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Technovation

journal homepage: www.elsevier.com/locate/technovation

Bridging the cultural divide: Trust formation in university–industry research collaborations in the US, Japan, and South Korea

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ARTICLE INFO

Keywords:

Trust
University–industry research collaboration
Innovation champion
Cross-country comparison

ABSTRACT

Academia and industry increasingly work together, but this is not always an easy endeavor. In this article we investigate how relational mechanisms facilitate trust formation in university–industry research collaborations (UICs) in three countries and contribute to the understanding of international similarities and differences in UICs by considering institutional factors, specifically, the strength and maturity of UICs in each country. Analyzing survey data of 618 recent UICs in the US, Japan, and South Korea, we identify the activities of innovation champions as a critical trust building mechanism between firms and universities that complements initial trust formation through tie strength, partner reputation, and contractual safeguards. We find that partner reputation and champion behavior are more important for trust formation in South Korea than in the US and Japan, indicating that in ‘emerging UIC countries’ where most firms and universities have little collaboration experience, reputation and the leadership by innovation champions are more important for trust formation in UICs than in ‘advanced UIC countries’ with strong and mature UIC networks. From a public policy perspective, our findings suggest that networks between firms and universities should be generally strengthened and collaboration partners should be provided with effective contractual safeguards to enhance trust formation in UICs.

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1. Introduction

University–industry research collaborations (UICs) are an increasingly important innovation mode (van de Vrande et al., 2009; Bianchi et al., 2011) that allows firms and universities to tap into complementary skills of each other and thus potentially help with saving cost and enhancing research outcomes. Innovating companies collaborate with universities not only to complement in-house R&D (Veugelers and Cassiman, 2005), but also to conduct groundbreaking research critical to innovation over the long run and to appropriate knowledge for private gain (Bruneel et al., 2010). At the same time, productive and well-established research relations with industry are important for those universities seeking to possess a vibrant and dynamic research enterprise and to supplement public research funding (Etzkowitz et al., 2008). But the channels and mechanisms through which these effects exercise their influence are much less understood (Mowery and Shane, 2002).

Despite their increasing openness to collaboration, companies and universities face major challenges when attempting to work together not least due to inherently different institutional cultures (Bjerregaard, 2010) and sometimes conflicting goals (Gilsing et al., 2011). Universities are driven by cultures that emphasize scientific performance unrelated to profit or market considerations (Dasgupta and David, 1994). The free and open communication of research results is essential to their goal of expanding and disseminating knowledge. For industry, in contrast, the protection of proprietary information is necessary to the ultimate goal of financial return. This general ‘cultural divide’ between academe and industry in terms of goals and working styles often results in great tension in UICs and causes many of them to perform below expectations (Burnside and Witkin, 2008; Bruneel et al., 2010). In addition, collaborative research exposes both sides to a certain degree of vulnerability to exploitation. Many academics view support and funding from industry as having strings attached that negatively influence their research. At the same time, many firms view universities’ demand for exclusive ownership of intellectual property rights as an impediment for working with universities. For UICs to succeed, the counterparts must acknowledge and work with these fundamental differences and the cultivation of trust is vital for reducing them (Mora-Valentin et al., 2004).

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A UIC here is defined as a project-based collaborative research relationship between universities and companies aiming at the generation or transfer of new products, technologies, or processes. Trust is defined as the intention to accept vulnerability based upon one party's positive expectations of the intentions or behavior of another party in situations that are interdependent or risky (Morgan and Hunt, 1994; Rousseau et al., 1998).

Whereas trust has been extensively studied in the context of innovation collaboration among industrial firms, how trust develops in UICs has received limited attention in only a small number of studies. Of these, Davenport et al. (1999) suggest that mutual respect and trust amongst partners is critical for collaboration success; Santoro and Saporito (2003) report that trust mediates the relationship between different characteristics of communication behavior and UIC outcomes, and Bruneel et al. (2010) find that trust between partners reduces collaboration barriers. Most of the extant UIC research, however, is focused on structural issues such as geographical proximity (Petruzzelli, 2011), firm size (Santoro and Chakrabarti, 2002), university linkages (George et al., 2002), firm structures and cultures or university intellectual property policies (Gopalakrishnan and Santoro, 2004), or the role of knowledge explicitness (Santoro and Bierly, 2006). Most strikingly, while trust is acknowledged as a factor for successful collaborations (Davenport et al., 1999; Barnes et al., 2002; Mora-Valentin et al., 2004), how it can be achieved between parties with fundamentally different *modi operandi* is neglected. Thus, we know little on how trust evolves in UICs.

