** Data from Figure 8.4.

Those that had initiated legal action were asked to rate the extent to which they were satisfied with the enforcement process. On average, respondents rated their satisfaction with the process of legal action that it had initiated to be 4.8 out of 10. This indicates that there is some scope for improvement.

The next four charts (Figure 8.5 to Figure 8.8) show the same metrics as above, but this time in relation to whether a firm has been subject to legal action.

Figure 8.5 and Figure 8.6 show that the vast majority of firms have not been subject to legal action, with an average across the whole sample of 80 per cent who have not been and 14 per cent who have. Approximately 20 per cent of respondents from the trade / repair sector stated that they had been subject to leagal action, a result which is likely to be influenced by the number of independent spare parts producers that responded to this question. A significantly lower proportion of companies from the other sectors reported that they had been subject to legal action.

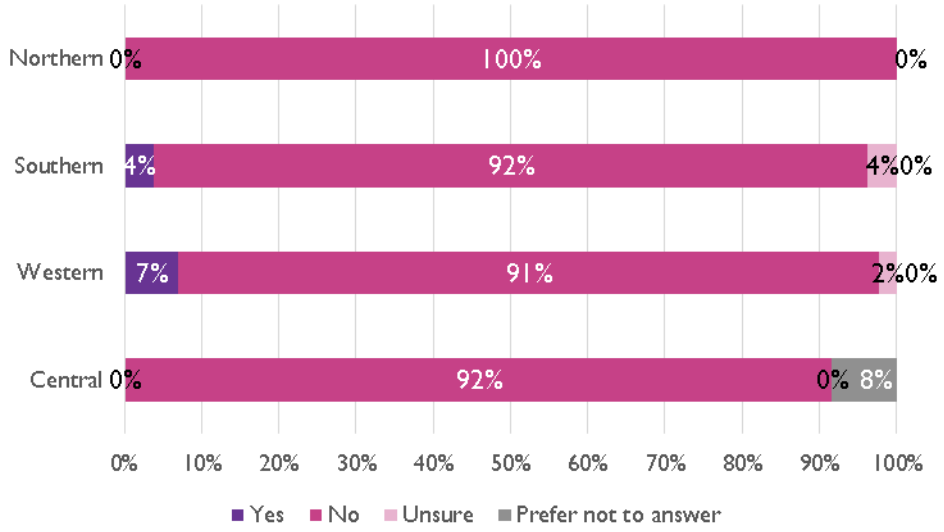
Figure 8.5: Have you been the subject to legal action by third parties for an alleged infringement of a protected design? (By NACE classification)



Note: The results presented rely on 188 responses for the whole sample, 64 for the manufacturing, 91 for the trade or repairs and 30 for the professional, scientific and technical activities subsamples.

Figure 8.6 shows that for each area of Member States at least 90 per cent of firms have not been subject to legal action, with no one firm in a Northern or Central Member State purporting to have faced legal action. The highest proportion of firms who reported being subject to legal action was in Western Member States, where seven per cent of firms said that such action had been taken.

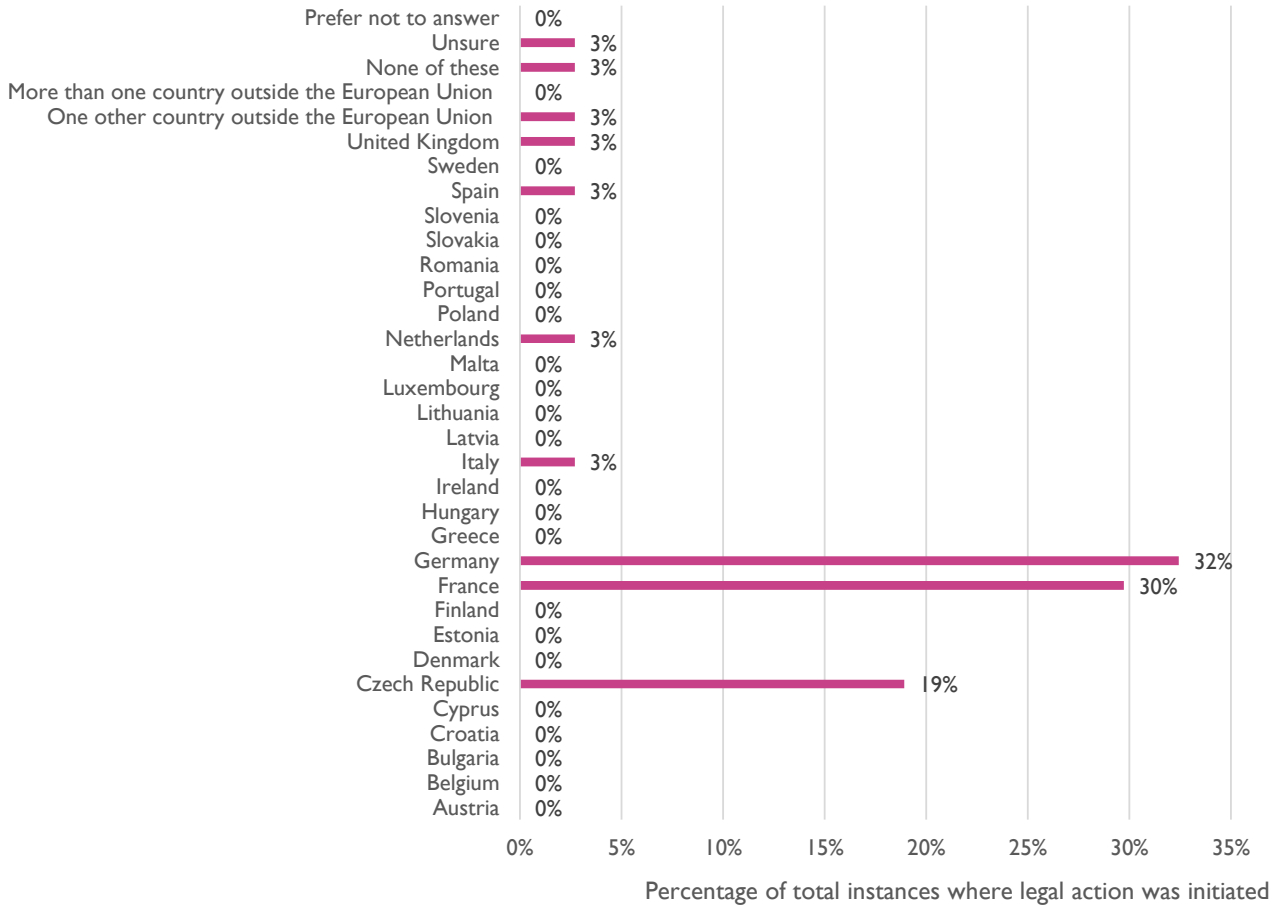
Figure 8.6: Have you been the subject to legal action by third parties for an alleged infringement of a protected design? (By origin of respondent)



Note: The results presented rely on 24 responses for the central, 43 for the western, 26 for the southern and 8 for the northern subsamples.

Figure 8.7 shows that there were no cases of firms being subject to legal action in 21 of the 28 EU Member States. Over four-fifths of firms subject to legal action were in just three EU Member States, namely Germany (32 per cent), France (30 per cent) and the Czech Republic (19 per cent). Four other Member States (Italy, Netherlands, Spain and the UK) contributed 3 per cent each, with a further 3 per cent applicable to other countries outside the EU.

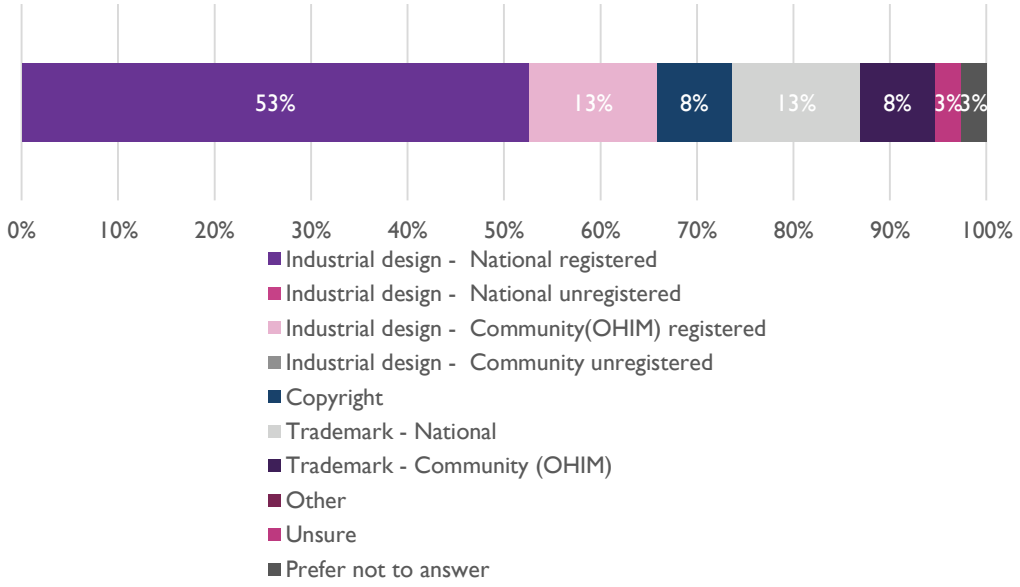
Figure 8.7: In which countries were you subject to legal action?



Note: The results presented rely on 37 valid responses from 26 respondents who indicated they had initiated legal action against third parties in the last 5 years.

Over half (53 per cent) of the firms subject to legal action were alleged to have infringed national registered industrial design protection, as shown in Figure 8.8. This is significantly more than the other types of industrial design protection, with no cases alleged to have infringed national unregistered industrial design or Community unregistered industrial design and the result is likely to be explained by the experiences of independent spare parts producers. Copyright infringement was alleged in 8 per cent of cases and trademark infringement in a further 21 per cent of cases.

Figure 8.8: Which of the following forms of protection were you alleged to have infringed in the last 5 years?



Note: The results presented rely on 38 valid responses from 26 respondents who indicated they had initiated legal action against third parties in the last 5 years.

Those that had been subject to legal action were asked to rate the extent to which they were satisfied with the enforcement process. On average, respondents rated their satisfaction with the process to be 3.3 out of 10, which is lower than the rating provided by those that initiated actions. This indicates that there is some scope for improvement.

8.3.3 Summary of strengths and weaknesses identified by firms

Based on the findings of both the literature and our own survey, we summarise below the strengths and weaknesses identified by firms with respect to enforcement of design rights.

Strengths:

- Clear and coherent national legislation available across the EU with regards to design rights.
- In some countries a specific design can be protected both by design law and copyright law thus rendering it more difficult to copy.
- Steps have been taken to improve the harmonisation of design rights requirements and enforcement.

Weaknesses:

- Costly and time consuming to enforce an intellectual property right.
- Lack of specialised training for courts and judges when it comes to intellectual property issues.
- Unable to enforce design rights outside the EU.
- Lack of complete EU harmonisation of enforcement strategies across Member States.

8.4 Single Market implications of enforcement standards not being common

A lack of sufficiently common enforcement standards has the potential to segment the Single Market. If, for example, in one Member State the interpretation of an intellectual design is interpreted overly-aggressively, allowing the industrial design-holder to restrict competitors whilst in another Member State the producer of that same design would not be able to restrict competitors in the same way, the consequence will be that

the competitor firm will be able to sell its products in the latter Member State but not the former — straightforwardly segmenting the Single Market.

Achieving common minimum enforcement standards or harmonising enforcement could be promoted in a number of ways. The point is already understood and reflected in EU-level committees and directives.

Thus, for example, the Directive on the Enforcement of Intellectual Property Rights[137] (which include industrial designs) requires all Member States to apply effective, dissuasive and proportionate remedies and penalties against those engaged in counterfeiting and piracy and so creates a level playing field for right holders in the EU. It means that all Member States will have a similar set of measures, procedures and remedies available for rightholders to defend their intellectual property rights (be they copyright or related rights, trademarks, patents, designs, etc) if they are infringed.

On 16 September 2014 the Commission set up an expert group on the enforcement of intellectual property rights.[138] The objective of the group will be to establish cooperation between Member States' authorities and the Commission on matters relating to the enforcement of intellectual property. It will provide the Commission with advice and expertise in relation to the preparation and implementation of related policy initiatives and also facilitate the exchange of regulatory experience and good practices between Member States. The group is composed of Member States' authorities responsible for overseeing the enforcement of intellectual property rights.

The expert group is part of the Commission response to the economic harm resulting from commercial scale IPR infringements. A comprehensive enforcement policy was adopted in July 2014 (Action Plan on the enforcement of Intellectual Property Rights) to successfully combat such intellectual property infringements at EU and national level. But the expert group was set up in order better to involve Member States in the development and implementation of this policy and to improve cooperation between Member States.

The combination of the existing Directive and the recently-established expert group suggests that further standardisation / harmonisation of enforcement could be achieved within existing legislation and institutions.

8.5 Might new or forthcoming technologies overturn the industrial design intellectual property regime or overturn manufacturing business models?

8.5.1 Intellectual property rights and new technologies

Enforcement of intellectual property rights has found new technologies particularly problematic. — eg photocopying, tape copies of music, file-sharing and downloading from the internet of music, articles (newspaper and academic) and books.

In some cases — e.g. newspapers — the availability of online reproductions of original content and of secondary content based upon original newspaper content (e.g. blogs or tweets reflecting upon some item of news originally read in a newspaper) has driven dramatic pressure upon traditional business models and a significant re-organisation of the sector.

In other cases — e.g. popular music — the previous intellectual property rights regime essentially collapsed. Online music-sharing systems, of which Napster was the best-known, although ultimately ruled illegal, greatly amplified and eased pre-existing common music property rights-violating practices such as the taping of friends' albums. In parallel, the evolution of systems such as Spotify in which there are subscription or advertising-based revenue streams but without the traditional passing of ownership of a recording to a

[137] Directive 2004/48/ec of the european parliament and of the council of 29 April 2004 http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32004L0048R(01)&from=EN.

[138] http://ec.europa.eu/internal_market/iprenforcement/expert_group/index_en.htm.

purchaser has significantly altered the revenue model in the sector. Many artists have taken to offering authorised versions of their productions on YouTube or similar platforms and either seeking voluntary subscriptions, placing moral pressure upon their dedicated fans to purchase copies of music even if they are available online for free, or just using their music videos or audio as means to advertise concert tours or merchandise.

8.5.2 New technologies and enforcement of formal Industrial Design rights

The above discussion leads us to the question of the implications of new and forthcoming technologies for intellectual property rights relating to design. Could the intellectual property regime associated with industrial designs collapse, through failures of enforceability, as did that for music? Could enforcement-related issues mean whole business models in manufacturing come under threat like the newspaper sector? What are the new technologies, relevant to design, that might threaten intellectual property rights and business models here? Insofar as the enforceability of or business models facilitated by formal design rights are indeed under threat, what are the options for policy to respond and how ought it to do so?

8.5.3 What 3D printing is

The clearest example of a current technology that might be thought to raise issues for intellectual property rights enforcement with respect to design that are analogous to those seen in other sectors is 3D printing. 3D printing, or additive manufacturing, is a process of making three dimensional solid objects from a digital file. The creation of a 3D printed object is achieved using additive processes, in which an object is created by laying down successive layers of material until the entire object is created. Each of these layers can be seen as a thinly sliced horizontal cross-section of the eventual object.[139]

The first step in the additive manufacturing process is to create a virtual design of the object you want to create. New objects can be created using Computer Aided Design (CAD) 3D modelling programs while existing objects can be subjected to a 3D scanner, so as to create a virtual design of that object to allow for copying.

Following the creation of the virtual design, the software slices the final model into hundreds or thousands of horizontal layers. When this prepared file is uploaded in the 3D printer, the printer creates the object layer by layer. The 3D printer reads every layer (i.e. each 2D image) and proceeds to create the object. Once created, it will not be possible to see the different layers. A wide range of materials can be used by 3D printers, including plastic, metal and ceramics.

INPI, the French intellectual property office, noted this year that 3D printing is a 'disruptive technology' in the sense that it transforms the traditional production process for parts (machining, moulding and welding) and that its areas of application are constantly expanding.[140] At present the majority of the market (70 per cent) is accounted for by 'rapid prototyping' but it is increasingly being used to produce finished goods. Indeed, new uses have appeared in the past 15 years such as the production of high technology parts in the automobile and aviation industries.

Certain firms, such as the US toy maker Mattel, possess their own 3D printing workshop while others make use of external rapid prototyping firms, such Crésilas, which produces car parts for Renault and Ferrari.[141] The technology has also expanded its scope to the health sector, and was notably used in February 2014 to assist in an operation on a baby's heart in Louisville. The food sector is also a potential market, as basic

[139] http://3dprinting.com/what-is-3d-printing/.
[140] INPI (2014), "L'impression 3D: Impacts économiques et enjeux juridiques".
[141] INPI (2014), "L'impression 3D: Impacts économiques et enjeux juridiques".

goods such as pasta and chocolate can now be replicated. In addition, the fashion industry is likely to be affected as new clothing designs are produced using 3D printing.

Edson (2014) notes that commercial use of 3D printing is now prevalent and its domestic use is on the increase, not least because 3D printers are now cheaper than ever before and 3D scanners are becoming increasingly accessible to a wide range of users.[142] Indeed, from 2008 to 2011, the growth of 3D printers has been 346 per cent annually meaning that it is now easier than ever before for individuals to scan, copy, upload, download and distribute digital versions of 3D physical products to anyone in the world. The recipients can then download and 3D print the product for their own use. Specific sites for the sharing of digital versions of 3D physical products have developed (e.g. Thingiverse) and a wide variety of products have been shared to date, including children's toys, cycling accessories, jewellery, ornamental items and spare parts for cars.

Various authors have stated that 3D printing amounts to the 'third industrial revolution', not least because it has the capacity to change traditional manufacturing processes and fundamentally alter business models.[143] Campbell, Williams, Ivanova and Garrett (2011) note that the design industry can expect changes in the production process due to 3D printing, where assembly lines are forecast to be reduced, and possibly even eliminated over time as more and more households acquire their own 3D printer.[144] Turner and Searle (2014) note that mass production may become less prevalent as manufacturers begin to produce goods nearer to the end-user market.[145] In this context, 3D printing can therefore be expected to lead to a reduction in transportation costs and a potential increase in productive efficiency for manufacturers.

Jewell (2013) summarises the economic pros and cons of benefits of low-cost 3D printing, as shown in the table below.[146]

Table 8.2: Economic Pros and Cons of Low-Cost 3D Printers

Pros	Cons
Opens new markets of production in a dynamic open source movement.	Poses regulatory challenges in relation to IP protection.
Advances technology in aerospace, manufacturing, and healthcare sectors.	Allows for the unauthorized copying of objects easier.
Increases innovation potential and the disruption of manufacturing.	Decreases incentives for businesses to reinvest in research and development.

8.5.4 Costs of 3D printing

In what follows we consider the costs of 3D printing, distinguishing between costs for industrial scale purposes and the costs of 3D printing for a simple consumer. It is reasonable to assume that the unit costs of 3D printing for a consumer are higher than the costs of 3D printing for a larger firm. This would be due to issues such as economies of scale (producing/manufacturing at a larger scale spreads the fixed costs of production over a larger number of units, thus reducing the average cost per unit produced) and specialisation of labour (individuals become specialised in producing a certain product thus they can produce it more efficiently).

The costs of 3D printing can also be broken down by type of cost: fixed and variable. Fixed costs include the cost of purchasing the 3D printing machine whereas the variable costs include the costs of the material

[142] Edson, R. (2014), "3D Printing and 3D Product Privacy".
[143] See, for example, Economist (2012), "A third industrial revolution".
[144] Campbell, Williams, Ivanova and Garrett (2011), "Could 3D Printing Change the World? Technologies, Potential, and Implications of Additive Manufacturing".
[145] Turner, A. and Searle, N. (2014), "3D Printing and IP: What Does the Future Hold".
[146] Jewell, C. (2013), "3D Printing and the Future of Stuff".

(plastics, metal or ceramics) and the cost of the software such as the Computer Aided Design (CAD) 3D modelling programs.

For the purposes of this section we present the findings of various sources estimating the costs of 3D printing in order to offer a more accurate picture. Whenever possible we draw comparisons between the costs of 3D printing and the cost of manufacturing the product itself.

We begin by estimating the costs of 3D printing for a consumer. According to the website 3DGenious, filament typically costs around $45 / £30 / €35 for a 1kg reel. This can be translated as follows: 1 metre of 3mm filament will cost around 45¢ / 30p / 35c. The authors proceed to provide an example of a pair of nut crackers. The nutcracker would need about 4m of filament to print, and therefore cost $1.80 / £1.20 / €1.40 to produce. Furthermore, a thimble produced by a 3D printer costs about 15¢ / 10p / 12c.

The authors proceed to explain that the costs of 3D printing for a consumer remain low at the moment because most 3D printers use standard reels of filament as the manufacturers of the printers are unable to control the cartridge price the way inkjet printers do. Therefore, the market sets the cost of filament.

The website notes a few exemptions such as 3D Systems, maker of the Cube and CubeX machines, whose printers only use their own brand compatible cartridges, and which consequently cost significantly more.

According to an article for Tech Crunch in March, Matt Burns argued that the "current cost of 3D printing relegates it to the well-off hobbyist or successful small businesses." According to the report by Gartner, enterprise-class 3D printers will cost less than $2,000 by 2016.[147]

Another significant cost for the consumer of 3D printing is the availability of 3D printers. Jonathan Fincher of Gizmag elaborates on this issue by saying that until now 3D printers were limited to purchase through "specialist stores and online shops" and that you couldn't just "waltz into your local office supply store and pick one up along with a pack of manila folders and paperclips".[148] Such costs are difficult to estimate quantitatively. However, it seems that these costs will also decrease in the near future. Office supply chain Staples recently announced that it is now selling 3D printers, specifically the Cube 3D Printer from 3D Systems through its website and that they will be available in selected stores by the end of the month. The Cube 3D "comes fully assembled right out of the box, takes up relatively little space on a desktop, and installs easily on Mac and Windows computers. It currently costs $1299.99.

According to CNN money, despite the fact that the cost of the 3D printing machine falling, the cost of the printing material remains considerably high.[149] Plastic filament, the standard material used by 3-D printers typically ranges in price from $25 to $45 for a kilogram depending on the quality and manufacturer. The article claims that this constitutes a significant markup over the $2-per-kilogram cost of the plastic pellets used to make the filaments. Manufacturing and research and development account for some of the filament's added cost over the original materials. However, according to Jon Goitia, even when taking those costs into account, the price of filament is artificially inflated. Nonetheless, according to an article on Geek.com, these facts may not stand true in the near future. A new 3D printing material made from straw could help lower the cost of printing enough to speed the widespread acceptance of consumer-level machines.[150] According to the same article a spool of printing filament currently costs anywhere from $40 to $100, but this material could be sold for far less. The company says they can make their straw plastic for close to half of ABS plastic, per ton.

147 http://mic.com/articles/41111/how-much-does-a-3d-printer-cost-still-expensive-but-becoming-more-affordable.
148 http://www.gizmag.com/staples-selling-3d-printers/27399/.
149 http://money.cnn.com/2014/02/20/technology/innovation/3d-printer-filament/.
150 http://www.geek.com/news/cost-of-3d-printing-could-plummet-thanks-to-new-material-derived-from-straw-1592453/.

Below we provide a table with the relative costs of various types of 3D printers that are currently available to consumers.[151]

Table 8.3: Cost of 3D printing (consumer)

Type of printer	Cost	Relative Merits
Entry-Level Filament 3D Printers	$300 to $2,000	Low cost and simple
High-End Filament Printers	$1,000 to $3,000	Allow for larger print areas
Other-material FDM 3D Printers	$2000 and up	Allow for printing with other material
Stereolithography (SLA) 3D Printers	$3000 and up	Very high resolution and more suitable for industrial production

At a firm level, 3D printing is gaining growing attention. The 'next-day delivery' is becoming increasingly popular amongst consumers who want their products fast. 3D printing enables businesses to consistently deliver goods in tighter timescales. Furthermore, 3D printing also enables firms to meet customers' demands for personalised products. Such personalized products are already being offered in the clothing and footwear market. It is believed that in the future, 3D printing might be able to build personalised furniture or complex goods like vehicles for same-day collection too. At the moment the costs of doing so remain high.

The average selling price for an industrial-grade 3D printer is about $75,000, according to market research compiled by Terry Wohlers.[152] Furthermore, machines built for industrial-grade manufacturing in industries like aerospace, automotive and medical, such as those made by ExOne, can fetch prices as high as $1 million.

While it is not clear by how much 3D printing can reduce the cost of manufacturing a product at an industrial scale at Boeing, the team handling additive manufacturing in plastics was able to cut down its processing time by a considerable amount. According to Michael Hayes, lead engineer for additive manufacturing in plastics at the company, while it might take up to a year to make some small parts using conventional tools, 3D printing can reduce the processing time to a week.

The motor industry can also be revolutionised through 3D printing. According to Sears, a cylinder head water jacket, which used to cost Ford $20,000 to produce can now be done for about $2,000.[153] Not only can spare parts be more cost effectively reproduced through 3D printing but also the tools needed to fix a car. According to a representative at Prodrive not only can the company print parts, but it can print its own tools. Modification of pieces of tooling – which previously would have cost around £10,000 can now be printed for £10.[154]

Another area where 3D printing can help reduce costs is the health sector. 3D printers have been used by the NHS to help reduce the time taken to produce various implants as well as the costs. Currently a considerable number of surgeons and dentists are working with industrial designers and engineering companies to use the technology to produce custom-made 3D printed implants for complex orthopaedic and facial reconstruction procedures. Although the extent to which 3D printing can help reduce costs to the NHS has not yet been identified, it remains an important potential contributor to cost reductions. For instance, according to Replica 3DM, a 3D printing company that advises NHS trust hospitals, 3D printing can help shorten operations, an important factor for the NHS where theatre time can cost as much as £60 a minute. Shorter surgery times can also help reduce infection risk and speed up recovery.

[151] http://www.tomsguide.com/us/3d-printer-buyers-guide,news-17651.html.
[152] http://www.pcworld.com/article/2058422/3d-printing-adds-new-dimension-to-business-innovation.html.
[153] http://www.autonews.com/article/20141027/OEM06/310279987/auto-industry-uses-3-d-printing-heavily-in-product-development.
[154] http://www.computerweekly.com/feature/How-3D-printing-impacts-manufacturing.

8.5.5 Views in the literature regarding how 3D printing might create new enforcement issues

While the development of 3D printing supports the EU's strengths in innovation and design, a number of authors have claimed it also calls into question the current intellectual property framework, as it was not created with the 3D printing in mind.[155] More precisely, because industrial designs are becoming increasingly easier to breach with the accessibility of 3D printing, it is necessary to question exactly how rights will be enforced in the future.[156]

The importance of this issue has become apparent in recent years as the technology has become increasingly used to produce finished goods. Magniez (2013) noted that over the previous year, major firms had sued professional 3D printing services for intellectual property rights infringements (Square Enix, HBO etc.) and the majority of such infringements in respect of 3D printing concerned industrial designs.[157] Moreover, Bollard and Corbet (2013) note that the current industrial design framework contain numerous exemptions for private or non-commercial use, but these policies become more muddled and complicated with the growing popularity of 3D printers, as they cause more debate in laws with broader definitions and less specific restrictions.[158]

Box 7.1: Case study: UK

Sissons and Thompson (2012) sought to predict the future characteristics of printing markets by providing an assessment of the current state of printing technology and identifying various policy questions that might arise.[159] Among other topics, the report addresses issues relating to 3D printing and intellectual property rights, and the ways in which printing technology development will disrupt current intellectual property laws in Britain.

Intellectual property systems face a variety of future challenges in terms of finding a balance between business openness, the sharing of ideas and design protection. Incentives and rewards must be offered in the future to encourage designers to invest in new, innovative forms of research. Increasing competition in this way, without the infringement of older ideas, is a difficult legal challenge.

Within current British design and intellectual property policies, there is much legal ambiguity around 3D printing. In order to avoid confusion in the future, Sissons and Thompson argue that Britain's intellectual property systems must be aware of the rapid development of printing technology and prepare for the fast-paced growth of popularity. This process must also consider the protection of designers' creative, artistic, and experimental rights while also taking into account what legal responsibilities for the quality and safety of printed products will look like.

To achieve improvements in 3D printing and intellectual property policy, the authors note that many departments of the government should be involved, including the Intellectual Property Office, Department for Business, Innovation and Skills and the British Standards Institution. Various roles including the co-ordination of policy response, background research, and the development of effective standards for 3D printing should be split up between departments.

[155] Turner, A. and Searle, N. (2014), "3D Printing and IP: What Does the Future Hold".
[156] Bollard, C. and Corbet, R. (2013), "Entering the IP Maze of 3D Printing".
[157] Magniez, A (2013), "L'impression 3D et la propriété intellectuelle".
[158] Bollard, C. and Corbet, R. (2013), "Entering the IP Maze of 3D Printing".
[159] Sisson, A. and Thompson, S. (2012) "Three Dimensional Policy: Why Britain Needs a Policy Framework for 3D Printing".

Margoni (2013) analysed the current forms of design protection in detail, finding that EU intervention tools tend to favour the industry sector rather than designers themselves.[160] The author identifies a number of issues when considering the use of 3D printers and considers that there is a need for policy clarification across EU design legislation, including the Design Directive and the Community Design Regulation. More precisely, Margoni argues that there must be a clearer distinction between definitions of acts of infringement and acts of artistic development in regards to the use of 3D printers, so as to ensure that the intellectual property rights of designers are adequately protected.

With regards to infringement, Bradshaw, Bowyer and Haufe (2010) also explored the potential effects of accessible 3D printing on intellectual property rights, including industrial designs. The authors note that the use of a 3D printer for personal and non-commercial use does not qualify as a form of infringement whereas commercial use would do. Edson (2014) agrees that if an individual uses a 3D printer for private and non-commercial use, he or she is not liable for industrial design infringement and that infringement occurs when a producer uses another's original design drawings for any reason besides artistic or experimental work, or if a producer sells design files that have been patented by another user.

In respect of other problematic elements of the current legal framework, it has been noted that in the Regulation on Community Designs, definitions of "identical design" and "overall impression" only take into account comparisons that are visible to the buyer and exclude features that are not visible to consumers, such as the stages of design production.[161] It is argued that this poses a problem for designers because, without taking into account the production of the design, people who use 3D printers can easily use blueprint designs to create a slightly altered product that appears visibly different to consumers. Because of this lack of clarification, it is argued that current product and design protection fail to protect the original designer.

The Design Directive attempts to harmonise laws across Member States. However, Margoni argues that due to the limited scope of various directives, these efforts have failed to create a harmonised EU framework and have only succeeded in certain aspects.[162] For example, current policies harmonise the type of rights that right-holders should be granted, but fail to eliminate possible exceptions and limitations to copyright. More specifically, there exists policy disconnect in Member States such as the Netherlands, Italy and the UK, where national copyright acts do not reflect EU design policy. With the development and popularity of 3D printers, these holes in copyright policy become more apparent with the lack of distinction between infringement and product development.

Depoorter (2014) notes that the digital revolution of 3D printing creates unique challenges wherein consumers have the ability to easily access counterfeit goods at a low-price cost without aid from commercial counterfeiters ('decentralised piracy').[163] He suggests that, in many ways, the challenges presented by 3D printing are similar to those of the digitisation of music, books, and movies. In addition to issues that have been observed in these industries, decentralized piracy creates unique policy complications.

Moreover, Depoorter notes that enforcing infringement laws is a complicated process with the decentralised nature of 3D printing counterfeit and piracy. Because so many transactions happen online without the presence of central claimants, it is difficult to hold counterfeiters accountable. Furthermore, the anonymity and perception of safety that comes along with infringement inside private homes along with the ease and low-cost of 3D printers contributes to these complications.

Despite the practical difficulties associated with enforcement, those that own intellectual property rights are likely to seek to prevent unauthorised copying using 3D printing technology. One option open to rights holders would be to use aggressive tactics as a way of strengthening and ensuring the effectiveness of IP laws. This process could include scaling enforcement and highlighting the costs of infringement but there is a risk

[160] Margoni, T. (2013), "Not for Designers: On the Inadequacies of EU Design Law and How to Fix it".
[161] Margoni, T. (2013), "Not for Designers: On the Inadequacies of EU Design Law and How to Fix it".
[162] Margoni, T. (2013), "Not for Designers: On the Inadequacies of EU Design Law and How to Fix it".
[163] Depoorter, B. (2014), "Intellectual Property Infringements & 3D Printing: Decentralized Piracy".

that aggressive actions could undermine public support for intellectual property rights. This risk was borne out in the context of copyright laws for the online music industry, where cases of individual enforcement was perceived as the industry targeting certain populations, leading to the public holding negative attitudes towards policy change.

There is, therefore, a fine balance to be struck between protecting intellectual property rights, permitting the further development of (and use of) 3D printing technologies, and ensuring that designers retain incentives to invest in the development of new designs. The first step in this process will be to clarify specific areas of uncertainty in current European and national laws. It might also be necessary to consider adding a set of new digital rights that address management, production, and infringement relating to technological development.[164]

Box 7.1: Case study: France

INPI has noted that, to date, the use of 3D printing by individuals remains anecdotal and limited to the production of plastic parts (smartphone covers, figurines etc.).[165] It therefore considers that the main risk to intellectual property rights concerns online companies that offer individuals to produce personalised items with more or less sophisticated materials.

INPI further argues that some stakeholders have over-exaggerated the risks associated with 3D printing and highlights that there are many limitations to the use of 3D printing by households, such as the small size of products and the high cost of the process. It therefore expects that 3D printing will remain mostly prevalent in the business to business sector.

