

## Market Success And Challenges Facing European SMEs: Results From EPO's Patent Commercialization Scoreboard

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### Abstract

*Small and medium-sized technology-driven enterprises are important to the European economy and patents are important to them as a means of securing sustainable high growth. A recent survey investigated how small and medium-sized enterprises filing European patents succeed in commercializing those of their inventions with the highest business potential. These technologies usually find their way to the market, frequently involving partnerships in Europe and beyond. However, some challenges still persist for SMEs wishing to commercialize their technology, including difficulties finding partners and managing complex negotiations. These challenges need to be addressed. Sharing good practices, knowledge, and expertise in IP management and IP strategy can help, as can access to networking platforms.*

### 1. Introduction

Intellectual property rights (IPRs) are important to the European economy. The latest joint EPO-EUIPO study clearly shows that IPR-intensive industries account for 45 percent of the EU's GDP and up to 39 percent of employment.<sup>1</sup> The higher contribution to GDP than to employment implies that employees in these industries are more productive and, as a result, are also better paid. These industries are the true engine of the European economy.

These industries are not only represented by large multinational corporations. They also include a vibrant ecosystem of small and medium-sized businesses (SMEs) and co-operating universities and other research institutions. The EPO's statistics of patent applications show that SMEs and individual inventors represent up to 20 percent of patent applications filed by European applicants at the EPO<sup>2</sup> and approximately 50 percent of all applicants together. This statistic shall be considered as a lower bound for the total contribution of smaller businesses to innovation in Europe: European SMEs usually file patents in their main market first and then continue with the EPO if they expect to grow their business beyond that. Therefore, their share at national patent offices is likely to be even higher.

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1. European Patent Office and European Union Intellectual Property Office, Intellectual property rights intensive industries and economic performance in the European Union, September 2019, [www.epo.org/iprintensiveindustries](http://www.epo.org/iprintensiveindustries) (accessed 05.04.2020).

2. See EPO's Patent Index 2019 on [www.epo.org/statistics](http://www.epo.org/statistics) (accessed 05.04.2020).

Patents help SMEs to protect their inventions, bring them to market and protect their sales. They can also be a major asset in setting up licensing or co-operation agreements that enable SMEs to move into new markets with their patented inventions. A recent analysis revealed that European SMEs that have taken steps to protect their intellectual property rights are 21 percent more likely to experience a growth period afterwards and are 10 percent more likely to become high-growth firms—defined as companies whose turnover increases annually by 20 percent or more within a period of three years.<sup>3</sup> These statistics confirm that IPR activity is indeed an indicator for innovation, and therefore an early signal of future growth potential. The chances of high growth or growth in general increase even further when SMEs make use of European patents, trade marks and designs. The prior use of European IP rights signals that these SMEs are not only innovative, but are also geared towards growth on an international scale. The broad geographical scope of the protection conferred by European patents<sup>4</sup> is of particular importance to companies aiming to grow rapidly in international markets. This applies most especially to typical SMEs or start-ups which, due to their small size, are even more dependent on licensing agreements or co-operations with partners in other countries to commercialize their inventions internationally and at scale. It is therefore important to better understand how these SMEs make use of their intellectual property as a leverage for growth and how successful technology commercialization can be sustained and supported.

### 2. Patent Commercialization Scoreboard: What We Know about European SMEs

The EPO conducted a survey of 1,500 European SMEs who filed European patent applications with the EPO between 2009 and 2018, asking them about patent commercialization practices.<sup>5</sup> By analyzing how SMEs com-

3. European Patent Office and European Union Intellectual Property Office, High-growth firms and intellectual property rights—IPR profile of high-potential SMEs in Europe, May 2019, [www.epo.org/high-growth](http://www.epo.org/high-growth) (accessed 05.04.2020).

4. The EPO provides a single uniform grant procedure for Europe, enabling owners of European patents to exercise their rights in over 40 countries. European patents can also be validated in four additional countries: Morocco, the Republic of Moldova, Tunisia and Cambodia.

5. European Patent Office. 2019. Market success for inventions. Patent commercialization scoreboard: European SMEs. [epo.org/scoreboard-smes](http://epo.org/scoreboard-smes) (accessed 16.03.2020).

mercially exploit their European patents, with a focus on collaborative forms of exploitation like licensing or cooperation, insights can be gained that foster a deeper understanding of how European SMEs can be helped to harness the business potential of their IP rights. This provides policy makers with valuable insights into the challenges they have to deal with.

The key findings of the study are as follows:

## 2.1. Importance of SMEs' Patented Inventions to Their Industries

A large majority of the SMEs surveyed consider the inventions for which they have filed a European patent application as important compared with other inventions in their industry. Over 80 percent of respondents consider their inventions to be ranked in the top half of all inventions in their industry, and up to 39 percent perceive their inventions as being ranked in the top 10 percent of technical developments in their industry. Only 17 percent perceive their inventions to be ranked in the bottom half of all inventions in their industry. See Figure 1.

## 2.2. Motives for Maintaining a Patent

"Preventing imitation" was cited by 83 percent of SMEs as an important or highly important motive for maintain-

ing their European patents, followed by "improving the SME's reputation" (69 percent) and "helping to obtain freedom to operate (FTO)" (59 percent).<sup>6</sup>

Roughly half of the SMEs surveyed also rated motives related to the use of patents in technology transactions as important. These motives include "facilitating commercial contracts" (53 percent) and "licensing" (46 percent). "Using European patent applications to secure financing" is regarded by more than one-third (35 percent) of SMEs as an important or highly important motive for maintaining their patent. See Figure 2.