At the same time, studies have long recognized the role of innovation champions in corporate settings (e.g., Chakrabarti, 1974; Howell and Higgins, 1990; Howell and Shea, 2006), but the question of their role in UICs remains mostly unexplored. Champions are broadly defined as individuals that 'are intensely interested and involved with the overall objectives and goals of the project and play a dominant role in many of the research-engineering interaction events, overcoming technical and organizational obstacles, and pulling the effort through its final achievement by the sheer force of their will and energy' (Chakrabarti, 1974, p. 58). Anecdotal evidence suggests that the importance of the innovation champion is in selling and bridging a collaborative idea to both firm management and university and getting key stakeholders interested, so the firm will provide ongoing financial support, and in overcoming obstacles and persuading opponents to halt resistance. These champions become a bridge between the university and the firm and facilitate connection, communication, and coordination between the internal managers and scientists of both parties to create mutual trust.

It appears to be obvious that champions play a key role in trust formation in UICs, but how exactly they facilitate UICs and actually leverage successful outcomes is much less understood (Mowery and Shane, 2002) and anything but clear-cut, as research in the corporate domain suggests (Markham and Griffin, 1998).

Previous work on UICs is focused mostly on the US (e.g., Santoro and Chakrabarti, 2002; George et al., 2002; Santoro and Bierly, 2006) and Europe (e.g., Barnes et al., 2002; Mora-Valentin et al., 2004; Bjerregaard, 2010). Notwithstanding the emergence of East Asian nations as leading sources of technological innovation, there is still limited knowledge about the formation and management of UICs outside the Western hemisphere, leaving us with a lack of understanding of the differences in such collaborations between countries. Yet as firms are gradually seeking more research collaborations with foreign universities, understanding country-level differences becomes increasingly important (Burnside and Witkin, 2008). The dissimilarities of institutional and cultural factors among countries and their consequences for trust formation (Fukuyama, 1995; Doney et al., 1998) likely relate to UICs as well. However, little is known about their relevance for trust formation in UICs.

In this study, we compare UICs in the US with those in two East Asian countries that differ in their economic developments and UIC histories – Japan and South Korea (hereafter, Korea). The purpose of this paper is to better understand trust formation in UICs as an important means to bridge the cultural divide between universities and industry in terms of different organizational settings and processes. Specifically, this research advances our understanding of UICs by (1) examining how trust develops in UICs in three different countries, (2) exploring how initial trust formation mechanisms are mediated by champion behavior; and (3) identifying whether different institutional settings between countries moderate the importance of trust formation mechanisms. The focus of this research is on companies that are researching and developing new products and technologies and that have initiated cooperation with a university to help undertake R&D.

In the following, we identify three mechanisms that underlie initial trust formation in UICs: the strength of ties between firms and universities, the reputation of university partners, and contractual safeguards. While these mechanisms may alleviate some of the initial concerns and contribute to trust, firms and universities have their own distinct processes of conducting research, which may easily conflict. Therefore, invested and committed individuals – champions – are needed to reconcile these differences during the collaboration process. Moreover, the relative importance of these processes may differ between countries due to institutional differences in the field of UICs.

2. Theory and hypotheses

The literature suggests several ways how initial trust between collaboration partners can be facilitated. The strength of ties is one mechanism that influences collaboration processes and outcomes. The power of tie strength is manifested in the benefits of reduced interaction uncertainty and exchange efficiency (Ring and Van de Ven, 1994). Stronger ties are associated with expectations of trust and reciprocity providing assurances that the exchange will be used to the mutual benefit of both parties (Uzzi, 1999).

The second mechanism underlying initial trust is the reputation of the partner. Collaboration partners may grant or develop initial trust that is not based on much experience with, or knowledge of, the other party. Rather, it is based on credentials reflecting expertise in a domain or on institutional cues that enable one party to trust another without direct knowledge (McKnight et al., 1998). Reputation is important in temporary project groups, where there is neither enough time nor opportunity for experience-based trust to emerge (Meyerson et al., 1996).

The third mechanism facilitating initial trust is related to contractual safeguards, which reduce behavioral uncertainty and allow people or organizations to work with previously unknown counterparts (Fukuyama, 1995). Through this social and legal mechanism, i.e. the expectation that the other party will make every effort to fulfill the arrangement, initial trust can be created on a calculative basis (Doney et al., 1998).

2.1. Establishing trust in UICs

Tie strength, generally characterized by the degree of closeness between actors and the stability of their relationship history (Granovetter, 1973), has been suggested to support trust formation (Tsai and Ghoshal, 1998), because stronger ties help overcoming tensions inherent to start-up cooperation. Partners with stronger ties have had more opportunities for exchange, and thus have a better basis to assess the predictability of the counterpart's behavior compared to weak tie relationships (Krackhardt, 1992).

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