Nonetheless, INPI notes that there are many unanswered questions in respect of 3D printing regulation. In France, the failure of the Haute Autorité pour la Diffusion des œuvres et la Protection des droits d'auteur sur Internet (HADOPI) anti-online piracy legislation represents a negative precedent in that regard and suggests that one of the key outstanding questions is the lawfulness of the reproduction of physical goods for personal use – as stipulated by the article L.122-5, 2° of the *Code de la Propriété Intellectuelle* (the French Code of Intellectual Property).

Magniez (2013) suggests that the organisation created by the HADOPI commission might in the future also supervise 3D printing counterfeits, in addition to digital piracy.[166] The author notes that while designs that serve exclusively a technical function cannot be protected through industrial designs, if the manufacturing process of these objects has been patented, there can still be a patent infringement. It is further noted that French law remains unclear regarding the commissioned reproduction of protected goods by specialised firms (i.e. professional online 3D printing firms).

8.5.6 Europe Economics view

In our view, in considering the scope for 3D printing to disrupt the current structure of property rights, it is important to be clear about what forms of production are under consideration. Specifically is the prime concern about consumers printing their own unauthorised copies, for personal use, of products from digital files they obtain online? Or is it about industrial competitors infringing designs in large-scale production via 3D printing? For whilst enforcement issues traditionally focus more upon industrial-scale illegality than personal infringement (e.g. whilst failing to pay the required duty on products one brings into the EU for personal use is an offence, most enforcement effort focuses upon professional smugglers of contraband and

[164] Campbell, Williams, Ivanova and Garrett (2011), "Could 3D Printing Change the World? Technologies, Potential, and Implications of Additive Manufacturing".
[165] INPI (2014), "L'impression 3D: Impacts économiques et enjeux juridiques".
[166] Magniez, A (2013), "L'impression 3D et la propriété intellectuelle".

counterfeit products), new technologies have often had most bite when they greatly amplified the scope for personal infringement (e.g. file-sharing).

If 3D printing is or were to become the lowest-cost technology for producing some product at industrial scale, that would not automatically create new enforcement issues. A property rights infringer might technology use the cheapest available manufacturing technology and tomorrow use a 3D printer, but the original design-right-holder will also have changed technology. Where a new issue might arise is in respect of designs that are not registered where currently original designers rely, for their protection of their designs, upon the complexity or time needed for producing a duplicate (the latter being particularly relevant for products of a very short product life-cycle such as merchandise associated with a specific event). Because 3D printing has the potential to allow vastly more complex designs to be reproduced, very precisely and very quickly, traditional design-protection via complexity and the copying not being feasible within the time required may become obsolete.

Insofar as this is correct, the key policy implication might be less that the rules of the relevant intellectual property rights must be modified, but more that policymakers should make designers more aware, and plan for designers become more aware from their own initiative, that informal design protection may be inadequate and formal registration might become much more common than in the past. That could imply that regulatory authorities need to resource design-application and design-enforcement agencies more in the future.

As regards the consumer-level, there is the likelihood of disruption to certain business models. 3D printing is likely to allow much more precise customisation of products and business models may arise that focus upon assisting with such customisation. For example, 3D-printed household appliances could reflect very specific needs of consumers — a freezer that fits in precisely that awkward gap; a dishwasher with a space for that huge casserole dish you got as a wedding present. Or they could reflect very specific tastes or identifications consumers wished to express — a cappuccino machine where the froth comes out with a Liverpool Football Club logo; or a fridge that plays Jingle Bells when it is opened on Christmas Day.

One area in particular where consumer-driven infringement could become a material issue relates to visible spare parts. Consumers that have a part of a designed product break or be damaged may so automatically regard themselves as entitled to repair the product via a home-3D-printed spare part that they have no appetite to comply with any intellectual property rules that would notionally regard that as an IPR infringement. We discuss this point further in our section on Visible Spare Parts.

In terms of the third of the motivations for enforcement we identified above — namely the incentivising of behaviours leading to social and economic benefit — there is likely to be a trade-off between the incentives to create core products (which might be damaged if customised 3D-printed versions were permitted that were based very closely upon core product design) and the incentives to facilitate widespread very detailed customisation (which might be damaged if customised 3D-printed versions were not permitted without paying large royalties to core product designers). Customisation is likely to create considerable added value. A key issue will be to what extent that added value should be regarded as an enhancement or completion of the value inherent in the design of the core product and to what extent customisation should be regarded as adding value because it adds true novelty to the design.

8.5.7 The options if 3D printing or other technologies might overturn intellectual property rights or business models

There are three basic options if technological or consumer taste/practice developments threaten to overturn the current structure of intellectual property rights and business models in the design-intensive industries:

- Use the current regime as it is — one option would be to keep things much as they are, accepting that business models may change and certain types of property right might lapse. Policy does not always have to respond to changes in the world even when those changes are profound.
- Adapt the current regime to try to prevent change — another possibility might be to change certain aspects of the current regime to try to prevent the collapse of current property rights or business models. New technologies or practices are unlikely to intrinsically eliminate fundamental concepts such as property. It may be simply that the most relevant and effective rules are different in a different technological or consumer taste/behaviour context. Such an approach, does, however, risk a Cnut-like futility of seeking to turn back the tide.
- Create a new regime to embrace change — a third approach would be to accept that there will be change to property rights and/or business models and to re-design a new property rights regime that is relevant to this new context.

Our view is that, as matters stand, new and forthcoming technologies create no need to fundamentally change the structure of intellectual property rights in this area. There is likely to be need for some revision and clarifications related to 3D printing but these do not currently add up to a fundamental overhaul of the system. The most important implication over the short- to medium-term is that there may be a need to facilitate more formality with respect to design protection.

Over the medium- to longer-term, however, there is the chance that 3D printing creates a sufficiently profound impetus towards customisation that some revision to design protection concepts may be warranted. If most of the added value of a design arises from truly novel customisation of a product, the designer of the core product should not be in a position to extract most of the value from customisers. We do not believe that this risk requires any immediate policy response but the matter should be kept under review.

8.6 Conclusions

In this section we have investigated the existing framework for enforcement, whether new technologies might create disruption to enforcement of design protection, and what the options for change might be. Our conclusions are as follows:

- At present there are material differences in enforcement of industrial design and other design protection across the Single Market.
- The differences in industrial design enforcement have the potential to segment the Single Market.
- Firms believe it is costly and time consuming to enforce industrial designs.
- Firms believe there is a lack of specialised training for courts and judges when it comes to intellectual property issues.
- Firms are doubtful regarding their ability to enforce design rights outside the EU.
- The Commission already has in place a legislative framework and committee/expert group structure that might encourage further progress in the standardisation/harmonisation of enforcement standards relevant to design.
- New technologies such as 3D printing seem likely directly to create material and widespread consumer-driven infringements, of the sort seen in other sectors that led to the collapse of intellectual property regimes there, in only a few areas — the main one we have identified being the 3D printing of spare parts for repair should the use of spare parts for repair continue, in some Member States, to be an infringement. (For more on this, see the next Section.)
- A further likely enforcement-related issue arising from 3D printing is that, because many firms rely upon the complexity of reproducing designs and/or the speed with which products incorporating designs need to be produced in order to meet relevant consumer demand timelines, and because 3D printing has the capacity to make rapid duplication of even very complex designs feasible, informal design protection may

become less common relative to formal registration. That could mean design registration and enforcement agencies should plan ahead and resource for much great demand for registration in the relatively near future.

9 Visible Spare Parts

9.1 Design protection for complex designs

Many products are complex in the sense that they are made up of multiple component parts rather than being a simple single-piece product. For many such complex products all or almost all of the components have some internal performance function (e.g. being part of an internal mechanism). As such, they would not fall under the scope of the current study since "design", as we have defined it, concerns the outward shape and colour of the product.

However, there are a number of products for which the visible shape and colour of the product is produced by multiple components. Two well-known examples are watches and motor vehicles. Where the design of a product arises from multiple components in this way we shall refer to it as a "complex design" (even if the way the components are combined is, in a mathematical or aesthetic sense, quite straightforward).

For the intellectual property inherent in a complex design to be protected, there must be certain restrictions upon the production of components. Suppose, for example, a particular model of a Ferrari had a design protection but there were no design protection with respect to individual components of the vehicle. Then a competitor to Ferrari could sell a kit-car form of the vehicle that a competent mechanic could assemble, and the notional design protection of the Ferrari would be undermined. The same principle would apply to a watch and potentially to any other complex design.

Again, suppose that it were permissible, without restriction, to produce Ferrari components to be added to other vehicles. Then, beginning with another vehicle, one could gradually replace all of the parts with Ferrari components, again undermining Ferrari's design protection.

Thus, protection of a design must of necessity imply some restriction upon the production and use of components. But how far should such restrictions extend? In particular, what about the use of a visible component as a spare part to replace a broken or damaged component as part of the repair? Should design protection allow manufacturers to restrict the production and use of visible spare parts in repair or not? What would be the implications if there is or is not a harmonised approach to visible spare parts across the EU? These will be the question we shall address and answer in this section.

9.2 Current legal differences across the EU

As matters stand, Member States are allowed to maintain their own legislation regarding spare part protection.[167] The table below identifies those countries that allow spare parts to be protected via industrial designs and those that do not.

[167] http://www.wipo.int/wipo_magazine/en/2013/06/article_0006.html.

Table 9.1: Breakdown of the 27 EU Member States that do and do not have a repair clause

Visible spare parts cannot be protected using industrial designs	Visible spare parts can be protected using industrial designs
Belgium	Germany – but de facto application[168]
Spain	Austria
Ireland	Denmark
Italy	Finland
Luxembourg	France
Netherlands	Portugal
Poland	Sweden
UK	Czech Republic
Hungary	Cyprus
Latvia	Estonia
Greece[169]	Lithuania
	Malta
	Slovakia
	Slovenia
	Bulgaria
	Romania

The situation in Germany is noteworthy in that carmakers are allowed to protect the design of spare parts but a voluntary agreement made by German vehicle manufacturers (not manufacturers from other countries) provided for some competition in the spare parts market. More precisely, German car manufacturers agreed not to overuse their industrial designs for spare parts against independent spare parts producers.

Although Member States are allowed to maintain whatever restrictions their legislation allows industrial designs to place upon the use of visible spare parts, under the 1998 EU Designs Directive they are only permitted to make changes to their legislative provisions governing spare parts as long as they were in the direction of more liberalisation (i.e. in the direction of reducing the protection industrial designs provide for visible spare parts). In other words, further protection cannot not be introduced by individual Member States.

9.3 The proposed "repairs clause"

During the 1990s the European Commission proposed three solutions to the problem of spare parts and industrial design protection:[170]

- 1993: clear and definite delimitation of the period of the industrial design protection. The European automobile industry refused to accept this proposal since they considered the period too short to cover their costs.
- 1996: would be free to produce spare parts from the day the product entered the market, provided that the proprietor of the industrial design was offered a fair and appropriate compensation. The proposed level of compensation was rejected by the automobile industry.

[168] Although German legislation provides for the protection of visible spare parts, in practice it applies the repair clause.

[169] Greece proposed a repair clause combined with a five-year protection period and fair and reasonable remuneration. The remuneration system has never been implemented, because the vehicle manufacturers and the equipment suppliers have never been able to agree on the amount of royalties. (Source: proposal for a directive of the European Parliament and of the Council amending Directive 98/71/EEC on legal protection of designs and models (SEC(2004) 1097).

[170] Petersson, B. (2003), "Reservdelsundantaget i mönsterdirektivet – en immaterialrättslig lösning på ett konkurrensrättsligt problem".

- 1998: introduction the EC Designs Directive – but the question of spare parts remained unresolved and decisions on the issue (*freeze-plus*) were temporary and meant that Member States kept their current rules on spare parts. Change could only be done to liberalise markets.

The overarching aim of the European Commission is to prevent original equipment manufacturers from becoming monopolists in spare parts and exploiting their power while balancing the need to protect these manufacturers from having their registered designs being copied. As such, in 2004 it proposed to introduce a Repairs Clause.

The Repairs Clause

In 2004 the Commission launched a consultation and a proposal for amending the Directive in such a way as to allow designs of visible spare parts to be freely reproduced and sold in the European market by independent parts manufacturers for repair purposes. This proposal is known as the Repairs Clause.

9.4 The European Commission's proposal for harmonisation

In the European Commission's (2004) extended impact assessment on the legal protection of designs for spare parts, the situation of different regimes for spare part design protection among Member States was characterised as "totally unsatisfactory".[171] As part of the impact assessment a number of multivariate regressions were run, examining the relationship between the relative price of spare parts and a set of control variables. This analysis sought to identify whether there existed systematic differences in price between Member States that imposed protection compared to those that did not.

In the analysis, 11 spare parts for 20 different car models in nine Member States and Norway were considered. In this sample of countries, six granted provisions for design protection while the other four did not. The report found that most parts (ten out of eleven) had significantly higher prices (6.4 per cent to 10.3 per cent) in Member States that had design protection in place. The only spare part market that did not experience higher prices was that for the radiator, which is not covered by design protection in any case given its lack of visibility in the course of the use of a vehicle.

These results were considered robust and pointed towards a significant level of market power possessed by vehicle manufacturers (IPR holders) in the spare parts market as a result of design protection. This market power was seen as detrimental to the interests of consumers.

Four policy options were examined in the extended impact assessment:

- full liberalisation;
- term-limited design protection;
- remuneration system; and
- combination of second and third options.

A description of the main findings for each of these options is described below.

9.4.1 Full liberalisation

Full liberalisation would involve the complete elimination of design protection for spare parts within the EU. This option is expected to have the greatest beneficial impacts on competition within the spare parts market since the number of alternative products would rise and the greater number of suppliers is likely to lead to

[171] European Commission (2004), "Proposal for a Directive of the European Parliament and of the Council amending Directive 98/71/EC on the legal protection of designs: Extended Impact Assessment".

a reduction in prices. However, in common with the other policy options, impacts on innovation are likely to be negligible.

In addition, the net effect of full liberalisation on employment is expected to be positive. The loss of jobs in vehicle manufacturers would be more than compensated by the increased employment in independent producers of spare parts. Moreover, the potential increase in demand for spare parts following a reduction in price would also be expected to increase employment.

9.4.2 Term-limited design protection

This option would involve temporary design protection, expiring after a particular time period. Relative to full liberalisation, this option would significantly hamper competition in the short term, although competition in the longer term may be greater than under current arrangements in countries that currently permit the protection of spare parts designs. However, the impact assessment cautioned that in the longer term, the "left-over" part of the market may not be sufficient to incentivise new entry. Relative to full liberalisation, therefore, this option would be likely to result in higher prices and lower employment.

9.4.3 Remuneration system

Under this option, manufacturers that make use third parties' protected designs would be required to offer remuneration. The impacts of this option would depend critically on the remuneration structure and level, which are not clear. In principle, this option has the potential to generate impacts similar to full liberalisation (although administrative costs would prevent impact equality being achieved) but it also has the potential to result in little change from the status quo if onerous remuneration terms are established.

9.4.4 Combination of second and third options

Given that the term limited design protection and remuneration system options were considered to be inferior to full liberalisation, this final option considered in the impact assessment is also considered to be less appropriate than full liberalisation.

Overall, the European Commission concluded that full liberalisation will lead to the most beneficial outcome for consumers. However, as WIPO has noted, there has been little movement towards greater liberalisation and harmonisation in the past ten years.[172] Indeed, a 2014 report to DG Enterprise and Industry stated that despite the fact that the EU's legal framework governing harmonisation is coherent and cogent, spare parts continues to constitute an exception since significant divergence is observed among Member States.[173] The implication of recent experience, therefore, is that greater harmonisation and liberalisation of design protection for spare parts would require an amendment to the current legislative framework.

9.4.5 State of play and the future

On 21 May 2014, the European Commission confirmed that it was withdrawing its proposal to introduce a Europe-wide Repairs Clause into the Design Directive 98/71/EC. The decision to withdraw the proposal was based on a lack of progress at Council level, at least in part due to significant differences of opinion between Member States.

[172] http://www.wipo.int/wipo_magazine/en/2013/06/article_0006.html.

[173] Centre for Strategy and Evaluation Services and Panteia (2014), "Evaluation of the Internal Market Legislation for Industrial Products: Executive summary", Report commissioned by DG Enterprise and Industry, p5.

At present, therefore, the possibility of protecting design of visible spare parts legislation continues to differ from one country to the next. Whether or not there will be renewed attempts to secure harmonisation at the EU level in the future remains to be seen.

9.5 Competition authorities' perspectives

France

In 2012, the French Competition Authority examined competition in the car repair, maintenance and the spare parts manufacturing and distribution sectors. At the time of the review, it was possible to protect the design of visible spare parts in France using industrial designs. As a result, the visible spare parts market structure in France was monopolistic with vehicle manufacturers having a market share of over 70 per cent for visible parts. The remaining 30 per cent was held by original equipment suppliers. In 2010, the total value of the French market for visible spare parts was estimated to be anywhere between €1.8 billion and €2.6 billion, excluding VAT.

One element of the French Competition Authority's study focused on identifying the advantages and disadvantages of "repair clauses". The final decision accompanying the consultation took into account a number of relevant studies, including the European Commission's 2004 Impact Assessment which suggested that the withdrawal of protection for visible spare parts would result in a drop of between 6 per cent and 15 per cent in average prices for visible parts. Bearing in mind that the total value of this market in France lies between €1.8 billion and €2.6 billion, the withdrawal of protection for visible spare parts would be expected to lead to an average saving for consumers of approximately €200 million. The report specifies that these savings would accrue through the following channels:

- Competition for original spare parts would increase which would lead to the emergence of cheaper offers.
- Competition from the sale of alternative parts could lead to a fall of the prices charged for parts sold by manufacturers.
- Increased efficiency enabled by the reduced compartmentalisation between the manufacturer channel and the independent channel could also lead to lower prices.
- Spare parts liberalisation could also lead to an improvement of France's international trade position. It would allow equipment manufacturers that are established in France to produce visible spare parts and export them to markets that have already been liberalised, especially European markets.
- In France, spare parts liberalisation would also increase competition in the distribution of spare parts in French *départements d'outre mer* (French overseas *départements*), where there is currently only a single authorised spare parts distributor per make of vehicle and per *département d'outre mer*.

The results of the study showed that the introduction of a repair clause was not expected to affect investment in design nor the quality, availability or safety of the parts. Additionally, the French authority considered that the concerns voiced by French vehicle manufacturers relating to the risks emanated upon competitiveness and employment were exaggerated.[174]

Additionally, it was suggested that the limited loss of employment in the manufacturer channel would be expected to be counteracted by the creation of jobs by original spare parts manufacturers established in France, for both the domestic and export markets.

Overall, the study concludes:

"The Autorité recommends that a repair clause be introduced into French law to allow more efficient operation of the car aftermarket. It is, however, aware of the problems currently facing

[174] They highlight that about 60-70 per cent of the spare parts market is already held by original spare parts manufacturers for vehicle manufacturers.

French vehicle manufacturers, who will need time to adjust their economic models. Furthermore, original spare parts manufacturers established in France also need to prepare themselves for the opening-up of the market for visible parts in order to benefit from this development."

Romania

The position of the Romanian Competition Council is illustrated in its February 2009 sector inquiry on the market for motor vehicle spare parts.[175] The overarching aim of the inquiry was to identify any potential competition issues and try to correct them. In order to achieve this objective the Authority carried out a market research at a national level in this sector. The study included a consumer survey as well as an analysis of the market for vehicle manufacturers, parts dealers, automobile dealers, service units.

The findings in the inquiry can be divided into two categories: state of the market; and policies to improve competition in the market.

In Romania, the market concentration in the spare parts market was relatively low and hence no competition issues were found as far as market concentration is concerned. However, the competition council proposed to amend national legislation with respect to the design protection by introducing a "repairs clause" in order to open the competition on visible spare part market. The Competition Council interprets the repairs clause as not extending industrial designs protection for a drawing or model which is one piece of a product used in repairing of a complex product in order to restore its original appearance. Further, the repairs clause would apply only to visible parts (e.g. body parts, lighting units, car windows) that are sold on the secondary market.

The Council stated that the key reason for national legislation on the protection of drawings and models to be amended is because the existing legislation had led to the creation of a monopoly in the secondary market as every original car manufacturer was also the sole provider of the visible spare parts.

However, concerns were raised with regards to the potential of low quality spare parts being introduced into the market following the introduction of the repairs clause. In order to address such concerns, the Competition Council committed to supervise the introduction of any visible spare parts into the Romanian market to ensure that they are not unsafe to the consumer. It further stated that following the opening up of the spare parts market, the national technical body would supervise the spare parts available in the market and could refuse the certification or sale of such parts if they represent a serious threat to consumer safety.

9.6 Economic overview of visible spare parts in Europe: The automotive and watches and clocks industries

The available data on visible spare parts is not extensive let alone comprehensive. There are no NACE codes specifically for visible spare parts and even within visible spare parts it is often not straightforward to distinguish between those produced by the original manufacturer, those produced under licence from the original manufacturer, and those produced by competitors to the original manufacturer.

This overview is therefore focused around two industries i.e. automotive, which among industries relying on visible spare parts ranks first according to the value added to the GDP of the European Union, and watches and clocks, which is the most design-intensive industry.[176]

[175] Romanian Competition Council (2010): Report on spare parts for automotive market.

[176] European Patent Office & Office for Harmonization in the Internal Market (2013) "Intellectual property right intensive industries: contribution to economic performance and employment in the European Union, Industry-Level Analysis Report", September 2013, p69 and p53.

Automotive industry

As a study by McKinsey suggests spare parts sales greatly contributes to the profits of European vehicle manufacturers (VMs). In 2000, spare parts accounted for 39 per cent of their gross profit, compared to only 18 per cent earned from making and selling vehicles.[177]

As of 2002, the size of the automotive replacement parts market in the EU-15 was estimated by the European Commission to range between €42bn and €45bn. As illustrated by the table below, Germany had the highest turnover in the spare parts market, followed by France, UK, Italy and Spain. Germany also ranked first with respect to the share of spare parts production in total motor industry manufacturing, and employment.

While in terms of turnover new Member States (i.e. countries joining the EU in 2004 or later) did not account for a very significant part of the spare parts market in the EU (around 7 per cent of the EU-15 turnover), it is worth noting that they accounted for almost one fifth of the EU-15 employment in spare parts. Among new Member States Czech Republic, Poland and Hungary accounted for more than 90 per cent of the spare parts market.

Table 9.2: Spare parts market: EU, Japan and US 2002

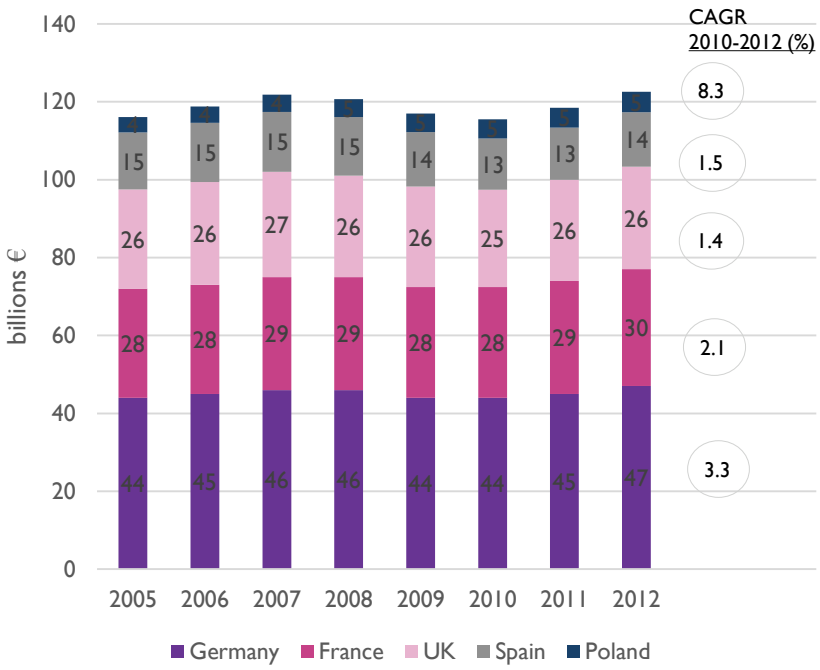
Country	Design protection for spare parts?	Total turnover (mn €)	Share of spare parts production in total motor industry manufacturing Turnover (in %)	Persons employed (in 1 000)	Share of persons employed in total motor industry employment (in %)
AT	Protection	2,653	2.4	11.8	1.9
BE	'Repairs clause'	1,994	1.1	10.0	1.5
CY	Protection	10.5 *	n.a.	n.a.	n.a.
CZ	Protection	3,663.9 *	n.a.	50.15	5.9
DK	Protection	372	0.5	3.1	0.6
EE	Protection	n.a.	n.a.	n.a.	n.a.
FI	Protection	94	0.1	0.722	0.2
FR	Protection	21,961	2.6	95.7	3
DE	Protection	54,919	3.9	307.5	4.3
GR	'Repairs clause' *	25.7	0.1	0.386 **	0.2 **
HU	'Repairs clause'	1,625 *	3.1 *	24.1 *	3.2 *
IE	'Repairs clause'	319	0.3	2.53	1.1
IT	'Repairs clause'	14,849	1.7	87.1	1.7
LV	'Repairs clause'	n.a.	n.a.	0.077	n.a.
LT	Protection	n.a.	n.a.	n.a.	n.a.
LU	'Repairs clause'	n.a.	n.a.	n.a.	n.a.
MT	Protection	2.5 *	n.a.	n.a.	n.a.
NL	'Repairs clause'	902	0.4	5.5	0.6
PL	Protection	2,625	2.2	49.7	2.1
PT	Protection	1,112	1.6	8	0.9
SK	Protection	275.6	1.4	5.7 *	1.4 *
SL	Protection	266.9 *	n.a.	3.02 *	n.a.
ES	'Repairs clause'	10,895	2.6	66.1	2.5
SE	Protection	3,599	2.3	24.2	3.2
UK	'Repairs clause'	16,193	2.2	97.9	2.6
Japan	15-year protection		5.5	460.5	5.4
USA	Competition		3.3	731.1	4.8

Note: Greece grants a 5 year protection with a fair remuneration afterwards; * 2001 data; ** 1999 data.
Source: Extended Impact Assessment, SEC(2004) 1097.

[177] McKinsey Quarterly, 2003 N° 1.

More recently, the Boston Consulting Group's (BCG's) published a report which examined five national automotive aftermarkets – in Germany, France, Spain, UK and Poland. BCG estimated that the combined aftermarket grew from €115 billion in 2010 to approximately €121 billion in 2012, which translates into a compound growth rate (CAGR) of 2.6 per cent. Germany had the largest share of the market (€47 billion in 2012), followed by France (€30 billion), UK (€26 billion) and Spain (€14 billion). While Poland accounted for only about 4 per cent of the market, it was the only outlier with respect to the rate of growth with a CAGR of over 8 per cent per year.[178]

Figure 9.1: Total aftermarket volume 2005-2012



Note: Total volume includes labour and VAT.
Source: BCG (2014).

There are two different channels through which spare parts are being supplied to consumers. One including the vehicle manufacturers (VMs) together with the network of authorized dealers/repairers (the Original Equipment Supplier, or OES, channel), and another comprising independent aftermarket. According to the ECAR's report, in 2002, independent car repairers/dealers accounted for 37 per cent of EU-15 market for vehicle spare parts. On the other hand, the BCG's report suggests that in the five countries they focused on independent repair shops were dominant in the market. Their shares were especially high in countries with relatively less dominant national automotive manufacturing sectors, such as Poland (70 per cent share), Spain (63 per cent), and the UK (66 per cent). The average for the five countries was 58 per cent in 2012 and remained fairly stable compared to 2010.

As noted above, European countries also differ with respect to the type of design protection for spare parts with some allowing for protection of the industrial design and others having a repairs clause which introduces some competition in the secondary market. The type of protection offered has a direct effect on the aftermarket at the level of producing and distributing spare parts. According to the Extended Impact

[178] BCG (2014) "Returning to Growth. A Look at the European Automotive Aftermarket", July 2014.

Assessment, within the EU-15 some 55-57 per cent of the spare parts in 2002 were distributed directly by vehicle manufacturers, leaving the remaining 43-45 per cent for independent wholesalers.[179]

The topic of design protection has provoked some competition authorities to investigate their national automotive aftermarkets. In particular, in 2012 French Competition Authority published the results of its inquiry regarding visible spare parts.[180] Since designs of visible parts are protected vehicle manufacturers hold the exclusive right to distribute the parts. This results in VMs having 70 per cent share of the visible spare parts market, which was estimated to be worth between €1.8 and €2.6 billion (excluding VAT). The remaining 30 per cent of the market are shared between vehicle manufacturers and automotive equipment manufacturers. A similar situation was recognized in Romania. While the concentration in the market for spare parts as a whole was not high, Romanian Competition Authority argued that due to the national legislation every original vehicle manufacturer is *de facto* a monopolist in the secondary market.[181] In both cases competition authorities recommended the introduction of a version of the repairs clause, expecting it to bring more competition in the secondary market and a decrease in prices for visible spare parts.

Watchmaking industry

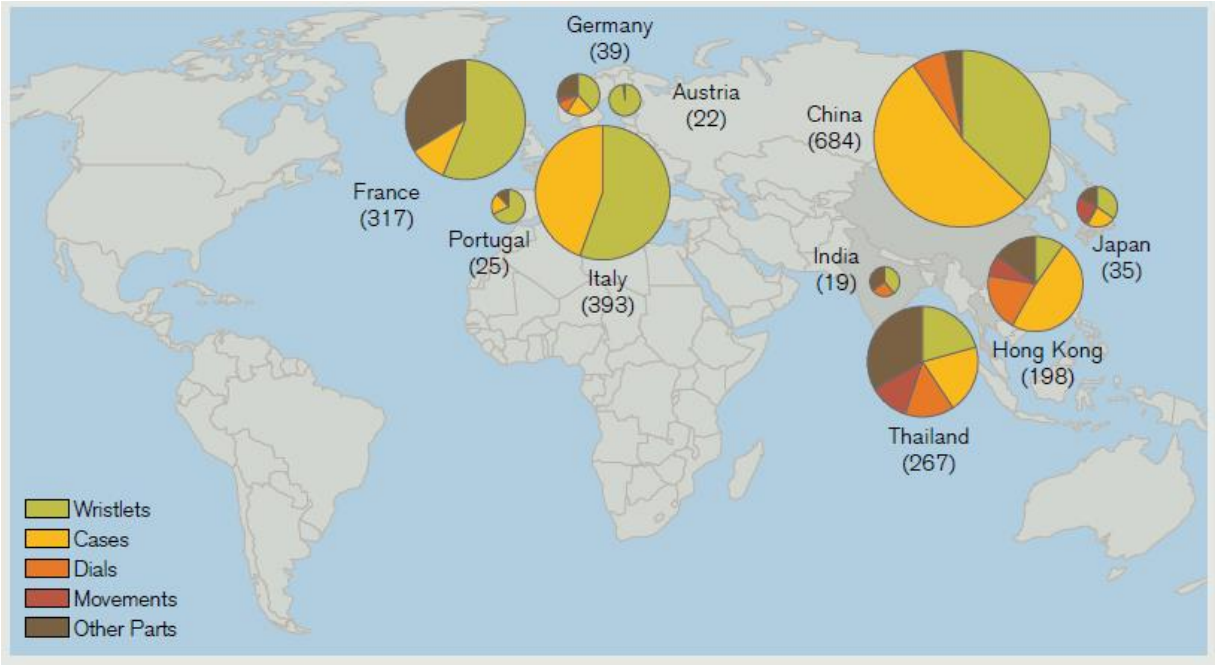
The watchmaking industry in Europe is dominated by Swiss manufacturers which are the biggest exporters of wristwatches and pocket watches in terms of sales in the world. Other European countries with established traditions in the industry are Germany, France, and Italy. According to Credit Swiss' report, while Germany focuses predominantly on exporting entire watches (95 per cent of the export sales), other countries rely to a greater extent on selling parts (for which the Swiss market is the largest customer). Specifically, parts account for 22 per cent of the watchmaking sector export sales in France, and 36 per cent in Italy. As the figure below illustrates, other countries involved in producing spare parts for watches are Portugal and Austria. European watchmakers supply mostly wristlets and cases.

[179] Note that vehicle manufacturers do not necessarily produce the parts themselves. The Extended Impact Assessment (2004) and the results of the French Competition Authority (2012) inquiry suggest that they produce only a minority share of the parts they subsequently distribute.

[180] Autorité de la concurrence (2012), "Avis n° 12-A-21 du 8 octobre 2012 relatif au fonctionnement concurrentiel des secteurs de la reparation et de l'entretien de véhicules et de la fabrication et de la distribution de pièces de rechange".

[181] Romania Competition Council (2010), "Report on spare parts for automotive market".

Figure 9.2: Largest Supplier Nations of Watch Components to the Swiss Watch Industry broken down by part time 2012 (in CHF million)



Source: Credit Swiss (2013) "Swiss Watch Industry. Prospects and Challenges."

There are two main types of watch producers: "manufacturers" who practically produce the entire watch themselves, and "établisseurs" who assemble watches from purchased parts. However, partly as a result of difficulties in obtaining necessary parts from suppliers, the latter category is shrinking. Despite rising employment, the number of Swiss watchmaking firms is declining since 2009, and vertical integration is one of the primary causes.[182] A survey of over 50 executives from Swiss watchmaking industry conducted by Deloitte in 2013 shows that the hardest parts to procure are movements,[183] which are virtually not supplied by European firms.

Similarly to the automotive industry, the watch aftermarket consists of authorised and independent watch repairers. Since precise data on market concentration are not available, we are not able to discuss this issue in detail. However, what might be noted is that in a formal complaint to the European Commission, European confederation for watch repairer associations (CEAHR) claimed that authorised repairers in reality act as monopolists in the respective aftermarkets for luxury watches as manufacturers refuse to supply parts to independents. Manufacturers, on the other hand, argued that their reasons relate to keeping high quality of services – as noted by the Commission, according to some of them "up to 30% of repair work dome in their after-sale services centres concern the damage caused by the inappropriate and wrongful repair executed by the watch repairers who do not possess proper knowledge and skills"[184]. While the issue of abuse of dominant position is still under investigation it seems to at least indicate an important role of authorised repair shops in that industry.

