

## Introduction to the special issue on intellectual property management: an internal and external perspective

### *Introduction*

In the knowledge economy, intellectual property (IP) assets have been recognized as a main source of competitive advantage. This is proved by the increasing trend toward patent application and trademark registration on the part not only of large companies but also of SMEs (e.g. Hollanders and Es-Skadi, 2013; Hanel, 2006). However, even though firms devote many efforts in developing IP and protecting them from imitators, they are not equally capable of capitalizing on and extract value from them (e.g. Agostini *et al.*, 2016).

To tackle this deficiency, during the last few years, research on IP has departed from the traditional economic and legal perspective in favor of a more strategic and managerial approach, based on the indication that IP decisions often have serious consequences for a firm's business that reach far beyond the legal aspects of an IP-related dispute (Di Minin and Faems, 2013). The mere accumulation of IP assets does not grant any value appropriation from innovation or any return on investment; to this purpose, IP management not only becomes a critical challenge for firms, but also a practice they cannot disregard if they want to reap the benefits of their IP (Bader *et al.*, 2012).

IP management integrates two areas: the first concerns internal management of intellectual property rights (IPRs), whereas the second concerns external management of IPRs (Pitkethly, 2001). This distinction follows the increasing tendency of firms toward opening their boundaries to complement internal with external knowledge, considered that new knowledge is at the basis of IP asset development. Appropriating the value of such knowledge sources requires a strategic approach toward IP management, which encompasses both a firm's internal management of IPRs aimed at "managing the creation and preservation of the company's IP resources", as well as the external management of IPRs, which concerns how a firm acquires knowledge and IPRs from others firms and vice versa (Pitkethly, 2001).

Therefore, the aim of this special issue is to shed more light on these two levels of analysis (i.e. internal and external) to enrich our understanding of different facets of IP management and provide managers with remarkable suggestions on IP management practices.

We received more than 40 articles, and the special issue contains the 12 articles that both guest editors and reviewers considered more aligned and more stimulating with respect to the focus outlined above.

### **Presentation of articles included in the special issue**

Consistent with the twofold perspective on IP management, the articles included in this special issue advance our understanding on the internal and external management of IPRs even though they do not cover all the relevant aspects involved in IP management. By means of theoretical and empirical approaches, articles embracing the internal perspective focus on whether and how firms decide to protect internal knowledge through IPRs. Articles espousing the external perspective deal with the strategies to acquire protected external knowledge and with the relationship between exploitation of external knowledge and the development of IP assets.



### *An internal perspective on IP management*

From an internal perspective, protection against imitation is one of the most relevant concerns when developing innovation. This can be done by means of formal appropriability

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regimes (i.e. IPRs) or informal ones. Therefore, one of the first decisions firms face when developing new knowledge is whether and how protecting it through IPRs. To this regard, Holgersson and Wallin address the so called “patent management trichotomy” with the purpose to theoretically debate the strategic decision firms make between patenting, publishing and secrecy. With respect to previous literature that has emphasized the role of patents, they consider other alternatives, discussing patenting, publishing and secrecy as substitute choices associated with distinct advantages. They suggest that value appropriation (i.e. the ability to capture returns from R&D investments and other innovation activities) and freedom to operate should be taken into account for the strategic decision. On such basis, patenting allows firms appropriate value from the invention and operate freely, secrecy provides direct (vs indirect) appropriation advantages (i.e. through the sales of products, services and licenses based on a specific technology), publishing provides static (vs dynamic) freedom to operate (i.e. based on current technologies).

Along the same line, Soranzo *et al.* focus on firm patent planning and patent evaluation processes, raising the importance of the decision whether to protect an invention through patents or not, as well as on whether to maintain a patent active or not, respectively. By means of an action research, they investigate how a firm moves from a defensive approach to a cost control approach toward IP management, detailing the different activities that characterize patent planning and patent evaluation processes.

Departing from the different assumption that a firm has already decided to file a patent, Szeroglu-Melchioris *et al.* divert their attention to the strategic decision regarding whether to rely on external patent attorneys for patent filing instead of on internal experience and the effect that this has on filing strategies in terms of patent scope, international scope and patenting speed. Their results indicate that external patent attorneys pursue a “maximization approach,” which results in more claims, filings in more countries and more international applications; however, in-house patent attorneys seem to be capable of applying a more focused filing approach. On such basis, they reach the interesting conclusion that effective filing strategies require an integrated approach between diverse IP stakeholders to achieve the targeted patenting output.

Beyond recognizing the fundamental importance of the early phase of patent management, which they refer to as fuzzy front end (FFE) patent management, Xiang *et al.* empirically prove that managing patents since the beginning positively influences subsequent phases of patent management, i.e. patent commercialization, which in turn improves innovation performance in Chinese high-tech companies. Despite generally assuming an internal perspective, it is interesting to notice that they include in their analysis also the inclination of firms to acquire patents externally as an indicator of FFE patent management. Therefore, this article represents a bridge between the internal and external perspectives.

#### *An external perspective on IP management*

In this special issue, articles develop an external perspective on IP management along two main lines of inquiry: the former concerns the strategies to acquire protected external knowledge and the latter relates to the relationship between exploitation of external knowledge and the development of IP assets.

As far as the former is concerned, Ughetto *et al.* highlight the importance of patent acquisition from the outside because acquired patented technologies are, on average, more complex, of higher technical merit and legal robustness, closer to basic research and more technically focused than internally developed patented inventions. Beyond that, they compare two different strategies for patent acquisition, namely markets for technology (MFT) and merger and acquisition (M&A), and find that MFT patents seem to protect less complex, and thus easier to trade, inventions than patents acquired by means of corporate M&As.

