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Open innovation between energy companies in developed and developing countries: resource-based and knowledge-based perspectives

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Abstract: This paper presents proposals for improving and accelerating research and development processes through open innovation based on contractual project-based alliances between energy companies in developed and developing countries. The present study adopted an inductive approach, employing archival studies and a literature review to develop a model for research and development (R&D) contractual project-based alliances to be investigated in future research. This model was an attempt to collaborate between the phases of alliance strategy activities and the phases of R&D activities applied in contractual project-based activities. The present study distinguished three phases of open innovation: the pre-project phase of partner selection, the project phase of innovation, and the post-project phase of commercialisation. This model incorporated a knowledge management perspective focusing on intangible factors and a resource-based view focusing on tangible factors.

Keywords: open innovation; contractual project; energy sector; knowledge management and resource-based approaches.

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1 Introduction

In the field of strategy management, there is considerable research on open innovation alliance strategies, such as collaboration, licensing, joint ventures, and mergers and acquisitions. Collaborative R&D activities and innovation activities can give rise to a sustained competitive advantage and improve a company's financial performance (Jaaskelainen et al., 2013). The benefits of open innovation processes include shorter times to market, lower development costs, improved risk management and risk mitigation, improved intellectual property protection, and new opportunities for pursuing and promoting sustainability (Pearson, 2012). Wu and Hsu (2013) identified the following five stages of the alliance lifecycle: the policy decision stage, the partner selection stage, the negotiation and configuration stage, the operation and management stage, and the cooperation termination stage.

Although many studies on open innovation have focused on the stages of an alliance, the motives for forming alliances, the objectives and goals of alliances, and the effects of alliances on financial performance, few have focused on a combination of intangible and tangible aspects. The present report proposes a model for accelerating research and development (R&D) activities using open innovation concepts, which adopts both knowledge-based (intangible) and resource-based (tangible) perspectives before, during and after a contractual project-based alliance between energy companies.

2 Conceptual framework

R&D activities are crucial for maintaining a company's competitive advantage, sustainability and growth. To survive, corporations must be able to innovate and successfully commercialise innovations. Innovations might produce significant

improvements in existing products to maintain or grow market share or create entirely new products with the potential to drive new markets (Datta et al., 2011). Under the open innovation concept, new business models are developed using external resources and new revenues are obtained through internal and external commercialisation processes (Podmetina et al., 2011).

Some researchers have claimed that open innovation among business entities accelerates R&D activities. In recent years, management researchers and practitioners have been interested in the processes involved in strategic R&D partnerships (Sorrentino and Garraffo, 2010).

2.1 Types of open innovation

For open innovation collaborative partnerships to provide an alternative method of engaging in R&D activities, it is important to determine the type of collaborative R&D partnership that is appropriate. In discussions of open innovation, two types of alliances are identified. The first type involves shared ownership, such as joint ventures, mergers and acquisitions, and joint operations (Lambert et al., 1996). The second type, which does not involve shared ownership, includes joint marketing programmes, licensing, contract research, and open science (Markman et al., 2008). Because the results of R&D activities are not guaranteed and are characterised by risk and uncertainty, alliances in the form of project-based R&D activities that do not involve shared ownership are an optimal alternative.

Proposition 1 Alliances that do not involve shared ownership, such as project-based activities, are more appropriate for R&D activities in the energy sector.

2.2 Stages of alliances for contractual projects

Because R&D activities are project-based, we adopted a project management perspective and distinguished three stages of open innovation: an initial pre-project phase, a second phase in which the project is carried out, and a final post-project phase.

Proposition 2 The present study identified three phases of project management:

1 the pre-project phase of partner selection

2 the project phase of innovation

3 the post-project phase of commercialisation of the results of innovation.

2.3 Theoretical perspectives

It is important to consider both tangible and intangible factors in alliances, particularly for R&D activities. Open innovation occurs because an individual organisation is limited in its ability to access the resources and knowledge required to create new products and services in a rapidly changing environment. Organisations form alliances that engage in collaborative innovation activities in which knowledge and resources are created and

transferred across organisations (Kirkman, 2011). Although alliances involve shared tangible resources, such as finances, equipment and facilities, they also involve shared intangible factors, such as knowledge and information, research experience, and intellectual property rights (IPR) in the resulting inventions. Because R&D activities produce intellectual capital, intangible aspects of the process are important at all stages.