9.7 Findings of our survey

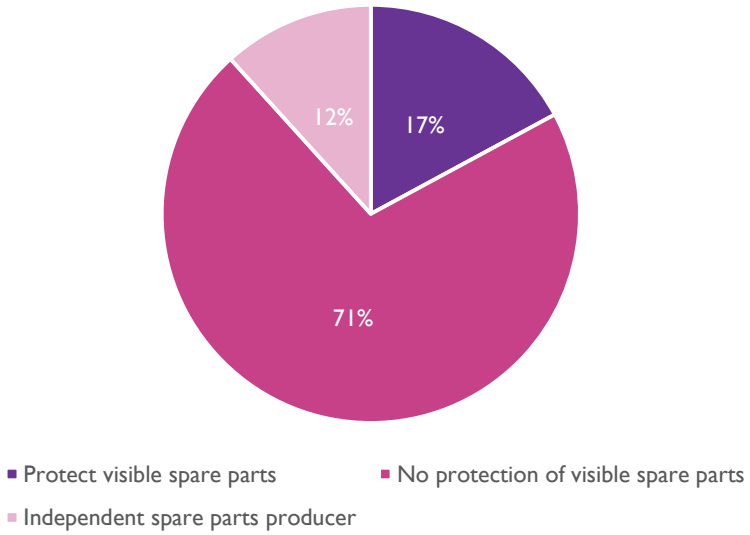
We now summarise the views of respondents to our survey in respect of the protection of visible spare parts.[185] Figure 9.3 to Figure 9.5 help characterise those that responded to this section of the survey and

[182] Credit Swiss (2013) "Swiss Watch Industry. Prospects and Challenges".
[183] Deloitte (2013), "The Deloitte Swiss Watch Industry Study 2013. Time for the future".
[184] Judgment of the General Court (2010) in case T-427/08.
[185] Please see section 2.2.3 for a detailed description of the survey.

their attitudes towards the industrial design protection of visible spare parts. Figure 9.6 to Figure 9.11 look at enforcement cases against the infringement of visible spare parts protection. We do not present an analysis of the detailed comments provided by respondents on this issue as the views of independent spare parts manufacturers are consistent with those of ECAR while the views of vehicle manufacturers are consistent with those of ACEA. A detailed discussion of those views was presented above.

Figure 9.3 shows that 17 per cent of respondents protect the designs visible spare parts and can therefore reasonably be assumed to be vehicle manufacturers while 12 per cent of respondents are independent spare parts producers. The remaining 71 per cent of respondents stated that they do not protect visible spare parts, but it is unclear whether these respondents constitute vehicle manufacturers, independent spare parts producers or another stakeholder. In fact, many members of the 'no' group in fact do not operate in the vehicles sector and hence should not have participated in this section of the survey. Therefore, although the results for the 'no' group are included in the charts below, the focus of the analysis will be on comparing the views of those who protect visible spare parts (which we assume to be vehicle manufacturers), with those who are independent spare parts producers.

Figure 9.3: Do you protect visible spare parts that you produce and/or sell using registered industrial design?



Note: The information presented above relies on 132 responses.

Figure 9.4 and Figure 9.5 present a series of statements about the protection of visible spare parts for which respondents were asked to what extent they agree with the statements using a five point scale. Averaging across the whole sample the most strongly supported statements are that:

- competition in the market for spare parts is greater in countries where protection is not possible and
- prices for spare parts are higher in countries where there designs may be protected.

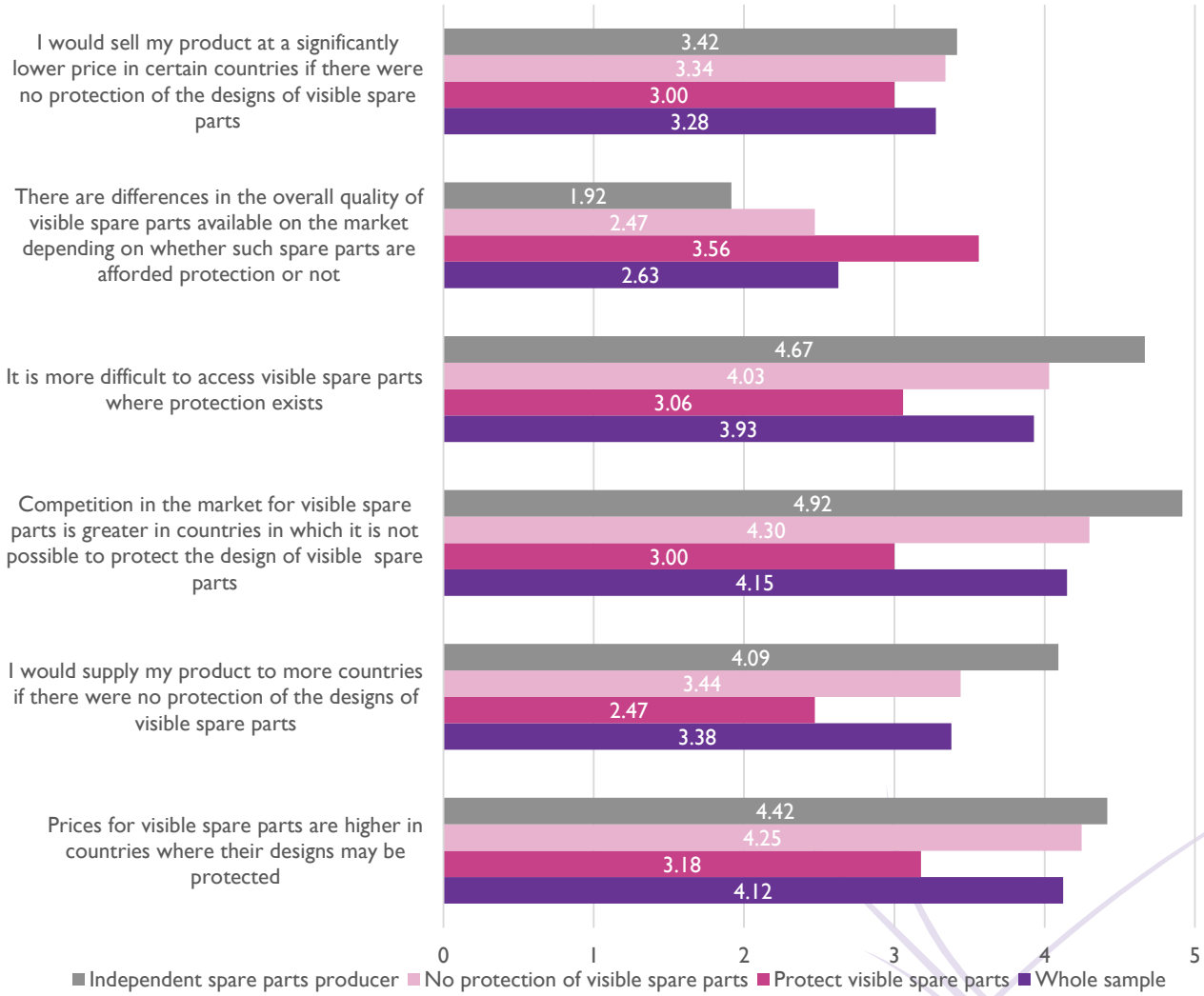
These two issues are of course intimately linked as economic theory suggests that increased competition places downward pressure on prices, and vice versa. The only statement for which there is disagreement when averaging across the whole sample is that there is a link between the presence of protection and the quality of the visible spare parts on the market.

However, it is important to recognise that the averages hide substantial variation of views across the different respondent groups. In particular, Figure 9.4 shows that the views of independent spare parts producers and the views of respondents who protect visible spare parts tend to be particularly divergent. This is because the vested interests of these groups are diametrically opposed, with the car manufacturers who protect visible spare parts directly benefiting from this protection, while the independent spare parts producers suffer

as a result of the protection. So, for example, those who protect visible parts are strongly in support of the view (more so than any of the other statements) that the quality of visible spare parts is dependent on whether the industry is afforded protection, which is in direct contrast to the view of independent spare parts producers.

There are similar differences of opinion (of at least 1.2 points on the five point scale) for the other statements in Figure 9.4, with the exception of the first statement which asks whether the respondent would sell their product at a lower price in a country if there were no protection of visible spare parts. Those who protect visible spare parts are, on average, neutral on whether they would sell at lower prices in countries that afford no protection, while independent spare parts producers weakly agree. This appears consistent with the results of statement five, which shows that those who protect visible spare parts are only weakly of the opinion that the prices for spare parts are higher in countries that allow protection, compared to spare parts producers who strongly support this statement.

Figure 9.4: Agreement with statements about visible spare part protection, by type of respondent



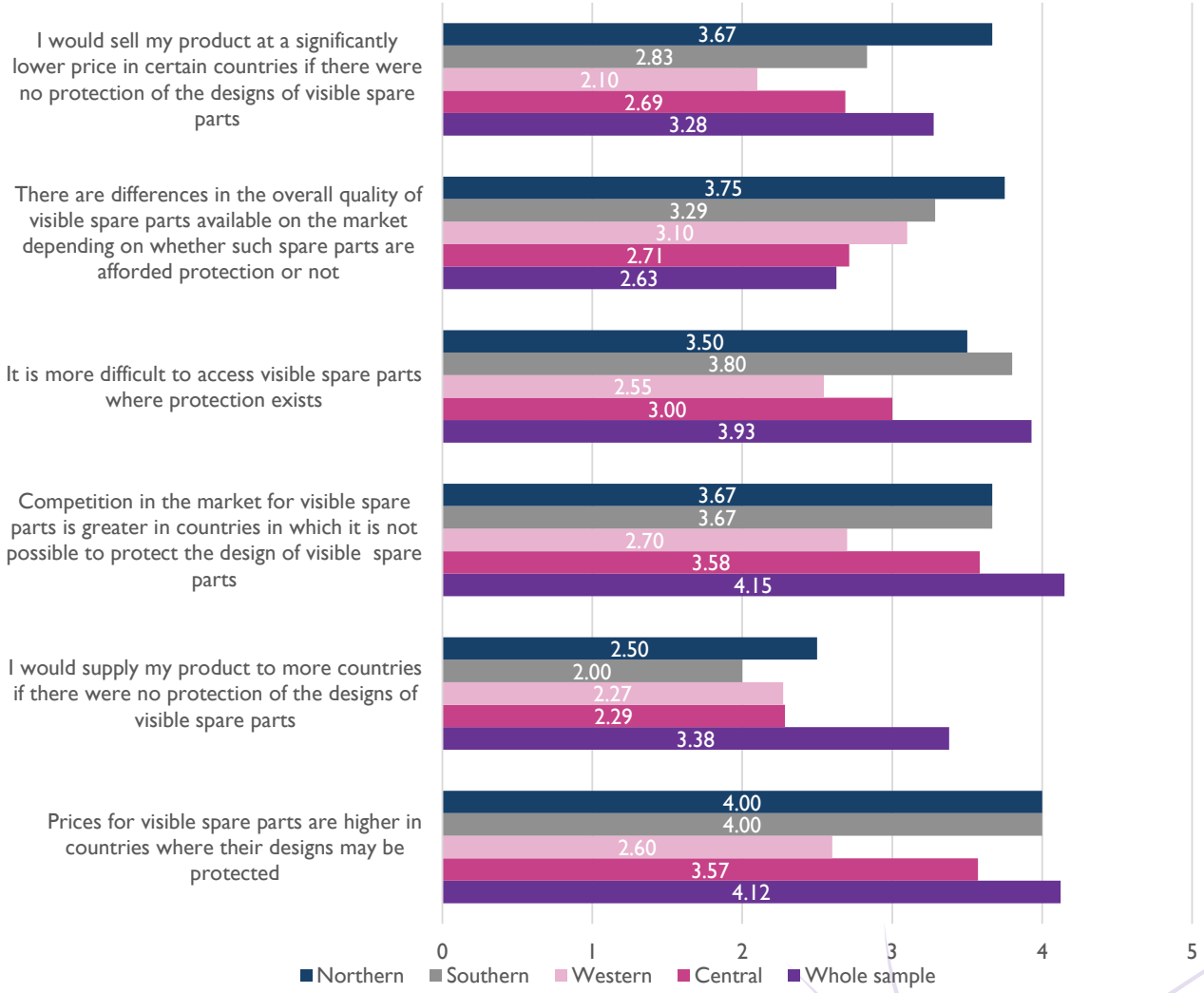
Note: Respondents were asked to answer on a 5 point scale where 1 means they strongly disagree and 5 means the strongly agree. The information presented above relies on a minimum of 100 responses for the whole sample, 16 for the subsample that protects visible parts, 59 for the subsample that does not protect and 11 for independent spare parts producers who do not protect.

The breakdown of responses by origin of respondent is seen in Figure 9.5. For all regions, the statement which received least agreement (as well as the greatest consensus across geographical areas) was that an

organisation would supply their product to more countries if there were no protection for the design of visible spare parts.

In terms of the statements that received strongest agreement, an interesting finding is that firms in Western Member States emphasise the potential link between quality of visible spare parts available and the provision of design protection. This may reflect the fact that Western Member States contain the majority of major vehicle manufacturers within the EU. These firms are likely to have a vested interested in preventing spare parts production by third parties and, as such, should be more inclined to raise concerns about the potential low quality of spare parts produced by third party suppliers.

Figure 9.5: Agreement with statements about visible spare part protection, by origin of respondent



Note: Respondents were asked to answer on a 5 point scale where 1 means they strongly disagree and 5 means the strongly agree. The figure presented above relies on a minimum of 100 valid responses for the whole sample, 12 responses for the central, 10 for the western, 5 for the southern and 3 for the northern subsamples.

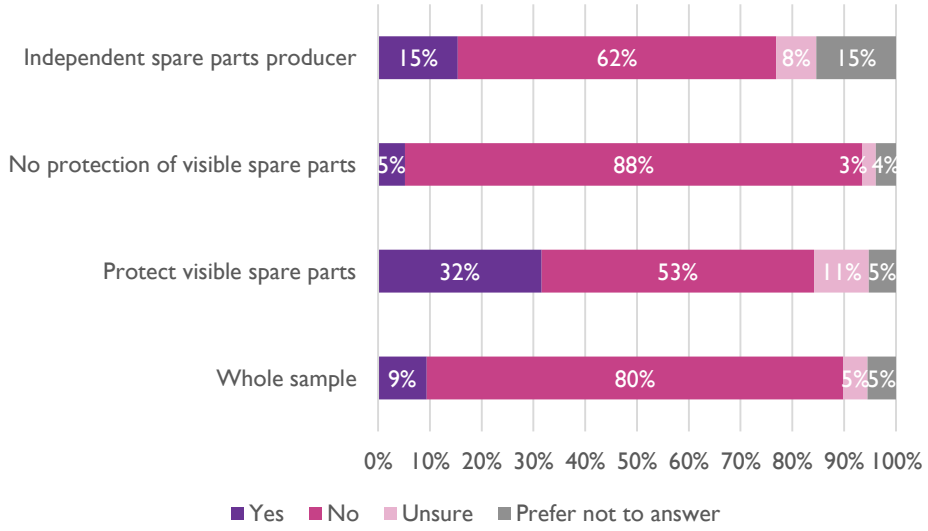
Figure 9.6 and Figure 9.7 show the proportion of respondents who have initiated legal action for alleged infringement of industrial designs for visible spare parts by type of respondent and origin of respondent respectively. Across the whole sample of respondents, four-fifths stated that they had not initiated any legal action, while nine per cent stated that they had.

Unsurprisingly, Figure 9.6 shows that a higher proportion (32 per cent) of firms who protect visible spare parts have initiated legal action for alleged infringement of this protection relative to other firm types. This

is because, in countries where spare parts can be protected, national law is designed to protect car manufacturers against the use of their designs by independent suppliers in the market for spare parts. Given that only rights holders can initiate action for infringements, it is hardly surprising that significantly more of those that protect visible spare parts have initiated legal action than any other type of respondent.

What is more surprising is the finding that 15 per cent of independent spare parts producers said that they had initiated legal action against a third party for alleged infringements of your industrial designs for visible spare parts. The rationale for such responses is not clear but it is possible that such cases refer to other products produced by the company rather than visible spare parts that have a must-match requirement (and, hence, are products for which the industrial designs for spare parts would be held by the vehicle manufacturer in countries where such protection is available).

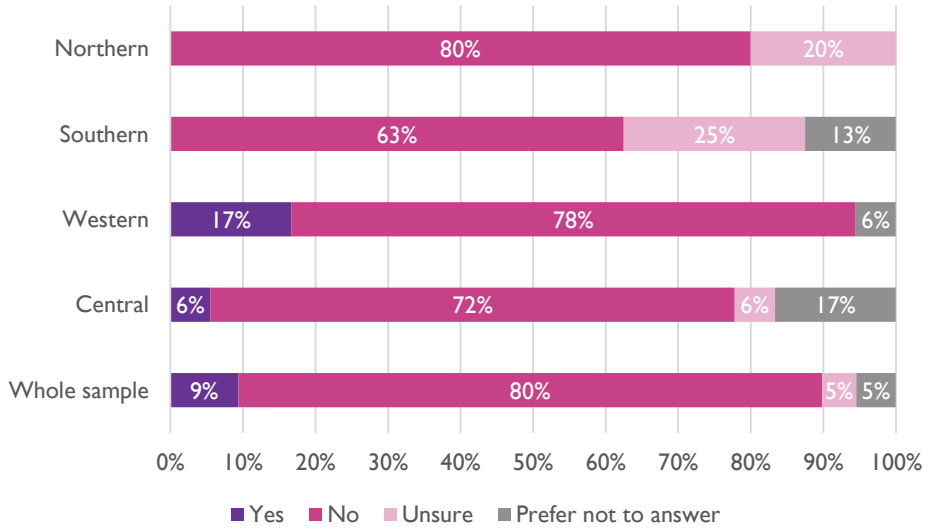
Figure 9.6: Have you ever initiated legal action against a third party for alleged infringements of your industrial designs for visible spare parts? (By type of respondent)



Note: The results presented rely on 128 responses for the whole sample, 19 for the subsample that protects visible spare parts, 77 for the subsample that does not protect visible spare parts and 13 for the subsample of independent spare parts producers that do not protect visible spare parts.

In terms of the geographical origin of initiated legal action, Figure 9.7 shows that all cases came from either Western or Central Member States, with the majority from the former. Indeed, 17 per cent of respondents from Western Member States stated that they had initiated legal action compared with six per cent of firms from Central Member States. The large proportion of legal action initiated by companies from Western Member States is consistent with the fact that this is where several of the major EU-based car manufacturers are based, in particular in France and Germany.

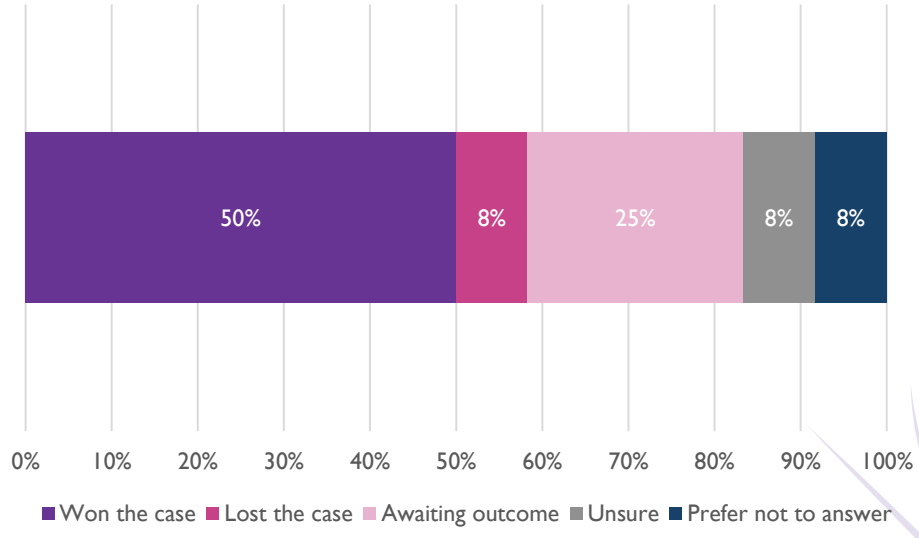
Figure 9.7: Have you ever initiated legal action against a third party for alleged infringements of your industrial designs for visible spare parts? (By origin of respondent)



Note: The results presented rely on 128 responses for the whole sample, 18 for the central, 18 for the western, 8 for the southern and 5 for the northern subsamples.

Figure 9.8 shows the outcome of the legal action that took place. Half of all respondents said that they had won the case, with only eight per cent having lost the case. Ignoring cases where the outcome is still being awaited and ignoring respondents who were unsure or preferred not to answer, the success rate for cases is fairly high, at approximately 86 per cent.

Figure 9.8: Outcome of initiated legal action for the protection of visible spare parts



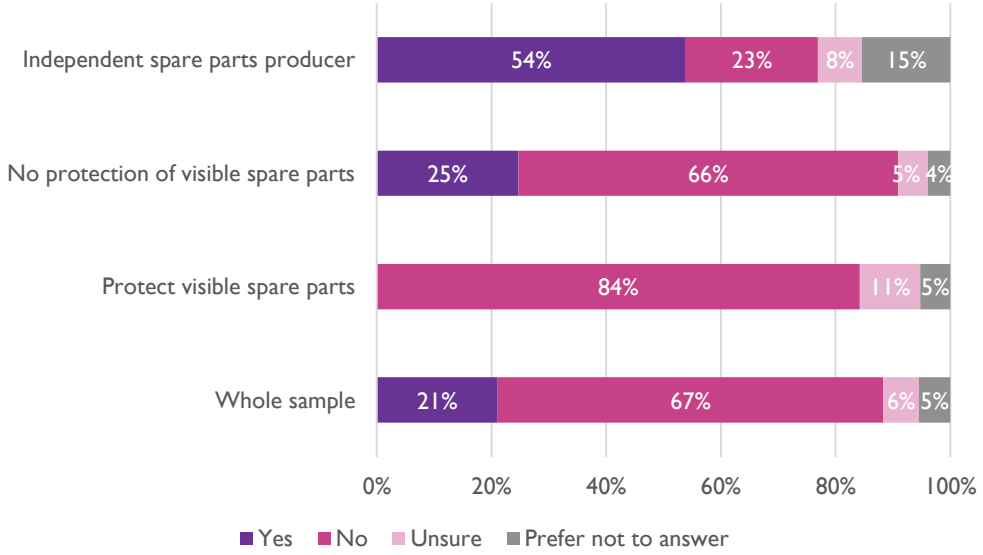
Note: The figure presented above is based on 12 respondents who indicated that their organisation has initiated legal action against a third party for alleged infringements of their industrial designs for visible spare parts.

The next three charts show the same metrics as the previous three, but in relation to whether a firm has been subject to legal action. Over one-fifth of respondents reported that they had been subject to legal action for alleged infringement of industrial designs, while two-thirds of respondents said that they had not been subject to such action, as seen in Figure 9.9 and Figure 9.10.

Figure 9.9 suggests that a significant proportion of the one-fifth who reported being subject to legal action are independent spare parts producers, with over half of this respondent group having been subject to legal action and less than a quarter of these respondents said they had not been subject to legal action. This is unsurprising because these firms are entirely reliant on other companies' designs for producing spare parts and are therefore more likely to infringe (or be alleged to have infringed) industrial designs for visible spare parts.

This is in stark contrast to those who protect visible spare parts, where 84 per cent of respondents stated they had not been subject to legal action and not a single respondent reported being faced with legal action. However, this is again expected because those who protect visible spare parts are vehicle manufacturers, whose business is the manufacture of their own vehicles and the spare parts for their own vehicles, rather than spare parts for vehicles produced by other manufacturers.

Figure 9.9: Has your organisation ever been subject to legal action by a third party for alleged infringements of their industrial designs for visible spare parts? (By type of respondent)



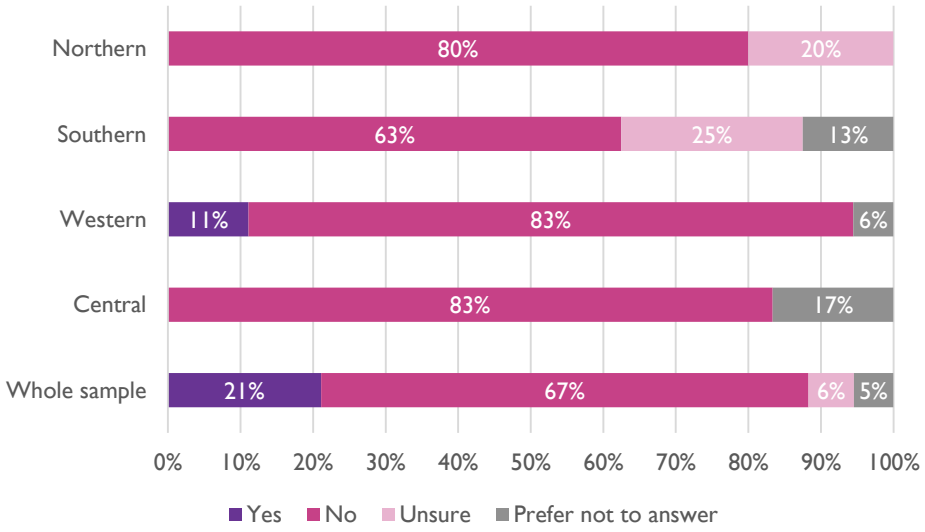
Note: The results presented rely on 128 responses for the whole sample, 19 for the subsample that protects visible spare parts, 77 for the subsample that does not protect visible spare parts and 13 for the subsample of independent spare parts producers that do not protect visible spare parts.

The analysis by origin of respondent reveals that only organisations from Western Member States have reported being subject to legal action, as seen in Figure 9.10. This may be attributable to a couple of factors:

- A higher proportion of EU car manufacturers are based in Western Member States, particularly France and Germany, and so suppliers of independent spare parts would be more vulnerable to legal action in these countries.
- Many of the countries with significant vehicle manufacturing industries allow for the design protection of visible spare parts.

These two factors are to some extent interrelated, as the presence of large car manufacturers in Western Member States could be, in part, a driving force behind the adoption of visible spare parts protection laws in these countries.

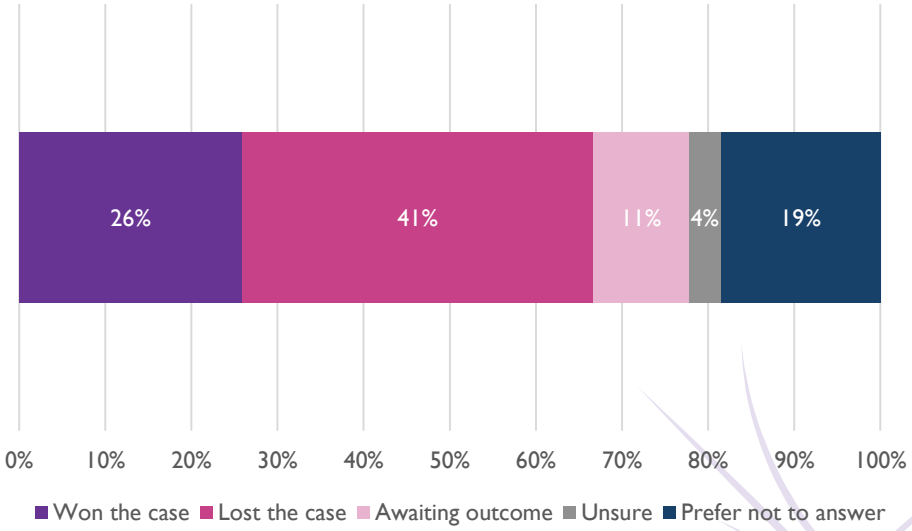
Figure 9.10: Has your organisation ever been subject to legal action by a third party for alleged infringements of their industrial designs for visible spare parts? (By origin of respondent)



Note: The results presented rely on 128 responses for the whole sample, 18 for the central, 18 for the western, 8 for the southern and 5 for the northern subsamples.

Figure 9.11 shows the outcomes of the legal action to which the respondents were subject. Just over one-quarter of legal actions were won by the alleged infringer while 41 per cent of cases were lost. Abstracting from other responses this gives a successful defence rate of approximately 39 per cent, which is significantly lower than the 86 per cent success rate based on the responses of those responsible for initiating legal action (see Figure 9.8).

Figure 9.11: Outcome of legal action initiated by a third party for the protection of visible spare parts



Note: The figure presented above is based on 27 respondents who indicated that their organisation has initiated legal action against a third party for alleged infringements of their industrial designs for visible spare parts.

9.8 The economic implications of the repairs clause

Where the manufacturer of a product with a complex design can use its intellectual property rights over that design to prevent competitors from producing visible spare parts, then if part of the product's natural life

involves having repairs[186] that has implications for the economic nature of the transaction involved in purchasing the product. In such a case, instead of consumers making a one-off purchase of a product they then own complete-and-entire for its natural life, the purchase of the product involves entering into an ongoing economic relationship with the original manufacturer over the natural lifetime of the product.

Such an ongoing economic relationship might arise other than from the absence of a repairs clause. For example, suppose a certain car were available only if consumers agreed contractually only ever to have that car repaired at an authorised workshop. That contract would last for the lifetime of the vehicle. So instead of buying a vehicle and the relationship with the manufacturer then being at an end (assuming the vehicle is not defective in some way), the purchase of the vehicle creates an ongoing economic relationship with the manufacturer.

In an economic sense, the absence of a repairs clause means consumers enter a similar implicit relationship with the original manufacturer. Over the lifetime of the product, the consumer can only obtain spare parts for repair from the original manufacturer or those the manufacturer licenses.

9.9 The "competition" argument for the repairs clause

The simplest version of the argument for the repairs clause is the claim that, in its absence, the original manufacturer of a product is a monopolist when supplying spare parts. The thought is that whereas designs typically compete with other designs (there is no intrinsic assumption that the registration of a design legitimately creates legally-enforced monopoly power), once a product has been purchased then a repair that restores it to its original shape and colour will require precisely the one component design (there is a "must match" requirement) — there is thus no scope for competition unless multiple manufacturers are permitted to produce that design.

This naïve competition case is, however, rather unconvincing when tested and can quickly to be seen to be contradicted by the standard findings in EU competition cases regarding the interrelationship between primary and secondary markets. Consider, for example, the following:

- Kyocera (printers) vs Pelikan (toners) 1995[187]
  In this case two candidate relevant product markets were considered:
  - Kyocera-compatible consumables: consumables produced by other printers manufacturers were not compatible with Kyocera printers, but on the secondary market Kyocera toners competed with Pelikan toners (Pelikan did not produce printers, only toners). According to Pelikan the competition was limited by Kyocera which informed dealers that warranty does not cover damages caused by the use of non-Kyocera consumables and which offered a favourably prices bundles of Kyocera consumables.
  - Printers with comparable characteristics.

  The Commission decided that Kyocera did not hold a dominant position in the supply/consumables market mainly because it did not have a dominant position in the primary market for printers. In the XXV Report on Competition Policy (1995) EC argued that the primary market was playing a disciplinary role on the secondary/consumables market. "*[P]urchasers were well informed about the price charged for consumables and appeared to take this into account in their decision to buy a printer. "Total cost per page" was one of the criteria most commonly used by customers when choosing a printer. This was due to the fact that life-cycle costs of consumables (mainly toner cartridges) represented a very high proportion of the value of a printer.*

[186] Not all products are by nature such that they might involve repairs. For example, the natural life of a can of soda is very unlikely to include repairs.

[187] http://ec.europa.eu/competition/antitrust/cases/dec_docs/34330/34330_21_3.pdf.

Therefore, if the prices of consumables of a particular brand were raised, consumers would have a strong incentive to buy another printer brand. In addition, there was no evidence of possibilities for price discrimination between "old"/captive and new customers."[188]

- Info-Lab (toners for photocopiers) vs Ricoh (photocopiers) 1997[189]
  Ricoh produced photocopiers and related products including toner cartridges. There were no substitutes to the original Ricoh cartridge as it was protected by intellectual property rights in the UK, France and Germany, and no cartridge produced by other manufacturers was compatible with Ricoh photocopiers.
  "*The complaint alleges that it is not possible to design a toner cartridge which would fit into the Ricoh machines and at the same time would not violate Ricoh's intellectual property rights.*"[190]
  Info-Lab wanted to enter the consumables market by buying empty cartridges (not used, as refilling used cartridges was considered to be unprofitable) from Ricoh and filling them with toner, but Ricoh refused, or more precisely, said they need more time and information to make this decision.
  In this case although Ricoh sold 100 per cent share of toners, the Commission decided that that did not allow Ricoh to abuse its position because of the restrictions coming from the primary market for photocopiers. The Commission used four criteria to make this decision:

  - The customer can make informed choice including lifecycle pricing.
  - The consumer is likely to make such an informed choice.
  - In case of an apparent policy of exploitation being pursued in one specific aftermarket, a sufficient number of customers would adapt their purchasing behaviour at the level of the primary market
  - The above all applies within a reasonable time.