## 2.3. Use of Trade Marks, Design Rights or Additional Patents in Relation to the Invention

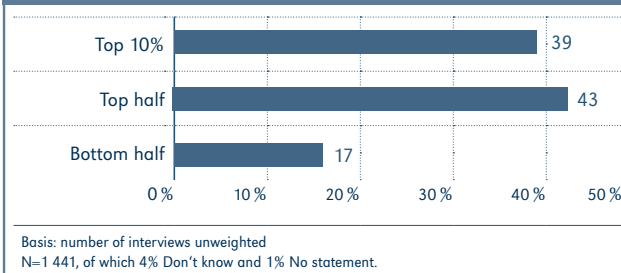
When asked to identify complementary IP rights that are also relevant for the commercial exploitation of their patented inventions, 48 percent of SMEs stated that they were using or planning to use additional patents. A similarly high percentage (45 percent) of SMEs use trade marks as part of their IP strategy, whereas design rights

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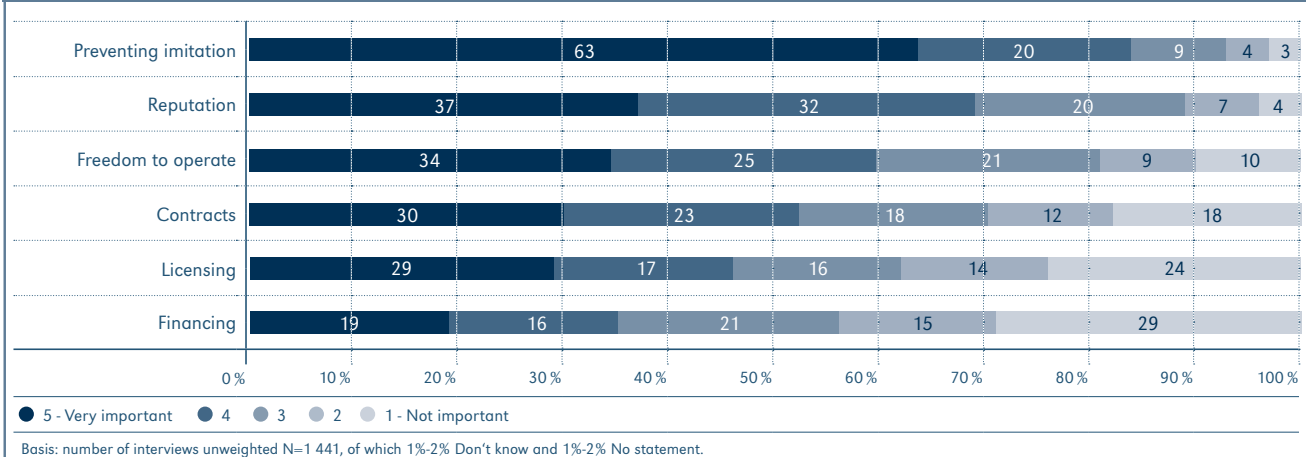
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**Figure 1. Importance Of SMEs' Patented Inventions To Their Industries**

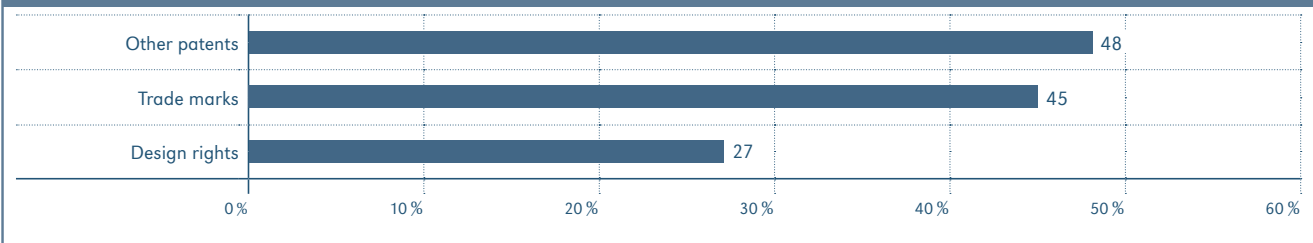


**Figure 2. Motives For Maintaining Patents**



6. Freedom-to-operate (FTO) analyses are usually conducted during R&D projects or the latest in preparation for commercialization activities. They allow a company to determine whether an invention, technology or product can be offered without running the risk of infringing someone else's patent rights.

**Figure 3. Use Of Trade Marks, Design Rights Or Additional Patents In Relation To The Invention**



Basis: number of interviews unweighted N=1 440, of which 3%-4% Don't know and 2% No statement.

are used to a lesser extent (27 percent). See Figure 3.

#### 2.4. Commercial Exploitation

Roughly two-thirds (67 percent) of the inventions for which SMEs file a patent application with the EPO are exploited for commercial purposes.<sup>7</sup> Analyzed in more detail, 34 percent are exploited exclusively by the SME, whereas 33 percent of these inventions are commercialized in collaboration with external partners via technology transfer or cooperation agreements. In other words, half of all patented inventions that reach the market are exploited via a partnership. See Figure 4.

#### 2.5. Motives for Not Exploiting Inventions

Some patented inventions are not commercially exploited. According to the SMEs surveyed, this is mainly because these inventions are either still at the development stage (67 percent), or potential commercial opportunities are still being explored (64 percent). Other reasons given include a lack of resources (32 percent) or

skills and contacts (19 percent) to pursue further development and commercialization. Insufficient commercial potential (14 percent of unexploited inventions to date), a lack of IP protection (8 percent) and insufficient freedom to operate (5 percent) were cited less frequently. See Figure 5, p. 159.

#### 2.6. Forms of Collaborative Exploitation

Licensing is the most frequent (62 percent) form of collaborative exploitation used by SMEs. Almost half of joint commercialization cases also involve a broader form of co-operation. Nearly one-third of the surveyed SMEs involved in collaborative exploitation create spin-offs based on their patented inventions, while over 21 percent co-operate via cross-licensing.<sup>8</sup> See Figure 6, p. 159.

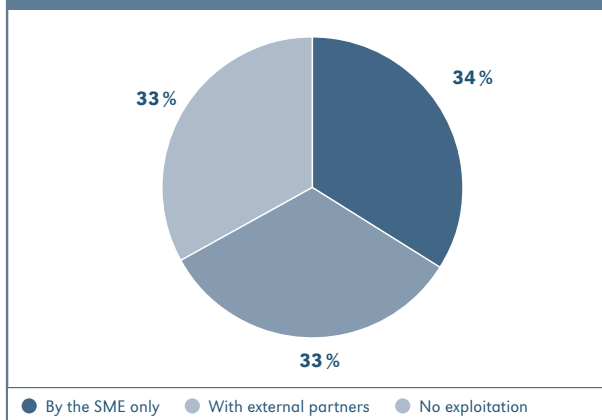
#### 2.7. Motives for Collaborative Exploitation

Jointly exploiting patented inventions with external partners enables SMEs to leverage their partners' resources and accelerate IP commercialization. SMEs that are involved in partnerships identify "increasing revenue" (85 percent) and "market access" (73 percent) as the main motives for collaborative exploitation. Over half (56 percent) of them also cite "joint innovation" as a motive, followed by "outsourcing manufacturing" (42 percent) and "settling infringements" (32 percent). See Figure 7, p. 159.

