Most managers know that innovation is crucial to their firms’ success. And most also know that not all of the innovation-related activities relevant to their firms need to be carried out in-house. In fact, recent research shows that firms are well advised to outsource parts of their R&D process and generate synergies between in-house and external technological knowledge. When deciding what to make and what to buy, however, only a few managers seem to remember that innovation is not just about value creation – through R&D – but also about value capture, notably through patenting. Yet, as of today, little, if any, textbook wisdom tells managers how to structure these value-capturing activities within and across the boundaries of their firms. Given the costliness of this expertise, the exploding number of property rights being issued worldwide and the increasing number of patents per R&D dollars spent, technology managers need answers to the following pressing questions:

- Should I employ in-house patent lawyers to ensure that my R&D is properly protected, or should I outsource these services to external law firms?
- What may be the long-term consequences or hidden costs of outsourcing legal intellectual property (IP) services? Can I minimize hidden outsourcing costs and benefit from external law firm expertise at the same time?

To obtain a better understanding of these issues, we carried out several large-scale empirical studies drawing on European patent data of more than 500 firms over 20 years, and we examined the effects of outsourcing patent filing on innovation performance. We then reinforced and refined these large-scale results with detailed in-depth interviews with senior corporate patent experts from three different firms – Finnish telecom giant Nokia, world market leader in diabetes care Novo Nordisk (Denmark), and Swiss pharma mammoth F. Hoffman-LaRoche. The analyses and interviews indicate that a complex pattern exists of managerial sourcing trade-offs for patent services, whereby the short-term advantages of outsourcing patent filing to external lawyers need to be traded off against longer-term hidden costs. It appears advisable both to retain some level of patent law expertise in-house and to source legal services intelligently from internal and external experts.

Generating and exploiting R&D

“The business enterprise has two – and only these two – basic functions: marketing and innovation.” Management mastermind Peter Drucker left no doubt about how important he considered novel ideas to be for a firm’s well-being. Most of today’s senior managers would agree with the relevance of this statement in their own corporate contexts. And consistently we observe that technology
corporations have massively ramped up their R&D efforts since the 1950s in order to create new products and services. Interestingly, however, it seemingly took managers far longer to actively remember the lesson of another great mentor, Joseph Schumpeter: innovation entails both the creation of a new idea and the diffusion and exploitation of the latter. Part of the blame has to be taken by management scholars. In fact, the literature contains comparatively few failed innovation stories such as EMI’s, the inventor of the CAT scanning technology, in which the actual creators of a technology were not those who profited from it in the end – simply because they did not focus on reaping the rewards of their labours. Recently, however, management scholars have shifted their attention more systematically to the strategic management of appropriating R&D rents through patenting. Yet, many questions in this domain are still unanswered; an important one is how to structure the outsourcing of patent-related activities.

The picture is quite clear when it comes to making and/or buying R&D, the dominant activity in the early stage of the innovation process. Business researchers demonstrated that firms must trade off the benefits of using external R&D suppliers against transactional risks. Behavioural peculiarities affecting the desirability of external vs. internal R&D sourcing, such as the “Not Invented Here” syndrome, were studied in depth. Finally, we know that firms may want to pursue hybrid solutions (sourcing R&D from internal developers and external suppliers at the same time) in order to reap the synergies that accrue from bringing together the different types of in-house and external expertise. However, as soon as managers start to search for similar insights on how to structure the later stages of the innovation process, notably patenting, good advice becomes hard to find. In fact, apart from the few practitioner contributions considering the transactional risks of hiring external patent lawyers, hardly any related literature exists, and there is even less literature that is grounded in managerial research on the topic.

Trends in patent filing
One reason for the lack of available management literature on the topic might simply be (imagined) irrelevance. Why should managers worry about the organization of their patent-related activities at all? While it is true that firms need to think about appropriating their R&D through patents, it is not immediately obvious why this poses a challenge for organizational designers. A market for external patent law firms emerged in the late 19th Century and has become consolidated over time. Firms, so one might think, could simply buy all the patent-related services they need, with the exception of those few “jewel-in-the-crown” inventions that are too confidential to discuss with any outsiders.