  The view was that secondary markets satisfying those four criteria should be considered as interrelated with the primary market and together they form a relevant market.[191]

Thus, if consumers are adequately aware of the likely lifetime costs of repair and repair costs are a sufficiently material proportion of total costs that consumers will take them into account in deciding on the purchase of original products, such that the relevant market can be treated as the product-plus-lifetime-repairs, and if the producer faces effective competition in the market in which the product-plus-lifetime-repairs sits, there is no good reason to believe that the absence of a repairs clause creates dominance in general. There may be specific product-plus-lifetime-repairs markets within which firms are dominant and there may be cases where the repairs market is distinct from the original product market (which may indeed include design-intensive markets relevant to visible spare parts, such as perhaps luxury watches[192]), and in such cases, where

[188] EC (1996), XXVth Report on Competition Policy 1995, http://ec.europa.eu/competition/publications/annual_report/1995/en.pdf.
[189] http://ec.europa.eu/competition/antitrust/cases/dec_docs/36431/36431_7_3.pdf.
[190] http://ec.europa.eu/competition/antitrust/cases/dec_docs/36431/36431_7_3.pdf.
[191] Another case of potential interest is: Nestlé vs Ethical Coffee Company (Germany) AND Nestle vs Dualit (UK), 2013. In this case, Nestlé – a producer of coffee machines for capsules – was accused of inhibiting competition in the capsules market. The whole system (including the capsules) used in those coffee machines was patented. However, the German court argued that consumers have the right to use the machine they buy in any way they see fit. Regarding the patent, the court said that although the capsules were essential for the functioning of a Nespresso coffee machine, they were neither a key component nor a "special feature" of the invention. In both cases Nestlé lost — other firms were allowed to produce and sell capsules compatible with Nespresso machine. Note however that central to the loss was the view that the relevant item (the coffee capsule) was not a key component nor special feature of the invention. By contrast, some visible spare parts may well be key components and/or special features of a product.
[192] See CEAHR vs European Commission, 2010 (http://curia.europa.eu/juris/document/document.jsf?docid=83249&doclang=EN). In 2004 the European Confederation of Watch and Clock Repairers' Association (CEAHR) complained that some Swiss watch manufacturers of luxury/prestige watches were abusing their dominant position in the market for watch repairs and maintenance and for spare parts by refusing to supply spare parts to independent watch makers. In 2008 the

dominance is abused, the mandating of allowing competitors to produce visible spare parts might be a relevant remedy. But the findings of competition authorities are clear there is no general presumption that secondary markets (e.g. for repairs) are automatically separate from the primary market (e.g. for the original product) and market-specific competition issues are unlikely to be addressed appropriately by manipulating the general structure of intellectual property rights.

9.10 The "property protection" argument against the repairs clause

A common argument against the repairs clause relates to the fundamental role of legal intellectual property rights in protecting that which is morally property. The original manufacturer may take a view summarised roughly as "I designed that part; why should someone else be able to take and use my design without my permission?"

This objection, however, potentially over-states the nature of the intellectual property inherent in a design. A design right should not, for example, typically allow the designer to prevent a consumer from wearing a watch with a scratch on the face or the strap loop missing (unless there is some explicit agreement to that effect when the watch is purchased). Again, a design right should not typically allow a vehicle manufacturer to prevent a consumer from driving the vehicle with a dent in the boot. The design right can thus be regarded as, in at least some sense, exhausted when the product is purchased.

The implication is that the consumer should (unless otherwise constrained by contract) have freedom of use of the product that is not constrained by the design.[193] For example, the consumer should be able to repair or not repair the product (obviously subject to requirements such as road safety).

Consider, for example, a car that has been significantly damaged in a car accident. Let us suppose that one of the car's wings has been crushed such that the original shape is unrecognisable. Assuming that there was no agreement that all lifetime repairs must be carried out by manufacturer workshops, should the consumer be able to have that car wing repaired?

Well, if the process of repair consisted in a worker at a car body-shop laboriously tapping out the metal of the crushed wing to restore the original shape that would appear to be a fairly straightforward use of the physical object that the consumer originally purchased. It does not appear to be seriously contended that a design right should prevent the repair of a visible component. But suppose that, although a visible component could be repaired, it would be cheaper to replace it with a new component. What the consumer owns is the car, not merely its constituent components; the car remains the same car even if a component is replaced;[194] and as such the consumer's freedom to repair the car is not reducible simply to the freedom to repair the original components. It would seem paradoxical and inefficient if a competitor to the original

European Commission rejected this complaint. However, in 2010 the General Court annulled the EC decision arguing that, although the methodology the Commission had used might not be inappropriate it had not sufficiently supported its determination because "*the Commission has failed to establish that a moderate price increase on the services market would cause a shift in demand on the luxury/prestige watch market which could render such an increase unprofitable, nor that, in general, the price of services affects competition between primary products*." Consequently, the conclusion that the primary and secondary markets together form a relevant market was not justified. In particular, because the costs of repairs were so small comparing to the price of a luxury watch it was deemed unlikely that consumers will adjust their behaviour in the primary market in response to a moderate increase in prices in the aftermarket. This thus fails criterion 3 of the *Info-Lab vs Ricoh* judgement criteria.
In 2011 the Commission commenced an anti-trust investigation in this area, which it has now closed, deeming that "*there is limited likelihood of finding such an infringement in the present case*". See: http://ec.europa.eu/competition/antitrust/cases/dec_docs/39097/39097_3089_3.pdf.

[193] This can be seen as an application of the principle from the German court's ruling in *Nestlé vs Ethical Coffee Company*.

[194] This is a point often discussed via the famous "Ship of Theseus" problem in metaphysics analysed in detail by Plutarch and later Hobbes, sometimes known in popular culture as the "My grandfather's axe" paradox: This is my grandfather's axe; my father replaced the haft and I put a new head on it.

manufacturer's body-shop were permitted to laboriously resurrect a severely damaged component but not permitted, at a lower cost to consumers and lower resource cost to the firm, to provide a replacement component.

The repair of a product using a replacement spare part thus does not appear to involve any additional infringement of the design right of the original manufacturer that would not already be present in the permitting of the repair of an original component. But given that restricting the repair of an original component cannot be seen as part of the basic property right inherent in a design (being instead simply part of the free use of the product which the consumer originally purchased), *a fortiori* it follows that there cannot be any violation of moral property claims by repairing a complex product using a replacement component.

9.11 Summary of the argument to this point

Our discussion so far has concluded that the argument that the repairs clause is vital to protect competition is unconvincing and overly-generalised whilst the argument that the repairs clause would violate the moral property claim inherent in a design seems simply wrong.

This leaves the possibility that the granting of a right for manufacturers to restrict the use of visible spare parts for repairs might be justified on incentive or broader economic grounds. After all, not all legal property rights need arise from moral property claims. It might be socially beneficial, for example, to grant a legal intellectual property right in respect of some invention or discovery even in a case where the idea concerned could not be owned in a moral sense, in order to create incentives for innovation or investment. Alternatively, it might be socially beneficial to grant such a legal property right in certain cases for other purposes, such as the promotion of health or education or art or social inclusion.

A further point concerns the impacts upon the Single Market of differences in the status of visible spare parts in different Member States. Do such differences undermine the Single Market?

To assess whether the granting of a right for manufacturers to restrict the use of visible spare parts for repairs might be justified on incentive or broader economic grounds we need therefore to consider who might be the winners and losers from the mandating or forbidding of an EU-wide repairs clause.

9.12 A broader economic justification?

The most natural broader economic justification for the introduction of an intellectual property right that did not correspond to moral ownership would be the encouragement of innovation. Might allowing original manufacturers automatically to restrict the use of visible spare parts serve to encourage innovation materially more than not having any such automatic use restriction?

Let us approach this question first from the direction of considering what additional innovations would be encouraged by the repairs clause. Most obviously, by having competition in visible spare parts there might be cost-reducing production innovations for the output of such parts. It might be questioned how material this would be. After all, in a sector that is already competitive at the level of original product manufacture, there will already be pressure to keep component manufacture costs down in order to maximise profits in the sale of the original product. It is unclear that there would be significant additional pressure to innovate to reduce manufacturing costs.

On the other hand, there would appear to be at least two potentially material drivers for additional innovation by original manufacturers, from the repairs clause. First, with a repairs clause the original manufacturer might have incentives to reduce the natural need for products to be repaired — as with a repairs clause the manufacturer will find repair less profitable. This could lead to innovations extending natural product life or increasing its resistance to wear-and-tear or reducing the likelihood that accidents lead to a need for component replacement.

Second, since with a repairs clause the original manufacturer would make a higher proportion of total profits from the original sale (and less from after-sales repairs) there would be more of an incentive for manufacturers to produce new products for additional original sales.

On the other hand, with a repairs clause some manufacturers that would not be able to secure consumer agreement to explicit extended or lifetime repairs contracts bundled with the original product may find total profitability from any given product falls. With lower profitability, the incentives to innovate to produce such products will be less.

Our view is that there is unlikely to be any general (across all sectors) and significant innovation benefit either way (i.e. either with or without the repairs clause). If there is a material impact on innovation, it is more likely to change, slightly, the nature of innovation (towards products less likely to require repairs that involve replacing components) rather than the total amount.

Accordingly we see no broader economic justification for forbidding the repairs clause.

9.12.1 Winners and losers from introducing an EU-wide repairs clause

The winners from the introduction of an EU-wide repairs clause would be:

- Producers of visible spare parts other than the original product manufacturer, and in particular those operating or seeking to operate in Member States which current do not have a repairs clause.
- Repair workshops (in particular those operating or seeking to operate in Member States which current do not have a repairs clause) providing replacement visible parts that would be able to secure a more favourable balance of price, cost and quantity from producers of visible spare parts other than the original product manufacturer than from the original product manufacturer itself.
- Consumers (across the EU) that would prefer not to enter into a lifecycle agreement with the original manufacturer (e.g. did not wish to purchase a lifetime repairs agreement)
- Consumers (across the EU) that currently enter into a lifecycle agreement with the original manufacturer (e.g. purchase a lifetime repairs agreement), since these can be expected to become more widespread and cheaper (because of economies of scale and because they will need to appeal to marginal consumers with a lower reference price than at present).
- Intermediaries (e.g. lawyers) that deal with the creation, management and execution of explicit lifecycle agreements.

The losers would be:

- Original product manufacturers that were unable to secure explicit life-cycle contracts from consumers at the point of original product purchase.
- Repair workshops specialising in the restoration of damaged components without replacement.

The interests of the first set of losers — manufacturers unable to secure explicit life-cycle contracts — are in one sense irrelevant (since it is not the task of the intellectual property regime to deliver implicit contracts that firms could not secure for themselves) and in another sense clearly simply the counterpart of the consumer gainers that do not wish to take up such contracts.

As to those repair workshops specialising in the restoration of parts, if the total resource cost (including disposal) involved in repairing a product via a spare part is less than that of restoring a part, then by definition the gains from trade from allowing repair via spare parts (amongst the winners) must outweigh the losses to such repair workshops.

Accordingly, we can conclude that, if the reasoning of 9.8 to 9.10 is correct, there gains to winners from mandating a repairs clause will outweigh the losses to losers.

9.13 Does a lack of harmonisation undermine the Single Market?

Consider a company that provides product repair services across the EU, specialising in component replacement. The non-harmonisation of the treatment of visible spare parts means that that firm will be able to sell its service in some Member States but not others. This is as clear and straightforward a case of Single Market segmentation as one could imagine.

9.14 For how much longer will it remain feasible to enforce restrictions on the use of visible spare parts for repairs?

In the previous section, on enforcement, we noted that 3D printing offers the possibility of consumers printing their own spare parts if it were difficult or expensive to source them. We also noted that intellectual property rights, being abstract in nature, present particular enforcement challenges when consumers do not easily understand the sense in which a moral property claim is attached to an intellectual idea.

Given our arguments above regarding the repair of a product being a natural free use of a purchased product by a consumer and that the consumer is unlikely to see a robust distinction between the repair of a product via the restoration of a damaged component and via the replacement of a damaged component, we believe it very plausible that, just as consumers once felt that once they had bought an album they were entitled to tape individual songs, they will feel that once they have bought a product they are entitled to 3D-print individual components for repair.

This provides a further powerful reason for favouring the repairs clause.

9.15 Conclusions and suggestions for further action to be considered

Drawing on the reasoning above, our conclusions and suggestions for further action are as follows:

- Although the use of registered design rights to restrict the manufacture, sale and use of visible spare parts should not be seen as implying any general anti-competitive creation of dominance, there is no good justification for permitting original manufacturers to deny the use of visible spare parts for repairs arising from either the intrinsic property contained in a design nor any good justification arising from broader economic grounds.
- The use of registered design rights to restrict the manufacture, sale and use of visible spare parts should be regarded as creating an implicit contract, between the purchaser of an original product and the manufacturer, restricting repairs that require the replacement of components to be performed only by repairers licensed by the original product manufacturer. In our view, although such contracts should not necessarily be forbidden they should be established explicitly, not introduced implicitly and inefficiently via an intellectual property right.
- Putting the point more bluntly, we do not claim that entering into an agreement to restrict the way a product is repaired should necessarily be forbidden or is necessarily anti-competitive, but if no such agreement to restrict repairs is entered into explicitly then repairs should be allowed. And if repairs are allowed, then the cheapest and most efficient means of repair must be allowed, including when that cheapest and most efficient means of repair involves a visible spare part.
- We also believe that it is clear that a lack of harmonisation on this point undermines the Single Market by creating material differences in the meaning of property rights in different parts of the EU. A product that is purchased in one Member State might legally be able to be repaired by the same firm in some Member States but not others.
- Furthermore, even were a repairs clause not introduced, we believe it plausible that in an age of widespread availability of 3D printing, many consumers would not accept that they were not entitled to produce their own 3D-printed spare parts for repair purposes, meaning that a de facto repairs clause

might become inevitable anyway as it proved infeasible to enforce industrial designs against those infringing for the purpose of repair.

- Accordingly, we recommend that the Repairs Clause be introduced at EU level and mandated throughout the Single Market.
- Of the four options for the repaid clause (Full liberalisation, Term-limited design protection, remuneration system and combination of term limits and remuneration) the reasoning above suggests that full liberalisation is the most natural approach. However:
  - Since we do not believe there is any necessarily strong competition implication of the repairs clause, although it is natural to assume that the prices of visible spare parts themselves would fall after the introduction of a repairs clause (owing to competition from other spare parts suppliers) that will not necessarily mean consumers paying lower prices overall, as original purchase prices would be likely to rise or it would become more common to include explicit additional contracts (with their own costs) bundled together with the original purchase (such an extended repairs agreement).
  - Because we would expect the market to respond with more use of explicit extended or life-cycle repairs contracts bundled with original purchases, the case for term limited protection is weak. Part of the rationale we see for the repairs clause is to make currently implicit contracts explicit. If those explicit contracts include an initial repairs agreement, competitor suppliers of visible spare parts would not, in any event, have a material impact on the market over the duration of such an initial repairs agreement. Conversely, if the impact of a term limit were to be the undermining of explicit initial repairs agreements, replacing them with implicit such agreements supported by the term limit, that would be in conflict with the overall rationale for the repairs clause.
  - Given that (absent any explicit contract to the contrary) we have argued that repairing a product is part of the consumer's natural and reasonable use of that product, we see no good rationale for a remuneration system.

10 Conclusions and Suggestions for Further Action to be Considered

In this section we rehearse, draw together and connect the conclusions of previous chapters, taking from them a set of suggested further actions.

10.1 The definition of design intensive sectors and their contribution to the European Economy

The definition of design-intensiveness for the purpose of assessing its economic value in Europe is intrinsically problematic. Due to the fact that a number of design is unregistered, any definition based on measurable design indicators (e.g. the number of registered designs) leads inevitably to an underestimation of the extent of design activity in the economy. Furthermore, even when the focus is on registered designs, the use of indicators (e.g. number of formal design rights in force, or design applications) for the purpose of economic analysis has practical limitation due to a lack of harmonisation between different data sources. For example, aggregate design data by sector is available from WIPO based on Locarno Classifications, whilst employment and GVA data is available from Eurostat but is available the NACE code level. In absence of a concordance table to match NACE codes to Locarno Classes, any analysis of the contribution of design intensive industries to the European economy must rely on proprietary purpose-built databases that match different data sources.

Having reviewed the relevant literature we came to the conclusions that a recent study published by EPO/OHIM constitutes the deepest and most structured attempt to estimate the economic contribution that designs deliver to the European economy. The above study defines as design-intensive any sector in which there is a higher than (EU) average number of registered designs per employee. Based on the same methodology for defining design-intensiveness we provided an update (for the year 2011) of the economic contribution of design incentive sectors. We found that in Europe:

- Around €123bn of value added was generated in industries which were intensive users of industrial designs only.
- Around €115bn was generated in industries which were design-and patent-intensive;
- Around €527bn was generated in industries which were design-and trademark-intensive;
- Around €924bn was generated in industries which were design-patent-and-trademark-intensive.
- Overall around €1.7trn of value added was generated in all design-intensive industries.
- We also found that although design-only industries employee more persons on average, the average GVA per employee in design-only intensive industries is lower than the average GVA per employee in industries that are intensive users designs in conjunction with other forms of IP. Therefore, value added from industries that intensively use only designs seem to generate value from employing more persons but adding less value per employee, while industries that use other forms of IP alongside designs tend to employee fewer people but add more value per employee.

10.2 Options available for protecting designs and the drivers behind the type of protection chosen

The options available to firms for protecting designs are:

- Formal methods of protections, i.e.:
  - Community industrial designs,
  - Registered national industrial designs
  - Registered Community trademarks
  - Registered national trademarks; and.
- Informal methods of protections

Firms' decisions of whether to opt for formal protection, of which form of IPR to choose, and — when a registered design is the chosen method of protection — of which filing route to take, depend on a range of factors, including the characteristics of the design, the business model of the firm, the geographic scope of the company's operations and the cost of protection. Based on multiple research approaches (i.e. survey analysis, analysis of the time series of design applications by MS, and literature review) we were able to identify the following key drivers:

- The choice of a specific from of IPR to protect designs is driven by the underlying characteristics of the design — E.g. it is not at all uncommon for firms to protect designs using trademarks, especially for (but not restricted to) logos. While some firms consider that there is some complementarity between trademarks and industrial designs, others see them as substitutes.
- The volumes of formal design protection being sought, and the geographical area in which such protection is sought, is to a large extent driven by the characteristics of Member States. More specifically:
  - The aggregate level of design filings (whether filed in a Member State or by firms from a Member State) reflects the size of the economy concerned — higher GDP is correlated with more filings. Larger economies have more firms to make filings and are more attractive as markets for firms making filings.
  - By contrast, the extent to which firms in any given Member State choose to seek protection in other EU Member States, or indeed outside the EU altogether, reflects GDP per capita not simply GDP levels. We interpret this as arising because firms in better-developed (and hence wealthier) economies are more likely to have the competence and connections that allow them to export.
  - In the first few years after OHIM was established, it came to almost totally dominate filings by non-European firms within the EU.
  - For EU firms there remains significant demand for national filing from those firms operating only domestically. But where firms operate in multiple Member States, OHIM filing has become the route of choice.
  - The EU firms that file most outside the EU have, in recent years, been those operating in BRICS economies, particularly China.
- The extent to which formal design protecting is sought depends on firms' characteristics such as size and industrial sector:
  - Companies that operate in design-intensive industries hold more national and European industrial designs than those in non-design-intensive industries.
  - Small firms protect designs less frequently than do large companies.
  - Registered Industrial Designs are taken up more by firms that are more export orientated or that operate in multiple Member States.
  - SMEs also typically hold more national industrial designs than European ones, whereas the reverse is true for large companies (which are more likely to operate in more than one country).
  - There are some exceptions to the general rule, such as the fact that in the design-intensive elements of the textile industry and the footwear and luggage industry, the stock of national industrial designs held by large companies dominates European industrial design stocks (perhaps reflecting the more domestic character of these industries).

10.3 Enforcement

At present there are material differences in enforcement of industrial design and other design protection across the Single Market, which have the potential to segment the Single Market.

Firms believe it is costly and time consuming to enforce industrial designs and that there is a lack of specialised training for courts and judges when it comes to intellectual property issues, whilst being doubtful about the ability of firms to enforce design rights outside the EU.

The Commission already has in place a legislative framework and committee/expert group structure that might encourage further progress in the standardisation/harmonisation of enforcement standards relevant to design.

New technologies such as 3D printing seem likely directly to create material and widespread consumer-driven infringements, of the sort seen in other sectors that led to the collapse of intellectual property regimes there, in only a few areas — the main one we have identified being the 3D printing of spare parts for repair should the use of spare parts for repair continue, in some Member States, to be an infringement.

A further likely enforcement-related issue arising from 3D printing is that, because many firms rely upon the complexity of reproducing designs and/or the speed with which products incorporating designs need to be produced in order to meet relevant consumer demand timelines, and because 3D printing has the capacity to make rapid duplication of even very complex designs feasible, informal design protection may become less common relative to formal registration.

10.4 Visible spare parts

Although the use of registered design rights to restrict the manufacture, sale and use of visible spare parts should not be seen as implying any general anti-competitive creation of dominance, there is no good justification for permitting original manufacturers to deny the use of visible spare parts for repairs arising from either the intrinsic property contained in a design nor any good justification arising from broader economic grounds.

The use of registered design rights to restrict the manufacture, sale and use of visible spare parts should be regarded as creating an implicit contract, between the purchaser of an original product and the manufacturer, restricting repairs that require the replacement of components to be performed only by repairers licensed by the original product manufacturer. In our view, although such contracts should not necessarily be forbidden they should be established explicitly, not introduced implicitly and inefficiently via an intellectual property right.

Putting the point more bluntly, we do not claim that entering into an agreement to restrict the way a product is repaired should necessarily be forbidden or is necessarily anti-competitive, but if no such agreement to restrict repairs is entered into explicitly then repairs should be allowed. And if repairs are allowed, then the cheapest and most efficient means of repair must be allowed, including when that cheapest and most efficient means of repair involves a visible spare part.

We also believe that it is clear that a lack of harmonisation on this point undermines the Single Market by creating material differences in the meaning of property rights in different parts of the EU. A product that is purchased in one Member State might legally be able to be repaired by the same firm in some Member States but not others.

Furthermore, even were a repairs clause not introduced, we believe it plausible that in an age of widespread availability of 3D printing, many consumers would not accept that they were not entitled to produce their own 3D-printed spare parts for repair purposes, meaning that a de facto repairs clause might become

inevitable anyway as it proved infeasible to enforce industrial designs against those infringing for the purpose of repair.

10.5 Scope for improvement in the overall functioning of the system

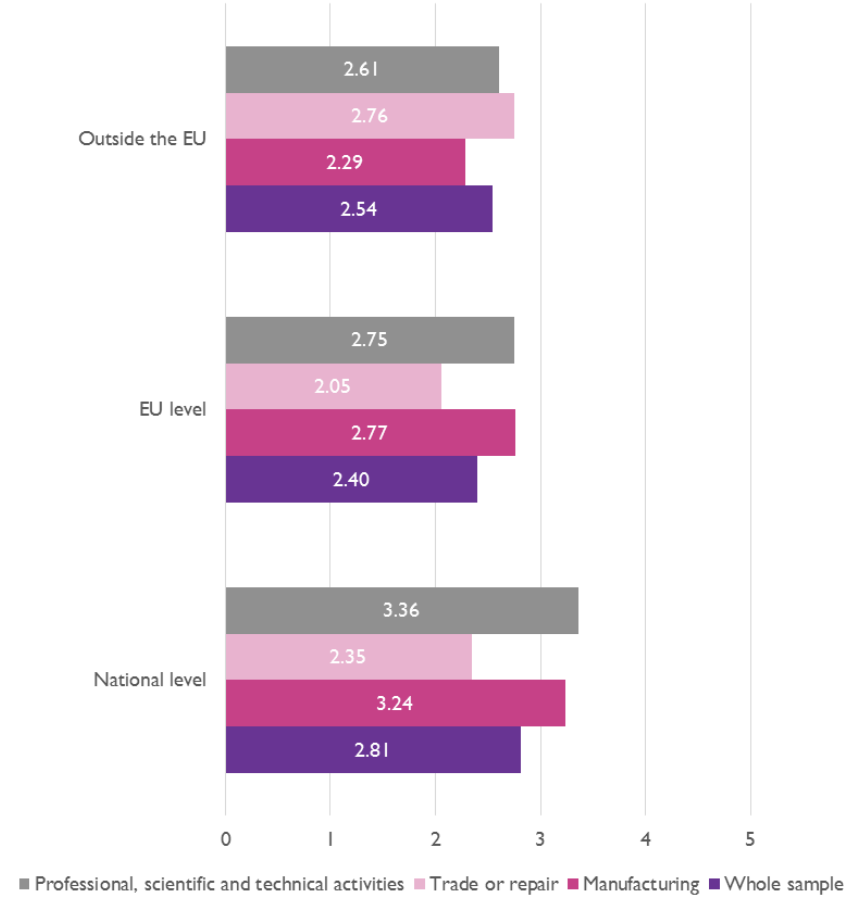
10.5.1 Degree of satisfaction with the functioning of the system

In this context, we asked respondents to our survey to indicate the extent to which they are satisfied with the current functioning of the industrial designs framework in the EU.[195] More precisely, Figure 10.1 and Figure 10.2 look at the overall level of satisfaction with design protection systems at the national and EU levels, as well as outside the EU. Averaging across the whole sample, it can be seen that there is greatest dissatisfaction with the design protection system in place at the EU level while respondents are most satisfied with provisions at the national level.

Figure 10.1 different levels of satisfaction by NACE classification. Overall, respondents are most dissatisfied with design protection systems at the EU level, in particular firms in the trade / repair sector, a finding which is likely to be influenced by companies that are dissatisfied with the protection of visible spare parts in Europe. Respondents from the manufacturing and professional, technical and scientific activities sector are more content with the systems at EU level and in individual Member States.

[195] Please see section 2.2.3 for a detailed description of the survey.

Figure 10.1: Average level of satisfaction with the functioning of the design protection system, by NACE classification

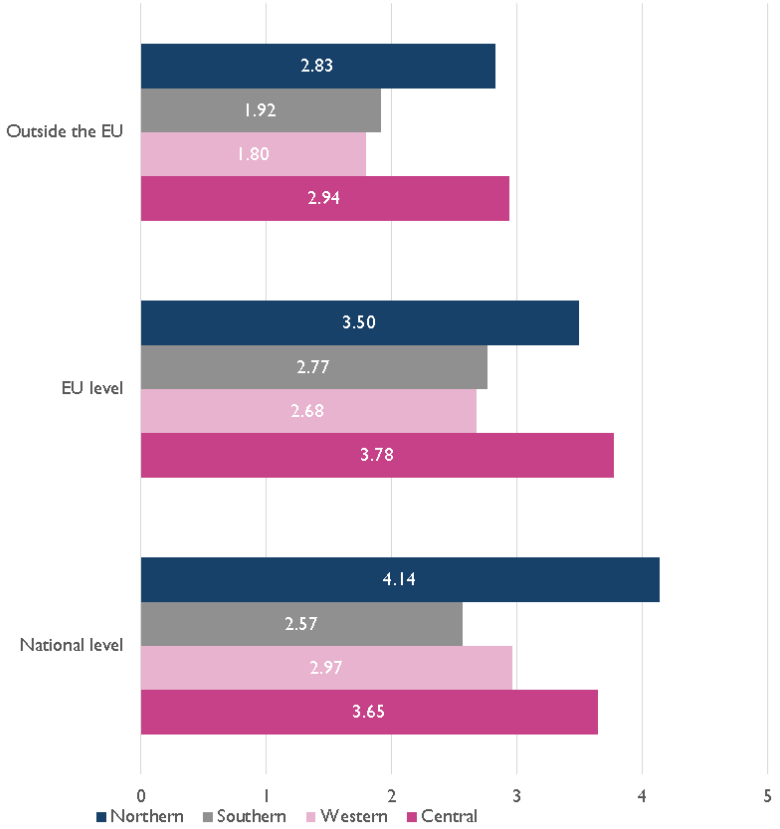


Note: Respondents were asked to answer on a 5 point scale where 1 means they are not at all satisfied and 5 means they are completely satisfied. This figure is based on a minimum of 98 responses for the whole sample, 38 for the manufacturing, 41 for the trade or repair and 18 for the professional, scientific and technical activities subsamples.

Firms in Northern and Central Member States appear most satisfied with design protection systems at all levels, with Southern and Western Member State firms significantly less satisfied in each case, as evident in Figure 10.2. Companies from Northern Member States are particularly satisfied with national level design protection systems and Southern and Western Member State firms are particularly dissatisfied with design protection systems outside the EU.

There is a lot more variation in satisfaction across origin of respondent (Figure 10.2) than across type of respondent (Figure 10.1). This suggests that where an organisation is based, rather than the sector in which it operates, has a more significant bearing on how satisfied that organisation is with the design protection system.

Figure 10.2: Average level of satisfaction with the functioning of the design protection system, by origin of respondent



Note: Respondents were asked to answer on a 5 point scale where 1 means they are not at all satisfied and 5 means they are completely satisfied. This figure is based on a minimum of 16 responses for the central, 25 for the western, 12 for the southern and 6 for the northern subsamples.

It is interesting to compare the average levels of satisfaction, as shown in Figure 10.2, with the actual usage of these types of protection, as shown in Figure 6.24. Table 10.1 shows that, with the exception of Central Member States' high satisfaction with EU level design protection despite low usage, there is a general association between higher levels of satisfaction and higher levels of usage.

Table 10.1: Satisfaction and use of industrial designs at national and European level

Region	Average use of national level design protection[196]	Satisfaction with national level design protection	Average use of EU level design protection[197]	Satisfaction with EU level design protection
Northern	18.6	4.14	22.0	3.50
Southern	15.7	2.57	10.3	2.77
Western	16.0	2.97	9.0	2.68
Central	15.7	2.81	8.7	3.78

[196] Average use of national level protection is calculated as the average use of national trademarks, national unregistered industrial design protection and national registered industrial design protection.

[197] Average use of EU level protection is calculated as the average use of community trademarks, community unregistered industrial design protection and community registered industrial design protection.

10.5.2 Scope for improvement in the industrial design granting process

At present, there are no material differences between countries in the requirements for protecting designs and hence, in that sense, the system is harmonised. A design is defined everywhere by its novelty and individual character. It should be an image, visible in normal use and its shape should not be dictated only by technology.

However, even if there are not significant inconsistencies in design protection requirements, there are differences in what each office examines for protection. For instance, OHIM does not carry out extensive examination to verify the individual character and novelty of the designs where as some Member States do so. OHIM's approach means that if designs meet all the requirements of protection then they can be granted and so there are instances in which industrial designs are granted for copied designs. In such cases, the onus is on the original developer of the design to apply for a cancellation of the industrial design that was granted for the copy.

At first sight this approach may appear to be sub-optimal and open to improvement through more effective examination procedures. However, OHIM argues that it is not practical to change the current process as it is impossible to search for design novelty at the European level. The argument runs as follows. Some Member States do check for the novelty of the designs by carrying out searches in their own published bulletins but they cannot easily check the design registers of other Member States. Moreover, any design, registered or unregistered will be considered to be a disclosure. This means that to check novelty of the design properly it would be necessary to assess all published and unpublished designs. In respect of unregistered designs this appears impractical and hence the current system under which a third party can apply for cancellation of a granted industrial design is the best possible practical approach.

That argument may not be fully convincing as a case against pan-EU novelty checks in that it could still be possible to use a system in which there was a check at the pan-EU level for novelty amongst already-registered designs, with the challenge to the registered industrial design by those with unregistered industrial designs taking the same form as at present. To make such a system function effectively, it might be necessary to provide some automatic linkage of national industrial design databases.

An additional advantage of such a system of linked databases is that it could be developed into a single portal, with a user-friendly interface, allowing any firm or individual considering registering (or indeed enforcing — see below) a design to view all designs currently registered anywhere in the EU.

10.5.3 Scope for improvement in the industrial design enforcement process

As noted in Section 8, the laws and principles applying to European design law across Member States are not unified — a matter that appears not to be adequately mitigated through interpretative guidance provided by the ECJ,. This can be an especially important issue in industrial design enforcement, where judgement is provided mainly by national courts. Even when a Registered Community Design is believed to have been infringed in the territory of an EU Member State, there are multiple options for taking enforcement action:

- An action could be filed to the Community court, which has community wide competence.[198]
- An infringement case could be taken to the national courts of the country. In this case competence is restricted only to the national territory.

As each Member State has its own judicial system, the requirements for evidence and the sanctions imposed vary from country to country.

[198] The rulings of this court will, however, only be applicable to the entire EU area only if the claimant or the defendant is domiciled in the EU. If this is not the case, then the European Community court in Alicante should be consulted for Community wide competence.

An alternative option would be to make all design cases relating to Community design justiciable at the European Court of Justice, thereby imposing a common framework of rules and evidence that sits within broader European Community jurisprudence. Alternative options might be

- to have a single specialist Unified Design Court on the model of the forthcoming Unified Patent Court — either as a single entity or (more probably) making all Community courts branches of the single Unified Design Court.
- to harmonise the rules of evidence and penalties applicable to the current Community Court structure.[199]

10.5.4 Suggestions from stakeholders for improvement

Thus, at the overall level, our analysis has found that there is scope for improvement in a number of aspects of the industrial design system. Next we set out certain suggestions of survey respondents and interviewees regarding potential improvements to the system. We note that inclusion in this section does not imply that we endorse the suggestions made — our own specific suggestions for further action appear in Section 10.5.2.

Survey respondents and interviewees provided a range of suggestions for improvements to the current system for design protection in Europe. Abstracting from the issue of visible spare parts, which was discussed separately in Section 8, respondents' suggestions can be placed into five categories:

- Scope.
- Information.
- Procedures.
- Administrative burdens / procedures / costs.
- Harmonisation.

These are discussed in turn.

Scope

A number of companies noted that the current system for protecting designs through an industrial design is such that only a very specific shape, image etc. is protected. This means that, in many industries, it is possible for a competitor to produce a 'near-copy', which has sufficient differences from the protected design such that it does not infringe rights but can appear to be almost identical to the consumer. Some respondents stated that this limited scope of protection means that it is difficult to secure a level of protection that would ensure that their design provides a competitive advantage. In turn, some companies have questioned whether it is rational for them to pay for an industrial design when their competitors can produce goods that appear almost identical to the consumer.

Despite these concerns, however, no interviewee or survey respondent provided a clear proposal for amending the scope of protection, although one argued that it should be possible to use colour in OHIM designs.

Information

Information was a key theme in responses to the survey and in our interviews with companies.