#### 2.8. Potential for Collaborative Exploitation

Over one-third of SMEs (39 percent) that filed European patent applications said that they had plans for future collaborative exploitation. The vast majority (80 percent) of these planned ventures concern inventions that have not yet been exploited with external partners. The remaining share consists of patented inventions that are already being jointly exploited but may potentially lead to further partnerships. These statistics show that SMEs perceive collaborative exploitation as a relevant mode of commercialization for up to two-thirds of the inventions

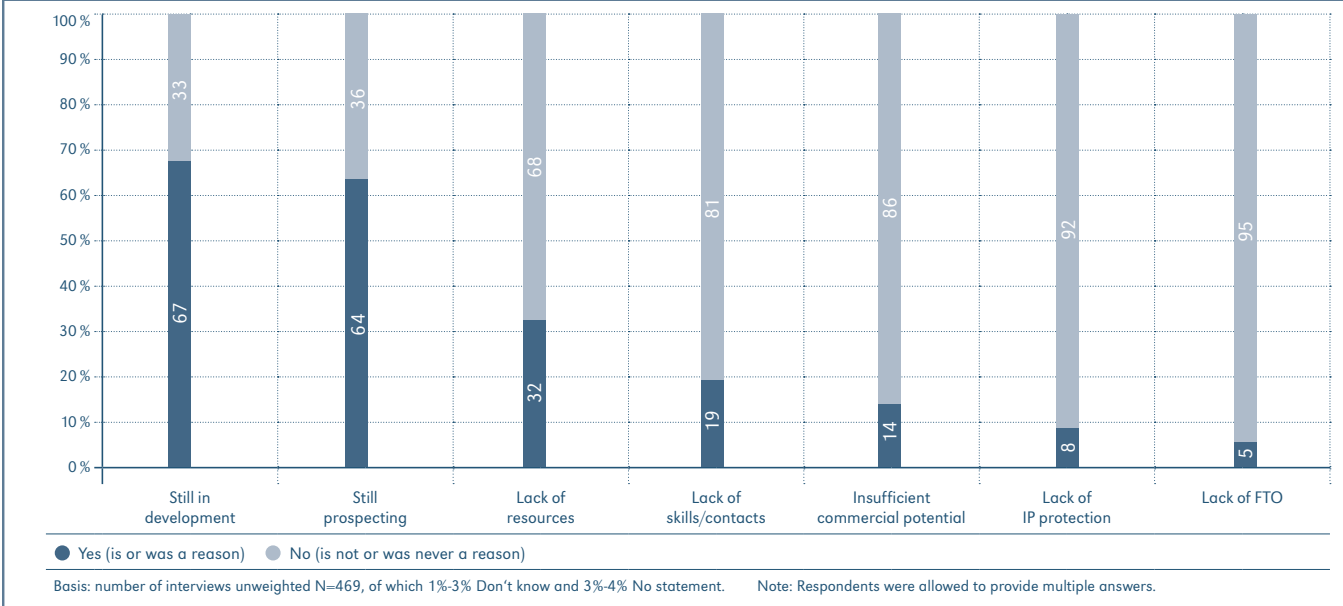
**Figure 4. Type Of Commercial Exploitation**



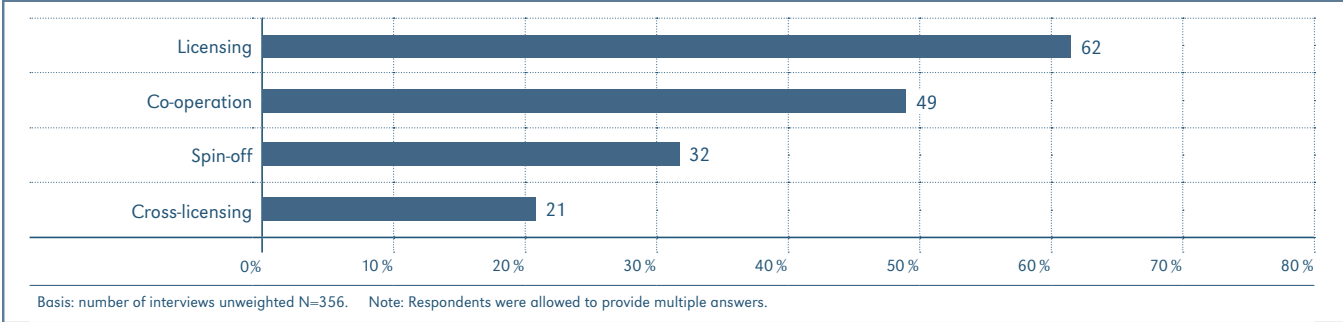
7. The commercialization rate of 67 percent is a conservative estimate based on the number of granted and pending patent applications at the time of the survey. Some patent applications were still being examined and can be expected to result in commercialization of the product once the examiners have communicated which claims have the potential to be granted.

8. Cross-licensing is often regarded as a means to secure freedom to operate, but can also be the basis of forward-looking alliances that encourage knowledge flow and spur post-licensing innovations.

