

Choosing partners to innovate

03/2014 - **Economics.** A novel argument assesses that the success of a collaborative partnership in R&D agreements depends on its length and on identifying suitable efficient combinations of the initial technological endowments of partners. As the time horizon of the agreement expands, the probability of identifying a suitable partner decreases, thus justifying the prevalence of short-horizon R&D agreements. Agreements between technologically similar or very dissimilar partners tend to work better than intermediate situations.



One of the principal pillars of the current effective strategies boosting firm competitiveness is the reinforcement of R&D activity. Nevertheless, investing in R&D is a costly and risky activity. Thus, firms often explore potential alternatives to reduce the uncertainty associated with the canonical choice to the in-house R&D investment.

Under this perspective, partnership agreements are mainly perceived as cost-sharing devices. However, this strategy entails a major problem firms must face: the choice of an appropriate partner to limit the waste of capital and the uncertainty of the final outcome.

Consider the following situation: an enterprise has decided to sign a collaborative contract to develop a certain R&D project with a finite horizon. There is a number of potential partners in the market. Which are the ones allowing for a successful completion of the project? Among those, which one should be chosen?

Also, after the (successful) completion of the project, the enterprise may envisage the possibility to extend the collaborative R&D activity. Should it do so with the same partner, or should it start the procedure to select a partner anew, instead?

A common evidence about these collaborative activities is that short contracts are preferred to long contracts. Casual empiricism points out that most research projects have a short time horizon (maximum of 5 years). Several arguments have been offered to support this observation. It may be that one partner needs to gather information on the other partner, (i) regarding its trustworthiness and willingness to cooperate in the future; (ii) to exploit knowledge in new applications and to enter into new fields. Indeed, these ventures allow firms to share research costs, save on assets, and avoid duplicative laboratories and testing periods.

We argue that the time horizon and the initial firm-technological endowments are crucial elements in the choice of the collaborative partner. In other words, we sustain that the failure of a project may well be due to the choice of a wrong partner rather than to the lack of quality of the project. A few studies have already suggested interesting arguments to justify the profitability of collaborative agreements in case of technological similarities among the participating firms. Our contribution will assess that a successful agreement may also arise between firms with both very similar and very dissimilar technologies. The idea that also very dissimilar technological-endowed firms can fruitfully carry out partnership agreements is our principal novelty and it is partially at odds with the common practice.

Intuitively, on the one side, the successfulness of agreements with technologically similar firms are supported by the peer status that both firms may have in the signed agreement, and, as a consequence, by the natural affinities that may arise between them yielding an efficient matching. On the other side, the case of very dissimilar technologies between firms is associated with the classical leader-follower partner structure. In this case, the successfulness may be due to the right degree of complementarity between the two partners. By contrast, the intermediate situations leading to unfruitful agreements can be considered as in-between situations in which the role of the partners cannot be defined so precisely. These are situations in which partnerships are less likely to be profitable because, for instance, some competition effects may be stronger than in the other two situations and, possibly, free rider behaviors may occur more frequently.

As an illustration, imagine a firm that is willing to sign a short-term agreement. It can find a compatible partner almost effortlessly. As the commitment the firm is willing to engage in increases, the difficulty of finding a suitable partner also increases. The reason behind this difficulty is not that there are fewer partners available, but rather that getting to identify suitable firms becomes increasingly hard.

In this framework of analysis, public policies supporting R&D also need to be partially rethought. Beyond the canonical R&D subsidies, effective incentives for triggering R&D activity can also come from the support to technological partnerships. Public policies could target to favor the creation of cost-sharing mechanisms through partnership agreements by taking into account the fulfillment of two basic conditions: (i) target short-term agreements without stringent conditions on the type of partners

involved in the agreement and, (ii) limiting (or highly penalizing) the option for a partner to leave the agreement before the completion of the project. The partnership between two competitors is a feasible contract that yields positive benefits to the two parts upon completing the terms of the contract.

Xavier Martínez-Giralt
Departament d'Economia i d'Història Econòmica
Rosella Nicolini

Departament d'Economia Aplicada

Martínez-Giralt, X.; Nicolini, R. Technological endowments in entrepreneurial partnerships. Computational and Mathematical Organization Theory, 19(4): 601-621. 2013.