More specifically, there are at least three areas in which companies that operate in design-intensive industries consider that information could be improved:

- information on what can be protected;
- information on how to protect; and

[199] This would differ from the Unified Design Court option in that, for example, there might be differences in the judges entitled to hear cases.

- information on enforcement.

More precisely, some firms noted that there is a significant burden associated with investigating whether or not a proposed new design already exists as a registered or unregistered industrial design. As a result, many companies do not investigate properly and hence may register a design application for a product that is already protected.

While it would not be practical to develop a system in which companies can check for the existence of unregistered industrial designs, it may be possible to make it easier for companies to search the registers of OHIM and national intellectual property offices. Some respondents suggested that this could involve two dimensions: better references; and an easier search method.

Some respondents indicated that the amount of information available from OHIM on specific designs should be expanded. In particular, it suggested that it should be possible to make more views in the OHIM designs register and that the information should allow for text / explanation.

Numerous small companies expressed a lack of understanding of how to protect designs under the current system and suggested that there is a need for better information and training material. While it would be straightforward to develop user-friendly guidance on industrial designs, dissemination would be the key challenge. Ensuring that such material reaches design-intensive companies of all sizes would require OHIM, national intellectual property offices, and the European Commission to work with trade associations that represent those companies. Moreover, an advice helpline could be established to assist those that have questions on industrial designs.

Finally, some companies stated that they do not understand the process for enforcing their industrial designs in the event that a competitor breached their rights. This problem could again be addressed through the provision of user-friendly information.

Administrative burdens / procedures / costs

Many companies suggested that the current application procedures for industrial design protection should be simplified. Some of these respondents file only at the national level and hence their experiences may reflect the somewhat lengthier procedures in certain national offices rather than reflecting the typical situation across the EU. However, the fact that there are currently different procedures and requirements at different national offices and OHIM is perceived to have added complexity to procedures.

Some national intellectual property offices do not yet allow for electronic applications or have electronic bulletins or registers. Allowing for such possibilities would be likely to reduce administrative costs, make the system more accessible for SMEs and reduce the length of time between application and registration. It may lead to lower costs for the intellectual property office and so allow for a reduction in application fees, which would be welcomed by many respondents to the survey. Given that the reduction in fees would take place at national level, and given that SMEs are more likely to file for national protection than are large companies, the introduction of electronic systems could be of particular benefit to smaller design-intensive companies.

Enforcement

In addition to the perceived lack of information on the enforcement process if a competitor breaches an industrial design, some stakeholders questioned the effectiveness of the enforcement process.

Some suggested that small companies cannot afford to defend their rights, even if the law protects them, because of the cost of engaging lawyers to work on their case. The fact that enforcement action must currently be conducted separately in each Member State means that the cost of enforcing the rights granted by a Community registered (or unregistered) design can be substantial. Concerns were also expressed in respect of the time taken to enforce rights, particularly in the case of Community industrial designs.

However, some respondents noted that in magazine publishing there is no need to take protective action by applying for registered industrial design protection. Rather, the respondent pursues legal action through the courts if any of its competitors has infringed its unregistered rights. The fact that ex post enforcement is used as the default option by at least one industry is an interesting finding, not least because of the substantial monetary and time costs of enforcement proceedings raised by other respondents.

One possible explanation for this difference of opinion may be that the enforcement process is cheaper, quicker and more effective in some European countries than in others. Indeed, some respondents noted that the enforcement process works well in the Netherlands and suggested that it should be used as a model for a harmonised regime across Europe.

Harmonisation

As noted above, some respondents felt that the presence of different procedures for national industrial design applications in different countries creates complexity and some uncertainty (from the perspective of the applicant) in the European industrial design system. In this context, some respondents argued that an EU-wide harmonisation of the legal circumstances of the design protection would benefit those that operate in design-intensive industries.

Moreover, some respondents argued that there should be international harmonisation between countries in respect of grace periods, image requirements, publication deferment and rules determining exactly what can be protected in each country. The respondent stated that a lack of harmonisation in image requirements results in a high work burden to produce images for different countries, and in some countries there is no clear guidance on the best way to represent designs. Some countries restrict the extent to which designs can be effectively protected through rules relating to what can be protected while the lack of an option to defer publication (e.g. in the US and China), combined with the lack of grace period in China, was argued to complicate the filing process.

Other respondents suggested that the most important improvement would be to develop internationally recognised and universally enforced rules. Our understanding of this contention is that it would be optimal to establish a system under which it would be possible to only have to apply for protection once, and then be assured that the design is protected world-wide. It was noted that in the global software market, regional / national protection is almost meaningless, because it will be circumvented via other countries or the easy transport of data / designs over internet.

The appetite for international harmonisation amongst some design-intensive firms is interesting, and the issue may become more pressing in coming years in light of the development of 3D designs (see section 7.2). However, we would expect international harmonisation efforts to be a longer-term process whereas it may be possible to secure greater harmonisation in Europe in the shorter term.

OHIM informed us that it is aiming for greater harmonisation between Member States of the industrial design system at national level and is actively involved in this activity through its convergence project. The aim of the convergence project is to achieve sufficient harmonisation so that there are no surprises for people applying to the OHIM office or to the national offices. However, it is recognised that individual practises of the Member States should remain and hence the convergence project aims to achieve as much harmonisation as possible without legislative changes.

10.6 Europe Economics' suggestions for further action to be considered

Drawing upon the analysis and findings above, we offer the following suggestions for further action that could be considered:

Further action that could be considered 1: Establish a best practice, at Community level, that small business and business start-up support programmes provided by national, regional and local authorities should (when

the firms in question are in design-intensive sectors) include advice to firms on the availability, potential benefits and mechanisms for registering and enforcing national and Community industrial designs (see Section 10.5.4). This suggested action for consideration would tackle the problem that many companies are not aware of industrial designs and how they might help their business. By increasing awareness it is likely that more companies would make informed decisions of whether and how to protect their designs and this should help to improve the performance of firms that opt for such protection.

Further action that could be considered 2: Establish an information dissemination process, mediated via industry associations and other relevant stakeholder representatives, to promote knowledge and understanding of Community industrial designs and their potential value (see Section 10.5.4). This suggested action for consideration would tackle the problem that many trade associations lack knowledge of the industrial designs system within the EU and hence are unable to provide support to their member firms on such issues. Trade associations can play a key role in improving information flows to their members and so reduce the search costs associated with protecting designs which, in turn, should lead to companies making more informed decisions.

Further action that could be considered 3: Establish a Community-level body to support EU firms in applying for and enforcing industrial designs outside the EU (see section 8). This suggested action for consideration would help to reduce the barriers to entering markets in outside the EU by reducing the search costs associated with understanding the IPR frameworks of third countries. In turn, this should help to encourage more firms to enter non-EU markets and would thereby support the continuing success of EU businesses.

Further action that could be considered 4: Mandate the availability of e-application for industrial designs in every Member State (see section 10.5.4). This suggested action for consideration would reduce the cost of applying for protection and hence could be of particular benefit to SMEs (which typically are less able to bear such costs). It may also help to reduce the duration of the application process in countries that currently use paper registrations which may increase the number of products for which it is rational to seek registered protection of a design.

Further action that could be considered 5: Complete the establishment of a single portal at which potential design applicants or those considering enforcement action can review all designs registered anywhere in the EU (see sections 10.5.2 and 10.5.4). This suggested action for consideration also refers to the DesignView tool that is currently being implemented by OHIM which we consider would be of great benefit to companies that hold registered industrial designs and those that wish to oppose them given the current difficulties in sourcing information on granted industrial designs in certain countries.

Further action that could be considered 6: Conduct a legal review of the best mechanism for achieving a unified framework for Community industrial designs enforcement with a view to enactment (see sections 8 and 10.5.3). This suggested action for consideration is designed to tackle the problem that the process for enforcing industrial designs, and the associated costs, can differ substantially between Member States. The fact that industrial designs may be enforced separately in different countries creates a significant administrative burden for those that consider that their right has been infringed in multiple jurisdictions. Moreover, the fact that there are differences in the evidence requirements of different Member States means that different courts could potentially reach different decisions. The best mechanism for tackling this problem is not clear from the economic analysis and hence a detailed legal review should be conducted on the issue.

Further action that could be considered 7: Plan ahead and resource intellectual property offices for much great demand for design registration in the relatively near future (see section 8). We believe this is a plausible consequence of the wide-spread use of 3D printing, which (as well as necessitating the clarification of certain areas of legal uncertainty and potentially requiring new digital rights that address management, production and infringement issues) will render obsolete a number of the mechanisms of informal protection that firms have traditionally relied upon.

Further action that could be considered 8: With respect to visible spare parts, introduce a repairs clause at EU level, in the form of the "full liberalisation" option, and mandate its applicability throughout the Single Market (see section 9). We believe that, although the absence of a repairs clause is not intrinsically anti-competitive, there is no good intellectual property reason not to have a repairs clause and the effect of its absence is to force consumers into implicit ongoing contracts with original suppliers that consumers might not choose for themselves, that would be better explicit and that it is not the job of the intellectual property system to create.

11 Appendix I: Search Strategy

It is critical that any literature review is focused and well-directed so that the relevant theoretical and empirical materials are identified efficiently.

The steps undertaken for the development of our literature review are briefly summarised below:

- Identify the best key words to search the internet for relevant material.
- Use Google and other search engines to identify relevant literature.
- Search for the same key words but in other European languages.
- Use the experience of the team to identify further relevant research fields.
- Research the work of the authors/academics/consultants that have been involved very closely in the field of intellectual property rights.
- Develop a long list with the identified literature.
- Identify the most prominent themes in the literature and then categorise each of the findings into the relevant thematic.
- Choose the most relevant articles from each theme and shortlist them into a list that would be reviewed for the literature review.
- Check that all the themes have been extensively covered. Conduct further research if we spot gaps in the literature of a specific topic. Ensure we have a spherical understanding of the topic.
- From the shorter review list choose the top most relevant articles or reports from each thematic and explore in depth in the literature review.

The steps undertaken are analysed in more detail below.

- At the onset of the literature review we agreed on a set of search criteria, which would encompass search terms to be used (and their variants). Given the multi-national nature of our staff, where relevant, we were also able to search non-English academic databases and key words to ensure a complete coverage of the topic. The key words that we have used are the following:

English:

- Design protection.
- Intellectual property rights.
- Industrial design protection.
- Economic impact of design protection/intellectual property rights/patents.
- Design protection across countries.
- Design intense industries.
- Absolut Vodka bottle design protection.
- Protecting Both Form and Function of Innovative Designs.
- Intellectual property rights-intensive industries Sweden.
- Why design protection.
- The importance of design.
- Competitiveness of design products.
- Product design and financial performance.
- Economic drivers to protect design.
- Design advantages.
- Danish Design companies.
- Design differentiation economic growth.

- Intellectual Property and the Protection of Industrial Design.
- Creative economy and design.
- Economic implications of car spare parts design.
- Contribution of design.
- Overlap of industrial design and copyright.
- Secrets Intellectual Property: A Guide for Small and Medium-Sized Exporters (Publication No.ITC/P161).
- The intellectual property of 3D printing.
- Design protection of 3D printing.

Swedish:

- Design och konkurrens.
- Immaterialrättsliga sektorers bidrag till ekonomin.
- Immaterialrätt och prejudikat.
- Ekonomiska effekter av designskydd/mönsterskydd.
- Absolut vodka mönsterskydd/designskydd.
- Ikea mönsterskydd/designskydd.
- Lego mönsterskydd /designskydd.
- Reservdelar.
- Bildelar.
- Mönsterskydd /Designskydd I svenskt näringsliv.
- Designskydd.
- Designskydd användning.
- Mönsterskydd.
- Immaterialrätt och svensk industry.
- Svenskt näringsliv och designskydd.
- Immaterialrätt och användande av designskydd.
- Immaterialrätt och användande av mönsterskydd.
- Immaterialrätt reservdelar debatt.
- Designskydd av reservdelar.
- Svensk fordonsindustri reservdelsdebatt.
- Svenskt näringsliv och designskydd av reservdelar.

French:

- Propriété Intellectuelle et Industriel.
- Propriété Intellectuelle et Industriel design.
- dessins industriels brevet.
- Brevets de dessin ou modèle.
- Proteger dessins industriels.
- Avantage dessins industriels.
- Strategie dessins industriels.
- complémentarité du droit d'auteur.
- dessins et modèles.
- stratégies entreprises protection propriété intellectuelle.
- impression 3D et risques pour la propriété intellectuelle.
- Différence INPI et OHMI.
- Comparaison protection propriété intellectuelle en Europe.
- Statistiques INPI.
- PME et propriété intellectuelle.
- Entreprises françaises et OHIM.

German:

- Design: Design, Designschutz, Entwurf, Gestaltung.
- Intellectual property: geistige Eigentum.
- Intellectual property rights: gewerbliche Schutzrechte.
- Locarno classification: Locarno-Klassifikation.

Spanish:

- Design: diseño, diseño industrial.
- Intellectual property: propiedad intelectual, propiedad industrial.
- Intellectual property rights: derechos de propiedad industrial.
- Locarno classification: clasificación de Locarno.
- diseño industrial españa.

Portuguese:

- Design: design, desenho, desenho ou modelo.
- Intellectual property: propiedade industrial.
- Intellectual property rights: direito de propriedade industrial.
- Locarno classification: classificação de Locarno.

Danish:

- synlige reservedele.
- reservedele biler.
- Immaterialret.
- industrielt design ret.
- intellektuel ejendomsret.
- intellektuel ejendomsret industrielt design.
- Designret.
- designret industrielt design.
- synlige reservedele biler.
- designret industrielt design.
- immaterialret og designret.
- mønsterbeskyttelse biler.
- Mønsterbeskyttelse.
- mønsterbeskyttelse reservedele biler.
- industriel design rettigheder.
- beskyttelse af design.
- hvordan beskytter man industrielt design.
- beskyttelse af industrielt design.
- effektiv beskyttelse af industrielt design.
- intellektuelle ejendomsrettigheder eller trademark.
- industrielt design trademarks.
- industrielt design varemærker.
- industrielt design ophavsret.
- dansk brug af designloven.
- virksomheder industrielle designs.
- industrielt design trademark overlap.
- hvordan beskytter virksomheder industrielle designs.

Romanian:

- Brevet design industrial.
- Desen Inustrial brevet.
- Protejarea Desen Inustrial brevet.
- Model industrial brevet.
- Strategie Desen Inustrial brevet.
- complementaritate a drepturilor de autor Desen Inustrial.

Greek:

- Βιομηχανικός σχεδιασμός.
- Ευρεσιτεχνία βιομηχανικός σχεδιασμός.
- Πατεντα βιομηχανικός σχεδιασμός.
- Προστασια βιομηχανικός σχεδιασμός.
- Στρατηγικη βιομηχανικός σχεδιασμός.
- Συμπληρωματικότητα των πνευματικών δικαιωμάτων βιομηχανικός σχεδιασμός.

Italian:

- Disegno Industriale.
- Industrial Design PMI (PMI = SMEs).
- Design Industriale MNC.
- Design Protection Italia.
- Come proteggere il design (How to protect designs).
- Come proteggono il design le società (How do firms protect designs).
- Protezione Design.
- Strategia di protezione design per ditte (Design protection strategy by firms).
- Utilizzo Industrial Design Italia.
- Società Industrial Design Italia.
- Products of design.
- Design autoricambi.

We have used the internet as a search tool to identify relevant research, using search engines including Google Scholar, JSTOR, Ingentia, Interscience, REPEC and Citation databases, e.g. Web of Science. We have also identify any relevant material from books and other types of publications. We have also checked references in the documents it reviews to establish whether there are any further studies which should be reviewed

We drew on the academic expertise available to the project team. The project team has provided a list of relevant literature, drawing on their own research in the relevant fields. This has ensured that an appropriate list of documents was chosen for review, and that the conclusions which emerge from the literature review take account of the latest academic developments. Furthermore, the research published by members of the project team has itself formed part of the literature review. Thus we were able to develop a list of authors whose work would be most relevant for our work. This list is provided below:

- Gemser and Leenders, 2001.
- Hertenstein et al., 2005.
- Walsh, 1992.
- Julie H. Hertenstein, Marjorie B. Platt and Robert W. Veryzer, 2004.
- Heskett J., 2008.
- Vinodrai, 2009.
- Walsh, Roy, Bruce, Potter, 1997.

- Schickl, 2012.
- Schlötelburg, Folliard-Monguiral.
- Borja de Mozota, 2003.
- Benghozi, Santagata, 2001.
- Guo, 2010.
- Verganti, 2006.
- Gemser, Jacobs, Cate.
- Potter, Roy, Capom, Bruce, Walsh, Lewis.
- Roy, 2004.
- Maskus, 2000.
- Evenson & Kanwar, 2001.
- Jensen & Webster, 2004, 2006.
- Gowers, 2006.
- Hanel, 2006.
- Kanwar, 2006.
- Raustiala & Springman, 2006.
- Aurora et al, 2007.
- Brown, 2008.
- Gallie & Legros, 2009.
- Lerner, 2009.
- Pajak, 2009.
- De Rossenfosse, 2010.
- Munari & Santoni, 2010.
- Schweibacher, 2010.
- Dal Borgo et al, 2011.
- Mahmood & Sattar, 2011.
- Kim, 2012.
- Munari, 2012.
- Hall et al, 2013.
- Birke & Swann, 2005.
- Clayton & Mitra-Kahn, 2010.
- Farooqui et al, 2011.
- Greenhalgh & Rogers, 2010.
- Hackett, 2011.
- Hargreaves, 2011.
- Haskel & Pesole, 2011.
- Haskett et al, 2010.
- Kenchatt & Robson, 2010.

Below, we provide some examples of the type of literature we have reviewed for this task:

- Academic Articles.
- Consultancy reports.
- Government publications.
- White papers.
- Publications by relevant institutions such as WIPO, IPO and EPO.
- Media articles.
- Working papers.
- Europe Economics past publications.

- Books.
- Legal documents.
- Previous court cases.
- Official government legislation for each country.

12 Appendix II: Long Literature Review List

Table 12.1: Extensive Literature Review

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Guia basico: proteccion del diseno industrial	Chamber of Commerce of the Valencian Community	Trade association	2004	Spanish	Guidance	Design	Y	Spain, Europe	N
Scenarios for the future: How IP regimes evolve by 2025? What global legitimacy might such regimes have?	European Patent Office	Intellectual property authority	2007	English	Survey	Patent	Y	Global	N
Intellectual Property Rights Business Management Practices: A survey of literature	Peter Hanel	Intellectual property authority	2004	English	Survey	IP	Y	US, EU, Canada, Australia, Japan	?
The Economic Impact of Counterfeiting	Ms Hema Vithlani, OECD	Organisation	1997	English	Qualitative	IP	Y	Global	?
Legal Protection of Industrial Designs	Mr. Riichi Ushiki	Intellectual property authority	2001	English	Qualitative	IP	Y	Global	?
state of design: European regional survey	Icograda	Organisation	2010	English	Survey	Design	N	EU	N
The place of Design: Exploring Ontario's Design Economy	Tara Vinodrai	Academic	2009	English	Empirical	Design	N	Canada	?

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Creating Economic Value by Design	John Heskett	Academic	2008	English	Theoretical	Design	N		?/Y
Design Protection in Europe	Chris Hirsz, Hepworth Lawrence Bryer & Bizley	Intellectual property authority	2004	English	Policy	Design	Y	EU	?
Intellectual property rights-intensive industries: contribution to economic performance and employment in the European Union	Joint EPO-OHIM study	Intellectual property authority	2004	English	Empirical	IP	Y	EU	Y
The Impact of Industrial Design Effectiveness on Corporate Financial Performance	Julie H. Hertenstein, Marjorie B. Platt andRobert W. Veryzer	Academic	2004	English	Empirical	Design	N	US	N
How integrating industrial design in the product development process impacts on company performance	Gerda Gemsera, Mark A. A. M. Leenders	Academic	2001	English	Empirical	Design	N	Netherlands	N
Winning by Design: Technology, Product Design and International Competitiveness	Walsh; Roy; Bruce and Potter	Academic	1997	English	Qualitative	Design	N	Global	N
Protection of industrial design in the US and in the EU - Different concepts or different labels?	Lena Schickl	Academic	2012	English	Qualitative	IP	Y	Global	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
An overview of the Community design system	Schlötelburg, Folliard-Monguiral	Academic		English	Policy	IP	Y	EU	N
Design and competitive edge: A model for design management excellence in European SMEs	Brigitte Borja de Mozota, DMI	Organisation	2003	English	Qualitative	Design	N	EU	N
Design Protection in Europe	Bardehle Pagenberg	Intellectual property authority	2013	English	Policy	Design	Y	EU, Germany	N
Market Piracy in the Design-based Industry: Economics and Policy Regulation	Pierre-Jean Benghozi and Walter Santagata	Academic	2001	English	Qualitative	Design	N	Global	N
SHARING EXPERIENCE EUROPE POLICY INNOVATION DESIGN	SEE Bulletin	Organisation	2013	English	Guidance	Design	N	Global	Y
SHARING EXPERIENCE EUROPE POLICY INNOVATION DESIGN	SEE Bulletin	Organisation	2011	English	Guidance	Design	N	Global	N
Product Design and Financial Performance	Liang Guo	Academic	2010	English	Empirical	Design	N	Global	N
Creative Economy Report 2010	UNCTAD	Organisation	2010	English	Qualitative	Creative	N	Global	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
Protecting designs, copyrights and trademarks: The Italian versus the EU way	Dennemeyer & Associates	Consultancy		English	Guidance	IP	Y	EU, Italy	N
Designs: A global guide. Italy	Bardehle - Giovanni Francesco Casucci	Intellectual property authority	2014	English	Guidance	Designs	Y	Italy	N
Programma Breve	Incentividesign	Intellectual property authority	Italian	Policy	IP	Y	Italy	N	
Innovation Through Design	Roberto Verganti	Academic	2006	English	Qualitative	Designs	N	Italy	N
Design in ICT: An Exploratory Study on the Value Added of Design in the Dutch ICT Sector	dr. Gerda Gemser prof. dr. Dany Jacobs drs. Ritzo ten Cate	Academic		English	Survey	Designs	N	Netherlands	N
The Netherlands	Marc de Kemp Wolter Wefers Bettink	Consultancy		English	Qualitative	Designs	Y	Netherlands	Y
Creativity, Design and Business Performance	DTI ECONOMICS PAPER NO.15	Trade association	2005	English	Qualitative	Designs	N	UK	Y
TheCREATIVE NATION A growth strategy for the UK's creative industries	CBI	Organisation	2014	English	Policy	Creative	N	UK	N
Call for Evidence Design	IPO	Intellectual property authority	2011	English	Survey	IP, Design	Y	UK	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
THE BENEFITS AND COSTS OF INVESTMENT IN DESIGN: Using Professional Design Expertise in Product, Engineering and Graphics Projects.	Potter, Roy,Capon, Bruce, Walsh and Lewis	Academic	1991	English	Survey	Design	N	UK	Y
Think piece on The Role of Design in Business Performance	Bruce Tether, ESRC Centre for Research on Innovation	Organisation		English	Survey	Designs	N	UK	?
Digital Opportunity: A review of Intellectual Property and Growth	Hargreaves	Government	2011	English	Qualitative	IP	Y	UK	Y
Intellectual Property in the Fashion Design Industry Design Rights	CENTRE FOR FASHION ENTERPRISE	Organisation	2012	English	Qualitative	IP	Y	UK	Y
The interplay between design and copyright protection for industrial products	AIPPI			English	Guidance	IP	Y	UK	N
Policies for developing the design industry in the Nordic Region	Nordic Council of Ministers Department of Cultural Policy	Government	2006	English	Guidance	Designs	N	Nordic	Y
Design-Driven Innovation Programme : New solutions to new challenges	Norwegian Design Council	Trade association	2010	English	Policy	Designs	N	Norway	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Country Report: THE SWEDISH DESIGN INDUSTRY	Nordic Innovation Centre	Organisation	2004	English	Empirical	Designs	N	Sweden	Y
The competitiveness and industrial dynamics of the Nordic design industry Final Report	Nordic Innovation Centre	Organisation	2004	English	Guidance	Designs	N	Nordic	Y
A comparative analysis of strategies for design in Finland and Brazil	University of Wales	Academic		English	Survey	Designs	N	Finland, Brasil	N
Konkurrens och bilverkstäder Tillämpningen av gruppundantaget för motorfordon	Swedish Competition Authority	Government	2008	Swedish	Policy	Car Spare Parts	Y	Sweden	N
Piratkopiering I världshandeln – och andra immaterialrättsliga problem i BRIC, Indonesien och Japan ur ett handelspolitiskt perspektiv	Swedish Trade Council	Trade association	2012	Swedish	Qualitative	IP	Y	Global	Y
Design Denmark	Danish Government	Government	2007	English	Policy	Design	N	Denmark	Y
The Vision of the Danish Design2020 Committee	Design Committee	Organisation	2011	English	Policy	Design	N	Denmark	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
The Economic Effects of Design	National Agency for Enterprise and Housing	Organisation	2003	English	Survey	Design	N	Denmark	N
Denmark in the Culture and Experience Economy – 5 new steps		Government	2003	English		Culture	N	Denmark	N
Propriete Industrielle & Developpement economique	L'Institut N ational de la Propriété Industrielle (INPI)	Intellectual property authority	2003	French	Guidance	IP	Y	France	N
INFORMATIONS GÉNÉRALES SUR LES DESSINS INDUSTRIELS	Lawyers	Intellectual property authority	2012	French	Guidance	IP	Y	France	N
Étude internationale sur les politiques favorisant l'usage du design par les entreprises	Ministere de L'Economie De L'Industrie et de L'Emplos	Government		French	Policy	IP	?	France	N
éCONOMIE DU DESIGN	Membres du comité de pilotage	Organisation		French	Survey	Designs	?	France	Y
le management du design par les entreprises présentes dans l'Observeur du design 00 à 06	APCI	Organisation	2006	French	Survey	Designs	N	EU	Y
Information brochure on design protection - Germany	German Patent and Trade Mark Office	Government		English	Guidance	Designs	Y	Germany	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
Annual Report 2012	German Patent and Trade Mark Office	Government	2012	English	Guidance	Design	Y	Germany	N
Design Protection in Germany: Recent Developments	Leopold von Gerlach			English	Guidance	IP	Y	Germany	N
Gradul de convergență / divergență a reglementărilor și instituțiilor privind drepturile de proprietate industrială (Uniunea Europeană, SUA și România)	Ion E. ANGHEL Victor IANCU	Consultancy		Romanian		IP	Y	Romania	N
Strategia Regionala De Inovare A Regiunii Vest România 2009 – 2013				Romanian	Policy	IP	?	Romania	Y
2nd Cambridge Academic Design Management Conference 4 - 5 September 2013	University of Cambridge	Academic	2013	English	Qualitative	Design	N0	UK	N
Guia basico: proteccion del diseno industrial	Chamber of Commerce of the Valencian Community	Trade association	2004	Spanish	Guidance	Design	Y	Spain, Europe	N
GUIA-MANUAL: Propiedade Industrial e Intelectual	Innovation Network Spain-Portugal	NGO	2013	Portuguese	Guidance	Design, Patent, Trademarks	Y	Portugal, Europe	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Estudio del impacto económico del diseño en España	ddi: sociedad estatal para el desarrollo del diseño y la innovación	Government	2005	Spanish	Empirical	Design	Y		Y
Design in Britain	Design Coucil								
Regulamento de Propriedade Intelectual da Universidade da Madeira	Universidade da Madeira	Academic		Portuguese	Guidance	IP in general	Y	Universidade da Madeira	N
"Design in the Knowledge Economy 2020"	Design Council	NGO	2010						
Industrial Design Law and Practice - Analysis of the Returns to WIPO questionnaires"	WIPO	Intellectual property authority	2006	English	Policy	IP	Y		N
"European Design Report"	Design Austria / Bureau of European Design Associations		2006		Qualitative	Design		EU	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
"Industrial Design Rights: An International Perspective"	Gray, Brian W. and Effie Bouzalas		2001	English		Design	Y	Comparative study	N
"Design Rights, an international comparison"	IPO- BOP Consulting	Intellectual property authority	2011	English	Qualitative	Design	Y	Comparative study	N
"Design services, design rights and design life lengths in the UK"	Haskel, J. and Pesole, A	Intellectual property authority	2011	English	Empirical	Design	Y	UK	Y
"Design right case studies"	Dr James Moultrie, Finbarr Livesey	Intellectual property authority	2011	English	Qualitative	Design	N	EU	Y
Patents, Real Options and Firm Performance"	Bloom, Nicholas and Van Reenen, John	Academic	2002	English	Empirical	Patent			N
"Patent applications and subsequent changes of performance: evidence from time-series cross-section	Ernst, Holger	Academic	2001	English	Empirical	Patent	N	Germany	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
analyses on the firm level"									
"The use of intellectual property right bundles by firms in the UK"	Helmers, C. and Schautsschick, P	Intellectual property authority	2013	English	Empirical	IP		UK	Y
"Innovation and the Market Value of UK Firms"	Toivanen, O., Stoneman, P. and Bosworth, D.	Academic	2002	English	Empirical	Patent/R&D	N	UK	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
"Proposal for a Directive of the European Parliament and of the Council Amending Directive 98/71/EC on the Legal Protection of Designs"	IPO	Intellectual property authority	2004	English	Policy	Design/Spare parts	Y	UK	Y
"Proposal for a Directive of the European Parliament and of the Council Amending Directive 98/71/EC on the Legal Protection of Designs, Extended Impact Assessment"	EU Commission	Government	2004	English	Survey	IP	Y	EU	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
Design ROI – Measurable Design	ROI	NGO	2012	English	Qualitative	Design & Creative		Finland	Y
Design Economics Chapter Two: Registered Designs & Business Performance – Exploring the Link	IPO	Intellectual property authority	2011	English	Empirical	Design		UK	Y
2006 TrendChart report: Patent applications by SMEs: An analysis of CIS-3 data for 15 countries	Bordoy et al		2006	English	Survey		IP	EU	Y
EL VALOR ECONÓMICO DEL DISEÑO	Observatorio Español del Diseño	NGO	2012	Spanish	Empirical	Design		Spain, Sweden, Denmark, Canada, Europe	Y
Valutazione Economico	Ministerio dello Suiluppo Economico	Government		Italian		Industrial design			Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Finanziaria dei Disegni e Modelli									
Markenbildung durch Industriedesign: Konzepte für kleinere und mittlere Investitionsgüterhersteller	Prof. Dr. Ronald Gleich, Dr. Christoph Herrmann, Dipl.-Ind. Des. Günter Moeller, Prof. Dr. Peter Russo, Prof. Dr. Meike Tilebein	Academic	2009	German	Consultancy	Industrial Designs	Yes	Austria	Y
Wettbewerbsfaktor Design: zum Einsatz von Design im Markt für Investitionsgüter	Silke Mayer	Academic	1990	German	Book	Industrial Designs	Yes	Germany	N
Wie Industriedesign und Innovation neue Markte schaffen	Roman Boutellier; Esther Kiss	Management consultants	1996	German	Book	Industrial Designs	No	Germany	N
Taxation and Investment in Switzerland 2013	Deloitte	Consultants	2013	English	Consultancy	IP & Industrial designs	Yes	Switzerland	N
Measuring Design	Swedish Agency for Growth Analysi	Government	2013	English	Literature Review	IP	Yes	Sweden	N
Intelectual Property in Cyprus	Michael Kyprianou	Lawyer	2010	English	Consultancy	IP	Yes	Cyprus	N
Innovating by design in inter-war Greece	Artemis Yagou	Academic	2008	English	Article	Industrial Designs	Yes	Greece	N
WZORNICTWO W POLSCE DZISIAJ	Academy of Fine Arts in Warsaw	Academic	2007	Polish	Consultancy	Industrial Designs	Yes	Poland	N
The interplay between design and copyright protection for Industrial products	Fabienne BRISON, Benoît MICHAUX, Véronique PEDE, Olivia SANTANTONIO, Hendrik VANHEES	Consultants	2012	English	Consultancy	Industrial Designs	Yes	Belgium	N
Input for Bulgaria's Research and Innovation Strategies	World Bank	Institution	2013	English	Policy	IP	Yes	Bulgaria	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
for Smart Specialization									
Intellectual Property Rights	Malta's Creative Economy and the National Strategy for the cultural and creative industries	Government	2013	English	Policy	IP	Yes	Malta	N
Screening report-Croatia	European Comission	Institution	2013	English	Country report	IP	Yes	Croatia	N
A Study of the Design Services Sector on the Island of Ireland	Intertradelreland	Government	2010	English	Consultancy	Industrial Designs	Yes	Ireland	N
Design for Latvia	Mollerup Designlab	Consultants	2003	Latvian	Consultancy	Industrial Designs	Yes	Latvia	N
Poslovno porocilo orada RS za intelektualno lastino za leto 2013	Ministrstvo za Gospodarski Raznov in Technologijo	Government	2013	Slovenian	Policy	Industrial Designs	Yes	Slovenia	N
Creative Industries in Estonia, Latvia and Lithuania	Estonian Ministry of Culture	Government	2010	English	Policy	Industrial Designs	Yes	Estonia, Latvia, Lithuania	N
Proposal of the European Commission for amending "Design" - Directive 98/71/EC	ECAR	Institution	2004	English	Policy	Industrial Designs	Yes	EU	N
Design for a modern Europe: Benefiting Europe's consumers and boosting European competitiveness	ECAR	Institution	2004	English	Policy	Industrial Designs	Yes	EU	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Eine Reparaturklausel erhöht die Effizienz am Markt für sichtbare Kfz-Ersatzteile – Designschutz wird nicht beeinträchtigt	Institut für Wirtschaftspolitik an der Universität zu Köln	Academic	2007	German	Article	Industrial Designs	Yes	EU	N
The Automobile Aftermarket: Crash Parts, Design Patents, and the Escape from Competition	Norman Hawker	Consultants	2010	English	Policy	Industrial Designs	Yes	EU	N
Why a few Member States should no longer block the liberalisation of the vehicle spare parts market ECAR – Analysis of the legal, economic and political status of the "Repairs Clause"	ECAR	Institution	2011	English	Policy	Industrial Designs	Yes	EU	N
Limiting IP Protection for Competition Policy Reasons — A Case Study Based on the EU Spare-Parts-Design Discussion	Anette Kur	Academic	2008	English	Book	Industrial Designs	Yes	EU	N
Proposal of the European Commission for amending "Design" - Directive 98/71/EC -	ECAR	Institution	2007	English	Policy	Industrial Designs	Yes	EU	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
The "spare parts" Issue									
Antitrust: Commission adopts revised competition rules for motor vehicle distribution and repair	European Commission	Institution	2010	English	Policy	Industrial Designs	Yes	EU	N
Evaluation of the Internal Market Legislation for Industrial Products	European Commission	Institution	2014	English	Policy	Industrial Designs	Yes	EU	N
Supplementary guidelines on vertical restraints in agreements for the sale and repair of motor vehicles and for the distribution of spare parts for motor vehicles	European Commission	Institution	2010	English	Policy	Industrial Designs	Yes	EU	N
Spares, Repairs, and Intellectual Property Rights: IEEM International Intellectual Property Programmes	Christopher Heath, Anselm Kamperman Sanders, Instituto de Estudos Europeus de Macau	Academic	2009	English	Book	Industrial Designs	Yes	EU	N
Europe's Automotive Industry on the Move: Competitiveness in a Changing World (Google eBook)	Oliver Heneric, Georg Licht, Wolfgang Sofka	Academic	2004	English	Ebook	Industrial Designs	Yes	EU	N
In the Matter of Certain Automotive Parts	United States International Trade Commission	Institution	2008	English	Book	Industrial Designs	Yes	US	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
The intellectual property implications of low-cost 3D printing	Simon Bradshaw, Adrian Bowyer and Patrick Haufe	Academic	2010	English	Qualitative	IP	Y	UK	N
Could 3D Printing Change the World? Technologies, Potential, and Implications of Additive Manufacturing	FORSEIGHT		2011	English	Qualitative	3D		Global	N
Intellectual Property rights in the global economy	Institute for International economics	Ebook							N
What's The Deal With Copyright And 3d Printing?	Institute For Emerging Innovation		2013	English	Qualitative	3D, Coypyright			N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Personal 3D Printing & Intellectual Property Rights -- How 3D Printing Technology Challenges the Effectiveness of Copyright and Design Law in Relation to the Protection of Objects of Applied Art	Hjalte Worm Frandsen University of Copenhagen; Copenhagen Business School	Academic	2014	English		IP			
3D Printing Technology: Impact on Intellectual Property Protection	Vasilios Peros	Lawyer	2014	English	Article	IP	Yes	UK	N
3d Printing: a patent overview	IPO	Institution	2013	English	Policy	IP	Yes	UK	N
3D printing and the current Canadian IP Framework	Brett Stanley	Lawyer	2014	English	Policy	IP	Yes	Canada	N
A trademark justification for design patent rights	Dennis D. Crouch	Lawyer	2013	English	Article	Industrial Design	Yes	USA	N
Should fashion be copyrightable	Brandon Scruggs	Academic	2007	English	Article	Copyright	Yes	Global	N
Design in the Knowledge economy	Design Council and the work foundation	Government	2010	English	Policy	Industrial Designs	Yes	UK	N