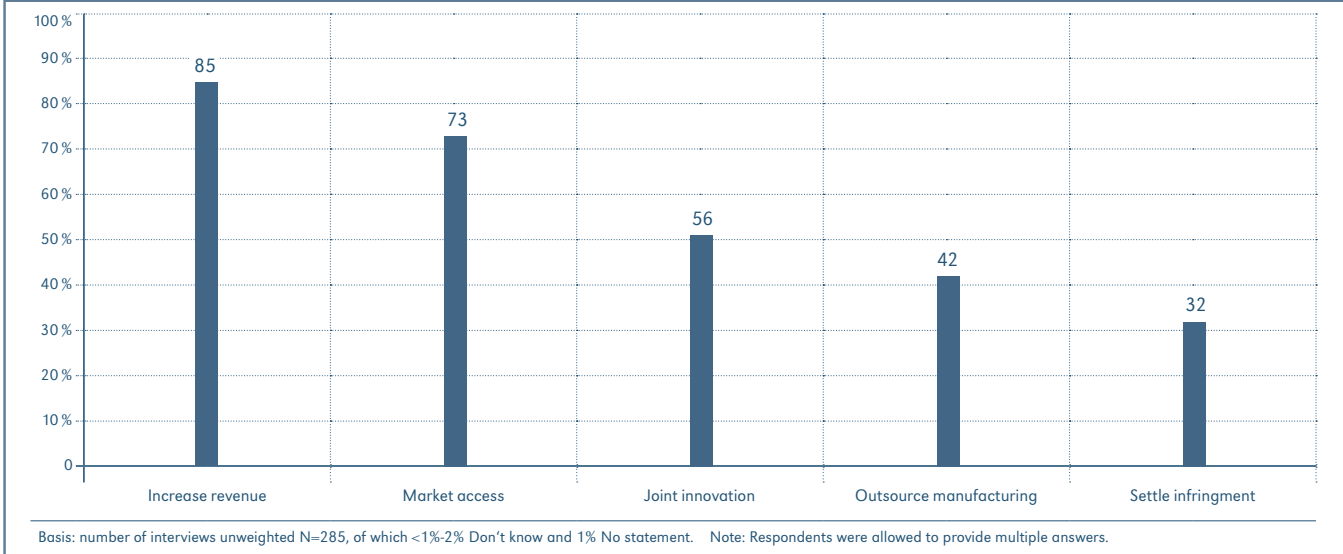
**Figure 5. Reasons For Not Exploiting Inventions**



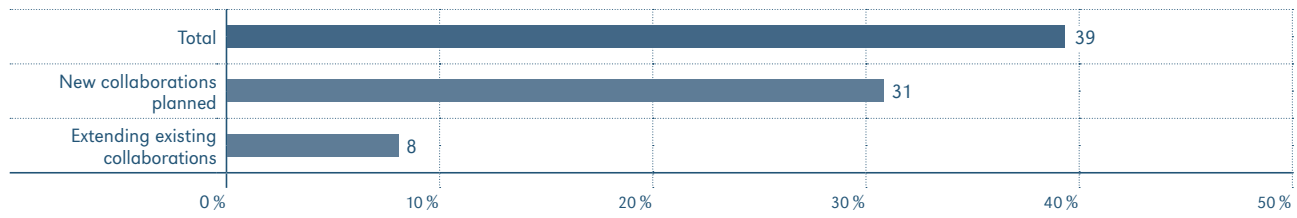
**Figure 6. Forms Of Collaborative Exploitation**



**Figure 7. Motives For Collaborative Exploitation**



**Figure 8. Potential For Collaborative Exploitation**



Basis: number of interviews unweighted N=1 441, of which 1%-3% Don't know and 1%-2% No statement.

for which they have filed a European patent application. See Figure 8, p. 160.

### 2.9. Business Profile of Partners

SMEs seeking to exploit patented inventions most frequently partner up with existing clients (59 percent) or existing suppliers (26 percent). Around one-fifth (19 percent) of these inventions are also jointly exploited with a university or other publicly funded research organization. Partnerships with competitors are less frequent (15 percent), but are often cited by SMEs (22 percent) as potential options. See Figures 9 and 10, pages 160 and 161.

### 2.10. Geographical Location of Partners

European SMEs most frequently engage in collaborative IP exploitation with partners located in other European countries (56 percent) or in their own country (53 percent). SMEs commercializing inventions outside of Europe tend to choose partners located in North America (26 percent) or Asia (21 percent). But in general they prefer to choose partners located in another EU member state (68 percent of the surveyed SMEs). See Figures 11 and 12, p. 161.

### 2.11. Challenges in Collaborative Exploitation

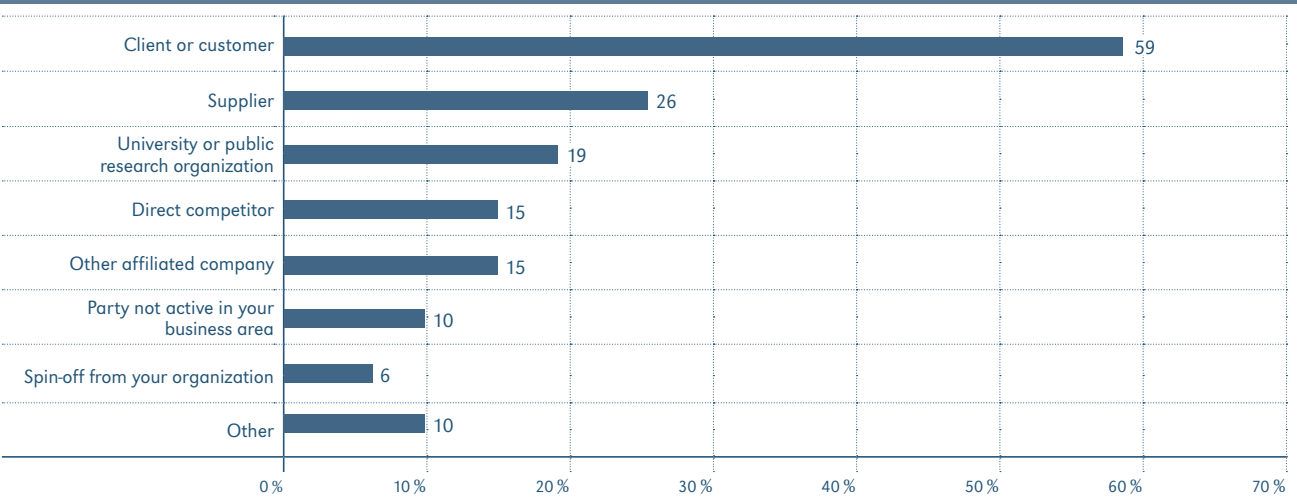
European SMEs involved in collaborative exploitation see identifying the right partners or the cost and com-

plexity of negotiations as the biggest challenge. Approximately one-quarter of respondents cited reasons such as the poor availability of competent advice, the need to disclose critical information and the accompanying risk of creating a competitor as the most important challenges. Unsatisfactory IP protection and the lack of interest from potential partners were cited as major stumbling blocks by just 13 percent of companies wishing to exploit their patents via collaboration. See Figure 13, p. 162.

