The role of relationships and networks in radical innovation [guest editorial]

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The Role of Relationships and Networks in Radical Innovation

Special Issue Editorial

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Introduction

The corporate importance of innovation is well documented, which has encouraged much research into activities for developing and launching successful new products (e.g. Brown and Eisenhardt 2005; Hart, et al., 2004; Montoya-Weiss and Calantone 1994; Henard and Szymanski 2001; Cooper and Kleinschmidt, 2007). An important distinction drawn within this literature surrounds the innovativeness of the development; between incremental innovations, which maintain the status quo, and radical innovations, which are more disruptive and potentially have a much more dramatic impact on competing firms and the marketplace (Tellis et al., 2009; Srinivasan et al., 2004). Moreover, research suggests that key differences exist between incremental and radical innovation practices, in relation to management, processes, structures, people, competences and network participants (e.g. Athaide et al., 1996, Klennera et al., 2013; Leifer et al., 2000; Pittaway et al., 2004; Rice et al., 2002; Salomo et al., 2007; Song and Montoya-Weiss 1998; Story et al., 2009; Thieme et al., 2003, Veryzer 1998). However, much research in this area is still focused on more incremental innovation. This is incongruous with the impact that Radical Innovation can have due to its paradigm-shifting characteristics and the benefits that firms can accrue from launching successful radical innovations, such as: securing market growth; dominating world markets; and improving the international competitiveness of their home economies (Aarikka-Stenroos and Lehtimäki, 2014; Atuahene-Gima, 2005; Sorescu et al., 2003; Tellis and Golder, 2001).

Relationships and networks form the backbone of business and industrial marketing in both traditional and more technically based markets (Håkansson, 1982, Håkansson and Lundgren 1995, Håkansson et al, 2009). This is particularly true when examining innovation activity, as few firms have the capability to develop innovations internally; success often involves the transfer of resources between individual actors and organisations (e.g. Pittaway et al., 2004; Rice et al., 2002; Story et al., 2009). Whilst much is known about how incremental innovation occurs within stable partnerships, it is clear that the insights generated from this research have proven difficult to translate to radical innovation, where success is predicated upon the search for and acquisition of diverse knowledge (Kelley et al., 2009), can involve both new technological investments (Herrmann et al., 2009) and new relationship investments (Story et al., 2009), and can often require actors to operate outside their technical and informational comfort zones (Gnyawali and Madhavan 2001; Powell et al., 2005).

Given the centrality of RI to contemporary discourse around growth, sustainability, and competitive advantage, it is vital that the research community generates a deeper understanding of the value of relationships, networks and interactions for the development of radical innovations. This special issue offered an opportunity to bring together articles exploring this important research area. In the section that follows, we provide an overview of the papers included in the special issue. We conclude the editorial by offering a summary of the key issues that arise from these papers and areas for further study.

Overview of the Articles in the Special Issue

The eight papers included in this special issue collectively illustrate the complexity of how relationships and networks relate to radical innovation. The papers are grouped into a number of sub-themes, based on their primary focus: Social networks and the role of network ties; network competences; network structures; and relationship atmosphere issues.
Theme 1: Social Networks and Network Ties

The two papers in this theme both focus on offering a more nuanced understanding of two important network concepts in the context of RI. Both papers argue that treating these concepts as one-dimensional constructs leads to inconclusive findings that do not account for the heterogeneity of the functions of the different sub-dimensions. Thus, they both aim to offer a more complete interpretation of the effects of these concepts; one through a theoretical examination of the literature and the other through empirical examination.

In ‘Social capital, portfolio management capability and exploratory innovation: Evidence from China’ by Li, Zhang and Zheng, exploratory innovation is seen as a precursor to radical innovation and is deemed to be central to firms’ survival. Securing external resources is identified as a key success factor and social capital is also seen to be critical to the process of resource acquisition. Li et al., contend that social capital must be treated as a multi-dimensional context especially with respect to how it impacts on exploratory innovation. The findings they present are from firms in high technology industries that have stable relationships with Chinese firms. The findings show that there are complex interactions between all the dimensions of social capital and exploratory innovation and that social capital can be a double-edged sword in that the similarities of mental models and views of the business world between partners can hinder novel forms of innovation. Similarly they note a paradoxical side to relational and structural social capital, which sees the impact of increasing these elements of social capital coming to a point where the benefits turn into constraints.