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Intellectual property rights and economic growth	Park WG and Ginarte JC	Academic	1997	English	Article	IP	Yes	UK	N
UK design as a global industry: International trade and intellectual property	IPO	Consultant	2012	English	Policy	Industrial Designs	Yes	UK	N
Design for Growth& Prosperity	European Design Leadership Board	Institution	2012	English	Policy	Industrial Designs	Yes	EU	N
R&D and the patent premium	Ashish Arora, Marco Ceccagnoli, Wesley M. Cohen	Academic	2008	English	Article	Patents	Yes	UK	N
Returns to Patenting and the Inducement for Research & Development (R&D)	IPO	Institution	2012	English	Policy	Patents	Yes	UK	N
Optimal R&D : risk and the scherer lifetime distribution of returns to innovation	ESRC	Institution	1997	English	Article	IP	No	UK	N
The role of intellectual property rights in economic growth	David M. Gould, William C. Gruben	Academic	1996	English	Article	IP	Yes	UK	N
Patents as indicators of corporate technological strength	Francis Narin, Elliot Noma	Academic	1987	English	Article	Patents	Yes	UK	N
"The LEGO Brick - in the borderzone between forms of protection"	Jenny Lundahl	Academic	2005	English	Article	IP	Y	Global	Y
LEGO "Fair Play Brochure"	LEGO	Guide	2011	English	Guide	IP	Y	Global/LEGO	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
freecompetition and fairprices for vehicle spare parts	ECAR	Policy	2004	English	Policy	Spare parts	Y	EU	Y
The new competition law framework for the automotive aftermarket	FIGIEFA	Policy	2010	English	Policy	Spare parts	Y	EU	N
The "spare parts" Issue - The POSITION of ECAR	ECAR	Policy	2006		Policy	Spare parts	Y	EU	Y
The Intellectual Property Implications of Low-Cost 3D Printing	S. Bradshaw, A. Boyer, and P.Haufe.	Academic	2010	English	Academic Paper	Copyright, design protection, patents, trademarks, and passing off	Y	UK (primary), (EU)	Y
3-D Printing and the Future of Stuff	Catherine Jewell	World Intellectual Property Organization Senior Staff	2013	English	Magazine Article	Copyright, design protection, patents	Y	World	Y
Not for Designers: On the Inadequacies of EU Design Law and How to Fix it	Thomas Margoni	Researcher at iViR	2013	English	Report	Copyright, design protection, patents, trademarks	Y	EU	Y
3D Printing and IP: What does the future hold?	Ashely Turner and Dr. Nicola Searle	Economists, UK intellectual property office	2014	English	Short report/ article	Patents	Y	UK	Y
3D printing and 3D product privacy	Russel Edson	Patent Attorney		English	Article	Copyright, design protection,	Y	UK	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
						patents, trademarks			
International Differences in the Legal Treatment of 3D Printing – Design Protections	Paul Banwatt	Lawyer	2013	English	Blog post	Copyright, design protection, patents, trademarks	Y	World	Y
Entering the IP maze of 3D printing	Chris Bollard and Rob Corbet	Lawyers	2013	English	Article	Copyright, design protection, patents, trademarks, and passing off, product liability	Y	EU	Y
Three Dimensional Policy: Why Britain Needs a Policy Framework for 3D Printing	Andrew Sissons and Spencer Thompson	Researchers: Big Innovation Centre	2012	English	Report	Copyright, design protection, patents, trademarks, regulation, standards, legal responsibility	Y	UK	Y
Printing the Impossible Triangle: the Copyright Implications of Three-Dimensional Printing	Brian Rideout	Academic	2011	English	Academic Paper	Copyright	Y	World	Y
The Implications of 3D Printing for the Global Logistics Industry	John Manners-Bell and Ken Lyon	CEO's of Transport Intelligence and Virtual Partners, respectively.	2012	English	Report		N	World	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
Intellectual Property Infringements & 3D Printing: Decentralized Piracy	Ben Depoorter	Professor of Law	2014	English	Academic Paper	Copyright, design protection, patents, trademarks	Y	United States	Y
Could 3D Printing Change the World? Technologies, Potential, and Implications of Additive Manufacturing	Thomas Campbell, Christopher Williams Olga Ivanova, and Banning Garrett	Academics and Consultants	2011	English	Report		N	World	Y
It Will be Awesome if they Don't Screw it up: 3D Printing, Intellectual Property, and the Fight Over the Next Great Disruptive Technology	Michael Weinberg	Vice President: Public Knowledge	2010	English	Report	Copyright, trademark, expansion of liability	Y	World	Y
Polisen slog till mot möbelkopior	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Patents	Y	Sweden/UK	Y
Registrering av designskydd från svenska företag ökar	Dagens Juridik, SEPAF (Swedish Patent Organization)	Legal Newspaper	2014	Swedish	Article	Patents, Trademarks	Y	Sweden	Y
Designskydd under förändring – en komparativ studie mellan mönsterrätt och upphovsrätt	Erik Odsell	? (probably professor of law)	2011	Swedish	Academic Paper	Copyright	Y	Sweden	Y
Smart designskydd: Hur och I vilken omfattig skyddas mobiltelefoner och läsplattor	Richard Sandstorm	Student	2013	Swedish	Thesis	Design protection, copyright	Y	Sweden	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
Patent and SMEs – managing intimidation from financial strong actors	Christoffer Hermansson	Student	2011	English	Academic Paper	Patent	Y	EU	Y
Konsekvenser för mindre svenska designföretag av harmoniseringen inom EU av rättsreglerna om mönsterskydd	Viktoria Stjärnhimmel	Student	2012	Swedish	Thesis	Copyright, design protection, patents, trademarks	Y	Sweden, EU	Y
Global Design Protection Strategies for Brand-Essential Designs	Victor Olsson Fekadu and Viktor Hultman	Student	2013	English	Master's Thesis	Design protection, Patents	Y	World	Y
Förhållandet mellan konkurrensrätt och immaterialrätt vid avtal om tekniköverföring	Ulrika Bjurö	Student	2010	English	Master's Thesis	IP, patents	Y	EU	Y
Remissyttrande – Förslag till Europaparlamentets och rådets direktiv om ändring av direktiv 98/71/EG om mönsterskydd	Svenskt Näringsliv (Confederation of Swedish Enterprise)	Business Federation	2004	Swedish	Report	IP	Y	EU	Y
Europe's Automotive Industry on the Move: Competitiveness in a Changing World	Pär Oliver Heneric, Georg Licht, Wolfgang Sofka	Academics	2005	English/ Swedish	Book (Chapter)	Design protection	Y	EU	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
Reservdelsundantaget i mönsterdirektivet – en immaterialrättslig lösning på ett konkurrensrättsligt problem	Björn Petersson	Academic	?	Swedish	Academic Paper	Industrial design protection	Y	EU	Y
SFIR - Svenska Föreningen för Industriellt Rättsskydd			2001	Swedish	Report	Industrial design protection	N	Sweden, EU	Y
'Fördel Bilia i servicematchen'	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Industrial design protection	N	Sweden	Y
'Sämre för SAABs reserver'	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Industrial design protection	N	Sweden	Y
'BMW tvingas sänka priser'	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Industrial design protection	N	Sweden	Y
Marknadsdomstolen 20130502'	BIL Sweden.	Trade Association	2013	Swedish	Article	Industrial design protection	Y	Sweden	Y
Importance of Industrial Design in the EU context	Federico Del Giorgio Solfa	Student	2001	Swedish	Postgraduate Dissertation	Design protection	N (?)	EU	Y
Instruments of protection of the intellectual property as a business asset	Giovanni Cristiano Piani	Design Professor	2013	Italian	Workshop	IP, patents, copyright	Y	Italy, EU	Y
Industrial Design, five-million-worth benefits to Italian enterprises	Mario Luongo	Journalist (?)	2014	Italian	Article	Design protection	N	Italy	Y
Protecting Industrial Design in Italy	Giuseppe Sena	Lawyer and Professor	2008	Italian	Report	Design protection	Y		Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
		of Business Law							
The (controversial) authoristic protection of Industrial Design	Il Sole 24 Ore	Newspaper	2012	Italian	News article	Copyright, design protection, patents, trademarks	Y	Italy	Y
2013 Annual report of the German Patent and Trademark Agency	German Patent and Trademark Agency	Government Agency	2013	German/ English	Report	Patents and trademarks	Y	Germany	Y
Report from the Ministry of Economy and Research on the Economic Significance of Intellectual Property and its Protection	Dr. Knut Blind	Professor of innovation economics	2009	German	Report	Copyright, design protection, patents, trademarks	Y	Germany	Y
Designschutz bei Ersatzteilen: Der Preis der Schönheit	Von Heiko Haupt	Automotive magazine	2013	German	Article	Design protection	Y(?)	Germany, World	Y
Proposal for a Directive of the European Parliament and of the Council amending Directive 98/71/EC on the legal protection of designs {SEC(2004) 1097}	European Commission	European Commission	2004	English	Proposal	Design protection	Y	EU	Y
Designschutz : Reparaturklausel gescheitert	Bettina John	Journalist	2014	German	Article	Design protection	N	EU	Y
Keine Reparaturklausel –	Thomas Günnel	Journalist	2014	German	Article	Design protection	N	Germany, EU	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
Designschutz bleibt bestehen									
Le dessin ou modèle	INPI	National intellectual property office	2014	French	Report	Design protection	Y	France	Y
L'enveloppe Soleau	INPI	National intellectual property office	2014	French	Report	Design protection	Y	France	Y
L'impression 3D: Impacts économiques et enjeux juridiques	INPI	National intellectual property office - Fatima Ghilassene	2014	French	Report	Design protection	Y	France, EU	Y
How do companies protect designs?	Eurostat	EC statistical office	2013	English	Data	Design protection	N	France, EU	Y
Intellectual Property Office; Design rights, an international comparison: UK, France and Germany	BOP consulting - commissioned by UK intellectual property office	Consulting firm	2011	English	Report	Design protection	N	France, UK, Germany	Y
Dessins et modèles	INPI ; Data Room	National intellectual property office	2012	French	Data	Design protection	Y	France	Y
Chiffres-clés	CNPI	IP law firm	2014	French	Data	Design protection	N	France	Y
L'immatériel, au cœur de la stratégie des entreprises	INSEE	National statistical institute	2007	French	Data	IP protection(all)	Y	France	Y
L'usage de la propriété intellectuelle par les entreprises	Commissariat général à la stratégie et à la prospective	Government Agency	2014	French	Report	IP protection(all)	Y	France	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geographical coverage	Relevant for literature review
L'usage de la propriété intellectuelle dans les entreprises artisanales innovantes en France	Blandine Laperche	Academic	2009	French	Academic Paper	IP protection(all)	Y	France	Y
La gestion et l'usage de la propriété intellectuelle par les entreprises françaises	Pierre Ollivier, Philippe Simon	Consultants	2013	French	Report	IP protection(all)	Y	France	Y
Propriété intellectuelle, innovation et développement des PME en France	Lallement, R	Project Manager at Centre for Strategic Analysis.	2009	French	Report	Patents, Trademarks, Industrial design protections	Y	France	Y
Press Release from 'Håndværkerrådet' (the Danish Association for Artisans)	'Håndværkerrådet'	Industry association	2004	Danish	Report	IP protection(all)	N	Denmark, EU	Y
EU-liberalisering vil give billigere reservedele til biler	Af Jens Høy	Journalist	2004	Danish	Article	IP protection (all)	N	Denmark, EU	Y
FDM advarer mod EU-forslag om billigere bilreservedele	Ritzaus Bureau	Magazine (?)	2004	Danish	Article	IP protection (all)	N	Denmark, EU	Y
De uafhængige værksteder er både bedre og billigere end mærkeværkstederne	Danish Competition Authority	Agency	2009	Danish	Article	IP protection (all)	N	Denmark, EU	Y
The Enforcements of Intellectual Property Rights; A Case Book	WIPO	International organization	2012	English	Report	Trademarks, copyright, patents,	Y	World	Y

Title	Author	Type of author	Year	Language	Type of report	Type of IP	Covers registered forms of protection	Geograph-ical coverage	Relevant for literature review
						industrial designs			
Design Protection in Europe	Bardehle Pagenberg	news magazine	2013	English	Report	Trademarks, copyright, patents, industrial designs	Y	EU	Y
Registered designs: an overlooked asset	Lindsay Cook	Solicitor	2012	English	Article	IP protection(all)	N	UK	Y
Guide to the Intellectual property Enterprise Court Small Claims Track	HM Court and Tribunals service 2014	Court administration	2014	English	Report	IP protection(all)	Y	UK	Y

13 Appendix III: Literature Review Table

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
How integrating industrial design in the product development process impacts on company performance	Gerda Gemsera and Mark Leenders	Academic	2000	English	Empirical		Industrial Design	N	Netherlands	how and when integrating industrial design in the product development process can enhance a company's competitive position	sessions with senior managers from Deutch firms investing much and little in industrial designs (24 firms of each type)	To collect data, a semi structured questionnaire was developed that contained open-ended and closed-ended questions. + financial data from Dutch Chamber of Commerce	a)significant and positive influence on company performance, b) design innovation has significant positive performance effects in both types of industries c)design strategy can help to enhance competitiveness regardless of industry evolution	How/when integrating industrial design in the product development process can enhance a company's competitive position.	Importance of design - firm	Quantitative
Design and competitive edge: Amodel for design management excellence in European SMEs	Borja de Mozota	Academic	2003	English	Survey		Industrial Design	N	Germany, GB, Austria, Belgium, Denmark, Spain, Finland, France, Ireland, Iceland, Italy, Netherlands, Portugal, Sweden	a) How design relates to strategy and innovation policy in SMEs, issued from management research models b) How do European SMEs use design today in order to innovate? C) For what reasons do managers turn to design?	Questionnaire was administered by researcher directly during the award ceremony to CEO or his "design champion." 35 responses and 33 surveys were operational	The European Design Prize, 14 different countries.	Linking design with competitive advantage, this research provides an exploratory model that can be used in a prescriptive way, explain design as a managerial asset,	Importance of design in the company value chain system, Competitive advantage,	Importance of design - firm	Quantitative

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
Call for Evidence Design	IPO	Intellectual property authority	2011	English	Survey	From fashion to automotive, furniture to high tech, food products to engineering	IP, Design	Y	UK	In UK the success of design industries is often not underpinned by formal protection of designs via design registration, for example. Why is this the case? What is the current intellectual property (IP) framework doing, or not doing, for designers? What changes to this framework might be needed?	Survey	Questionnaire answers	No result as it is a call for evidence but provides a good background to the importance of industrial protection	Good background covering a number of European countries such as France and Germany	Industrial design protection	Quantitative
Digital Opportunity: A review of Intellectual Property and Growth	Hargreaves	Government	2011	English	Qualitative	All sectors to which IP applies	IP	Y	UK	Are the current laws designed more than three centuries ago with the express purpose of creating economic incentives for innovation by protecting creators' rights obstructing innovation and economic growth?	Empirical economic data	Economic data from publicly available datasets e.g. NESTA	The UK's intellectual property framework is falling behind what is needed. Copyright is today preventing medical researchers studying data and text in pursuit of new treatments. The UK cannot afford to let a legal framework designed around artists impede vigorous participation in these emerging business sectors	Chapter 7 is specifically dedicated to designs	Industrial design protection	Qualitative
The interplay between design and copyright protection for industrial products	AIPPI	Intellectual property authority	2012	English	Guidance	Industrial products	IP	Y	UK	Can the same industrial product be protected by both a design right and a copyright? In other words, is the cumulative protection of the same industrial product by copyright and design law allowed in your country? In your country, has copyright protection for applied art ever been refused for a work with a foreign country of origin pursuant Article 2(7) RBC? In order to enjoy design right protection for industrial products, is registration of a design necessary? In order for the design to be registered, is a substantial examination necessary?	Survey	Questionnaire answers	The UK system for copyright and design protection for industrial products is extraordinarily complex and does not assist with legal certainty. It would be of great assistance to both simplify the system and harmonise it with other similar systems so that it is clearer what protection is likely to subsist for industrial designs on a multi-jurisdictional basis		Industrial design protection	Policy Recommendation
Policies for developing the design industry in the Nordic Region	Nordic Council of Ministers Department of Cultural Policy	Government	2006	English	Guidance	Design Industry	Designs	N	Nordic	how increased Nordic coordination of policies, and ultimately of the design industry itself, may enhance the economic effects of the industry	Literature Review	Qualitative Information	Focus on achieving four goals: the creation of a common market; laying the ground work for more cross border cooperation and competition within the design industry; attracting new talent and investment to the region; and building a global brand that includes and helps all Nordic design firms	Focus is placed on the economic impact of design	Importance of design - economy	Policy Recommendation

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
Piratkopiering I världshandeln – och andra immaterialrättsliga problem i BRIC, Indonesien och Japan ur ett handelspolitiskt perspektiv	Swedish Trade Council	Trade association	2012	Swedish	Qualitative		IP	Y	Global	what type of intellectual property issues that pose problems today and how some selected problems are handled in different trading practices,				Trade in BRIC	Importance of design - economy	Policy Recommendation
The Economic Effects of Design	National Agency for Enterprise and Housing	Organisation	2003	English	Survey	Design Industry	Design	N	Denmark	the creation of a knowledge base on the economic effects of design	Survey is based on 1,000 telephone interviews with private Danish companies with a minimum of 10 employees	Questionnaire answers	In the future, Denmark will increasingly need to compete on knowledge, development and innovation. This is where design plays a central role		Importance of design - economy	Quantitative
Propriete Industrielle & Developpement economique	L'Institut National de la Propriété Industrielle (INPI)	Intellectual property authority	2003	French	Guidance	All sectors to which IP applies	IP	Y	France	The importance of industrial designs (and other IP rights) in economic development	Review of qualitative information	Qualitative Information	Industrial designs can add to the total capital of an enterprise			Quantitative
Étude internationale sur les politiques favorisant l'usage du design par les entreprises	Ministere de L'Economie De L'Industrie et de L'Emplos	Government	2007	French	Policy	Design Industry	IP	Y	France	Comparative study of policies used to promote the use of design by companies based on several initial biases.	Review of qualitative information	Qualitative Information	Substantial work must be conducted with companies in France to increase the demand of design. This includes education and research in the medium term.			Quantitative
Gradul de convergenţă / divergenţă a reglementărilor şi instituţiilor privind drepturile de proprietate industrială (Uniunea Europeană, SUA şi România)	Ion E. ANGHEL Victor IANCU	Consultancy	2008	Romanian	Theoretical	Industrial sector	IP	Y	Romania	Compares the system of industrial property rights and their protection in the European Union, the United States of America and Romania	Literature review/Review of qualitative information	Qualitative Information and data from Eurostat	From the point of view of the content of industrial property rights (as reflected by the evolution statistical indicators) a "Clustering" effect occurs between countries in relation to the stage of their economic and social development. This highlights the polarization and existence of large differences between countries or groups of countries due to lack of resources.			Quantitative

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
Estudio del impacto económico del diseño en España	ddi: sociedad estatal para el desarrollo del diseño y la innovación	Government	2005	Spanish	Empirical	Industrial sector	Design	Y	Spain	This report summary studies the use of designs in Spain. It provides: Literature review (Bibliografia basica), Cross country comparison with Spain, Telephone survey to companies, Analysis of returns to design (quantitative and qualitative).	Survey	Questionnaire answers	Exercised by professional and properly managed, the design is able to provide both economic and social quantitative and qualitative benefits. Economic valuation of this impact has been under study for some time in academia. There is a general consensus on the costs of "no design" and the loss of opportunities.		Importance of design - economy	Quantitative
Intellectual Property Protection in Romania	Gerd F. Kunze	Academic	2004	English	Theoretical	All sectors to which IP applies	IP	Y	Romania	A review of the present situation of intellectual property rights and their enforcement in Romania	literature survey	Qualitative information	The recommendations in the field of enforcement concern both legal and practical issues. With regard to practical issues, these concern foremost organisational matters and training. The positive development of the new specialised prosecutor's appointment in the General Prosecutor's Office should be mirrored in the regions. More specialised prosecutors in the regions and in Bucharest to support the newly appointed IP prosecutor are needed and they will require sufficient training. Training will also be necessary for the judges in the specialised IP chambers.		Industrial design protection	Policy Recommendation
Impacts of the Japanese Patent System on Productivity Growth	Keith E. Maskus and Christine McDaniel	Academic	1998	English	Empirical	All sectors to which IP applies	IP	Y	Japan	Investigate empirically how the Japanese patent system has affected post-war growth in Japanese total factor productivity. The system has been criticized for several reasons, including that it encourages numerous filings of narrow claims that build incrementally on fundamental technologies developed by domestic and foreign inventors	Empirical research	Economic Data	An important feature of the JPS was its reliance on utility models and industrial designs. The required level of inventiveness of a utility model, as well as the scope and duration of protection, has been less than those for a standard patent in Japan. Further, industrial designs only needed to demonstrate novelty not inventiveness in Japan in order to earn patent protection. This system has essentially allowed firms in Japan to receive utility model protection and design patents on technologies that were only slightly modified from the original invention		Importance of design - economy	Qualitative

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
Protection of industrial design in the US and in the EU - Different concepts or different labels? -	Lena Schickl	Academic	2012	English	Qualitative	All sectors to which IP applies	Industrial Design	Y	US and EU	Describe how intellectual property laws can protect design and compare the design protection regime in the US and the EU	Qualitative Comparison	Qualitative information	The comparison will show that design protection is significantly different in the US and the EU. Within the EU, further harmonization is needed in order to provide for a strong coherent design protection.		Comparative studies	Qualitative
EL VALOR ECONÓMICO DEL DISEÑO	Observatorio Español del Diseño	NGO	2012	Spanish	Empirical	All	Design	N	Spain, Sweden, Denmark, Canada, Europe	Identify sectors and regions that use designs intensively by looking at. (a) Number of firms. (b) The value of design as proportion of GDP, broken down by sector. (c) Case studies of successful countries: Denmark, Sweden and Canada.	Descriptive statistics	Eurostat, national statistics offices	Identified Spanish regions with more design intensiveness and compared their performance with countries in the case studies.	Looks at design in general (e.g. fashion, marketing), it does not focus particularly on industrial designs. Some interesting data gathering but the conclusions are probably not worth mentioning in our review.	Comparative studies	Quantitative
Creating Economic Value by Design	John Heskett	Academic	2009	English	Qualitative		Design	N	All	Summarize work done on the relationship between economics and design	Summary of academic work from different schools, neo-classical, Austrian school, institutional theory and new growth theory			Literature on: market & prices, supply & demand, description of how design innately function and generates value in an economic context, contribution of design to the final outcome, design from standpoint of economic theory. No real numbers just an overview of literature and theory that can be used to analyse design.	Importance of design - firm	Qualitative
The Impact of Industrial Design Effectiveness on Corporate Financial Performance	Julie H. Hertenstein, Marjorie B. Platt, and Robert W. Veryzer	Academic	2005	English	Empirical		Industrial Design	N		Industrial design value in creating sustainable competitive advantage and to quantify the contribution that design makes to company performance.	Asking a panel of experts in industrial design to rank the industrial design effectiveness of firms within nine selected manufacturing industries. Financial performance: using traditional financial ratios such as return on sales or return on assets	Survey from asking a panel of experts +Financial data from Compustat 95-01	Firm with "good" industrial designs are stronger on all measures except for growth rate measures, evidence on that ID is related to corporate financial performance, stock market performance, it is persistent.	Looks at industrial design, and its contribution to firms' financial performance.	Importance of design - firm	Quantitative

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
Product Design and Financial Performance	Liang Guo	Academic	2010	English	Empirical		Industrial Design	N	34 different countries	Hypothesis: that product design effectiveness affects firms' financial performance in terms of sales, cost reduction, profitability, growth rates, and market return and that these design–performance linkages are contingent	Six latent class regression models with a sample of 577 design award–winning firms and of 524 no winners randomly selected within the same industries and countries.	collected data for 577 award-winning firms over an eight-year period (1998–2005) from 34 countries and 46 industries and randomly selected 524 non-winning firms from the same databases	Design award–winning firms have significantly better financial performance than non winning firms in almost all respects except gross profit margin (p = .148) and sales growth (p = .068).	These findings also show that American and European firms in the low- and middle-design industries, in particular, will benefit from paying more attention to design. Descriptive statistics	Importance of design - firm	Quantitative
Creativity, Design and Business Performance	DTI ECONOMICS PAPER NO.15	Government	2005	English	Qualitative		Design & Creative	N	UK	a) What are the economics of creativity and design in a business context? b) I What are the UK's strengths and weaknesses in creativity and design? c) I How can creativity and design enhance value and productivity in firms? D)I How can businesses develop and use creativity and design? f) I What role can Government play in fostering creativity and design?	Review of existing literature, innovation survey material designed for other purposes by Design Council, Descriptive statistics	Use several different surveys from previous studies		Not only about designs but also creativity which are overlapping concepts. Linkage btw design, innovation, creativity and design at firm level, contribution of design and creativity to economy, impact design on performance& productivity, design & economic growth, market failure and role for government.	Importance of design - economy	Quantitative
Design ROI – Measurable Design	ROI	NGO	2012	English	Qualitative		Design & Creative	N	Finland	How/+much dos investment in design influence competitiveness? b) How/+much do design activities create value? C) Can value be measured qualitatively/quantitatively? D) How can measurable value of design be communicated?	studying 40 articles+15 other research reports, existing studies on Finland, electronic questionnaires to 1380 SMEs in Finland, Interviews & workshops	Descriptive statistics		Return on investment for: companies, national industry, design programmes & policies, economy & society. Micro- and Macro level analysis, Contribution in terms of GDP. Descriptive statistics Finland. Theory section summarizing existing literature.	Importance of design - economy	Quantitative

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
The Value of Design	Design Council	NGO	2007	English	Empirical		Design	N	UK	How use and understand design, and how it impacts on their performance. How businesses add value to their offer, use design to do so, and how this impacts on performance.	Interviewed 1,500 businesses with ten or more employees across the UK. By telephone, with business managers. We analysed the data by sector and by region	Value Added Research 2007, Design Council's National Survey	Have a quick fact-sheet with the main results, there are a lot of descriptive statistics, results and graphs	The link between design and better business performance, What design can do for your figures, Design and competitiveness, What makes a business design alert?, How important is design to UK businesses? Businesses' use of intellectual property, Adding value through design	Importance of design - firm	Quantitative
Consultation on the proposal for a directive of the European parliament and of the council amending directive 98/71/EC on the legal protection of designs	IPO	Intellectual property authority	2005	English	Policy		Spare Parts	Y	UK	Cost and Benefit of harmonising spare part markets that is liberalised, b) What other factors affect competition in the spare parts market and how great is their effect compared to design protection?	Questionnaire to different companies/Organisations about policy proposition	Survey, Questionnaire	EX: Market vary between £50 million and £88 million for independently supplied replacement panels and £60 million and 85 million for independently supplied lighting units	This is a discussion paper, asking 8 questions that are being answered by different comp/org - Not sure this is relevant	Spare parts	Qualitative
Why a few Member States should no longer block the liberalisation of the vehicle spare parts market	ECAR	Government	2011	English	Policy		Spare Parts	Y	EU	Why it is the right thing to implement the "Repairs Clause"			The "Repairs Clause" … a) is legally the only accurate and "right" solution. b) Prevents economic harm and yields overall efficiency gains. c) prevents a severe blow against small and medium-sized enterprises (SMEs).d) protects 270 million EU vehicle owners, say: consumers, from excessive pricing) sustains employment in the European Union. f) Has nothing to do with the safety of spare parts.	Give reasons to why it is right to implement policy with the reasons listed under recommendations, ex competition in the market etc.	Spare parts	Policy Recommendation

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
The Automobile Aftermarket: Crash Parts, Design Patents, and the Escape from Competition	American Antitrust Institute	Academic	2010	English			Spare Parts	Y	US	Provides an overview of design patents, describes the aftermarket, elaborates on the anticompetitive effects design patents when enforced by the OEMs against third party parts distributors, and evaluates the proposal.			Without legislation there is no competition in the market for body parts, there is no demand for similar but not identical products, design protection enable OEMs to compete in primary market, could raise price of cars but reduce cost of reparations		Spare parts	Qualitative
PROPOSAL FOR A DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL AMENDING DIRECTIVE 98/71/EC ON THE LEGAL PROTECTION OF DESIGNS EXTENDED IMPACT ASSESSMENT	ECAR	Government	2004	English	Survey		Spare Parts	Y	EU	The study focused on the automotive sector, given the importance of the economic impact in this sector. examine how four alternative sets of legal rights in respect of design protection would translate into future impacts on competition, community industrial sectors and consumers, against a baseline corresponding to the present situation	questionnaire sent in 1999 (to vehicle manufacturers, suppliers, independent component producers, insurance companies, parts distributors, repairers and consumer organisations			Impact on competition, environment, consumer & prices, employment, administrative costs, innovation, safety. Market structure	Spare parts	Policy Recommendation
2006 Trend Chart report: Patent applications by SMEs: An analysis of CIS-3 data for 15 countries	Broody et al		2006	English	Survey		IP	Y	EU	1. What percentage of SMEs and large firms use IP? 2. How would an increase in IP by SMEs affect total IP applications?		This report uses CIS-3 data on the percentage of SMEs and large firms that used one of four types of IP in 2000	The simulations show that policy actions to increase the number of SMEs that apply for at least one EPO patent by 25% would increase the SME share for developed countries from 19% to 23% by 2015 and from 80% to 84% in the less developed countries	Statistics on how many SMEs that use IP in general, not just design protection.	Industrial design protection	Quantitative

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
Design Economics Chapter Two: Registered Designs & Business Performance – Exploring the Link	IPO	Intellectual property authority	2011	English	Empirical		Design	N	UK	How has the UK built up such a successful design sector with such a low level of registered rights? • Is the design sector successful because it does not register rights? • Is the intellectual property work framework too complex? • Why is the number of domestic design rights issued each year about a quarter of the number of patents or trademarks?	We identify the industrial sectors in which firms are most likely to register designs, we match firms that hold registered designs to otherwise similar firms without, Finally, by using the matched sample, we can evaluate the difference in performance between the two sets of firms, and hence estimate the performance difference associated with holding registered designs.		We find the following: • There was a performance benefit (measured as sales per employee) associate with holding designs registered with the UK's Patent Office. • There was also a more limited performance premium associated with holding designs registered in Europe as Community Designs in the mid-2000s. • We find no performance benefit associated with holding designs registered in Europe from 2007 to 2010. • We also find that holding designs registered with the UK IPO in the late 2000s was associated with lower sales per employee than otherwise similar firms. Although in only one of the four years between 2007 and 2010 was the effect statistically significant, taking the four years together, holding UK-IPO registered design rights is associated with an underperformance of around 13 per cent in sales per employee.	Ch 2: analyses the impact registered design rights have on business performance, given a UK or EU design registration.Ch3: is a survey looking at the reasons for the behaviour of firms when interacting within the IP framework for design. Ch4: is an international comparison of design systems in the UK, France and Germany	Industrial design protection	Quantitative
Valutazione Economico Finanziaria dei Disegni e Modelli	Ministerio dell Sviluppo Economico	Government		Italian	Survey		Industrial Design									