There are many theoretical perspectives on alliance models and open innovation in the literature, such as the resource-based view (RBV) and transaction cost economics (TCE; Williamson, 1991; Ulset, 1996; Conner and Prahald, 1996; Barney, 1999). Alliances can also be viewed from the perspective of knowledge-based theory (Sampson, 2004), capability theory (Odagari, 2003), game theory (Collin, 2007), organisation theory (Geh, 2011), resource dependency theory (Gerwin and Ferris, 2004) and social exchange theory (Ybarra et al., 1999). Alliances therefore involve both tangible and intangible factors. We discuss tangible factors from the theoretical perspective of the RBV and intangible factors from the theoretical perspective of knowledge-based management.

Proposition 3 Because alliances involve both tangible and intangible factors, we discuss tangible aspects from the theoretical perspective of the RBV and intangible aspects from the theoretical perspective of knowledge management.

As illustrated in Figures 1 and 2, the present study identifies three phases of alliance strategies in R&D activities and adopts the knowledge management theoretical perspective for intangible factors and the resource-based theoretical perspective for tangible factors. Choosing partners from emerging and developed markets is the preferred alternative because organisations and firms in emerging markets are motivated to obtain financial assets, managerial capabilities, and expertise to apply new technologies to product production, while organisations and firms in developed markets are motivated to obtain market knowledge and access and apply unique competencies (Hitt et al., 2000).

Figure 1 Conceptual scheme (see online version for colours)

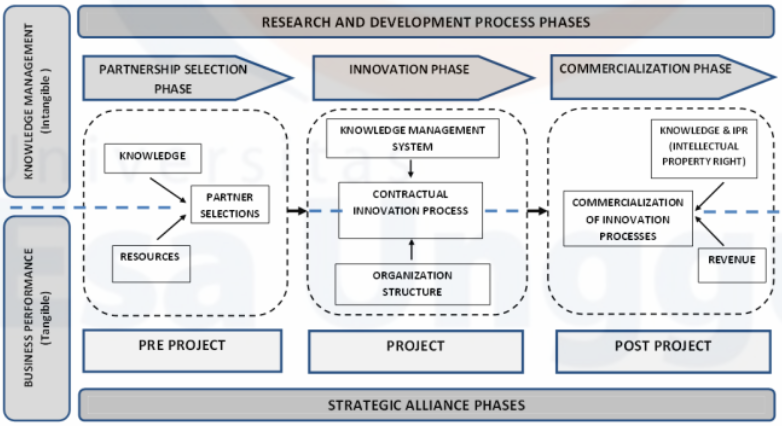
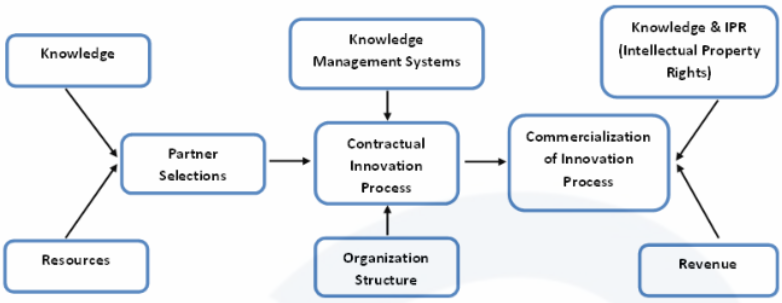


Figure 2 Conceptual research model (see online version for colours)



The proposals described in the present paper are aimed at improving the theoretical framework and empirical practice of open innovation. Some contributions of this study are as follows:

1 the claim that the initial pre-project phase involves knowledge management and resources

2 the claim that the second project phase involves knowledge management systems and the organisational structure (OS)

3 the claim that the final post-project phase involves knowledge and IPR management and revenue.