The finding by Cammarano *et al.*, suggesting that M&As are employed to pursue exploration, corroborates this evidence. Belingheri and Leone explore another strategy to acquire protected external knowledge, namely in-licensing, in the context of start-ups. They confirm that this practice is widespread, valuable and part of more sophisticated IP management activities than expected. Indeed, start-ups seem to adopt an exploration-oriented approach and they focus not only on core but also on complementary technologies when espousing in-licensing that then is also further complemented by internal R&D to dilute the dependency on the in-licensed technology.

As regards the relationship between exploitation of external knowledge and the development of IP assets, specific attention is devoted to the issue of selecting the right partners with whom to collaborate to enhance their patenting activity. Along this line, the article by Agostini and Nosella focuses on the context of SMEs and shows that collaborating with business partners positively influences SME patents portfolio size, being this relationship strengthened by the presence of a formal innovation plan and a high level of absorptive capacity. Natalicchio *et al.* concentrate only on patents developed jointly by public research organizations (PROs) and private companies, finding that the technological diversification of firms involved in R&D collaborations with PROs positively impacts on co-developed patents, while the degree of technological diversification of PROs does not significantly affect the co-developed patents.

Within the same line of inquiry, Holgersson and Granstrand and Brem *et al.* discuss the different behavior SMEs and large firms have with regard to the relationship between open innovation (OI) and IPRs. In particular, Holgersson and Granstrand investigate motives to patent as well as their relationship with OI behavior among the largest R&D Swedish firms; they find that the most important motive to patent is to protect firm's product technologies and, in turn, this motivation is affected by the firm's external collaboration strategy, with no difference between large firms and SMEs. This indicates that both large and small- and medium-sized companies find it more important to patent when engaged in OI than when engaged in closed innovation. Brem *et al.* demonstrate that the different typologies of IPRs play a different role in the context of small, medium and large firms; whereas in the former copyrights and trademarks strengthen the relationship between OI and firm performance, in the latter patents, industrial designs and trademarks play a significant role in further enforcing this relationship. It is worth observing that this last article approaches the topic of exploitation of external knowledge and patenting using a different perspective with respect to previous articles. Indeed, instead of a consequence of OI, Brem *et al.* treat IPRs as a moderator in the relationship between OI and firm performance. Always within the domain of the relationship between OI and firm performance, Aloini *et al.* assume a still different perspective, considering IPRs as antecedents of OI and finding that the use of IP protection mechanisms allows companies to adopt OI models that, in turn, improve their innovation performance. These issues reflect and contribute to the ongoing debate revolving around the relationship between IP and OI: does OI allow firms to exploit external knowledge thus conducting to an increased development of IP assets, or vice versa are OI approaches that require IP tools that become a necessary pre-condition to set up collaborations?

### **Concluding remarks and paths for future research**

In this introduction, we have distinguished between an internal and an external perspective on IP management, identifying three main streams of research, namely whether and how firms decide to protect internal knowledge through IPRs, the strategies to acquire protected external knowledge and the relationship between exploitation of external knowledge and the development of IP assets.

Interestingly, the articles included in this special issue span a wide range of topics, embracing many different perspectives. Therefore, the special issue provides the reader

with varied ideas and methods, and managers with relevant suggestions for their IP management activities.

At the same time, we recognize that this special issue does not provide an exhaustive overview of all the facets of IP management that is still far from being fully covered. This paves the way to a number of interesting areas for future research. First, articles mainly concentrate on the first phases of the internal patent management process, with particular attention devoted to patent planning; however, the patent management process is composed of many other different sub-processes, namely “patent evaluation,” “patent information screening,” “patent enforcement” and “defensive measures” (Granstrand, 1999; Pitkethly, 2001; Jell *et al.*, 2015). These sub-processes have been conceptualized, but they have received scant attention so far. One reason behind this evidence could be the fact that well-validated scales to measure them have not been created yet, thus making it difficult to identify firms’ competences about patent management and expectation of the contribution of these assets to their business goals (Davis and Harrison, 2001; Harrison and Sullivan, 2011).

Second, despite firms consider managing IP as very challenging when other actors are involved, the internal process by which companies manage the different aspect of OI is still more trial and error than a professionally managed process (Huizingh, 2011). An OI approach encompasses both an inbound and an outbound perspective; articles in this special issue adopt the former perspective, whereas the latter remains under-investigated. Moreover, what seems to be lacking is a clear indication that guides managers in choosing and defining an appropriate patent exploitation strategy before putting it into practice (Soranzo *et al.*, 2016), as well as studies that investigate the integration of inflows of knowledge with internal innovation activities (Brunswicker and Vanhaverbeke, 2015). Hence, the integration of the internal and external perspective is required.

Lastly, it appears clear that patents are the most investigated IPRs. However, trademarks, industrial designs and copyrights are also assuming increasing importance in today’s scenario, with particular reference to trademarks (Block *et al.*, 2015). Along this line, IP assets need to be considered from a portfolio perspective increase the power while, for example, negotiating with partners (Di Minin and Faems, 2013). This is particularly relevant because IP assets can be used in synergy and can show a combined effect (Al-Aali and Teece, 2013). As a consequence, investigating how to effectively combine and manage the strategic use of different IP assets extract the highest value from them becomes central.

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#### Further reading

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