Hao and Feng, in their article ‘How networks influence radical innovation: the effects of heterogeneity of network ties and crowding out’, provide a review of current knowledge regarding how different types of network ties affect radical innovation. They specifically focus on three network ties, arguing that there is a need for more specificity with regards to the impact of network ties on radical innovation activities. The three different types of network ties examined are: 1) Buyer-supplier ties; 2) Peer collaboration ties; and 3) Equity ties and the authors go on to offer five research propositions with regards to how these three ties might facilitate and/or hamper knowledge acquisition and disruptive idea developments. They conclude that both buyer-supplier ties and peer collaboration ties are likely to directly impact knowledge acquisition and radical innovation outcomes, whereas equity ties are proposed to moderate these relationships, through boosting inter-firm knowledge flow. The final proposition presented relates to crowding out effects, which is about the idea that a firm’s total capacity to engage with network ties is limited. Thus, a choice of engaging with one partner may well mean that the firm gives up on opportunities of collaborating with other partners. The authors argue that this crowding out effect can have a detrimental effect on RI activities. Thus, the work conceptualizes the role of heterogeneous network ties in supporting RI suggesting different ways of selectively integrating different sources of knowledge (market, supplier and technology) needed for commercializing radical technologies.

Theme 2: Network Competences

The two papers in this theme examine single case studies that aim to understand how network competences support RI activities. In doing so, they offer useful observations about networking processes associated with RI in two very different contexts, but both highlight the importance of dynamic capabilities and network competence – to be able to acquire the necessary resources and cope with the challenges that disruptions bring to their network interactions.
An unusual case of radical innovation is illustrated in the paper ‘Radical innovation, network competence and the business of body disposal’ by Canning and Szmigin, where network competence is shown to be a key driver of a radical innovation in an unusual context, that of body disposal. The innovation is both radical and sustainable and the case study discussed illustrates that network competence underpinned by dynamic capabilities is needed throughout the innovation process, not simply during the R&D and Commercialization stages as is sometimes implied e.g. Aarika-Stenroos and Sandberg (2012). The authors also further discuss how network competence relates to relationships, in that they explicitly consider whether it relates to developing existing relationships or if it involves activating new relationships. They find that, in the context of bringing a radical alternative to existing cremation practices to market, existing relationships are important and it is these relationships that facilitate the development of the new relationships needed to embed the innovation. They also emphasize that single actors should not expect to ‘go it alone’ rather the key to network competence is in recognizing when to leverage the resources of other actors in the network in order to initiate the relationships needed for success.

Chou in his article titled “Mobilizing resources to bridge technological discontinuities” offers an in-depth single case examination of how firms can use inter-firm relationships to mobilize resources to support innovation activities. The paper focuses on a specific sub-set of radical innovations, technological discontinuities – arguing that the bridging of technological trajectories is more likely to involve changes to the existing pool of competences and resources and create disruptive effects on the structure of the industry. The author also makes a clear distinction between resource mobilization and resource combination, which occurs later. Thus, the paper more specifically focuses on how firms work in networks to obtain necessary resources, which are often dispersed through business networks. The empirical context for the paper is a Taiwanese media maker that had experienced at least two technological discontinuities and the paper offers interesting findings in relation to the mobilizing of resources across firm boundaries and how these can be affected by relationship sediments accrued from past interactions. The case highlights that mobilizing resources is a complex issue both in terms of acquiring access to appropriate resources and in terms of coping with the relationships dynamics created by these activities. The paper also identifies that for some firms, technological discontinuities can be competence-enhancing, based on pre-existing relational competences. Firms with the right competencies (in this case OptoTech’s ability to dynamically switch between their manufacturing systems) are, essentially, less disrupted than other firms, who fail to develop such capabilities.

Theme 3: Network Structures

There is only one paper in this theme, which is quite distinct from the other papers, taking a more macro-level approach to understanding the network structures that support RI. It also differs from the others in that it is a comparative study; examining differences between radical and incremental innovations. In doing so it offers insights with regards to how open innovation might be supported across networks.

In their article, ‘The Effect of Network Structure on Radical Innovation in Living Labs’, Leminen, Nyström, Westerlund and Kortelainen explore a relatively under-researched topic, that of living labs, focusing on how these labs are structured and organized for innovation. As outlined in the paper, Living Labs are a novel and increasingly popular network form for multi-organizational open innovation, based on collaboration between diverse stakeholders in
real-life contexts. The authors studied 24 living labs across a number of different countries, and conducted 100 semi-structured interviews to build a framework of network types for both radical and incremental innovations. Their findings highlight some potentially important differences between radical and incremental innovation in terms of both the skills and competences and the structures that support radical innovation. They suggest that provider-driven (networks driven by developer organizations, such as Universities) and utilizer-driven (networks coordinated by a single organization with the drive to advance their own agenda) networks, with distributed multiplex network structures (i.e. open networks of equal partners without any centralized controls) better support the emergence of radical innovations, particularly when these labs have challenging and future-oriented strategic objectives.

**Theme 4: Relationship Atmosphere Issues**

This final theme is highlighted in three papers, the first of which explores learning and RI and how dependence asymmetry moderates learning. The second paper discusses the impact on a relationship when a radical change in interactions in the relationship takes place because of the adoption of e-business tools and shows how coordination and inequity have mediating roles with respect to the impact of social and contractual enforcement on reseller performance. The final paper, while focused on how to improve judgements on which emerging technologies will succeed, makes some important comments with regards to how actors in the network can either enable or delay disruptive technologies through collaborative network activities.