2.3.1 Knowledge management perspective

2.3.1.1 The pre-project partner selection phase

In this phase, the critical issue is the process of selecting a potential partner for open innovation because partner selection is a major factor contributing to successful open innovation (Hitt et al., 2000). It is important that the new partner's knowledge complement the knowledge and skills of the other partner. In open innovation, knowledge asymmetries produce positive effects, while information and learning asymmetries negatively affect the stability of the alliance (Cimon, 2004). Because knowledge asymmetries in alliances between partners in developing and developed countries benefit both partners (Beamish, 1987), open innovation between organisations from developed and developing countries is beneficial when the knowledge of the two organisations is complementary.

Knowledge factors related to experience, competencies, capabilities and expertise in the research field might involve the same or different fields as long as they are complementary and accelerate knowledge improvement. The organisation's R&D capabilities are the most crucial factor for decisions regarding commercialisation strategies (Lin et al., 2011). The strategy of forming alliances enables organisations to access external knowledge and innovation, enter into global networks, share knowledge and costs, and increase competitiveness (Arrigo, 2012). Aspects of knowledge such as experience, competencies, capabilities and expertise among open innovation partners are rarely revealed in contractual project-based activities. Prior experience in the same

knowledge domain affects the absorptive capacity (Cohen and Levintal, 1990). Organisations with prior experience in a knowledge domain show a level of familiarity and comfort with the field that facilitates knowledge transfer. Significant differences in knowledge and skills between alliance partners create barriers to learning (Baughn et al., 1997), and if the skills and knowledge gaps are too great, learning becomes impossible. Choosing partners with the appropriate experience, competencies, capabilities and expertise is therefore crucial to maximise learning and knowledge transfer.

Proposition 4a Knowledge, which is an intangible aspect of the open innovation process, significantly influences the partner selection process.

2.3.1.2 The project innovation phase

From a technological perspective, information and communication technologies are instrumental in knowledge management and stimulate high-quality innovation. The knowledge resulting from open innovation in R&D activities must be managed to increase the competencies and capabilities of open innovation partners.

Technology is a factor influencing the success of knowledge management. Adopting computer technology improves managerial planning, measurement, and evaluation, as well as the control of organisational performance. Although technology is important, technology alone does not ensure the success of a knowledge management programme. Human resources are required to ensure that the knowledge is useful and of high quality. The vision to use knowledge in new ways is necessary to transform electronic data processing into management information systems (IT) that distribute data through networks, design interactive systems that enable users to access databases as decision support systems and enable groups to work together to make decisions (Liebowitz, 1999), so that managers are able to successfully manage the information and knowledge generated at all stages of the alliance process. Companies engaged in R&D alliances are able to observe, learn and internalise the know-how of their strategic partners (Parise and Sasson, 2002). Furthermore, the ability to manage organisational information and knowledge is a characteristic of successful organisations and a key attribute of successful alliances. Although adopting computer technology is difficult and challenging, this factor improves alliance stability and reduces the potential for failure.

IT are crucial to manage and disseminate information and knowledge among organisation members. The creation and sharing of knowledge in an alliance is a social activity that requires social relationships among partners (Parise and Sasson, 2002). There are difficulties in managing knowledge for innovation (Chapman and Magnusson, 2006) due to the need to reconcile perspectives on innovation and knowledge as well as the heterogeneity and distribution of knowledge in companies and the balance between knowledge exploration and exploitation. Knowledge exploration is related to the discovery of new knowledge and experimentation methods to identify new products, services and processes. Knowledge exploitation is related to the use of current knowledge, resources and capabilities to understand existing products, services and processes (Aspara et al., 2011).

Communities of practice enable the sharing of personal experiences, information and tacit knowledge. Hard knowledge refers to tasks the performed by members of the CoPI, while soft knowledge refers to knowledge developed through socialisation and interaction between CoPI members. Knowledge sharing includes the diffusion, adoption and

utilisation of knowledge (Tranfield et al., 2004). Limited face-to-face communication between alliance partners complicates the knowledge-sharing process (Gibson and Gibbs, 2006). Knowledge sharing reduces partner protectiveness, which is negatively related to knowledge transfer (Simonin, 1999). In contrast, knowledge sharing enhances trust between partners and is critical for learning and inter-organisational collaboration (Lane and Bachman, 1998). In addition to corporate strategy and differentiation strategies, absorptive capacity influences the success of collaborations (Gonzalez et al., 2013).

