Guest editorial

The role of relationships and networks in radical innovation

Introduction

The corporate importance of innovation is well documented, which has encouraged much research into activities for developing and launching successful new products (Brown and Eisenhardt, 1995; 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 (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 because of 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 organizations (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.*, 2006) 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 radical innovation (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 offers 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 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 in a multi-dimensional context, especially with respect to how it impacts 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

We would like to thank all people who were involved in the process of producing this special issue. In particular, we are sincerely grateful to all the efforts of the reviewers and acknowledge their contribution in developing this special issue. We would also like to thank the ESRC for providing the funding for the seminar series (Grant title: Successful Radical Innovation: From Ideas to Market; Grant reference number: RES-451-26-0496).

Journal of Business & Industrial Marketing
31/6 (2016) 717–721
 [ISSN 0885-8624]
[DOI 10.1108/JBIM-12-2015-0249]

Journal of Business & Industrial Marketing
Volume 31 · Number 6 · 2016 · 717–721

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 buyer–supplier ties; peer collaboration ties; and 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, for example, Aarikka-Stenroos and Sandberg (2012). The authors also further discuss how network competence relates to relationships; 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 these relationships facilitate the development of new relationships needed to embed the innovation. They also emphasize that single actors should not expect to "go it alone", and, rather, the key to network competence is in recognizing when to leverage the resources of other actors in the network to initiate the relationships needed for success.

Chou in his article "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 and 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 who had experienced at least two technological discontinuities, and the paper offers interesting findings in relation to the mobilization 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 coping with the relationship 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 that 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 and takes a more macro-level approach in 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 is 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.

Journal of Business & Industrial Marketing
Volume 31 · Number 6 · 2016 · 717–721

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. Although the final paper focused on how to improve judgements on which emerging technologies will succeed, it made 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 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 absorptive learning – RI relationship. In doing so, they offer 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 as opposed to 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; contractual enforcement and coordination are not strongly related whereas 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, that is, personal relationships, is the best mechanism to ensure the success of the implementation. In their paper titled "The role of inter-organizational networks in enabling or delaying disruptive technologies: the case of mVOIP", Hynes and Elwell take a case study approach to map a disruptive technology (defined as a technology that creates an entirely new technology/market paradigm) as it was emerging 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, 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 they impact radical innovation 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 calls 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.*'s (2014) study and are something that many managerial disciplines are in need of to advance theory (Schilke, 2013; Stam and Elfring, 2008).

Moving forward, 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, between start-ups and 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.

Journal of Business & Industrial Marketing
Volume 31 · Number 6 · 2016 · 717–721

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.

Judith Zolkiewski
Vicky Story
Jamie Burton

References

Aarikka-Stenroos, L. and Lehtimäki, T. (2014), "Commercializing a radical innovation: probing the way to the market", *Industrial Marketing Management*, Vol. 43 No. 8, pp. 1372-1384.

Aarikka-Stenroos, L. and Sandberg, B. (2012), "From new product development to commercialization through networks", *Journal of Business Research*, Vol. 65 No. 2, pp. 198-206.

Athaide, G., Meyers, P.W. and Wilemon, D.L. (1996), "Seller-buyer interactions during the commercialization of technological process innovations", *Journal of Product Innovation Management*, Vol. 13 No. 5, pp. 406-421.

Atuahene-Gima, K. (2005), "Resolving the capability–rigidity paradox in new product innovation", *Journal of Marketing*, Vol. 69 No. 4, pp. 61-83.

Brown, S.L. and Eisenhardt, K.M. (1995), "Product development: past research, present findings, and future directions", *Academy of Management Review*, Vol. 20 No. 2, pp. 343-378.

Cooper, R.G. and Kleinschmidt, E.J. (2007), "Winning businesses in product development: the critical success factors", *Research Technology Management*, Vol. 50 No. 3, pp. 52-66.

Gnyawali, D.R. and Madhavan, R. (2001), "Cooperative networks and competitive dynamics: a structural embeddedness perspective", *Academy of Management Review*, Vol. 26 No. 3, pp. 431-445.

Håkansson, H. (Ed.) (1982), *International Marketing and Purchasing of Industrial Goods*, John Wiley & Sons, Chichester.

Håkansson, H., Ford, D., Gadde, L.-E., Snehota, I. and Waluszewski, A. (2009), *Business in Networks*, John Wiley & Sons, Chichester.

Håkansson, H. and Lundgren, A. (1995), "Industrial networks and technical innovation", in Möller, K and Wilson, D. (Eds), *Business Marketing: An Interaction and Network Perspective*, Kluwer Academic Publishers, Boston, MA.

Hart, S., Hultink, E.J. and Tzokas, N. (2004), "Navigating the new product development process", *Industrial Marketing Management*, Vol. 33 No. 7, pp. 619-626.

Henard, D.H. and Szymanski, D.M. (2001), "Why some new products are more successful than others", *Journal of Marketing Research*, Vol. 38 No. 3, pp. 362-375.

Herrmann, A., Tomczak, T. and Befurt, R. (2006), "Determinants of radical product innovations", *European Journal of Innovation Management*, Vol. 9 No. 1, pp. 20-43.

Kelley, D.J., Peters, L. and Colarelli-O'Connor, G. (2009), "Intra-organizational networking for innovation-based corporate entrepreneurship", *Journal of Business Venturing*, Vol. 24 No. 3, pp. 221-235.

Klennera, P., Hüsigb, S. and Dowling, M. (2013), "Ex-ante evaluation of disruptive susceptibility in established value networks – when are markets ready for disruptive innovations?", *Research Policy*, Vol. 42 No. 4, pp. 914-927.

