By Paul Belleflamme, 27 October 2010

Markets for technology: big hopes and … big difficulties

(Original publication: October 2010; updated in November 2012)

It is widely agreed that one of the main economic roles of IP law is to create *exclusive rights*: exclusivity allows innovators to appropriate the returns from their invention and it is the prospect of such returns that gives them the incentives to engage in innovative activities in the first place. It is important to stress that IP law also creates *transferable rights*. From an economic point of view, transferability is as important as exclusivity. Why? Because transferability makes sure that assets are used by the agent with the highest valuation and, thereby, lays the ground for the creation of a *market for technology*. As Arora and Fosfuri (2000) rightly put it:

> *"(…) patents can play a key role in facilitating the purchase and sale of technology, or in other words, the development and functioning of a market for technology. A market for technology helps diffuse existing technology more efficiently; it also enables firms to specialize in the generation of new technology. In turn, such specialization is likely to hasten the pace of technological change itself. The reason for focusing on the development and functioning of a market for technology is that it greatly reduces the transaction costs involved in buying and selling technology, implying that innovators have the option of appropriating the rents from their innovation by means of simple contracts, instead of having to exploit the technology in-house."*

The transferability of patents (via sale or, more frequently, via licensing) paves thus the way for vertical separation in high-tech industries, with 'upstream' firms or institutions specializing in the production of new knowledge and 'downstream' firms buying and applying this knowledge. This

business model seems to spread in the pharmaceutical industry, where big firms tend to move away from in-house development of new drugs and favor instead in-licensing from biotech startups and university researchers (see here). For instance, K.U.Leuven entered last month into license agreement with Pfizer for the development of new anti-hiv drugs (see here).

Such 'division of labor' based on licensing agreements is likely to have a number of positive economic effects, as explained by Pluvia-Zuniga and Guellec (2009): (a) increase in the diffusion of technology; (b) reduction of wasteful duplicative inventions (no need to reinvent what is on the shelves of someone else); (c) increase in downstream competition (lower barriers to entry related to R&D); (d) improved allocation of resources in the economy; (e) extension of product markets (across industries, larger geographical areas).

However, for patents to be exchanged, they must be offered for sale and they must have potential buyers. The previous statement sounds like a tautology but, when it comes to technology, buyers and sellers usually have a hard time to find each other. Moreover, when they do find each other, the large costs of negotiating and writing licensing contracts may make the trade of IP unprofitable. Finally, as argued by Troy and Werle (2008), various sources of uncertainty plague the functioning of markets for technology:

> *"(…) uncertainty is related to the novelty of knowledge on the one hand and to its goods characteristics on the other."*

Public intervention may thus be called for in order to improve the functioning of markets for technology. *I would like you to think about potential intervention and, if possible, to find examples of interventions that public authorities have already implemented (in the EU, in the US or elsewhere).*