Patent filings are increasing in number worldwide. Currently, the European Patent Office alone receives well above 100,000 applications annually, trending upwards. This figure is relevant in two ways. First, it reflects that patenting is a highly relevant activity in the overall innovation process, looking at the sheer volume of hours spent on it. Hence, it is not so clear if economies of scale still work in favour of the external market in every case. Second, the figure would seem to indicate that patenting is becoming increasingly strategic – with likely more property rights taken out per product. This, in addition to the potential confidentiality issues, would be another indication that integrating patent departments appears to be the way forward. In the following, we take a closer look at the various benefits of outsourcing, integrating or partially integrating patent-related services to provide managers with some tangible recommendations on how to structure their organizations.

Short-term benefits of outsourcing patent filing
Why shouldn’t firms just engage external law firms to conduct all their patent filing? In fact, without looking too closely, the answer appears to be that they should. In the absence of obvious transactional risks (patent lawyers being strictly controlled by legislation, their business model relying on repeated interaction with their clients), simple economics seem to suggest complete outsourcing as the default solution if the goal is to optimize the patent-filing process. Scale economies in the external market allow specialized patent law firms to develop superior skills in drafting and processing patent applications. Therefore, at equal or lower costs, external law firms should manage to turn more patent applications into patent grants than in-house
attorneys. And since the patenting process is standardized, the undesired costs of coordinating knowledge exchange between in-house inventors and external lawyers should also drop over time as a result of repeated interactions. In fact, the large-scale data analysis apparently supports exactly this rationale: the rate of patent applications that a firm manages to convert into granted patents each year strictly increases with the firm’s rate of outsourcing of its filing activities to external patent lawyers. Capacity constraints of firms or quality-related issues of their inventions might also drive their outsourcing rationales.

“I do not disagree that outsourcing patent filing makes a lot of sense, especially when looking at the rather simple patent-grant success metrics,” confirms Peter Halkjaer, Senior IPR Manager Mobile Phones at Nokia. In fact, his firm shifted the better part of its filing business to external law firms around 2002. “One needs to understand, however, why external law firms may often be better at patent filing than internal law departments,” Halkjaer urges, and adds a subtle twist to the explanation of the study’s findings. “A patent law firm may show superior filing performance from a pure grant success perspective,” Halkjaer argues, “simply because they face less internal job fluctuation than internal attorneys’ time often gets eaten up by other work and we still need to rely on external partners to get the work done.”

Hidden long-term costs

Why, then, do corporations still employ patent attorneys in-house? Is it complacency on the part of the firms that prevents them from dismissing their legal staff – or labour law constraints? While we cannot rule out these considerations playing a part, our analyses also show that there may be other reasons for maintaining a critical number of in-house patent experts. These reasons become apparent when considering the long-term performance implications of the patent-filing process. As previously mentioned, the important short-term goal of each patent-filing process is to turn an invention into a granted patent and to maximize the scope of exclusive claims in the final patent. It is the patent lawyers’ job to manage this process from beginning to end.

Usually, this process starts with a meeting between the inventor and the patent attorney during which the patent expert seeks to understand what contribution the scientist or engineer has made in legal terms. The goal of this meeting is to determine to what extent the invention of the R&D staff added to the known prior art in the field. Crucial steps in the following process are the search for relevant prior art, the description of the technical invention in legal terms (drafting of the patent application), and the negotiation with the patent examiner to maximize the scope of the patent given the constraints of the invention (filing of the patent application). On average, the firm will be well advised to incur the financial and communication costs of hiring an external lawyer in order to benefit from his or her superior expertise and experience in drafting and filing the patent.

Yet, when focusing solely on short-term performance measures, such as the rate of granted patents to patent applications, one stops short of understanding the entity of trade-offs in integrating or outsourcing patent filing services along the firm’s IP value chain. As demonstrated in recent research, value appropriation through patents is an integrated task that ranges from the far-sighted steering of R&D activities, to the actual protection through patents, to the proactive and defensive

Filing the application and delineating the claims make the firm aware of the boundaries of its intellectual property and its intellectual neighbours.
Much of the knowledge required in this latter stage of IP enforcement, namely patent litigation, is generated during the actual patent filing process.