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
The intellectual property implications of low-cost 3D printing	Simon Bradshaw, Adrian Bowyer and Patrick Haufe	Academic	2010	English	Qualitative		IP	Y	Global	This paper examines existing IP legislation and case law in the contexts of the possible wide take-up of 3D technology by both small firms and private individuals.						
Markenbildung durch Industriedesign: Konzepte für kleinere und mittlere Investitionsgüterhersteller	Prof. Dr. Ronald Gleich, Dr. Christoph Herrmann, Dipl.-Ind. Des. Günter Moeller, Prof. Dr. Peter Russo, Prof. Dr. Meike Tilebein	Academic	2009	German	Consultancy	Industrial Designs	Yes	Germany/Austria	Y							

Title	Author	Type of author	Year	Language	Type of report	Sectors / Business Type	Type of IP	Covers formal forms of protection	Geographical coverage	Question the paper seeks to answer	Method	Type of data	Result / Recommendations	Other Reviewer Comments	Question Theme	Result Theme
The Intellectual Property Implications of Low-Cost 3D Printing	S. Bradshaw, A. Boyer, and P.Haufe.	Academic	2010	English	Academic Paper	Manufacturing, electronics, engineering	Copyright, design protection, patents, trademarks, and passing off	Y	UK (primary), (EU)	Recent years have seen the cost of 3D printing fall to the point where private individuals in the developed world may easily own them and produce complicated engineering parts from design files that are easily shared over the internet. To what extent could the expansion of low-cost 3D printing be constrained by IP law? What are the effects of IP legislation and case law on small firms and private individuals operating 3D printers?	Legal analysis		Within the UK at least, private 3D printer owners making items for personal use are exempt from the majority of IP restraints. Commerical users are more restricted but less so than might be imagined.		Intellectual property law	Qualitative
3-D Printing and the Future of Stuff	Catherine Jewell	World Intellectual Property Organization Senior Staff	2013	English	Magazine Article	Manufacturing, computer-aided design, medicine	Copyright, design protection, patents	Y	World	What is 3D printing? What types of innovations does it have the potential to unleash? What legal challenges face the expansion of 3D printing?			3D printing presents the possibility of a paradigm shift in manufacturing with the potential for far-reaching technological impacts.	More of an quick introduction to the topic	Technology	Qualitative
Not for Designers: On the Inadequacies of EU Design Law and How to Fix it	Thomas Margoni	Researcher at iViR	2013	English	Report	Manufacturing, design.	Copyright, design protection, patents, trademarks	Y	EU	What major issues exist in current EU design law structure? What effect does this have on individual or small sized 3D printe operators? What are the costs of unbalenced design policy?	Legal analysis		EU intervention tools favor the industrial sector over individual designers. In order to encourage innovation and protect the rights of designers through IP management there should be a clearer distinction between definitions of acts of infringement and acts of artistic development in regards to the	Contains specific policy reccomendations.	Industrial design protection	Qualitative
3D Printing and IP: What does the future hold?	Ashely Turner and Dr. Nicola Searle	Economists, UK intellectual property office	2014	English	Short report/ article	Manufacturing, design, technology	Patents	Y	UK	What is 3D printing? What interactions occur between 3D printing and IP law? What relevant patent research is being undertaken on the topic?			The UK IPO is working to better understand the interaction of IP law and 3D printing as to improve policy in the area.		IP law	Qualitative
3D printing and 3D product privacy	Russel Edson	Patent Attorney		English	Article	Manufacturing, design	Copyright, design protection, patents, trademarks	Y	UK	What are the implications of 3D printing for IP? What types of infringements are likely to occur? How can the law help design owners protect themselves?			As private users of 3D printers are practically immune from from infringing industrial design rights, designers make strategic use of IP registration systems to prevent		Industrial design protection	Qualitative
International Differences in the Legal Treatment of 3D Printing – Design Protections	Paul Banwatt	Lawyer	2013	English	Blog post	Manufacturing, design	Copyright, design protection, patents, trademarks	Y	World	What are the international differences in design protection and what do they mean for 3D printing?			Varying regulatory regimes present challenges for 3D printer users .		IP law	Qualitative
Entering the IP maze of 3D printing	Chris Bollard and Rob Corbet	Lawyers	2013	English	Article	Manufacturing, design	Copyright, design protection, patents, trademarks, and passing off, product liability	Y	EU	What is 3D printing? What is its impact on IP law?			3D printing and IP law is complex and will require careful navigation.		IP law	Qualitative
Three Dimensional Policy: Why Britain Needs a Policy Framework for 3D Printing	Andrew Sissons and Spencer Thompson	Researchers: Big Innovation Centre	2012	English	Report	Manufacturing, design	Copyright, design protection, patents, trademarks, regulation, standards, legal responsibility	Y	UK	What opportunities for Britain does 3D printing present? What might a mass market for 3D printing look like? What steps can be taken towards creating a coherent 3D printing policy?		Policy recomendations	Create a 3D Printing task force, led by the Department for Business, Innovation and Skills (BIS) Provide funding for competitions to develop new materials for 3D printing Commission research and feasibility studies into possible methods for regulating 3D printing markets		IP law	Qualitative

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Printing the Impossible Triangle: the Copyright Implications of Three-Dimensional Printing	Brian Rideout	Academic	2011	English	Academic Paper	Manufacturing, design	Copyright	Y	World	How does 3D printing relate to Copyright law? How did the world's first Digital Millennium Copyright Act (DMCA) takedown notice for a 3D printed object affect this? What was the validity of the complaint?	Legal analysis, case study		The 3D printing community should focus on expanding the use of Creative Commons licenses and fighting the expansion of traditional intellectual property norms into 3D printing. This will ensure that the vibrancy and innovation of the nascent 3D printing community is not crippled by legal interference		IP law	Qualitative
The Implications of 3D Printing for the Global Logistics Industry	John Manners-Bell and Ken Lyon	CEO's of Transport Intelligence and Virtual Partners, respectivly.	2012	English	Report	Logistics, manufacturing, design		N	World	Can 3D printing revolutionise global industry? What are the implications for the logistics industry?			3D printing needs to be able to mass-produce goods at the same volume as traditional manufacturing to revolutionise global industry. Nonetheless it is too significant a technology for logistics companies to ignore. Goods that involve 3D printing are estimated to make up 30% of finished goods in 2012.		Industry changes	Mixed
Intellectual Property Infringements & 3D Printing: Decentralized Piracy	Ben Depoorter	Professor of Law	2014	English	Academic Paper	Manufacturing, design	Copyright, design protection, patents, trademarks	Y	United States	What parallels exist between 3D printing in manufacturing and file-sharing in the entertainment industry? What challenges to IP enforcement does 3D printing present?	Legal analysis		Similar to the case with file-sharing, 3D printing opens up opportunites for decentralised piracy that make traditional, litigation-based enforcement ineffective and possibly counterproductive.		IP law	Qualitative
Could 3D Printing Change the World? Technologies, Potential, and Implications of Additive Manufacturing	Thomas Campbell, Christopher Williams Olga Ivanova, and Banning Garrett	Academics and Consultants	2011	English	Report	Manufacturing, design		N	World	What are the technogies, potential, and implications of additive manufacturing (3D printing)?			3D printing's potential to decentralise manufacturing means policy makers need to beginplanning for the resulting changes to the global economic status quo.		Industry changes	Qualitative
It Will be Awesome if they Don't Screw it up: 3D Printing, Intellectual Property, and the Fight Over the Next Great Disruptive Technology	Michael Weinberg	Vice President: Public Knowledge	2010	English	Report	Manufacturing, design	Copyright, trademark, expansion of liability	Y	World	How does intellectual property relate to 3D printing and how might changes impact its future?			The 3D printing community needs to involve itself in IP policy debates to ensure incumbents don't limit it with IP law.			Qualitative
Polisen slog till mot möbelkopior	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Manufacturing (furniture), design	Patents	Y	Sweden/UK	What happened with Designers Revolt and how does it relate to the protection of industrial designs?	News		The Swedish company Designers Revolt sold copied designer furniature, attempting to avoid strict Swedish IP law by registering in the UK. Swedish authorities hold that the decision to target a Swedish market means national IP rights hold and the company is being prosocuted in Sweden.	Example of possible flaws in EU - wide regulatory framework	IP law	News
Registrering av designskydd från svenska företag ökar	Dagens Juridik, SEPAF (Swedish Patent Organization)	Legal Newspaper	2014	Swedish	Article	Design	Patents, Trademarks	Y	Sweden	What recent trends regarding industrial design protect exist in Sweden?	News	Patent/ trademark application numbers	There has been a marked increase in applications for industrial design protection over the past year in Sweden. This mainly due to increased awareness of the importance of protecting industrial design and an increased role for ID in companies' products and services.		Industrial design protection	News
Designskydd under förändring – en komparativ studie mellan mönsterrätt och upphovsrätt	Erik Odsell	? (probably professor of law)	2011	Swedish	Academic Paper	Design	Copyright	Y	Sweden	What opportunities exist to protect design through legislation on intellectual copyright?			Swedish copyright protection doesn't require formal registration and offers wider protection than design protection. Design can be protected through both but this is problematic because of overlap.		Industrial design protection	Qualitative
Smart designskydd: Hur och I vilken omfattig skyddas mobiltelefoner och läsplattor	Richard Sandstorm	Student	2013	Swedish	Thesis	Design, Electronics	Design protection, copyright	Y	Sweden	What what extent are smartphones protected through intellectional property and industrial design protection.			Smartphones could feasibly be protected under copyright although the extent of the law is unclear.		Industrial design protection	Qualitative
Patent and SMEs – managing intimidation from financial strong actors	Christoffer Hermansson	Student	2011	English	Academic Paper	Design, all sectors, SME's	Patent	Y	EU	What difficulties do SME's face with regard to intellectual property rights when facing intimidation from strong financial actors?			It is difficult for SME's to develp and maintain IP rights in this type of situation, although there has been progress in the area through activities such as European Patent		Intellectual Property rights	Qualitative

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Konsekvenser för mindre svenska designföretag av harmoniseringen inom EU av rättsreglerna om mönsterskydd	Viktoria Stjärnhimmel	Student	2012	Swedish	Thesis	Design, Exports	Copyright, design protection, patents, trademarks	Y	Sweden, EU	What benefits and challenges does the expansion of design protection beyond the domestic market?			High levels of exports neccessitate design protection beyond the domestic market. However this may pose problems for smaller companies lacking the capacity to hire competent staff or somehow accuire knowledge of the market and competition.		Industrial design protection	Qualitative
Global Design Protection Strategies for Brand-Essential Designs	Victor Olsson Fekadu and Viktor Hultman	Student	2013	English	Master's Thesis	Manufacturing, design	Design protection, Patents	Y	World	What are the legal and market based parameters essential for creating strategic guidelines for global design protection applications			Market and legal expertise is key in order to create an efficient design protection. Identifying important markets for protection requires input regarding market development, competitors and future sales. With knowledge of the global market, identifying important markets for protection becomes possible.		Industrial design protection	Mixed
Förhållandet mellan konkurrensrätt och immaterialrätt vid avtal om tekniköverföring	Ulrika Bjurö	Student	2010	English	Master's Thesis	All sectors	IP, patents	Y	EU	How does intellectual property law interact with competition law?			There is considerable conflict between intellectual property and competition law which instead should be a balencing act.		Intellectual Property rights, Competition Law	Qualitative
Remissyttrande – Förslag till Europaparlamentets och rådets direktiv om ändring av direktiv 98/71/EG om mönsterskydd	Svenskt Näringsliv (Confederation of Swedish Enterprise)	Buisness Federation	2004	Swedish	Report	Design, all sectors	IP	Y	EU	How does the Association of Swedish Buisnesess react to the European Commission's arguments in favour of removal of industrial design protection of spare parts			It disagrees: -Industrial design protection, just like intellectual property rights in general, is crucial to business, contributing to creativity and investment in product development. SN is worried that jobs will disappear if the EC suggestion is accepted and the industry suffers.		Industrial design protection	
Europe's Automotive Industry on the Move: Competitiveness in a Changing World	Pär Oliver Heneric, Georg Licht, Wolfgang Sofka	Academics	2005	English/ Swedish	Book (Chapter)	Manufacturing, design	Design protection	Y	EU				In some member states can be protected by industrial design registration in Sweden (as well as France, Austria, and Denmark). Other countries implemented a repair clause 'not implying the protection of spare parts by industrial design registration' eg the UK.		Industrial design protection	Qualitative
Reservdelsundantaget i mönsterdirektivet – en immaterialrättslig lösning på ett konkurrensrättsligt problem	Björn Petersson	Academic	?	Swedish	Academic Paper	Automotive/design	Industrial design protection	Y	EU	What were the EC's solutions to the problem of spare parts and industrial design protection in the 1990's?			o 1993: clear and definite delimitation of the period of the industrial design protection. The European automobile industry refused to accept this proposal since they considered the period too short to cover their costs. o 1996: would be free to produce spare parts from the day the product entered the market, provided that the proprietor of the industrial design was offered a fair and appropriate compensation. The proposed level of compensation was rejected by the automobile industry. o 1998: introduction of directive on industrial design – but the question of spare parts remained unresolved and decisions on the issue (freeze-plus) were temporary and meant that member states kept their current rules on spare parts. Change could only be done to liberalise.		Industrial design protection	Qualitative
SFIR - Svenska Föreningen för Industriellt Rättsskydd			2001	Swedish	Report	Automotive/design	Industrial design protection	N	Sweden, EU	How should spare part design be protected?			1. The report suggests that different types of spare parts should be protected in The same manner as other products and product parts. It acknowledges that substantial discussions had taken place concerning The protection of such parts, and notices The focus on The automobile industry. 2. The general line of argument is that a person who has damaged a part of his/her car naturally would require The shop to replace it with an identical one. If The producer of The car has protected The part in question using industrial design protection he effectively gains a monopoly		Industrial design protection	Qualitative
'Fördel Bilia i servicematchen'	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Automotive/design	Industrial design protection	N	Sweden	How have changes in design protection affected the automotive industry and the market for spare parts?			Two larger companies at the Stockholm Stock exchange stand to profit; Mekonomen and Bilia. Spare parts are less sensitive to business cycles – meaning that Mekonomen was doing very well even during the financial crisis		Industrial design protection	Mixed

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'Sämre för SAABs reserver'	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Automotive/design	Industrial design protection	N	Sweden	How have changes in design protection affected Saab and related companies?		Profit data	1. The level of profits of the state-owned Orio (previously Saab Parts) – who sells spare parts for Saab cars – have decreased (although sales remain stable) 2. EBIT for the second quarter of the year amounted to 35 million SEK, which constitutes a reduction of 2 million SEK when compared to the same period last year. Net revenue (264 mill SEK) however reached 2013 levels, and the company keeps		Industrial design protection	Quantitative
'BMW tvingas sänka priser'	Dagens Industri	Financial Newspaper	2014	Swedish	Article	Automotive/design	Industrial design protection	N	Sweden	How have these changes effected spare part prices?			1. Like other car manufacturers, BMW is making it public that they are lowering the prices of spare parts in China after pressure from authorities. The price reductions (which concern more than 2 000 spare parts) average 20%. 2. Similar measures have been taken by Jaguar Land River, Chrysler and Daimler 3. Chinese authorities have been complaining that the car manufacturers have been using monopoly to inflate prices.		Industrial design protection	Mixed
Marknadsdomstolen 20130502'	BIL Sweden.	Trade Association	2013	Swedish	Article	Automotive/design	Industrial design protection	Y	Sweden				Court found against MECA Sweden AB, and forbade them from using certain terminology and rhetoric in their marketing and advertising		Industrial design protection	Qualitative
Importance of Industrial Design in the EU context	Federico Del Giorgio Solfa	Student	2001	Swedish	Postgraduate Dissertation	Manufacturing, design	Design protection	N (?)	EU	How do SME's and large firms in the automotive industry manage creativity and design?			Large firms manage and quantify design's impact as an innovative instrument while for SME's managing creativity and design is at the same stage as CAD/CAM technologies used 10 years ago.		Industrial design	Qualitative
Instruments of protection of the intellectual property as a business asset	Giovanni Cristiano Piani	Design Professor	2013	Italian	Workshop	Design	IP, patents, copyright	Y	Italy, EU	How has Italy's domestic legislation on intellectual design evolved over time and what have been the effects?	Workshop	Data on patent-use in Italy	Italy has in general shifted from patent-use to copyright protection. Italy in 2010 had roughly 5 times less patents licensed by the EPO than Germany, half those of France, and roughly the same amount as the UK. As a result Italy's minister of economic development has been attempting to facilitate patent-depositing.		Industrial design protection	Mixed
Industrial Design, five-million-worth benefits to Italian enterprises	Mario Luongo	Journalist (?)	2014	Italian	Article	Manufacturing, design	Design protection	N	Italy			Data on capital contribution by Italian Ministry of Economic Development	IMED has issued a notice featuring 5m euros in benefits for SME's and micro-enterprises that are able to enhance Italian industrial design in international markets. The capital contribution has a maximum equal to 80% of eligible expenses. The rump of the production and placing on the market are separated for the first maximum amount is estimated at 65 thousand Euros, while the second reaches 15 thousand.		Industrial design	Quantitative
Protecting Industrial Design in Italy	Giuseppe Sena	Lawyer and Professor of Business Law	2008	Italian	Report	Design	Design protection	Y								
The (controversial) authoristic protection of Industrial Design	Il Sole 24 Ore	Newspaper	2012	Italian	News article	Design	Copyright, design protection, patents, trademarks	Y	Italy	What legal devices are in fuction at the same time in Italy?			1. One refers to the so-called "Code of Intellectual Property" (CPI), because of which Intellectual Designs that are not of public domain before registering and have an "individual feature" enjoy a twelve-month long grace period, and can be renewed every five years, up to a total of fifty-five years. It might be useful to note that designs with the aforementioned characteristics of novelty and individual feature are protected by the CPI, albeit only for three years from publishing, even without registering them; 2. A second way to protect designs is through the "Copyright Law" (LdA), according to which designs that feature a "creative nature" and an "artistic value" are protected since their creation - and without need of registration – until 70 years after their creator died; 3. Finally, the Italian Civil Code protects Industrial Designs against counterfeiting by competitors, sanctioning imitations as an act of unfair competition. This means that firms that produce and commercialize products of design are able to ask the competitor that imitates its products, through the law, to		IP law, Industrial design protection	Qualitative
2013 Annual report of the German Patent and Trademark Agency	German Patent and Trademark Agency	Government Agency	2013	German/ english	Report	IP	Patents and trademarks	Y	Germany	What goods were most subject to design protection in Germany in 2013?	Data collection	Patent and trademark registration info			Patents and Trademarks	Quantitative
Report from the Ministry of Economy and Research on the Economic Significance of Intellectual Property and its Protection	Dr. Knut Blind	Professor of innovation economics	2009	German	Report	Design	Copyright, design protection, patents, trademarks	Y	Germany	What types of firms and industries are most likely to make use of design protection?	Case study, data collection	Data on design protection usage	Intellectual Property protection is more frequent in bigger firms. This is even truer for Designs than for other types of IP. The type of industry also matters: the manufacturing industry makes a much more heavy use of industrial designs protection. See table 1		Industrial design protection	Quantitative

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Designschutz bei Ersatzteilen: Der Preis der Schönheit	Von Heiko Haupt	Automotive magazine	2013	German	Article	Automotive/design	Design protection	Y(?)	Germany, World	How is design protection utilised in the market for spare automotive parts and what arguments for/against the current level of protection exist?			On one side consumer organisations and the association of spare parts producers argue that the protection of spare parts is monopolistic which yelds excess profits for carmakers and drives up insurance costs. On the other side the German Carmakers Association argues that only 5% of spare parts are protected and that this is essential for ensuring quality and protecting the competitiveness of German firms.		Industrial design protection	Qualitative
Proposal for a Directive of the European Parliament and of the Council amending Directive 98/71/EC on the legal protection of designs {SEC(2004) 1097}	European Comission	European Commission	2004	English	Proposal	Design	Design protection	Y	EU				The EC submitted this proposal with the goal of amending EU law on industrial design to introduce freer competition in the industry. It was approved by the European Parliament but blocked by the Councill and withdrawn in 2014.		Industrial design protection	Qualitative
Designschutz : Reparaturklausel gescheitert	Bettina John	Journalist	2014	German	Article	Design, Manufacturing	Design protection	N	EU	Who was responsible for the EC proposal being blocked and why?			The proposal was mainly blocked by French and German representatives largely due to strong carmaker lobbies in these countries. The proposal would have introduced a "repairs clause", i.e. it would have opened the visible spare parts market to other producers than the carmakers themselves.		Industrial design protection, Automotive industry	Qualitative
Keine Reparaturklausel – Designschutz bleibt bestehen	Thomas Günnel	Journalist	2014	German	Article	Design, Manufacturing	Design protection	N	Germany, EU	To what extend do German carmakers allow competition in the industry and what is the effect?			German carmakers protect visible designs but still allow some competitors. This leads to a great uncertainty for those competitors, who aren't legally allowed to produce design protected spare parts, but are still de facto allowed to do so by the carmakers. The carmakers sometimes happen to address them warnings. These alternative spare parts producers thus ask for a legal clarification through the introduction of a "repairs clause".		Industrial design protection, Automotive industry	Qualitative
Le dessin ou modèle	INPI	National intellectual property office	2014	French	Report	Design	Design protection	Y	France	How does the INPI approach industrial design protection?			INPI allows double (Copyright on top of standard industrial design) protection. The longevity and renewal limits of the protections are identical to those proposed by the OHIM. In addition to the OHIM's eligibility restrictions to industrial design, the INPI includes 'design for computer programmes', and 'nestable components' – except for modular interconnection (ie: lego games). Furthermore, it stipulates that the design needs to be 'visible' during the normal use of the product.	Contrasts with Swedish regime	Industrial design protection	Qualitative
L'enveloppe Soleau	INPI	National intellectual property office	2014	French	Report	Design	Design protection	Y	France	What is the soleau envelope and how does the INPI utiilise it?			Another particularity of the INPI is the use of the Soleau envelope. Unlike a patent or industrial design, a Soleau envelope does not ensure any exclusivity right to the depositor, but constitutes a proof that the depository knew the invention before any application at the INPI – does not clarify if includes the OHIM. Through the filing of a Soleau envelope, the first inventor, if he has not filed the first patent, will hold no exclusivity on his invention. He may, however, claim a "right of prior personal possession", allowing him to manufacture and market the invention personally, despite the monopoly of the patentee. The envelope is particularly inexpensive (15€), and is valid for a period of 5 years. It is renewable only once.		Industrial design protection	Qualitative
L'impression 3D: Impacts économiques et enjeux juridiques	INPI	National intellectual property office - Fatima Ghilassene	2014	French	Report	Design, Manufacturing	Design protection	Y	France, EU	What effect will 3D printing have on industrial design and how should member states react?			The European Commission has added 3D printing among the priority technology areas that Member States should consider as part of their industrial policy. 3D printing is a 'disruptive technology' in the sense that it transforms the tradition production process for parts (machining, moulding and welding). Its areas of application are in constant extension. Currently, rapid prototyping represents 70% of the market. But in the past 15 years, new usages have appeared, such as the production of high technology parts in the automobile and aviation industries.		Industrial design protection, Technology	Qualitative
How do companies protect designs?	Eurostat	EC statistical office	2013	English	Data	Design	Design protection	N	France, EU	To what degree do french companies utilise industrial design compared to other member states?	Data collection	Data on design protection usage	France has a modest level of designs registered at the community level, with 3.68 Community Design Registrations (CDR) per €billion GDP in 2012 (by Purchasing Power Standards) – compared with 7.09 for Germany and 2.80 for the UK. In the case of France, this proportion has increased during the 2003-2007 period, and remained more or less stable in 2007-2012.		Industrial design protection	Quantitative

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Intellectual Property Office; Design rights, an international comparison: UK, France and Germany	BOP consulting - comissioned by UK intellectual property office	Consulting firm	2011	English	Report	Design	Design protection	N	France, UK, Germany	How do French industrial design filings compare to the UK and Germany?	Data collection	Data on design protection usage	97% of fillings at the INPI are made by French firms. From 2000 to 2009, registration at the INPI has witnessed an upward trend in spite of the emergence of the OHIM (see figure 4.4 in source). France possesses a strong tradition of registering designs at the INPI, and OHIM registrations barely represent 9% of the volume of registrations at the INPI in 2009. Registration through the WIPO is much less significant than registration at the national office. Hence, the report concludes that French companies and lawyers are reluctant to move to the Community Design system.		Industrial design protection	Quantitative
Dessins et modèles	INPI ; Data Room	National intellectual property office	2012	French	Data	Design	Design protection	Y	France	What trends exist in French industrial design protection filings?	Data collection	Data on design protection filings	The graph shows a progressive increase in the number of industrial design fillings from 53,893 in 2004 to 83,051 in 2012 (the document doesn't precise if it's EU-wide for OHIM, or just from French firms at OHIM, however the former understanding would make more sense here). Similarly, at the national level, the INPI has also witnessed a modest increase in applications from 69,425 in 2004 to 73,600 in 2012. In 2012 the ranking of industrial design applications at the INPI per industry was the following: 1. 'Graphic symbols and logos, decorative', 2. 'Articles of clothing and haberdashery', 3. 'Furniture', 4. 'Ornaments', 5. 'Buildings and building components' with 'Articles of clothing and haberdashery' as the fastest growing sector during the 2004-2012 period.		Industrial design protection	Quantitative
Chiffres-clés	CNPI	IP law firm	2014	French	Data	Design	Design protection	N	France	What economic weight to IP advisory services hold in France?	Data collection	Data on IP advisory services	In January 2014, 352 French firms were specialised in IP advisory services, employing 925 specialists, with a total estimated turnover of €670 million in 2011 - 48% of IP advisors specialised only in patents, and the rest covered different areas (industrial designs, copyrights and patents).		IP law	Quantitative
L'immatériel, au cœur de la stratégie des entreprises	INSEE	National statistical institute	2007	French	Data	Design	IP protection(all)	Y	France	What types of firms make use of IP protection?	Data collection	Data on IP protection usage	The majority of French firms that make use of IP protection are large companies. The percentage of firms involved in IP policy is eight times greater for larger firms compared to SMEs. Among the entities of over a thousand employees, 90% have at least one brand, 70% use at least one form of protection of innovation (patents, designs), and 30% are holders of copyrights. Furthermore, one in five is active in all areas of IP. The type of protection is also dependent on the size of the firm. For instance, SMEs involved in innovative sectors will prefer the use of industrial designs to patents – 10% report the use of industrial design protection, against less than 1% for patents. For innovative firms with over 1,000 employees, patents are the most common practice – this represents 70% of firms, against 42% for the use of industrial designs.		IP protection	Quantitative
L'usage de la propriété intellectuelle par les entreprises	Commissariat général à la stratégie et à la prospective	Government Agency	2014	French	Report	Design	IP protection(all)	Y	France	What types strategies regarding IP are adopted by companies and what is the economic value?			• A defensive strategy: where IPs serve to guarantee the freedom of exploitation, and the revenues associated in case of a sale • A licencing strategy: where the revenues don't stem from the direct exploitation of IPs, but from their assignment to third parties in return for the payment of royalties • A cooperation strategy: where IPs enable to save on certain costs and timeframes by pooling common resources with third parties – principle of 'open innovation' • A strategy in motion: Similar to the first strategy but more pre-emptive; aims at blocking market from competitors on high margin sectors The reports concludes with two findings on the economic value of IP. First, the accumulation of IP translates into the creation of wealth and jobs only if there is sufficient capacity on site to enforce these		IP protection	Qualitative
L'usage de la propriété intellectuelle dans les entreprises artisanales innovantes en France	Blandine Laperche	Academic	2009	French	Academic Paper	Craft enterprises	IP protection(all)	Y	France	What strategies are adopted by French craft enterprises towards IP?	Case studies		Often, small firms will prefer to rely on informal methods of protection. Craft companies that own IP protections make use of different instruments, in the same fashion as bigger firm. An important proportion of censed companies used Soleau envelopes, a tool that remains particularly adapted to small enterprises.		IP protection	Qualitative
La gestion et l'usage de la propriété intellectuelle par les entreprises françaises	Pierre Ollivier, Philippe Simon	Consultants	2013	French	Report	All firms that use IP	IP protection(all)	Y	France	What strategies for direct valuation of IP's are used by firms?			Companies make use of four strategies for the 'direct valuation' (valorisation directe) of their IPs: • Technological transfer: cessation of an IP right to a purchaser. This can be the case for public research institutes, individual inventors etc. It can also be the case that a larger firm transfers some of its less important IPs to SMEs • Negotiated licencing: licensing, exclusive or not, by the holder of a portfolio to proven or suspected counterfeiters of these protected technologies. • Pure cessation: 'Dry sale' of an IP portfolio to a buyer that will make a strategic use of		IP protection	Mixed
Propriété intellectuelle, innovation et développement des PME en France	Lallement, R	Project Manager at Centre for Strategic Analysis.	2009	French	Report	All firms that use IP	Patents, Trademarks, Industrial design protections	Y	France	How do French SME's utilise IP protection and what is the effect on innovation?			Many French SME's view patents as of less importance due to focus on small discoveries/innovations. They do however make extensive use of trademark and industrial design protections. This is especially the case in the food and luxury sectors		Industrial design protection, IP protection	Mostly Qualitative

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Press Release from 'Håndværkerrådet' (the Danish Association for Artisans)	'Håndværkerrådet'	Industry association	2004	Danish	Report	Automotive/design	IP protection(all)	N	Denmark, EU	Why The Danish Association for Artisans strongly supports the proposal from the European Commission arguing, that car-manufacturers should no longer be allowed to prevent the 'production, sale and use' of unoriginal spare parts with regards to reparation of cars, as they are currently are due to the design protection in European legislation.			Removal of the legislation would greatly strengthen conditions for small and medium sized Danish companies, which would greatly benefit from gaining access to these markets. The current legislation contributes to a monopoly of production and drives prices unreasonably high.		Industrial design protection	Qualitative
EU-liberalisering vil give billigere reservedele til biler	Af Jens Høy	Journalist	2004	Danish	Article	Automotive/design	IP protection(all)	N	Denmark, EU	Summary of discussion to liberalise market for spare-parts.			According to the Director of the Danish Association for Auto-mechanics, which accounts for 1700 independent repairers, the implementation of the bill will lead to increased competition and reduced prices. The leading manufacturers counter-argument is that the liberalisation will result in the transfer of workplaces to the far east, where the working force is paid less and is therefore more profitable to use.		Industrial design protection	Qualitative
FDM advarer mod EU-forslag om billigere bilreservedele	Ritzaus Bureau	Magazine (?)	2004	Danish	Article	Automotive/design	IP protection(all)	N	Denmark, EU	What are the potential consequences of the new European Union bill on spare parts?			It risks favouring the insurance companies rather than the consumers, according to FDM (the Association for Danish Car-Owners. Insurance companies could use un-original spare parts in case of reparation, and the quality could be worse and damage the position of the consumers. The article also mentions that 50.000 jobs could be lost due to the law, according to the European Car-Manufactures Organisation (ACEA).		Industrial design protection	Mixed
DE UAFHÆNGIGE VÆRKSTEDER ER BÅDE BEDRE OG BILLIGERE END MÆRKEVÆRKSTEDERNE	Danish Competition Authority	Agency	2009	Danish	Article	Automotive/design	IP protection(all)	N	Denmark, EU	Why are Danish prices for spare parts too high compared to those of Germany and Sweden?			The primary reason is the structure within the branch itself: The importers themselves decide who can be authorised dealers of spare-parts, and the specific criteria for this, but they end up being significantly more expensive than the independent auto-mechanics		Industrial design protection	Qualitative
The Enforcements of Intellectual Property Rights; A Case Book	WIPO	International organization	2012	English	Report	All sectors	Trademarks, copyright, patents, industrial designs	Y	World	overview			The requirements of design validity and protection are not laid out with exact definition and hence, it is a difficult task to evaluate the scope of the protection and to judge whether an infringement is a substantial copy of the original design or not. The so called infringement test needs to be carried out with substantial care'		IP	Qualitative
Design Protection in Europe	Bardehle Pagenberg	news magazine	2013	English	Report	All sectors	Trademarks, copyright, patents, industrial designs	Y	EU	overview		Data on statutory costs	Apart from the lengthy court proceedings, the costs of the litigation process can also be significant depending on the complexity of the case and the value in litigation. In Germany, the statutory costs to both the parties are approximately € 25,000 in the first instance and € 30,000 in the second instance.		IP	Mixed
Registered designs: an overlooked asset	Lindsay Cook	Solicitor	2012	English	Article	Design	IP protection(all)	N	UK	What economic value to designs hold and does UK provide sufficent protection for them?		Data on design applications	A significant number of designs in the UK are registered on Anti Copying in Design (ACID), an alternative register to the UK Intellectual property office (UKIPO), which provides information on design ownership but does not protect designs. Approximately ten times more design applications were received by ACID than by UKIPO in 2009		Industrial design protection	Mixed
Guide to the Intellectual property Enterprise Court Small Claims Track	HM Court and Tribunals service 2014	Court administration	2014	English	Report	All sectors	IP protection(all)	Y	UK	What does the Intellectual property Enterprise Court Small Claims Track entail?			This significant amount (the £ 50,000 cap on recoverable costs introduced by the Patents County Courts (PCC)) while helping large firms can unfortunately act as a potential deterrent for SMEs who are hesitant in taking the infringers to court with the remote possibility of losing the case and having to pay huge compensation fees. In order to help the SMEs, the government incorporated the small claim pack into the PCC.		IP	Qualitative

14 Appendix IV: Survey

In this chapter, we identify the trade associations that were approached to distribute the survey on our behalf, provide a detailed description of the characteristics of those that responded to the survey and present the survey questionnaire in its entirety.

