Better access to basic research could lend firms a competitive edge

Companies serious about innovation need to think about where, and how, they access the building blocks to developing new ideas. Partnerships with educational institutions may provide the right context.

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From Fortune-500 heavyweights to tech start-ups, many companies today are looking to educational institutions as a major part of their strategic planning. IESE's Bruno Cassiman, Reinhilde Veugelers and Sam Arts take a closer look at the ins and outs of knowledge flows between firms and these institutions.

In an empirical study of the research relationships between high-tech firms and educational institutions, the authors come to an intriguing conclusion. They found that firms that hired

talent and entered into a partnership with the same institution tended to register more successful and valuable patents. Talent or partnerships alone were not as productive.

The importance of basic research

Innovation is always essential to remaining competitive, and firms are right to earmark significant parts of their budget to developing it in-house.

But when it comes to basic research -- the scientific or technological building blocks that can *lead* to innovation -- in-house is not always the way to go. Basic research, as opposed to applied research, is often highly exploratory in nature, primarily taken to advance knowledge rather than fulfil a specific aim. With this in mind, it often makes more sense for educational/research institutions to conduct this exploration, and for firms to acquire that which is relevant to them.

An obvious tactic would be to buy the most relevant research, or alternatively, to poach institutions' most valuable scientists. But Cassiman and co-authors insist that it's not just a case of buying and selling. For the best results, you also need some give and take. Working with the Belgian research hub IMEC (the Interuniversity Microelectronics Centre), they track hundreds of IMEC patents and the relationships between universities and private firms surrounding them. Crunching the numbers, they suggest partnerships are key. Breaking it down:

- **First, hire "mobile inventors."** Mobile inventors are the people who amass intellectual property (IP) working in research institutions, but then leave. These inventors not only transfer their knowledge, but they also translate basic knowledge into new technologies at the firm. Previous research suggests that newly hired university scientists contribute more patents to a firm than newly-hired recruits from other companies. So, their mobility between educational institutions and private companies is key. This leads to their second point.
- **Also, partner with institutions.** It isn't about a firm sweeping in, hiring the brightest scientist, and never looking back. The evidence suggests that firms that enter into formal partnerships with research institutions enjoy higher innovation productivity going forward. These partnerships provide the commitment, resources and incentive structure to integrate research into the larger innovation process, which means capturing value from mobile inventors.

Cassiman adds that partnerships are "especially important whenever the basic knowledge is

very science-driven." That is because scientists working in labs and experimenting for the sake of basic research may have "tacit" knowledge that "will be important to solve some of the problems encountered" in the process of commercializing an innovation

Methodology, very briefly

The researchers tested their ideas on the complementarity between inventor and partnership links for microelectronics firms working with IMEC -- the Interuniversity Microelectronics Centre -- a well-regarded institute with an explicit mission to bridge the gap between basic r esearch developed at universities and applied research developed in industry. As their source sample they collected 578 patent applications filed by IMEC between 1990 and 2005, which they retrieved from the Worldwide Patent Statistical Database.

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