Leifer, R., McDermott, C.M., Colarelli-O'Connor, G., Peters, L.S., Rice, M.P. and Veryzer, R.W. (2000), *Radical Innovation: How Mature Companies Can Outsmart Upstarts*, Harvard Business School Press, Boston, MA.

Montoya-Weiss, M.M. and Calantone, R.J. (1994), "Determinants of new product performance: a review and meta-analysis", *Journal of Product Innovation Management*, Vol. 11 No. 5, pp. 397-417.

Pittaway, L., Robertson, M., Munir, K., Denyer, D. and Neely, A. (2004), "Networking and innovation: a systematic review of the evidence", *International Journal of Management Reviews*, Vol. 5 Nos 3/4, pp. 137-168.

Powell, W., White, D.R., Koput, K.W. and Owen-Smith, J. (2005), "Network dynamics and field evolution: the growth of interorganizational collaboration in the life sciences", *The American Journal of Sociology*, Vol. 110 No. 4, pp. 1132-1207.

Rice, M.P., Leifer, R. and Colarelli-O'Connor, G. (2002), "Commercialising discontinuous innovations: bridging the gap from discontinuous innovation project to operations", *IEEE Transaction on Engineering Management*, Vol. 49 No. 4, pp. 330-340.

Salomo, S., Weise, J. and Gemünden, H.G. (2007), "NPD planning activities and innovation performance: the mediating role of process management and the moderating effect of product innovativeness", *Journal of Product Innovation Management*, Vol. 24 No. 4, pp. 285-302.

Schilke, O. (2013), "On the contingent value of dynamic capabilities for competitive advantage: the nonlinear moderating effect of environmental dynamism", *Strategic Management Journal*, Vol. 35 No. 2, pp. 179-203.

Song, X.M. and Montoya-Weiss, M.M. (1998), "Critical development activities for really new versus incremental products", *Journal of Product Innovation Management*, Vol. 15 No. 2, pp. 124-135.

Sorescu, A.B., Rajesh, K.C. and Jaideep, C.P. (2003), "Sources and financial consequences of radical innovation: insights from pharmaceuticals", *Journal of Marketing*, Vol. 67 No. 4, pp. 82-101.

Srinivasan, R., Lilien, G.L. and Rangaswamy, A. (2004), "First in, first out? The effects of network externalities on pioneer survival", *Journal of Marketing*, Vol. 68, pp. 41-58.

Stam, W. and Elfring, T. (2008), "Entrepreneurial orientation and new venture performance: the moderating role of intra- and extra-industry social capital", *Academy of Management Journal*, Vol. 51 No. 1, pp. 97-111.

Story, V., Hart, S. and O'Malley, L. (2009), "Relational resources and competences for radical product innovation",

Journal of Marketing Management, Vol. 25 Nos 5/6, pp. 461-481.

Story, V.M., Daniels, K., Zolkiewski, J. and Dainty, A.R.J. (2014), "The barriers and consequences of radical innovations: introduction to the issue", *Industrial Marketing Management*, Vol. 43 No. 8, pp. 1271-1277.

Tellis, G.J. and Golder, P. (2001), *Will and Vision: How Latecomers Grow to Dominate Markets*, McGraw-Hill, New York, NY.

Tellis, G.J., Prabhu, J.C. and Rajesh, K.C. (2009), "Radical innovation across nations: the preeminence of corporate culture", *Journal of Marketing*, Vol. 73 No. 1, pp. 3-23.

Thieme, R.J., Song, X.M. and Shin, G.-C. (2003), "Project management characteristics & new product survival", *Journal of Product Innovation Management*, Vol. 20 No. 2, pp. 104-119.

Veryzer, R.W. (1998), "Discontinuous innovation and the new product development process", *Journal of Product Innovation Management*, Vol. 15 No. 4, pp. 304-321.

Further reading

Hart, S., Hultink, E.J., Tzokas, N. and Commandeur, H. (2003), "Evaluation criteria and NPD gates", *Journal of Product Innovation Management*, Vol. 20 No. 1, pp. 22-36.

Rangaswamy, A. (2002), "Technological opportunism and radical technology adoption: an application to e-business", *Journal of Marketing*, Vol. 66 No. 3, pp. 47-60.

About the Guest Editors

Dr Judy Zolkiewski is a Professor in Marketing at Manchester Business School. She received her PhD in 1999 from UMIST. Her research interests are focussed on understanding business markets, relationships and networks both in the traditional manufacturing and engineering industries and in the evolving business-to-business services sector with specific focus on relationship and network dynamics, sustainability, strategy and technology. She has published in *Journal of Business Research*, *European Journal of Marketing*, *Industrial Marketing Management*, *Journal of Services Marketing*, *Journal of Marketing Management* and *Journal of Business & Industrial Marketing*. Judith Zolkiewski is the corresponding author and can be contacted at: judy.zolkiewski@manchester.ac.uk

Dr Vicky Story is a Reader in Marketing and Retailing at the School of Business and Economics, Loughborough University (UK). Her research interests are in the areas of innovation and marketing strategy, and she has published on these issues in journals such as *Journal of Product Innovation Management*, *Journal of Business Venturing*, *Industrial Marketing Management* and *International Small Business Journal.*

Dr Jamie Burton is a Senior Lecturer at Manchester Business School. He has published in a number of journals, including *Journal of Service Research*, *International Journal of Operations and Production Management*, *Journal of Service Management*, *Journal of Services Marketing*, *Journal of Marketing Management*, *Journal of Business & Industrial Marketing* and *Journal of Consumer Behaviour*. His research interests include service marketing, servitization, customer experience and feedback, relationship marketing and customer profitability.