14.1 Trade associations approached

As noted in the main body of the report, it was necessary to engage a number of trade associations to distribute the survey to their members on our behalf. Within each key design-intensive sector we sought to identify several trade associations at European level and one national trade association in each of four countries. We first approached these associations by email and subsequently contacted them by telephone.

The table below presents details of the associations that were approached as part of this study.

Sector	European Association 1	European Association 2	European Association 3	European Association 4	European Association 5	European Association 6	UK	Germany	France	Italy
C13 - Manufacture of textiles	EURATEX - The European Textile and Apparel Organisation (www.euratex.org)	AEDT - European Association of Fasion Retailers (http://www.aedt.org/)	CIRFS - European Man-Made Fibres Association (http://www.cirfs.org/)	EUROCORD - European Liaison Committee of Twine, Rope and Netting Industries (http://www.eurocord.com/)			UKFT - The UK Fashion & Textile Association (http://www.ukft.org/)	The Confederation of the German Textile and Fashion Industry (http://www.textil-mode.de/en)	UIT - The Union of Textile Industries (http://www.textile.fr/en)	SMI - Sistema Moda Italia (http://www.sistemamodaitalia.com/)
C14 - Manufacture of wearing apparel (clothes etc.)	CELC - The European Confederation of Linen and Hemp - (http://www.mastersoflinen.com/eng/index)	COTANCE - The European Leather Association (http://www.euroleather.com/)	ESPC - The European Society of Protective Clothing (http://www.es-pc.org/)	CEC - The European Confederation of the Footwear Industry (http://cec-footwearindustry.eu/)	EBCA - The European Branded Clothing Alliance (http://www.ebca-europe.org/)	ECCIA - European Cultural and Creative Industries (http://www.eccia.eu/)		HDS - The Federal Association of the German Footwear and Leather Goods Industry (http://www.hds-schuh.de/EN/index.html)		ANCI - National Association of Italian Shoes Manufacturers (http://www.anci-calzature.com/?lingua=en)

Sector	European Association 1	European Association 2	European Association 3	European Association 4	European Association 5	European Association 6	UK	Germany	France	Italy
C16 - Manufacture of wood and of products of wood and cork	FEFPEB - The European Federation of Wooden Pallet and Packaging Manufacturers (http://www.fefpeb.org/)	EPF - European Panel Federation (http://www.europanels.org/)	C.E.Liège - European Cork Federation (http::://celiege.eu)	EFBWW - The European Federation of Building and Woodworkers (http://www.efbww.org/)	CEI-Bois - The European Confederation of woodworking industries (http://www.cei-bois.org/)		BWF - The British Woodworking Federation (http://www.bwf.org.uk/)	HDH - Association of German woodworking and furniture industries (http://www.hdh-ev.de/english/index.html)		FEDERLEGNO - Italian Federation of Wood, Cork and Furnishing Industry (http://www.federlegnoarredo.it/en-gb)
C23 - Manufacture of glass and ceramics	Glass Alliance Europe - The European Alliance of Glass Industries (http://www.glassallianceeurope.eu/en/homepage)	FEVE - The European Container Glass Federation (http://www.feve.org/)	UEMV - The European Glass and Glazing Association (http://www.uemv.org/)	APFE - The European Glass Fibre Producers Association (http://www.glassfibreeurope.eu/)	Cerame-Unie - The European Ceramic Industry Association (http://www.cerameunie.eu/)	EURIMA -The European Insulation Manufacturers Association (http://www.eurima.org/)	British Glass Manufacturers Confederation (http://www.britglass.org.uk/)	Association of German Manufacturers in the Ceramic Industry (http://www.keramverband.de/keramik_eng.htm)		GIMAV - Association of Italian manufacturers and suppliers of machinery, equipment and special products for glass processing (http://www.gimav.it/en/)
C25 - Manufacture of metal products	EUROFER - European Confederation of iron and Steel Industries (www.eurofer.org)	EUROMETAL Association (www.euroi	SEFA - European Association of Steel Drum Manufacturers (http://www.sefa.be/home.html)	EuroWindoor (http://www.eurowindoor.eu/eurowindoor.html)			MPMA - The Metal Packaging Manufacturers Association (http://www.mpma.org.uk)	Association of German Tool Manufacturers (http://www.werkzeug.org/English.aspx)	SCMF - Le Syndicat de la construction Métallique de France (http://www.scmf.com.fr/)	Federacciai - The Federation of the Italian Steel Companies (http://www.federacciai.it/DefaultIN.htm)

Sector	European Association 1	European Association 2	European Association 3	European Association 4	European Association 5	European Association 6	UK	Germany	France	Italy
C26 - Manufacture of computer, electronic and optical products	EECA - EUROPEAN ELECTRONIC COMPONENT MANUFACTURERS ASSOCIATION (http://www.eeca.eu/)	ORGALIME - European Engineering Industries Association (http://www.orgalime.org/)	COCIR - European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry (http://www.cocir.org/)	DIGITALEUROPE (http://www.digitaleurope.org/)			techUK - Information Technology Telecommunications and Electronics Association (http://www.techuk.org/)			ANIE - Federation of the Italian Electrotechnical, Electronics and ICT Companies (www.italiantech.com)
C27 - Manufacture of electrical equipment	CECAPI - European Committee of Electrical Installation Equipment Manufacturers (http://www.cecapi.org/)	CEMEP - European Committee of Manufacturers of Electrical Machines and Power Electronics (http://cemep.eu/en/home)	EPBA - European Portable Battery Association (http://www.epbaeurope.net/)	EUROBAT - Association of European Automotive and Industrial Battery Manufacturers (http://www.eurobat.org/)			BEAMA (http://www.beama.org.uk/)			

Sector	European Association 1	European Association 2	European Association 3	European Association 4	European Association 5	European Association 6	UK	Germany	France	Italy
C28 - Manufacture of machinery and equipment	CECIMO - The European Association of the Machine Tool Industries (http://www.cecimo.eu/site/)	CEMA - European Agricultural Machinery (http://www.cema-agri.org/)	EMGF - The European Garden Machinery industry Federation (http://www.egmf.org/en/)	CEMATEX - The European Committee of Textile Machinery Manufacturers (http://www.cematex.com/)	EUMABOIS - European Federation of Woodworking Machinery Manufacturers (http://www.eumabois.com)		MTA - The Manufacturing Technologies Association (http://www.mta.org.uk/)			The Italian Agricultural Machinery Manufacturers Federation (http://www.federunacoma.it/en/index.php)
C29 - Manufacture of motor vehicles, trailers and semi-trailers (including spare parts for these)	CLEPA (European spare parts association, www.clepa.be)	ACEA (European Automobile Manufacturer's Association, www.acea.be)	ETRMA (European Tyre & Rubber Manufacturers' Association, www.etrma.org)	ACEM - The Motorcycle Industry in Europe (http://www.acem.eu/)	ATVEA - The All Terrain Vehicle Industry European Association (http://www.atvea.org/)	FIGIEFA - International federation of independent distributors of automotive replacement parts (http://www.figiefa.eu/)	SMMT - The Society of Motor Manufacturers and Traders (http://www.smmt.co.uk/)	VDA - German Association of the Automotive Industry (http://www.vda.de/en/index.html)	CCFA - Le Comité des Constructeurs Français d'Automobiles (http://www.ccfa.fr/)	ANFIA - the Italian Association of the Automotive Industry (http://www.en.anfia.it/)
C31 - Manufacture of furniture	UEA - European Furniture Manufacturers Federation (www.ueanet.com)	EFIC - The European Furniture Industries Confederation (http://www.efic.eu/)	FEMB - European Federation of Office Furniture (www.femb.org)				BFM - Association for British Furniture Manufacturers (www.bfm.org.uk)			

Sector	European Association 1	European Association 2	European Association 3	European Association 4	European Association 5	European Association 6	UK	Germany	France	Italy
C32 - Other manufacturing	FESI - The Federation of the European Sporting Goods Industry (http://www.fesi-sport.org/)	TIE - Toy Industries of Europe (http://www.tietoy.org/)	FIDE - The Federation of the European Dental Industry (http://www.fide-online.org/)	EDMA - The European Diagnostic Manufacturers Association (http://www.edma-ivd.be/)			SGIA - The Sporting Goods Industry Association (http://www.sgiauk.com/home)	BDMH - National Association of German Musical Instruments Manufacturers (http://www.musikinstrumente.org/v4/USEN/)		
G46 - Wholesale trade, except of motor vehicles and motorcycles	EUEW - The EUROPEAN UNION OF ELECTRICAL WHOLESALERS (http://www.euew.org/)	FENA - The European Federation for Furniture Retailers (http://www.fena-furniture.com/)					FWD - The Federation of Wholesale Distributors (http://www.fwd.co.uk/)	BGA - The Federation of German Wholesale, Foreign Trade and Services (http://www.bga-online.de/home.html)		

14.2 Detailed characteristics of respondents

In the main body of this report we analysed responses to the survey by NACE sector and region of origin. In this section we provide more detailed information on the characteristics of respondents by NACE code and region. This information is presented in the tables below.

Table 14.1: Country

Country	Count (all respondents for which information available)	Count (100% complete responses only)
Not available	186	84
Austria	3	
Belgium	20	3
Bulgaria	5	
Croatia	3	
Czech Republic	4	1
Denmark	11	6
Finland	4	1
France	39	15
Germany	22	5
Greece	7	2
Hungary	1	1
Italy	35	14
Luxembourg	7	1
Netherlands	19	6
Poland	15	4
Portugal	19	3
Romania	37	11
Slovakia	3	
Slovenia	6	4
Spain	26	6
Sweden	4	1
UK	43	9

Table 14.2: NACE sector

NACE code	Count (all respondents for which information available)	Count (100% complete responses only)
2	38	13
4	95	26
7	12	2
10.32	2	
10.52	1	
10.73	1	
10.92	1	
13.2	1	
13.92	2	
14.13	10	1
14.31	1	1
15.12	1	
15.2	2	2
16.23	7	2
16.29	1	1

NACE code	Count (all respondents for which information available)	Count (100% complete responses only)
17.12	4	2
18.13	4	2
20.2	1	
20.3	3	
20.41	2	
20.42	1	1
22.21	2	2
22.22	2	
22.23	2	2
22.29	4	2
23.11	1	1
23.19	1	
23.69	2	
23.7	3	2
23.99	1	
25.12	1	1
25.72	1	
25.73	4	4
25.92	1	1
25.94	1	
25.99	10	4
26.11	2	1
26.3	4	2
26.51	4	2
27.12	1	
27.4	1	
27.9	1	
28.13	1	1
28.14	1	
28.21	1	
28.25	1	
28.29	5	2
28.3	1	
28.91	1	1
28.99	3	1
29.1	1	1
29.2	3	1
29.32	1	
31.02	1	1
31.09	4	
32.12	3	1
32.13	1	
32.2	1	1
32.3	1	
32.5	3	
32.99	4	1
45.3	30	7
46.13	1	1
46.14	1	1
46.18	3	
46.41	3	
46.42	4	2
46.43	4	1
46.44	3	1
46.45	1	
46.47	1	1

NACE code	Count (all respondents for which information available)	Count (100% complete responses only)
46.48	1	1
46.49	10	2
46.52	3	2
46.63	1	
46.69	1	
46.72	2	
46.76	1	
47.77	2	1
59.2	1	1
61.9	1	
68.1	3	
70.21	3	3
72.11	2	
72.19	3	
73.11	89	19
74.1	4	2
74.9	25	3
95.24	1	

14.3 Full questionnaire

Q1. Before we start the survey, we just need to ask you two short questions to check you are eligible to take part. Please read the following statement from the Design Directive (98/71/EC). The Directive defines **design** as:

"The appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation."

According to the above definition, does your organisation develop designs as part of its business activities?

Please click on one answer in the list below

	Selection
Yes	
No	
Unsure	
Prefer not to answer	

.

Q1A **ASK IF Q1 NOT EQ "YES" ELSE GO TO Q2**. Please read the definition of design again.

The Design Directive (98/71/EC) defines design as:

"The appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation."

According to the above definition, does your organisation develop product ideas but outsources the development of original designs to a specialist company?

Please click on one answer in the list below

	Selection
Yes	
No	Not in scope
Unsure	Not in scope
Prefer not to answer	Not in scope

Q1B **Ask if Q1A not eq "YES" else go to Q2.** Does your organisation manufacture, or sell, or distribute spare parts of a complex product which are visible, in that they are used to restore the initial appearance of the said product, or does it otherwise use design-protected products?

Please click on one answer in the list below

	Selection
Yes	
No	Not in scope
Unsure	Not in scope
Prefer not to answer	Not in scope

Profiling Questions

Q2. **ASK IF Q1 OR Q1A OR Q1B = YES, ELSE THANK AND CLOSE.** We would now like to ask you some questions about your company/ you. Any information you give will be treated in strict confidence and will not be shared with anyone outside of Accent and Europe Economics.

Which of the following best describes your organisation?
Please click on one answer in the list below

Type of organisation	Selection
Privately-held company	
Publically traded company	
University	
Non-profit organisation	
Individual	
Research organisation	
Other (please specify)	
Unsure	
Prefer not to answer	

Q3. Which of the following options best characterises the expected average life cycle (from introduction to market to withdrawal from sales) of **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** your company's **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** your organisation's **IF Q2 = INDIVIDUAL SHOW** your **SHOW ALL** products?

Please click on one answer in the list below

Product life cycle	Selection
0-6 months	
6-12 months	
1-2 years	
3-5 years	
6-10 years	
More than 10 years	
Other (please specify)	
Unsure	
Prefer not to answer	

Q4. What was **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** your company's approximate annual turnover **Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** your organisation's approximate cost budget **IF Q2 = INDIVIDUAL SHOW** your approximate turnover or cost budget **SHOW ALL**, on average, over the last 5 years? Please show the value in Euros.

Please click on the box below and type in your answer

Approximate average turnover in the last 5 years (€)	€
Unsure **(EXCLUSIVE)**	
Prefer not to answer **(EXCLUSIVE)**	

Q5. In which countries **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** does your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** does your organisation **IF Q2 = INDIVIDUAL SHOW** do you **SHOW ALL** conduct business (e.g. sell products or services)?

Please click on all that apply in the list below

Austria	
Belgium	
Bulgaria	
Croatia	
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	
France	
Germany	
Greece	
Hungary	
Ireland	
Italy	
Latvia	
Lithuania	
Luxembourg	
Malta	
Netherlands	
Poland	

Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
United Kingdom	
Norway	
Russia	
Switzerland	
Turkey	
Brazil	
China	
India	
Japan	
United States	
One other country outside the European Union (but not Norway, Russia, Switzerland or Turkey)	
More than one other country outside the European Union (but not Norway, Russia, Switzerland or Turkey)	
None of these countries **(EXCLUSIVE)**	
Unsure **(EXCLUSIVE)**	
Prefer not to answer **(EXCLUSIVE)**	

Use of designs

Q6. **ASK IF Q1 OR Q1A = YES, ELSE GO TO Q20.** Over the last 5 years, on average, what percentage of your total revenue (excluding VAT) has been devoted to the development or acquisition of designs (in the meaning of visual appearance of your products)?

Please use the sliding scale to show the approximate %

USE SLIDING SCALE BAR 1% TO 100%

[ ] Unsure **EXCLUSIVE**

[ ] Prefer not to answer **EXCLUSIVE**

Q7. How important are the following design related factors **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** for your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** for your organisation **IF Q2 = INDIVIDUAL SHOW** for you. **SHOW ALL** (Again when we say design we mean the visual appearance of your product.) Please answer on a 5 point scale where 1 means they are not at all important and 5 means they are extremely important.

Please click on one answer per row

ROTATE EXCEPT "OTHER" ALWAYS ASK "OTHER" LAST

	1 (not at all important)	2	3	4	5 (extremely important)	Unsure	Prefer not to answer
Design adds value to the product							
Design creates a competitive niche							
Design increases consumer loyalty							
Design strengthens product marketing							
Design differentiates product from competitors							
Design enables entry into new markets							
Design improves access to finance							
Other (please specify)							

Protecting designs

Designs can be protected by different intellectual property rights one of which is the **industrial design right;** when the term ***industrial design*** is used it should not be confused with the term ***design*** which refers to the visual appearance of one's product.

There are several methods of protecting your designs (in the meaning of visual appearance of your products) to guard against someone else copying them. These options are illustrated in the figure below.

We will ask about your use of these different options through which you may choose to protect your designs. If you require additional information about these possibilities, please click **HERE.** You will see these terms used in some of the following questions. They will appear in blue text. If you need an explanation of what they mean, just place your cursor over the blue text and an explanation will appear.

MEANS OF PROTECTING INDUSTRIAL DESIGNS

- **NATIONAL INDUSTRIAL DESIGN**
  - National industrial design protection can be granted by registering the design at the intellectual property office of the relevant EU Member State.

- **UNREGISTERED NATIONAL INDUSTRIAL DESIGN** (where applicable)
  - Unregistered national industrial design protection is not available in all EU Member States. Where available, the right arises automatically, and does not require any registration. The level of protection is generally less than that provided by a registered national industrial design.

- **REGISTERED COMMUNITY INDUSTRIAL DESIGN**
  - A registered community design is valid across all EU Member States and is initially valid for five years from the date of filing and can be renewed in blocks of five years up to a maximum of 25 years. Companies apply for protection through OHIM (Office for Harmonization in the Internal Market)

- **UNREGISTERED COMMUNITY INDUSTRIAL DESIGN**
  - An unregistered Community design right arises automatically and gives protection for a period of three years from the date on which the design was first made available to the public within the territory of the European Union. After three years, the protection cannot be extended.

- **INTERNATIONAL INDUSTRIAL DESIGN (APPLICATION TO WIPO UNDER HAGUE AGREEMENT)**
  - This offers designers a simplified means of applying for protection of a design. Through this, a single international application can give protection in several countries. This agreement is administered by the World Intellectual Property Office (WIPO). The international registration has the effect of a grant of protection in a designated country, under the law of that country. This route is only an application process with the industrial designs granted following the process being national registered rights.

- **COPYRIGHT**
  - Copyright applies to many written and recorded materials, on any medium, including artistic works, literary works, layouts and typographs. Copyright is automatic and does not need to be registered.

- **TRADEMARK (NATIONAL AND COMMUNITY; AND INTERNATIONAL APPLICATION TO WIPO UNDER MADRID PROTOCOL)**
  - Trademarks apply to signs that can differentiate and define one's brand or product. Trademarks are registered rights and have different geographical coverage according to where the application is made.

You will see these terms used in some of the following questions. They will appear in blue text. If you need a reminder of what they mean, just place your cursor over the blue text and an explanation will appear.

Q8. Approximately what percentage of your designs (in the meaning of visual appearance of your products) is currently protected through each of the ways listed in the table below?
Please click on each row and enter the percentage of designs protected by each measure.

Please note that your response does not need to sum up to 100%, e.g. if you rely on multiple different, overlapping forms of protection for designs.

	Percentage of designs protected
Industrial design – National, registered	
Industrial design – National, unregistered	
Industrial design – Community (OHIM), registered	
Industrial design – Community, unregistered	
Copyright	
Trademark – National	
Trademark – Community (OHIM)	
Unsure (**EXCLUSIVE)**	
Prefer not to answer (**EXCLUSIVE)**	

Q9. Have you ever used a National industrial design protection, a Registered Community industrial design (apply to OHIM), or an International industrial design (apply to WIPO under Hague Agreement) right in conjunction with copyright and / or trademark protection to **protect a single design** in a single country?

Please click on one answer in the list below

No	Yes with both copyright and trademark together	Yes, with copyright only	Yes, with trademark only	Unsure	Prefer not to answer

Influences on your choice of how to protect designs

Q10. We would now like to ask you about **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** your company's **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** your organisation's **IF Q2 = INDIVIDUAL SHOW** your **SHOW ALL** spending on protecting designs. On average over the previous 5 years, roughly how much did you spend obtaining new protection or renewing previous protection for your designs in all countries?

Please specify a monetary value in Euros

(€)	SPENDING
DP NUMERIC ANSWER BETWEEN 0 AND ABOVE	
Unsure	
Prefer not to answer	

Q11. On average, during the last five years, how many designs have you protected each year and in how many countries were these designs typically protected?

	Average number of designs protected per year	Average number of countries in which a design was protected
DP NUMERIC ANSWER BETWEEN 0 AND ABOVE		
Unsure		
Prefer not to answer		

Q12. What factors influence **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** your organisation **IF Q2 = INDIVIDUAL SHOW** you **SHOW ALL** in deciding if you should apply for protection of your designs (including the decision not to register any protection)? Please answer on a 5 point scale where 1 means they would have no influence and 5 means they would have a very significant influence**. ROTATE**

Please click on any answers that apply to you in the list below

Factor	1 (no influence)	2	3	4	5 (very significant influence)	Unsure	Prefer not to answer
Relevance of the market							
Cost of obtaining protection							
Level of protection granted							
Cost of enforcing protection							
Other (please specify)							

Q13. How would each of the following factors influence **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** your organisation **IF Q2 = INDIVIDUAL SHOW** you **SHOW ALL** in deciding what type of design protection to seek (including the decision not to register any protection)? Please answer on a 5 point scale where 1 means they would have no influence and 5 means they would have a very significant influence. **(DP ROTATE WITHIN "CHARACTERISTICS OF THE APPLICATION" AND "CHARACTERISTICS OF PROTECTION")**

Please click on one answer in each of the rows below

Factor	1 (no influence)	2	3	4	5 (very significant influence)	Unsure	Prefer not to answer
Characteristics of the application							
Availability of **clear information and guidance** on what can be legally protected and how							
Administrative burden of applying for and maintaining protection							
Time between making an application and protection being granted							
Characteristics of protection							
Duration of protection							
Strong **enforcement** framework							
Level of **application fees**							
Level of **lawyer fees**							
Level of **renewal fees**							
Geographical scope of protection							
Other (please specify)							

Your use of industrial designs

Q14. **ASK IF Q8 = NATIONAL REGISTERED INDUSTRIAL DESIGN PERCENTAGE OF DESIGNS PROTECTED > 0 ELSE GO TO Q.** You have said that you have used "national registered industrial designs". In which of the following countries did you typically apply for protection in the last five years?

Please click on any of the answers that apply to you in the list below

Austria	
Belgium	
Bulgaria	
Croatia	
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	
France	
Germany	
Greece	
Hungary	
Ireland	
Italy	
Latvia	
Lithuania	
Luxembourg	
Malta	
Netherlands	
Poland	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
United Kingdom	
More than one country (PLEASE SPECIFY)	
None of these **(EXCLUSIVE)**	
Unsure **(EXCLUSIVE)**	
Prefer not to answer **(EXCLUSIVE)**	

Q15. Would any of the following factors cause **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** your organisation **IF Q2 = INDIVIDUAL SHOW** you **SHOW ALL** to avoid seeking intellectual protection using **registered industrial designs** and instead lead you to use **unregistered industrial design** protection? Please answer on a 5 point scale where 1 means they would have no relevance to your decision and 5 means they would have a very significant relevance. **ROTATE**

Please click on one answer in each of the rows below

Factor	1 (no relevance)	2	3	4	5 (very significant relevance)	Unsure	Prefer not to answer
Limited knowledge of registered industrial design protection							
Registered protection is more **complicated**							
Registered protection has more **administrative burdens**							
Registered protection involves **fees**							
Registered protection is **not enforced properly**							
Unregistered protection is more **limited in scope** than registered protection							
Registered protection is **not important enough** to my organisation to justify an application for an industrial design right							
The duration of unregistered protection is more appropriate for the **products' life cycle**							
Sufficient protection can be achieved through other forms of Intellectual Property (Copyright/Trademark)							
Other **(please specify)**							

Enforcement of design protection

Q16. Accent would like to assure you once again that any information you give will be treated in strict confidence. This section asks about any enforcement of **design protection** that **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** your company has **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** your organisation has **IF Q2 = INDIVIDUAL SHOW** you have **SHOW ALL** taken against third parties and your opinion of the legal process.

IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW Has your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** Has your organisation **IF Q2 = INDIVIDUAL SHOW** Have you **SHOW ALL initiated legal action** against third parties to enforce protection of your designs, in the last 5 years?

Please click on one of the answers below

Yes	No	Unsure	Prefer not to answer

Q17. **ASK IF Q16 = YES ELSE GO TO** Q19 If yes, in which of the following countries did you **initiate** legal action?

Please click on any answers that apply to you in the list below

Austria	
Belgium	
Bulgaria	
Croatia	
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	
France	
Germany	
Greece	
Hungary	
Ireland	
Italy	
Latvia	
Lithuania	
Luxembourg	
Malta	
Netherlands	
Poland	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	

United Kingdom	
One other country outside the European Union (**PLEASE SPECIFY**)	
More than one country outside the European Union (**PLEASE SPECIFY**)	
None of these **(EXCLUSIVE)**	
Unsure **(EXCLUSIVE)**	
Prefer not to answer **(EXCLUSIVE)**	

Q18. Which of the following forms of protection did you use to initiate legal action against third parties?

Please click on any answers that apply to you in the list below

Type of protection	Selection
Industrial design – National, registered	
Industrial design – National, unregistered	
Industrial design – Community (OHIM), registered	
Industrial design – Community, unregistered	
Copyright	
Trademark – National	
Trademark – Community (OHIM)	
Other **(PLEASE SPECIFY)**	
Unsure **(EXCLUSIVE)**	
Prefer not to answer **(EXCLUSIVE)**	

Q19. How satisfied were you with the process of legal action that you initiated (as distinct from any views you might have about the outcome)? (i.e. concerning length of proceedings, transparency, ease of enforcement of judgement, etc.). Please answer on a scale of 1 to 10. A score of 1 means you were completely dissatisfied and a score of 10 means you were completely satisfied.

Please use the sliding scale

USE SLIDING SCALE BAR 1 TO 10

[ ] Unsure **EXCLUSIVE**
[ ] Prefer not to answer **EXCLUSIVE**

Q20. Next we shall ask about any allegations made against your organisation by third parties about design protection infringements.

IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW Has your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW** Has your organisation **IF Q2 = INDIVIDUAL SHOW** Have you **SHOW ALL** ever been **subject to legal action** by third parties for an alleged infringement of a **protected design**, in the last 5 years?

Please click on one answer in the list below

Yes	No	Unsure	Prefer not to answer

Q21. **ASK IFQ20 YES ELSE GO TO Q24.** In which of the following countries were you subject to legal action in the last 5 years?
Please click on any answers that apply to you in the list below

Austria	
Belgium	
Bulgaria	
Croatia	
Cyprus	
Czech Republic	
Denmark	
Estonia	
Finland	
France	
Germany	
Greece	
Hungary	
Ireland	
Italy	
Latvia	
Lithuania	
Luxembourg	
Malta	
Netherlands	
Poland	
Portugal	
Romania	
Slovakia	
Slovenia	
Spain	
Sweden	
United Kingdom	
One other country outside the European Union (PLEASE SPECIFY)	
More than one country outside the European Union (PLEASE SPECIFY)	
None of these **(EXCLUSIVE)**	
Unsure **(EXCLUSIVE)**	
Prefer not to answer **(EXCLUSIVE)**	

Q22. Which of the following forms of protection were you alleged to have infringed in the last 5 years?
Please click on any answers that apply to you in the list below

Type of protection	Selection
Industrial design – National, registered	
Industrial design – National, unregistered	
Industrial design – Community (OHIM), registered	
Industrial design – Community, unregistered	
Copyright	
Trademark – National	
Trademark – Community (OHIM)	
Other **(PLEASE SPECIFY)**	
Unsure **(EXCLUSIVE)**	
Prefer not to answer **(EXCLUSIVE)**	

Q23. How satisfied were you with the process of legal action that you were subject to (as distinct from any views you might have about the outcome)? (i.e. concerning length of proceedings, transparency, ease of enforcement of judgement, etc.). Please answer on a scale of 1 to 10. A score of 1 means you were completely dissatisfied and a score of 10 means you were completely satisfied.

Please use the sliding scale

USE SLIDING SCALE BAR 1 TO 10

[ ] Unsure **EXCLUSIVE**
[ ] Prefer not to answer **EXCLUSIVE**

Q24. Do you have any other comments on the functioning of the enforcement process?
Please click on the box below and type in your answer

.....
.....
.....
.....
.....
.....
.....

Visible spare parts

Q25. The European Commission defines spare parts as:

"Items intended to replace a defective or worn out part of a product previously placed and put into service on the EU market."

Visible spare parts are defined as:

" a component part used for the purpose of the repair of a complex product so as to restore its original appearance"

According to the above definitions, **IF Q2 NOT EQ UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION OR INDIVIDUAL SHOW** does your company **IF Q2 = UNIVERSITY OR NON PROFIT ORGANISATION OR RESEARCH ORGANISATION SHOW**

does your organisation IF **Q2 = INDIVIDUAL SHOW** do you **SHOW ALL** buy or sell visible spare parts?

Please click on one answer in the list below

Yes - sell	
Yes - buy	
Yes – buy and sell	
No	
Unsure	
Prefer not to answer	

Q26. **ASK IF Q25= YES SELL OR YES BUY AND SELL ELSE GO TO Q27**. If the national legislation so allows, do you protect the visible spare parts that you produce and/or sell using registered industrial designs?

Please click on one answer in each of the rows below

Yes	
No	
No, I am an independent spare parts producer	
Prefer not to answer	

Q27. **ASK IF Q25 = YES SELL OR YES BUY OR YES BUY AND SELL ELSE GO TO Q32** Some EU countries extend the protection of the design of visible spare parts into the aftermarket for repair purposes while others do not. Please specify the extent to which you agree with each of the following statements on the consequences of this situation. **ROTATE**

Please click on one answer in each of the rows below

	1 (Strongly disagree)	2	3 (Neither agree nor disagree)	4	5 (Strongly agree)	Unsure	Prefer not to answer
Prices for visible spare parts are higher in countries where their designs may be protected							
There are differences in the overall quality of visible spare parts available on the market depending on whether such spare parts are afforded protection or not.							
I would sell my product at a significantly lower price in certain countries if there were no protection of the designs of visible spare parts.							
I would supply my product to more countries if there were no protection of the designs of spare parts							
Competition in the market for visible spare parts is greater in countries in which it is not possible to protect the design of visible spare parts							
It is more difficult to access visible spare parts where protection exists							
Other (please specify)							

Q28. What are the effects on your business model of having a different design regime for visible spare parts in the EU (e.g. distribution channel, prices, enforcement, production or trade location, investments in innovation)? Please explain.

Please click on the text box below and type in your response

Q29. Depending on the national regime for design, are there any differences in terms of quality, safety and price strategy for the visible spare parts you trade? Please explain.

Please click on the text box below and type in your response

Q30. a) Accent would like to reassure you once again that any answers you give will be treated in strict confidence. You and your organisation will not be identified when we report the findings.

Has your organisation ever initiated legal action against a third party for alleged infringements of your design rights for visible spare parts?

Please click on one answer in the list below

Yes	
No	
Unsure	
Prefer not to answer	

b) **ASK IF Q30A = YES ELSE GO TO Q31.** What was the outcome?

Please click on one answer in the list below

We won the case	
We lost the case	
Still awaiting the outcome	
Unsure	
Prefer not to answer	

c) What were the economic effects on your business? Please explain

Please click on the text box below and type in your response

Q31. a) Accent would like to reassure you once again that any answers you give will be treated in strict confidence. You and your organisation will not be identified when we report the findings.

Has your organisation ever been subject to legal action by a third party for alleged infringements of their design rights for visible spare parts?

Please click on one answer in the list below

Yes	
No	
Unsure	
Prefer not to answer	

b) **ASK IF Q31A = YES ELSE GO TOQ32.** What was the outcome?

Please click on one answer in the list below

We won the case	
We lost the case	
Still awaiting the outcome	
Unsure	
Prefer not to answer	

c) What were the economic effects on your business? Please explain

Please click on the text box below and type in your response

Overall perceptions

Q32. Overall, to what extent are you satisfied with the functioning of the design protection system a) at the national level; b) at the EU level c) outside the EU? Please answer on a 5 point scale where 1 means not at all satisfied and 5 means completely satisfied. **DO NOT ROTATE**

Please click on one answer in each of the rows below

	1 (Not at all satisfied)	2	3	4	5 (Completely satisfied)	Unsure	Prefer not to answer
National level							
EU level							
Outside the EU							

Q33. What could be improved in the current design protection system in order to better meet your business needs and help your company to develop?

Further research

Q34. We really appreciate the time that you have given us in answering these questions. Would you be willing to be contacted again for clarification purposes or be invited to take part in other research for The European Commission on this same topic? **(DP MULTICODE)**
Please click on any of the answers that apply to you in the box below

Yes, for both clarification and further research	
Yes, for further research only	
Yes, for clarification only	
No **(EXCLUSIVE)**	

Q35. **ASK IF ANY AT Q34 = YES ELSE GO TO Q36.** Please could you give your contact details?
Please click on each box below and type in your answers

Title	
First Name	
Surname	
Telephone number	
Email address	
Confirm email address	
Prefer not to answer **(EXCLUSIVE)**	

Q36. You have now completed the survey. All of your answers were automatically saved each time you clicked on the forward button. We can confirm, therefore, that we have received them. Would you like us to send you an email to confirm we have received all of your answers?
Please click on one answer below

[ ] Yes **(SEND AUTO EMAIL AND GO TO Q37)**
[ ] No

Q37. You have now finished the survey. After you click to go forward you will see an option to print off or down load a copy of your completed answers.

Please click on the forward button at the bottom of this page when you have finished reading it