How to collaborate and protect your intellectual property

There is a growing consensus that the adoption of open innovation business models by firms contributes to their innovation output and potentially their performance. However, as firms are becoming increasingly open and collaborate with horizontal and vertical partners, they are facing the challenges of protecting their intellectual property and of capturing value from innovation. Studies have examined how formal and strategic appropriability mechanisms (e.g. patents, trademarks, design rights, secrecy, lead time advantages, complementary assets) influence the extent to which firms capture value from their innovation.

New research from Dr Panos Desyllas and colleagues delves further into this area, considering how the availability and use of different combinations of appropriability mechanisms are related to firms’ collaboration activity, especially with different partners and at different stages of the innovation process. In focussing on how this applies to knowledge-intensive business services (KIBS) firms, their research has produced fresh insight.

Understanding how “open” firms capture value from innovation

Dr Desyllas, a senior lecturer at the University of Bath School of Management, and colleagues from Manchester University (Professors Ian Miles, Marcela Miozzo and Dr Hsing-fen Lee) completed an ESRC-funded project on capturing value from service innovation. As part of this project, the researchers explore the relationship between appropriability strategies and innovation collaboration for knowledge-intensive business services (KIBS) firms. In their research, they studied three key questions:

First, they explored the relation between KIBS firms’ reliance on single types of appropriability mechanisms and firms’ collaboration activity. Overemphasising appropriability mechanisms might affect adversely firms’ collaboration ability by presenting hurdles to cooperation, forcing firms to adopt a defensive posture, creating minefields of intellectual property rights, and undermining the trust and reciprocity needed in partnerships.

Second, they analysed the relation between firms’ use of combinations of different types of appropriability mechanisms and innovation collaboration. The researchers speculate that finding the right mix or avoiding inappropriate combinations of appropriability mechanisms can support collaboration activity with external partners.

Finally, they looked at how a “right mix” of appropriability methods might vary with different types of partners and at different stages of the innovation process, namely the creation and commercial exploitation of innovation.
A survey of British and American KIBS firms

The researchers developed an original survey using a questionnaire which was administered through telephone interviews between September and December 2012. The respondents were in senior managerial positions with titles such as CEO, CFO, head of marketing, head of communications, head of business development and technical project manager. The econometric analysis was based on responses by 153 British and American publicly-traded firms in knowledge-intensive business services, such as, telecommunication, financial intermediation, research and development, legal services, accounting, tax consultancy, market research, business and management consultancy, architectural and engineering activities.

“Openness” in innovation

Open innovation refers to firms opening up their boundaries to access external sources of knowledge and technology and bringing innovations developed in-house to market through external organisations. Although extreme forms of openness – in which firms reveal freely all their valuable knowledge – are rarely observed in practice, research shows a positive relationship between moderate levels of openness and performance. Open innovation is argued to help accelerate and deepen innovation not only in manufacturing but also in services firms, by promoting specialisation, resulting in economies of scale and scope for services firms, and greater quality and variety of services for customers. A good example of the positive effect of open innovation in services is the case of Amazon, best known as the world’s leading online seller of books, but which provides many other types of products on its website, supplying a platform for other merchants to list their own merchandise, helping them develop their own website, even performing merchandising and fulfilment portions of the transactions for these other merchants.

According to the innovative firms among the survey respondents, cooperation with clients/customers is the most important type of collaboration in the innovation process, with 86% of firms cooperating with this type of partner (See Figure 1). Suppliers of materials, equipment or software are the second most important partners in the innovation process, with 65% of firms cooperating with this type of partner. This is followed by cooperation with consultants and commercial labs, or private R&D institutes (53% of firms), competitors (47% of firms) and universities or other higher education institutions (32% of firms) and government or public research institutes (31% of firms). The relative importance of each type of partner is similar for both the creation and the commercial exploitation of innovation. However, all types of partners are perceived as being more important for the creation of innovation than the commercial exploitation of innovation.

Nevertheless, there is still little knowledge of organisational processes or structures – such as governance or appropriability mechanisms – enabling or hindering the adoption and success of open innovation.