### 2.12. Channels Used to Find Partners

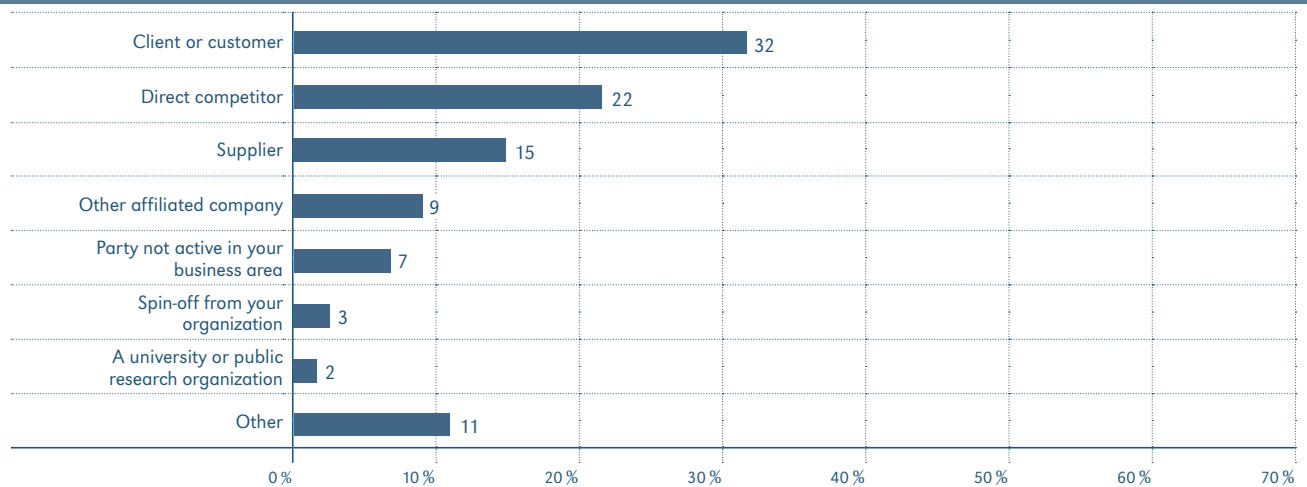
Analysis of the channels used by SMEs to find partners confirms that identifying the right contacts for setting up collaborations across Europe is a very difficult challenge. Up to 60 percent of partnerships involving SME patents or patent applications are actually initiated by their partners. SMEs' own efforts to find partners are mainly based on direct contacts and they seldom use available intermediary channels. SMEs cite personal contacts (77 percent) and business partners (67 percent) as by far the most important channels for collaborative exploitation, along with trade fairs or conferences (49 percent). They use brokers (17 percent), patent attorneys (20 percent), internet platforms (16 percent) and patent information tools (14 percent) far less frequently. See Figure 14, p. 162.

**Figure 9. Current Partner Profile**



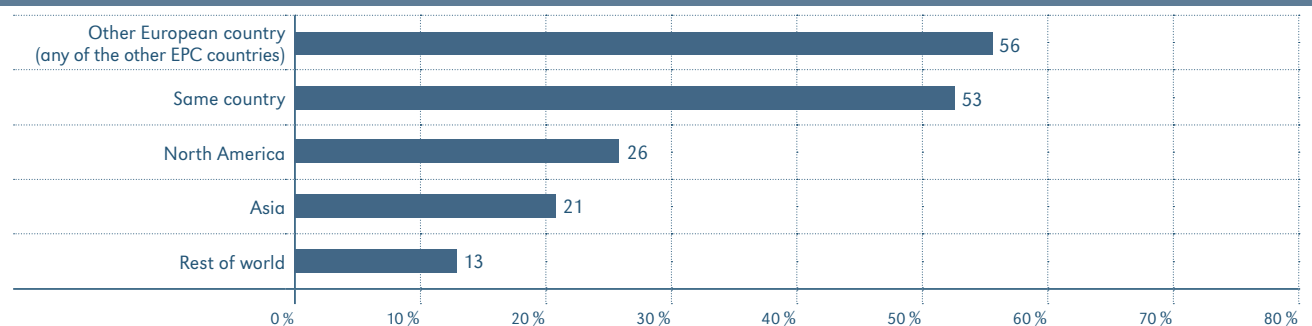
Basis: Number of interviews unweighted N=285, of which 1% Don't know and 1% No statement. Note: Respondents were allowed to provide multiple answers.

### Figure 10. Planned Partner Profile



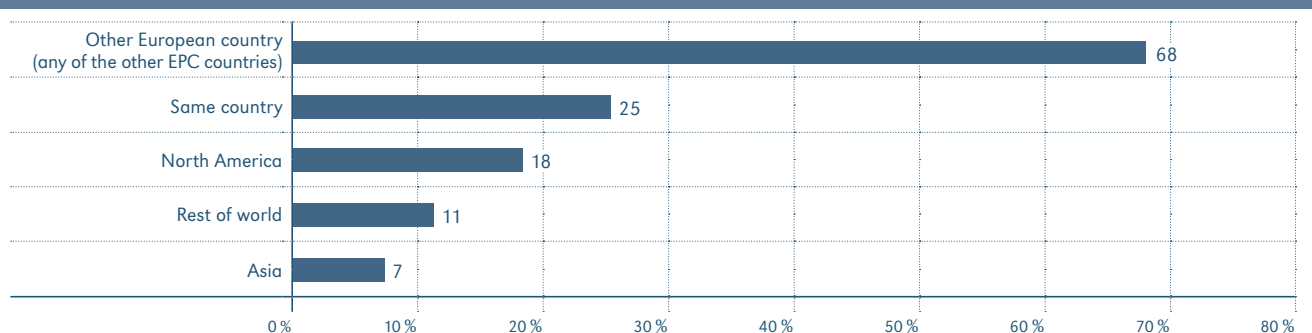
Basis: number of interviews unweighted N=453, of which 2% Don't know and 5% No statement. Note: Respondents were allowed to provide multiple answers.

