



## No Strings Attached: Creating the Optimum Environment for Innovation

**A change of approach to loosely-linked research partners can generate radically new products.**

As the technical world transforms and advances, external partnerships are an important driver of R&D. It's well known that shared knowledge and fresh ideas during experimentation significantly boost the innovation and disruption process to generate new products or processes. In general, the tighter the commitments between research partners the more likely the partnership will result in groundbreaking invention. But by creating the optimum environment for innovation, even loosely-linked relationships can generate radically novel products.

Tightly-linked research partnerships are in general better resourced and provide a firm platform for companies to share information and experiment with new ways to recombine knowledge. They are often quite autonomous and have a dedicated team to support the partnership. But these arrangements are also costly to create, maintain and manage and not easy to exit. A firm may have several hundred collaboration agreements, and lack the finances or resource to commit to them all. For this reason, companies are looking for more flexible arrangements to access external knowledge.

They're entering into partnerships, such as licensing agreements or research contracts, which involve the handing over of information in return for financial compensation such as royalties. These "loosely coupled" relationships, characterised by

lower levels of interdependence, don't rely on the reciprocal exchange of knowledge, they lack the allocation of partner specific resources and the attention of dedicated scientists and managers to support the partnership.

Faced with these deficiencies, it's assumed while these partnerships can generate incremental improvements, assisting in the development or advancement of existing products, they lack the critical elements allowing the insourcing firm to generate substantially new products, processes or services.

This assumption has been turned on its head in a recent study of the 50 largest bio-pharmaceutical firms which suggests tight coupling is not an essential condition for the generation of substantial innovation. In a recent research paper **No Strings Attached: Examining the Relationship Between Loosely-Coupled Research Partnerships and Innovation**, co-written with Thomas Klueter, Assistant Professor of Entrepreneurship at the IESE Business School and Denise R. Dunlap, Assistant Professor of International Business and Strategy at D'Amore-McKim School of Business, we explore the idea that innovations which derive from loosely coupled research partnerships do not necessarily come from accessing or adding an external partner's knowledge per se, but from how the insourcing firm recombines and actively uses that

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information and its willingness to take risks and experiment with new elements of knowledge.

In fact, we propose that by creating an environment that encourages the experimentation and recombination of knowledge, by having an un-allocated pool of funds for innovation and by ensuring the availability of managerial attention to support the R&D process, firms can compensate for the deficiencies inherent to loosely coupled partnerships and act as a catalyst for radical change.

This and other hypotheses were tested in the global bio-pharmaceutical industry where the introduction of substantially new molecular entities is pivotal to a firm's survival and success. With patent expirations cutting tens of billions of dollars off pharmaceutical sales every year, pharma companies are increasingly using research partnerships to add new knowledge (and products) to their repertoire. Using a panel dataset of the world's 50 largest pharmaceutical firms between 1998 and 2007, we looked at whether loosely coupled partnerships, like in-licensing, could lead to completely new products in the industry.

The development of a new drug takes between seven and eleven years, so we focused on the early stage research which allowed us to distinguish clearly between discovery and development. This also allowed us to focus on research partnerships formed with the intention to generate innovations.

Limiting the sample to the leading firms meant we could also observe a large number of both loosely and tightly-coupled partnerships. We measured the insourcing firm's innovation in terms of the number of new products – molecular entities - sent for pre-clinical trials each year.

What we found was firms with a strong experimental orientation were more likely to recombine knowledge despite the lack of reciprocal and frequent interactions with research partners and were more able to complement their existing internal knowledge. They were more likely to provide incentive structures to encourage scientists to leverage a broader variety of knowledge outside their current projects.

The second characteristic we noted was the need to have a finance cushion. We found firms with more financial slack were more likely to profit and innovate from licensing agreements. While tightly coupled partnerships will have a budget and allocated resources, loosely linked partnerships are more at risk of having resources cut off, therefore having some financial slack is critical to guarantee they won't be killed before blossoming.

Thirdly, managerial attention to those loosely

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coupled partnerships should also be available. Because they don't have pre-assigned management dedicated to them, in contexts where managers are stretched too thin, those partnerships are unlikely to get the necessary attention needed to make decisions and take advantage of opportunities stemming from them.

While we chose to look at the pharmaceutical industry because of its visibility, the findings could relate to any sector undergoing a transformation and convergence between large established companies and younger, smaller more agile firms. Sectors such as the chemical sector, bio-techs, telecommunications, electronics, just to name a few, where research partnerships and knowledge-sharing is increasing due in part to the increased protection offered by Intellectual Property laws.

In any sector, R&D requires a certain degree of risk-taking. Innovation is rarely generated in complete isolation and, due to its inherent uncertainty, and the high knowledge requirements and financial investments required, many firms search for external partners to develop new products and processes.

We are not saying loosely-coupled partnerships are better than tightly-coupled ones - in fact most companies looking to access external knowledge today are doing both. What we are saying is that if you do enter into a loose arrangement to innovate then your level of experimentation, your level of financial cushion and your level of available managerial attention are very important conditions. If these are not in place then it is unlikely you will be able to get the full innovative benefits of your partnership.



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