Using value appropriability mechanisms

In general, firms can choose from or combine three different approaches to capture value from innovation. The first approach, ‘formal appropriability mechanisms’, emphasises the use of patents, copyrights, trademarks and design rights to capture value from innovation by firms. The second approach, ‘contractual appropriability mechanisms’, highlights the use of confidentiality agreements, employment contracts, and secrecy to capture value from innovation. And the third approach, ‘strategic appropriability mechanisms’ stresses the use of lead-time advantages, complexity of the service or service process, and complementary service development and delivery capabilities to capture value from innovation.

Looking at the relative significance of each appropriability mechanisms on the basis of the survey responses, confidentiality agreements, secrecy, employment contracts, complementary capabilities and complexity in service design are perceived to be amongst the most significant means of capturing value from innovation (See Figure 2). Formal appropriability mechanisms are not particularly significant value appropriability mechanisms and in fact patents (and business method patents in particular) are amongst the least significant methods for capturing value from innovation across all the methods considered.
The links between appropriability mechanisms and innovation collaboration

Four key findings emerge from the empirical analysis:

1 Over-reliance on contractual mechanisms – reduction in collaboration for innovation creation

An important finding that emerges from their study is that, although relying on contractual mechanisms can facilitate collaboration for innovation creation, over-relying on contractual mechanisms is associated with a reduction in collaboration for the creation of innovation with all partners. Their findings show that placing too much emphasis on contracts (or very restrictive clauses) may act in detriment to innovation collaboration particularly at the early stages of the innovation process, where uncertainty is arguably more important.

2 Over-reliance on formal appropriability mechanisms – reduction in innovation collaboration with clients

Another important finding is that over-relying on formal appropriability mechanisms is associated with a reduction in collaboration for the creation of innovation with clients. Although the team found evidence for the existence of diminishing marginal returns to the use of formal appropriability mechanisms for both the creation and exploitation of innovation, the diminishing returns are more severe in the case of collaboration for innovation creation. This is consistent with the view that the creation of innovation may require more open communication with partners for knowledge sharing and learning, compared with the exploitation of innovation.

3 Formal appropriability mechanisms – facilitate collaboration with government and public organizations

The analysis shows that formal appropriability mechanisms can play a positive role for firms collaborating with government or public research organisations for the commercial exploitation of innovation. Firms and public research organisations have different comparative strengths, with the latter generally argued to be stronger in basic research, and the former in applied research, new product development and commercialisation strategies. The use of formal appropriability mechanisms may be explained by the fact that firms active in relationships with public organisations may be more aware of their intangible assets and use formal appropriability mechanisms as quality signals for their service products and processes. This may also indicate that services firms’ ability to make their service products and processes more tangible might serve as a criterion for the public sector to select partners to collaborate with for innovation.

4 Combine appropriability mechanisms but beware of dis-synergies

The team suggests that some combination of appropriability mechanisms may be effective for innovation collaboration with partners. For instance, modest combinations of strategic and contractual appropriability mechanisms enable firms to put in place an adequate structure on their relationships with vertical partners, making them more willing to share technical capability, research outputs, human resources and even intellectual property. However, they also find evidence about problematic combinations. Combining high levels of strategic and contractual appropriability mechanisms appears to lead to dis-synergies with respect to firms’ collaboration with vertical partners for both the creation and exploitation of innovation.

Implications for managers

The study concludes that firms need to be aware that the choice of the type and the intensity of reliance on different appropriability mechanisms should not be taken solely on the basis of the perceived significance of single appropriability mechanisms in protecting or otherwise capturing value from proprietary knowledge but also accounting for the interaction of different appropriability mechanisms and possible implications on the capacity of the firm to collaborate with different external innovation partners and at different stages of the innovation process.

Their research may help firms tailor their appropriability strategy to the stage of the innovation process and the type of partner, and to enable firms to become more open and receptive to external sources of knowledge while protecting or otherwise capturing value from their prized firm-specific assets.

Dr Panos Desyllas BSc (UCL), MPhil, PhD (Cambridge) is Senior Lecturer in Strategy and Director of Studies, PhD Programme at the University of Bath School of Management. He has held posts at Cambridge University’s Centre for Business Research as a Research Associate, Oxford University’s Said Business School as an Advanced Institute of Management (AIM) Post-doctoral Fellow and the Manchester Business School as a Lecturer. He was Principal Investigator on an ESRC grant on “Using intellectual property protection to capture value from innovation in knowledge-intensive service firms”.

Dr Desyllas can be contacted on: p.desyllas@bath.ac.uk