Compiling search reports on prior art, a necessary step in the drafting of a patent application, draws the firm’s attention to its direct competitors in the field. Filing the application and delineating the claims make the firm aware of the boundaries of its intellectual property and its intellectual neighbours. It is such an understanding that, if lost to the firm through outsourcing, may give the firm a serious problem later when it needs to leverage its intellectual property. In fact, proactive litigation activity by firms decreases as a function of the degree to which they outsourced prior filing tasks.

“We find that firms can, irrespective of their overall patent-filing outsourcing volume, mitigate litigation-related knowledge losses through outsourcing by the way in which they buy patent filing services from external suppliers.”

At Novo Nordisk, Kellberg is also constantly managing this trade-off, albeit adopting somewhat different organizational routines. “At Novo Nordisk, we want our patent experts to remain active attorneys and make sure that their natural career path to IP management will not lead to too much of a decrease in their legal skills and invention-related knowledge. By making my staff file the majority of our applications themselves, I make sure that they stay in touch with the current technical and legal developments.” And Kellberg couldn’t agree more that these skills are absolutely essential when looking down the IP value chain, namely at litigation. “Of course, like every firm that can afford it, we hire the best litigators to help us out during patent opposition or other litigation cases.

“That being said, the detection of the relevant cases is and will remain an in-house competency that can’t be outsourced. Only we insiders can establish the link between a newly disclosed competitor patent application and our own patent portfolio and product strategy – and only we can then decide whether we need to attack or not. If my staff loses that ability, we are in trouble.” To make sure that such problems won’t arise, Kellberg and his team meet on a regular basis with key scientists to discuss recent disclosures in their technological areas, disclosures they can properly select and interpret because they did not lose their important upstream knowledge gained through filing.

Roche’s Eric Notegen concurs with his Novo Nordisk colleague. “Of course we use external litigators, and some of them bring in extremely valuable prosecution knowledge. In fact, when I look back I would say that some of our smartest litigation strategies were formed in teams of in-house and external attorneys. However, it is equally clear to me that the initiation of the litigation, namely the detection of the relevant target, has to take place in-house. There is just no substitute for this. And if you do not manage to build up the relevant knowledge it takes to eventually spot such targets, then you will underperform. At Roche, we therefore make sure that our staff see through a
case from A to Z. One may think that this is not optimal from a specialization standpoint, but I firmly believe it makes us better at managing IP strategically on the whole.”

Looking at all three of the aforementioned corporate examples, Nokia, Novo Nordisk and Roche, it appears that retaining some filing-related upstream knowledge is desirable when managing the sourcing trade-offs for IP services. As the variety of the examples displays, the choice of the exact knowledge-retention mechanism and the balance between outsourcing costs and benefits will be affected to some extent by each organization’s peculiarities. That said, our own research reveals one important insight that appears to hold across all firms, provided, however, they increase their reliance on external IP providers and thus run the risk of losing their pre-existing in-house litigation knowledge.

We find that firms can, irrespective of their overall patent-filing outsourcing volume, mitigate litigation-related knowledge losses through outsourcing by the way in which they buy patent filing services from external suppliers. More specifically, all else being equal, multi-technology corporations, which have similar outsourcing ratios across the different technology categories they engage in, lose less knowledge than their competitors that concentrate their outsourcing efforts in only a few technology areas. Consequently, sourcing similar shares of patent filings across technology areas from external suppliers is a way for firms to reduce their overall outsourcing-related downstream knowledge losses pertaining to patent litigation.

The senior management challenge

This article reports three managerially relevant messages. First, when thinking about making and/or buying goods or services in the context of corporate innovation, firms must not only focus on value creation through R&D-related activities but also on value capture through patenting. Second, firms lose litigation-related knowledge the more they outsource their patent filing activities. Third, firms can partly offset these knowledge losses through smart organizational practices, notably by choosing intelligent outsourcing patterns for patent filing activities.

What are the implications of this research? It is likely that several consequences emerge, but one senior executive challenge stands out. It appears that firms have relied increasingly on external support when it comes to patent-related services. This trend, however, makes them prone to the dangers of knowledge losses that may result in suboptimal filing results and/or lower litigation performance. One senior management challenge therefore lies in newly defining the tasks that in-house attorneys should perform (in order to ensure that their knowledge will be available to a sufficient degree) while concurrently reaping the advantages of using the external market.

Resources


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