### Figure 11. Location Of Current Partners



Basis: Number of interviews unweighted N=285, of which 2% Don't know and 5% No statement. Note: Respondents were allowed to provide multiple answers.

### Figure 12. Preferred Partner Location



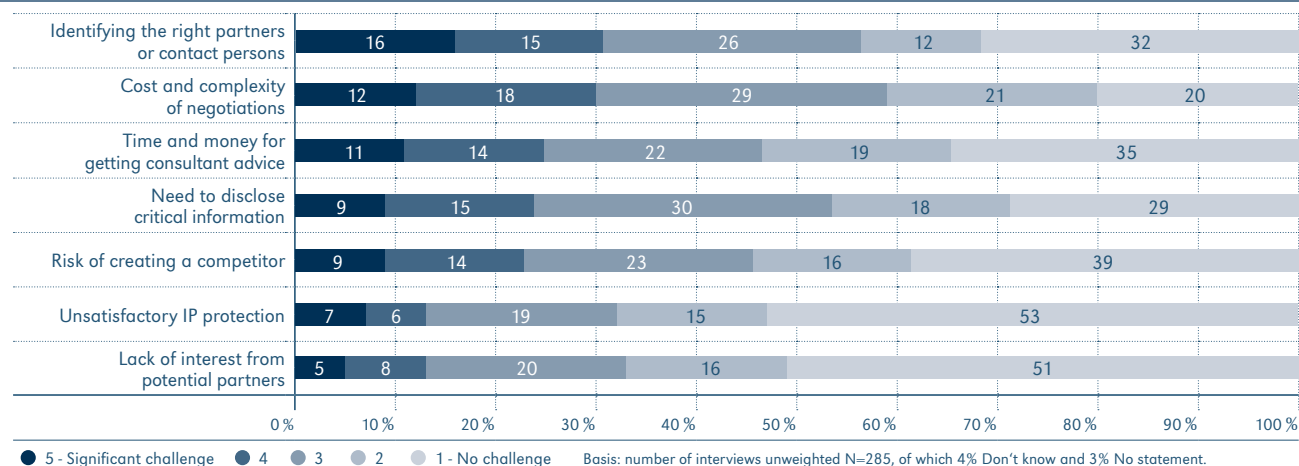
Basis: number of interviews unweighted N=452, of which 9% Don't know and 4% No statement. Note: Respondents were allowed to provide multiple answers.

### 3. Strategic Approach to Challenges in Technology Commercialization

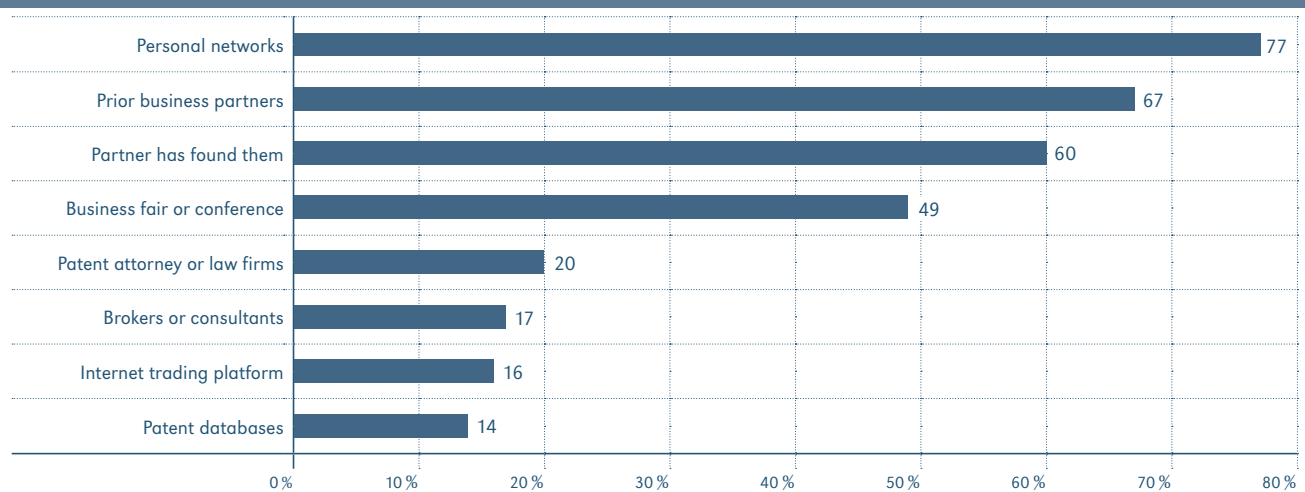
The findings of the survey clearly demonstrate the importance of European patents for successful technology commercialization in Europe. But they also highlight persisting challenges pertaining to finding business partners across borders, as well as the complexity of conducting negotiations to set up technology transfer agreements.

To a large extent, the key to successfully addressing these challenges lies in the ability of the SMEs to acquire the required skills and implement best practices. One of the major prerequisites for successful exploitation of new technologies is having a targeted IP strategy that supports the creation of customer benefits realized by products and services, or through business transactions and collaboration. In this context, intellectual property rights are a business asset that can add, create or preserve value for the SME.

**Figure 13. Challenges In Collaborative Exploitation**



**Figure 14. Channels Used To Find Partners**



Basis: number of interviews unweighted N=285, of which 1%-2% Don't know and 1%-2% No statement. Note: Respondents were allowed to provide multiple answers.

### 3.1. IP Strategy Supporting the Business

The SME survey revealed that SMEs' IPR activities are mainly motivated (see Figure 2) by the wish to protect their inventions against copying, to build up a sound reputation or to achieve freedom to operate. At the same time, one of the root causes for the challenges observed is that SMEs lack a well-defined and communicated IP strategy and a goal-oriented IP management system for implementation, with the consequence being that their teams may not really know what goals their company aims to achieve or how to reach them.