Jean, Chiou and Sinkovics’ paper: ‘Interpartner Learning, Dependence Asymmetry and Radical Innovation in Customer-Supplier Relationships’, illustrates, using a sample of 204 Taiwanese electronics suppliers and their cross-border relationships with original equipment manufacturer (OEM) customers, how different types of inter-partner learning support the RI process for suppliers. The study focuses specifically on absorptive learning (where one party proactively acquires knowledge from another exchange partner) and joint learning (where both parties jointly create novel assets from complementary resources) and finds that joint learning has a stronger effect than absorptive learning in terms of fostering RI. The authors also examine dependence asymmetry and find that dependence asymmetry does not significantly affect the impact of joint learning on RI, but does moderate the absorptive learning – RI relationship. In doing so they offer up important insights for suppliers in terms of the importance of co-exploration and reciprocal learning within innovation networks if they are to generate breakthrough ideas as opposed to unilateral learning, which only appears to generate limited RI ideas.

‘The Impact of Social and Contractual Enforcement on Reseller Performance: The Mediating Role of Coordination and Inequity During Adoption of a New Technology’ by Osmonbekov, Gregory, Chelariu and Johnston considers the governance processes of social and contractual enforcement during the adoption of e-business tools, which can be seen as a radical change to how relationships are managed. The paper highlights the importance of understanding perceptions of inequity that result from the manner in which larger actors expect their smaller counterparts to adopt and interact with new technology. Their results, based on 224 survey responses from computer integrators and value added resellers, illustrate the importance of social enforcement cf., contractual enforcement, when a new technology is being adopted. The results highlight the problematic outcomes of coercion, where social enforcement is seen to reduce perceptions of inequity unlike contractual enforcement, which seems to increase feelings of inequitable treatment. The most interesting findings of the research relate to the
mediating role of coordination, in that that contractual enforcement and coordination are not strongly related whilst social enforcement is positively correlated to coordination. The findings provide strong support for the suggestion that when radical changes in technology need to be adopted by network partners, social enforcement, i.e. personal relationships are the best mechanism to ensure the success of the implementation.

In their paper titled ‘The role of inter-organisational networks in enabling or delaying disruptive technologies: the case of mVOIP’, Hynes and Elwell take a case study approach to mapping a disruptive technology (defined as a technology that creates an entirely new technology/market paradigm) as it was emerging in order to offer insights into how to improve judgements on which emerging technologies are likely to be successful and how collaborative actions by networks of firms contribute to this outcome. The paper illustrates, through a discussion of mobile Voice over Internet Protocol (mVOIP), how networks can both enable and potentially constrain the potential of disruptive technology. In doing so they raise questions about the notion of single disruptive changes within the marketplace, instead suggesting that in some situations market disruptions can essentially be hidden from consumers by the actions of the network actors involved. Furthermore, they foreground the role of incumbents in delaying the emergence of disruptive innovations.

Discussion and Areas for Further Research

Together, the papers included in the special issue provide useful insights for understanding the way in which RI activities are conducted within networks. They also offer a useful list of areas where further research is required, for example:

- The differences between more traditional innovation networks and open innovation, and how this impacts upon radical innovation in order to provide insight into how managers can facilitate successful outcomes in these contexts.

- The dynamics in innovation networks, specifically, understanding how relationships within innovation networks evolve and change and the managerial competences and capabilities needed to ensure the success of these networks.

A number of papers identify the need for a more nuanced understanding of key concepts. This call for a deeper understanding of the intricacies of the process through which key innovation concepts (like network ties) affect RI and the boundary conditions for developing radical innovations resonate with Story et al., (2014) and is something that many managerial disciplines are in need of, in order to advance theory (Schilke, 2013; Stam and Elfring, 2008).

Moving forwards, more work also needs to be done to understand these issues across different research contexts, such as whether practices differ between developed and developing economies, between large and small firms, start-ups or not-for-profit firms, or across different sectors.

In terms of research methods, the papers included adopt a range of approaches from qualitative interviews, single in-depth case studies and larger cross-sectional surveys. Going forward, the research field would benefit from further empirical studies, longitudinal research to explore the dynamic nature of these relationship and network constructs; and also more efforts to build theory from multiple case studies. The single case studies included here offer some important insights, which will need further exploration to go beyond these unique cases. Finally, in terms of the theoretical nature of Hao and Feng’s work, their propositions will require testing.
This special issue offered a platform for exploring the role of relationships and networks in RI. The papers included in this special issue have made some interesting inroads into developing our understanding of this important research area. However, as shown by the areas listed above, it is clear that further work still needs to be done by the research community to begin to address the demanding calls for future research that have emerged from this special issue. We hope that the papers presented in this special issue will stimulate further research to help advance theory in this area.

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