Proposition 4b Knowledge management systems, which are intangible aspects of the open innovation process, influence knowledge transfer and technology dissemination.

2.3.1.3 The post-project commercialisation phase

Finally, the positive and negative effects of open innovation are evaluated during the post-project phase. Formative evaluation provides information about the implementation of the alliance that can be used to improve and refine the alliance. Alliance outcomes are assessed through a summative evaluation that determines whether the alliance should be continued, restructured, or terminated (Rossi et al., 2004). The organisation learning perspective on open innovation emphasises the extent to which value is created by enhancing partner skills and capabilities (Gulati et al., 2000).

Knowledge and IPR that result from open innovation in R&D activities must be managed. There is a close relationship between R&D spending, the number of patents, service or product releases and organisation revenue (Datta et al., 2011). The valuation of IPR is important for alliances. Costs, markets, income-based approaches and innovation turnover are factors that influence the valuation of IPR (Lopes, 2011). The preservation of IPR during the innovation process represents the most significant risk. To avoid this risk, organisations must establish specific and clear guidelines for sharing IPR to discoveries.

Many organisations develop competencies and capabilities, in addition to obtaining experience through alliances (Townsend, 2003). R&D collaborations simultaneously create knowledge inflows and outflows (Chesbrough, 2006; Enkel et al., 2009; Bogers, 2011). Organisations with more experience exhibit a higher absorptive capacity, which maximises the benefits of the alliance (Simonin, 1999). The absorptive capacity, which refers to the organisation's ability to evaluate, assimilate and use outside knowledge (Cohen and Levinthal, 1990), is a factor related to knowledge transfer (Khamseh and Jolly, 2008) that increases the competencies and capabilities of the organisation as well as its intellectual capital (Gulati, 1998).

Managing the sharing of IPR through the use of a licensing strategy to improve financial outcomes provides an important competitive advantage. Because the existing literature does not focus on managing or valuing the IPR generated through the open innovation processes, particularly for project-based R&D activities, the present paper notes that organisations forming alliances must address this issue.

Proposition 4c The knowledge and IPR that are intangible results of the process of open innovation process must be evaluated and managed.

2.3.2 Resource-based perspective

2.3.2.1 The pre-project partner selection phase

From a resource-based perspective, the limited availability of resources requires appropriate resource allocation to distribute and utilise the available system resources (Malairajan, 2013). In an era of global competition, forming alliances has become the primary strategy adopted by organisations competing in the international market and is one of the key strategies for reasonably allocating global production resources (Nielsen and Gudergan, 2012). Although open innovation has become increasingly important, it has also resulted in dissatisfaction and failure due to differences between expectations and actual outcomes (Madhok and Tallman, 1998). After organisations decide to form an alliance, the next critical decision is to select an appropriate partner (Hitt et al., 1995). Selection of an appropriate partner is the key to successful open innovation. The organisation should form alliances with partners that have complementary, rather than similar resources (Wohlstetter et al., 2005). As noted by Waddock (1989), alliances should be formed with a partner with complementary needs and assets, but similar or the same goals and vision. Achieving asset specificity through vertical integration reduces transaction costs (Williamson, 1991). Thus, a resource-based perspective allows us to explain why organisations select particular alliance partners (Barkema et al., 1996).

Under open innovation, the initiation phase involves four internal conditions: a champion; complementary needs and assets; compatible goals; and trust (Wohlstetter et al., 2005). The companies involved must believe that open innovation provides the opportunity to pool and exchange technological, financial, material, and human resources (Wohlstetter et al., 2005). Open innovation makes it possible to improve resource efficiency (Cunningham and Rivera, 2001; Gerwin and Ferris, 2004).