These observations are based on feedback from participants of specialized training courses for SMEs, and is supported by the findings of the survey, although with some variation across Europe:

The frequency of IP activity reporting to the company's top management is a direct indicator of the importance given by SMEs to IP business matters and an indirect indicator of progress in the course of an IP strategy implementation. SMEs based in the United Kingdom and Germany

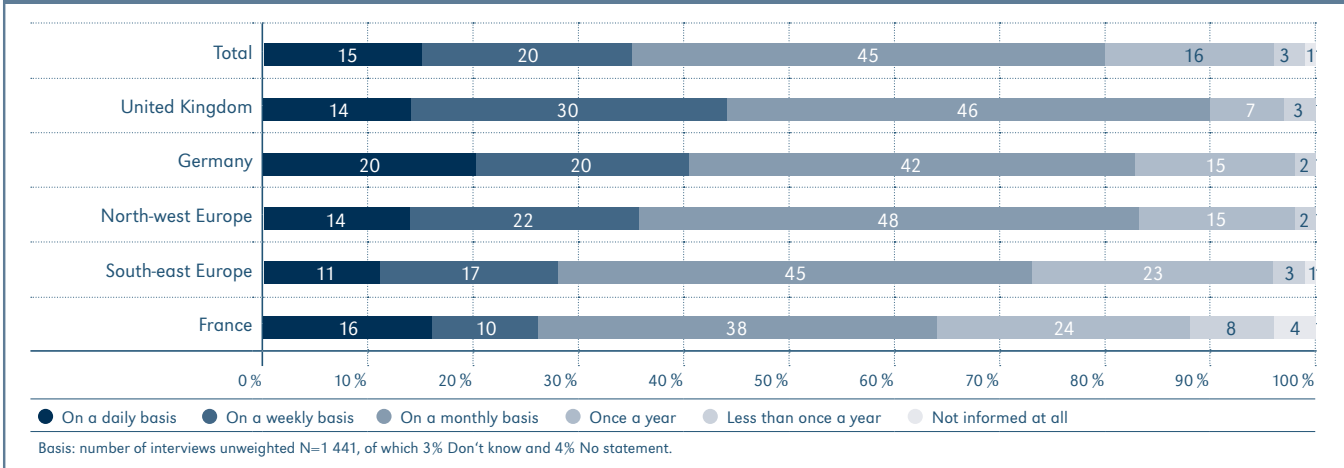
have a relatively high rate of IP reporting on a daily or weekly basis in 44 percent and 40 percent of cases, respectively. By contrast, SMEs in France and in south-east Europe lag behind, with a reporting frequency of 26 percent and 28 percent, respectively. See Figure 15, p. 163.

Having a dedicated IP department can be seen as an indicator for having an IP management system in place. SMEs in Europe report having a dedicated IP department in 25 percent of cases. This percentage is much higher in Germany (41 percent) and slightly higher in France (32 percent). By contrast, the fact that only 12 percent of UK-based SMEs report having a dedicated IP department suggests that they may rely more heavily on external IP consultants. Interestingly, no significant differences were observed at the sector level. See Figure 16, p. 163.

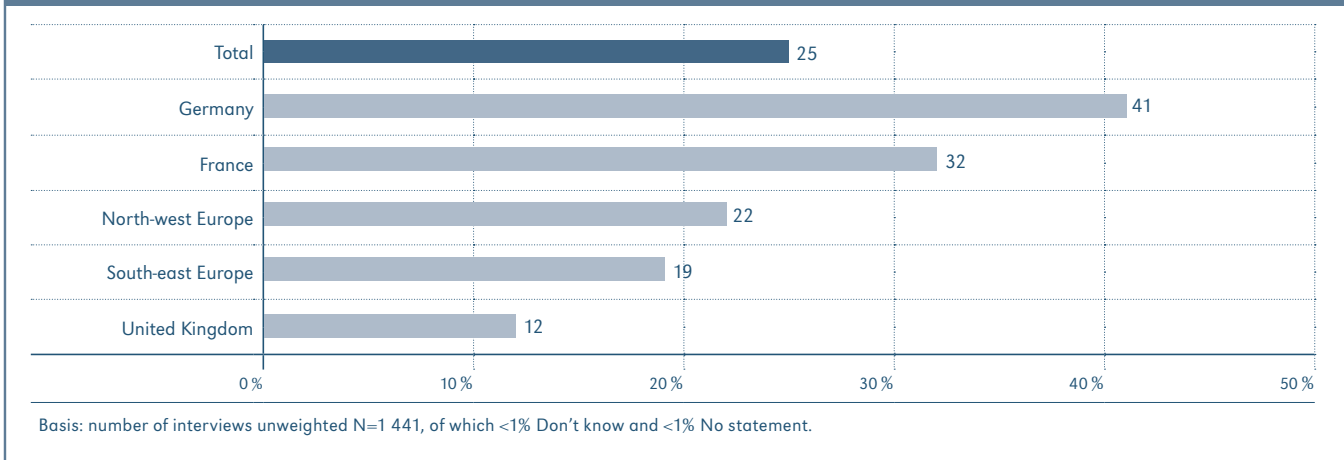
### 3.2. Overcoming the Challenges

Creating awareness for the importance of IP strategy and IP management is important but not sufficient. Even businesses with some IP experience might struggle with changing requirements during company development, as

**Figure 15. IP Activity Reporting**



**Figure 16. Dedicated IP Personnel**



well as those caused by market dynamics. Therefore, businesses require training that will prepare them to cope with the challenges they are facing, as well as answers to their imperative questions. It is one of the tasks of the European Patent Network of national IP offices and their PATLIB centers, as well as the European Patent Academy, the external training arm of the EPO, to help them in this endeavor.

IP management practices—even in very different business environments—have many commonalities and tend to follow basic principles. Acquiring a sound understanding of best practices in IP management requires dedication, but it is rather straightforward when making use of the available publications,<sup>9</sup> tools<sup>10</sup> and training offers from these sources.<sup>11</sup> In addition, IP management is facilitated by the availability of external IP experts that can be engaged to fill potential gaps or help during periods of peak demand.<sup>12</sup>

More challenging is the development and advancement of a company's IP strategy. There is a huge diversity of IP strategies in place. As per definition they are very diverse, being tailored to the variety of business cases, growth stages and field of industry of the

companies that deploy them. In addition, IP strategies can evolve over time, which makes for a moving target. Training typically addresses such topics by either oversimplifying the topic or by demonstrating the full complexity. As a result, the topic is not always presented in a way that can be easily assimilated and implemented by SMEs.

