Policy Briefing

Market Failures in open innovation: implications and policy responses

October 2016

Collaborative or open innovation increases the quality and success of innovation and allows firms to share the costs and risks of innovating. But firms typically under-invest in collaboration. Why is this? Based on a review of the related literature, we identify four market failures which explain this under-investment. We draw on policy experience across the OECD to outline related policy responses.

Key findings

Collaborative innovation has substantial benefits for individual firms and also creates positive spillovers by increasing knowledge diffusion. We identify three market failures which reduce the extent of firms' collaborative innovation. These relate to:

- **Firms' lack of understanding of the benefits of collaborating for innovation**
- **A lack information on the capabilities of partners, and**
- **Difficulties in assessing the trustworthiness of potential innovation partners.**

A further market failure – linked to firms' inability to appropriate the spillovers from collaboration – may limit potential spillovers.

Innovation intermediary organisations – e.g. collaborative research centres, knowledge networks – can help to address the first three market failures. Such organisations remain weak in the UK relative to other countries and we provide some examples and a detailed logic model for intervention. Subsidies for collaborative innovation – e.g. grants, loans – are appropriate for addressing the fourth market failure.

Market failures in open or collaborative innovation

Forming collaborative relationships involves four distinct stages: (i) identifying strategic needs, (ii) assessing and selecting a partner, (iii) implementing a partnership, and (iv) re-assessing and re-shaping the partnership. At each of these stages firms may find it difficult to access information about potential partners, generating informational failures or market failures which may reduce levels of collaboration (Table 1). First, a *lack of awareness* of the benefits of collaborative innovation may mean that firms will either fail to engage in collaborative innovation or that they will under-invest in forming innovation collaborations.

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Partnership Development Stages	Market failure	Intermediary role
Identifying strategic needs	Lack of awareness	Building Awareness, advocacy, capability building
Assessing and selecting a partner	Limited information on functional capabilities	Inbound/outbound provision of partner information
Implementing a partnership	Limited information on trustworthiness	Facilitation or brokering of collaboration, structuring of collaboration
Maximising social returns from collaborative innovation	Incomplete markets and the inability to appropriate positive spillovers	Incentives for collaborative innovation – public incentives for collaboration make this more attractive, raising the overall level of collaborative activity.

Incomplete or asymmetric information on potential partners' functional capabilities may lead either to a failure to identify appropriate partners or the establishment of collaborative relationships with the wrong partners. Finally, in terms of implementing any collaboration market failures may arise through *limited information on the trustworthiness* of partners.

Positive externalities from collaboration – externalities of openness – also suggest that a fourth market failure may arise as the socially optimal level of collaboration is greater than the private optimum. This can arise even where firms have complete information on the capabilities and trustworthiness of collaborators.

Policy responses

The first three market failures can be addressed through intermediary organisations which undertake advocacy around collaborative innovation and help firms identify, evaluate and build relationships with potential collaborators (Table 1). Compared to most Continental countries, intermediary organisations are under-represented in the UK, particularly in those regions with weaker innovation systems. In the full paper we provide a detailed intermediary logic model designed to address each of the market failures outlined earlier.

Illustrative intermediaries are the Holst Centre in Eindhoven which aims 'to facilitate cross-fertilisation of university and industry research towards the development of technologies at a pre-competitive stage'. The Centre takes on the advocacy and the network construction roles addressing the first two market failures. Overcoming issues of trust requires more intensive work with specific partners such as that undertaken by the Technology advisors in the Collective Research Centres (CRCs) in Belgium.

The fourth market failure relating to maximising social value can be addressed by public subsidies (e.g. grants, loans, equity) targeted at collaborative innovation projects.

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