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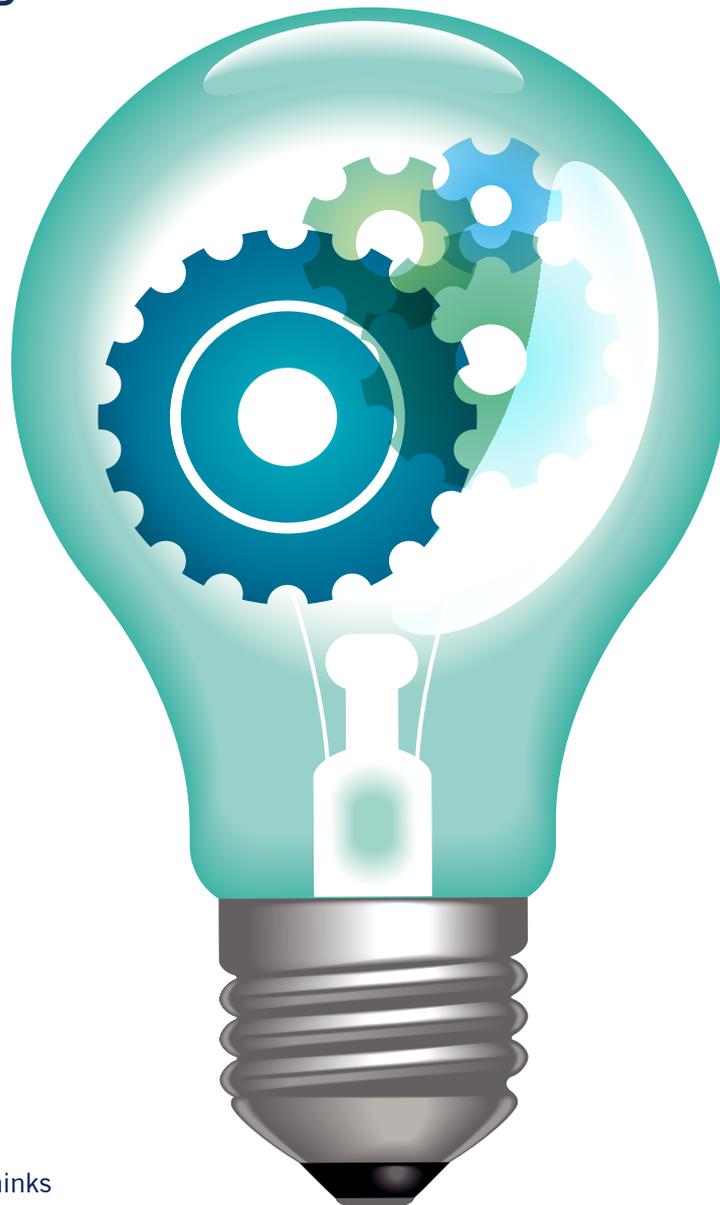
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Why external R&D collaboration is not always good for business

by Luca Berchicci

For the past 15 years, companies have been told that they should open up their labs and learn to conduct research in more co-operative ways. Most authorities agree that collaboration helps bring in fresh perspectives, extends budgets further by enabling companies and institutions to pool their resources, and generally accelerates their pace of innovation. But does it really?

The reality is that there is surprisingly little evidence demonstrating what sort of research and development (R&D) configuration is more productive, and some R&D researchers have noted that searching for and co-ordinating new collaborations can be an expensive proposition in terms of time and money. Most investments suffer from diminishing returns at some point, and I wondered if the same thing might be true for open innovation.

To find out, I studied a data set that compared the performance of roughly 2,500 research-intensive Italian

improved products as a percentage of sales compared to the size of the R&D budget and the percentage of R&D devoted to external projects.

The relationship I found suggested that in this case the tech gurus aren't quite right. Open development with external resources doesn't always lead to more innovation. Instead, the magic works only up to a point. After that point, more collaboration isn't necessarily better, and in fact, a company may end up worse off than if it worked alone.

With a moderate level of external R&D firms are able to improve

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manufacturing firms drawn from a survey conducted in 2001 and again in 2004. I looked particularly at the relationship between sales of new and

innovative performance. However, firms carrying out more external than internal R&D activities actually see a decline in their innovative performance.

Diminishing returns

In my paper, *Towards an open R&D system: Internal R&D investment, external knowledge acquisition and innovative performance*, which was published in the 2013 issue of *Research Policy*, I argue that these diminishing returns occur for several reasons.

First, the more advanced the company's capability in a certain area, the less it stands to gain from co-operation. If you think about it, this makes sense: if you're an A student already, you're less likely to learn something from B students. You'll be helping them more than they'll be helping you.

Various authorities have also noted that setting up those external partnerships is not always easy. There is often a cost involved in finding people who are doing research that would be useful to the company, and there is a cost in setting up those partnerships. This can be especially true if your internal capacity for R&D is limited. With a weak stock of knowledge, the ability to recognise valuable linkages is less developed and consequently relatively more time is needed to select useful partners.

There also seem to be even more disadvantages for firms that have a lot of R&D capacity. Firms with more R&D capacity tend to be more sophisticated, and the more sophisticated the lab,



the more efficient it is at sizing up external partners and digesting external ideas. As a result, it doesn't need as many partners.

Too much external collaboration may also drag down firm performance because all that external focus reduces the level of contact between people working within the same firm. This may be a bit like a party: adding a few new faces may add some life; but invite too many people and you won't get a chance to talk to your old friends.

So, before you start looking for new research partners, I believe my results suggest that you should keep three things in mind:

1. Think about how good you are at what you do and find a subject area where you could benefit from someone else's insights.
2. Focus your research on only a few areas. The costs of finding the right research partners and setting up

partnerships can be high, but if you focus on a particular niche, those search costs go down. In R&D, a few real friends are much more valuable than lots of acquaintances.

3. If you don't know a lot about a subject, you should probably spend about 1/3 of your efforts on new partnerships. But if you already have some ideas, the optimal ratio turns out to be about 10 per cent less, ie, 23 per cent.

Of course, there are still many questions to be answered about this subject. How, for example, do firms structure their external R&D activities? How diverse are their R&D collaboration portfolios? Finally, how does R&D partnership diversity influence a focal firm's innovative performance? In fact, we still know so little about open innovation that my study's results suggest it makes sense for me to see if I can find a research partner. ■

This article is based on Luca Berchicci's paper *Towards an open R&D system: Internal R&D investment, external knowledge acquisition and innovative performance*, which was published in the journal *Research Policy*, Vol. 42, No 1 (2013), 117– 127. <http://dx.doi.org/10.1016/j.respol.2012.04.017>

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