One way to overcome this challenge is to improve communication between SMEs, for instance through case studies in which one SME informs another how IP can be leveraged for initial business success, as well

9. Examples can be found on [epo.org/learning-events/materials.html](http://epo.org/learning-events/materials.html), on [www.iprhelpdesk.eu/Library](http://www.iprhelpdesk.eu/Library) or on [www.4ipcouncil.com/4smes](http://www.4ipcouncil.com/4smes).

10. EPO's IPscore is a free-to-use tool to evaluate patents, technologies and research projects, [epo.org/ipscore](http://epo.org/ipscore); Espacenet provides free access to over 100 million patent documents, [worldwide.espacenet.com](http://worldwide.espacenet.com) (accessed 07.04.2020); a collection of more tools can be found on [innovaccess.eu/ip-toolbox/](http://innovaccess.eu/ip-toolbox/).

11. Examples can be found on [epo.org/learning-events.html](http://epo.org/learning-events.html) and [euipo.europa.eu/knowledge/mod/page/view.php?id=78779](http://euipo.europa.eu/knowledge/mod/page/view.php?id=78779).

12. Not-for profit services are offered by advisors of EEN, [een.ec.europa.eu](http://een.ec.europa.eu), and PATLIB, [www.epo.org/patlib-centres](http://www.epo.org/patlib-centres).



as how the use of IP should evolve with a scaling business to ensure continued success. The EPO SME case studies<sup>13</sup> are an example of such peer-to-peer communication, covering different regions, diverse technology sectors and underlying business models and companies at different stages of maturity. They highlight the experiences gained by the companies covered by the case stud-

ies. Each case study is designed for self-paced learning, and the presented takeaways enable SMEs to better understand how to use IP to their advantage. In addition, the case study material has been integrated in different training events, such as the IPforbusiness roadshow,<sup>14</sup> which was successfully held in many European cities in co-operation with the European IP Helpdesk.

## Matching Business Goals to IP Goals— A Practical Framework

For training decision makers and IP professionals in growth-oriented businesses, the EPO together with LESI have developed a two-day advanced training format titled “Succeeding at Technology Commercialization & Negotiation,” for which a practical framework has been developed that can be applied to different business cases and industry sectors. See Figure 17.

### Step 1: Define Generic Business Goals

#### What are Generic Business Goals?

All organizations have up to five main needs or business goals,<sup>15</sup> which are illustrated in Figure 17.

1. No surprises to current business, meaning a predictable business environment;
2. A Sustained and advantaged market position over competitors and copycats;
3. Full exploitation of all company assets;
4. Speed up of R&D and product development; and
5. Significant influence on industry adoption of new technology and business models.

Successfully implementing these five goals means achieving the company’s full potential and eventually becoming a “game changer.”

The order of the business needs reflects the situation for at least the majority of for-profit operating companies, although the order of level 3 and 4 can also be observed inverted or combined. Otherwise, it is important to note that, in general, the first levels have to be reached before an organization can work on the next higher level.

### Step 2: Translate the Generic Business Goals Into IP Goals IP Strategies to Support Generic Business Goals

There are five main IP goals corresponding to and supporting the described business goals:

1. As a basic requirement, if an organization doesn’t have freedom to operate (FTO), it sooner or later perishes. For every mature or high-growth-oriented company this can be seen as a must-have.<sup>16</sup>
2. An organization has to manage its IP portfolio to maintain a leading market position by preventing competitors from copying their most profitable products and services, and to lower their costs as far as possible.

3. In order to maximize the rate of corporate growth, and optimize not only costs but also revenues, most for-profit organizations engage in out-licensing programs for greater market penetration as well as for general licensing out of non-core IPRs.

4. The next level needed for successful business performance is to rapidly develop new desirable products and services. This is enhanced by in-licensing or purchasing new technologies or businesses.<sup>17, 18</sup>

Levels 3 and 4 may also be inverted, or combined in an approach known as Open Innovation;

5. Lastly, at the highest level, intellectual property rights can be used to shape the direction of the industry by (i) setting new regulatory and technical standards, which are based on business and technical pre-competitive collaborations, or (ii) establishing disruptive business models to create new markets.

Applying this systematic approach facilitates deriving an IP strategy that is based on what the business already has achieved, but also defines beyond that how they get where the business wants to be in the mid- and long-term. With a well-defined IP strategy, the company’s management can much better communicate to the team and their business partners the direction the company is heading. That is the prerequisite for an effective and efficient implementation. The right IP strategy refocuses the organization’s IP efforts on filling performance gaps at the current level before reaching the next level.

Figure 17. Aligned Business And IP Goals



**Disclaimer:** Any opinions expressed in this article are those of the authors and not necessarily those of the European Patent Office. ■

Available at Social Science Research Network (SSRN):  
<https://ssrn.com/abstract=3583071>

13. European Patent Office. Bereuter, Thomas; Yann Ménière & Ilija Rudyk (eds.), 2017. Unlocking untapped value, EPO SME case studies on IP strategy and IP management, *epo.org/sme* (accessed 16.03.2020).

14. *iprhelpdesk.eu/training/IPforBusiness\_Roadshow* (accessed 07.04.2020).

15. Germeraad, Paul. 2017. “Chapter 8: Strategic IP Planning.” *Germeraad Group Inc.* Accessed 16.03.2020. *germeraadgroup.com/table-of-contents/*.

16. As an example, companies will see it as a top priority to minimize the risk that their products or services are stopped from being sold due to a potential preliminary injunction based on an alleged infringement of third-party rights.

17. Heiden, Bowman and Ruud Peters. 2020. “IP and Open Innovation: Managing Technology Push and Pull.” *les Nouvelles* 55, no. 2 (June): p. 138.

18. B. Weibel and R. Freytag, “Why Digitalization Needs Value-Driven Intellectual Property Strategies,” *les Nouvelles*, December 2019, *ssrn.com/abstract=3470192* (accessed 05.04.2020).