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editorial

The missing link

Research + Funding = Business + Profit

The above equation has become the formula of choice to stimulate economic growth. I myself have used the maxim "from brains to business" on many occasions, and I am confident that the idea is correct: more research leads to more innovative, high-value business and skilled jobs. But I am even more certain of the converse: without adequate investment in science, the prospects for economic growth are slim. The USA boasts a successful high-tech economy in which 0.90% of the workforce are researchers with 79% of those working in the private sector. In Europe, the figures are 0.55% and 48% respectively, suggesting that Europe has an inadequate number of researchers, over half of whom work in education or academia. The numbers suggest that Europe needs to do better to create the available manpower and an environment in which business can profit from new knowledge and technologies.

But the general problem in Europe and elsewhere resides not only on the left of the equation cited above—a lack of adequate investment—but also in the 'equals'; many academics and entrepreneurs simply are not interested in what the other side is doing or to what it is aspiring. Researchers who seek to expand the horizon of knowledge often regard technology transfer as 'the boring part', whereas those who work in the pharmaceutical or biotechnology industries tend to be quickly disinterested by academic minutiae that are peripheral to their drive to get a product into the pipeline.

Many others have already recognized this missing link and an increasing number of research institutes have established Technology Transfer Offices (TTO) to help commercialize research and to link academics with business. Yet these initiatives do not always guarantee success: they either might not get close enough to the researchers to identify and uncover commercially relevant results from laboratory notes, or they might place an unreasonable value on the results of academic research and thereby turn off potential partners from industry. However, they are good at raising an awareness of business opportunities among researchers and encouraging them to take the first steps towards a commercial application for their work.

When bridging the twin peaks of research excellence and innovative industry, another essential factor that is frequently overlooked is the development of the 'right chemistry' between the two parties. This takes time and many discussions and can lead to greater understanding and success within the partnership: the academic partners gain an insight into the commercial aspects of the transfer, and the partners from industry might find other interesting ideas and insights in the researcher's portfolio. However, a meeting—professional or social—between the two parties does not happen spontaneously; organizing and nurturing such contacts requires as much skill from a TTO as agreeing on how to split intellectual property ownership.

One solution to strengthen further the link between research and commercial development could be to add another team member to a research group—one who would facilitate the transfer of the group's research to an industrial application, with the help of the institute's TTO. This person could even be shared by several groups and their role would be to identify opportunities for further development, which could then be brought to the attention of the TTO. Some research institutes are already running shared technology platforms among various groups and one could easily expand the function of these services to include the identification of results with commercial potential.

Another strategy to facilitate the commercial transfer of research is to integrate industrial partners into the research team from the beginning, which is already a characteristic of most projects funded by the European Union's Framework Programmes. Unfortunately, many of these are liaisons of convenience and their full potential is not exploited. Other programmes, pioneered by the US National Science Foundation, unite industrial and academic research plans with common interests. This is an apparently successful strategy, but it is suitable only for a subset of research programmes and not the whole range of frontier research performed in academic laboratories. Alternatively, industry itself could be encouraged to fund even more speculative research; there are already many great examples of good basic research that was conducted in industrial laboratories or was paid for by industry. However, many companies have become more cost-sensitive and have either cut down on research that is peripheral to their development plans, or simply monitor the output from academia and then transfer it into their own research programmes.

Bridging the gap between academic research and commercial development means walking a fine line for both parties. Exceptionally strong links between academic and commercial partners carry the danger of discouraging innovative, long-term research; weak links mean that the potential for commercial applications might never be recognized at all. We have not yet found the right way to reconcile 'blue-sky' research and the creation of new knowledge with commercial development. Nonetheless, we urgently need to address the problem of the missing link that strategists too often ignore. Failing to do so will mean wasting public money and missing commercial opportunities.

Frank Gannon

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