Spillet (1999) and Austin (2000) note that organisations initiate open innovation to achieve compatible goals that might not be identical but are at least similar and/or mutually beneficial. Compatibility of goals and the mission as well as complementary needs and assets are therefore important (Kanter, 1994; Das and Teng, 2001, Spillett, 1999; Austin, 2000). Increasing efficiency and productivity is an organisational goal when alliances are formed (Robertson, 1998; Waide, 1999).

Alliances are designed to allow partners to share risks and resources and obtain access to international markets. The innovation attribute of perceived risk is a powerful indicator of the adoption of innovation (Kalaiarasi and Srividya, 2013). Companies engage in alliances to share their risks and costs with other companies. Risk and cost sharing is an important issue in the initial phase of open innovation. Hence, the present paper focuses on complementary needs and assets, specific goals and objectives, risk sharing, and cost sharing as indicators in the pre-project phase.

Proposition 5a The tangible resources provided by open innovation significantly influence the partner selection process.

2.3.2.2 The project innovation phase

Although the knowledge asymmetries involved in alliances between partners in developing and developed countries benefit both partners (Beamish, 1987), in practice, the situation is more complex. Open innovation does not automatically transfer knowledge or disseminate technology. To achieve the goals of technology dissemination

and knowledge transfer from developed to developing countries, the OS of the partnership must be well designed. Contemporary and dynamic organisations seeking to be competitive pursue alliances – particularly mergers and acquisitions – as their primary growth strategy. Slowinski et al. (2000) identified four areas that organisations must emphasise to integrate R&D across organisations: creating transition teams, leadership, and new OSs; managing employees through change retention and rationalisation; developing a communications strategy; and managing the intellectual asset portfolio.

A key issue for contractual project-based alliances is decision-making authority. Decisions might be made by the project leader or via consensus. A key element for a successful alliance is OS (Slowinski et al., 2000). During the construction of the team, internal consensus should be implemented. Developing a good governance structure facilitates the decision-making process (Waddock, 1989; Wohlstetter et al., 2005). The operational phase involves the creation of governance structures to guide decision-making and communications mechanisms to facilitate the flow of information and effective leadership (Wohlstetter et al., 2005). The available evidence indicates that there is a strong relationship between performance and OS. Organisation R&D is the most crucial factor for decisions regarding commercialisation strategies (Lin et al., 2010). OS and support mechanisms affect the commercialisation of innovations (Chiu and Chang, 2009). Furthermore, inappropriate structures hinder the development of procedures and processes. Complex alliances with several parties exhibit a more formal OS compared with simple alliances, which exhibit a more informal structure (Wohlstetter et al., 2005). The degree of specialisation, decentralisation, formalisation and socialisation within an organisation positively affects the organisation's commercialisation process (Chiu and Chang, 2009).

Establishing successful innovation commercialisation teams requires an in-depth understanding of the complex factors that contribute to success. Improving the team-building process improves the process of commercialising a technology. Successful technology transfer and commercialisation require a complete team of key organisations and a complete set of individuals (Large et al., 2000). The roles of partners should be defined at the outset and formally established (Sorrentino and Garraffo, 2010).

Communication mechanisms are important for alliances, and regular meetings between organisations should be scheduled. Establishing communication processes and coordinating information is a challenging task facing complex alliances (Wohlstetter et al., 2005). The present paper focuses on the importance of team-building processes, partner roles, and open communication in the project phase.

Proposition 5b The tangible factor of OS influences knowledge transfer and technology dissemination in open innovation.

2.3.2.3 The post-project commercialisation phase

The outcomes of open innovation can be measured according to learning outcomes, perceived profitability, efficiency, client satisfaction and project quality (Sarkar et al., 2001). Input-output efficiency is a measure of innovation commercialisation (Chiu and Chang, 2009). Although some studies have investigated the performance and outcomes of alliances, the different motivations for forming alliances make it difficult to develop performance measures (Townsend, 2003). Although some studies have reported failure rates for research partnerships due to complexity (Dacin et al., 1997; Inkpen and Ross,

2001), other research indicates that partnerships improve organisation performance. Serapio and Cascio (1996) have identified six factors related to the termination of alliances: lack of success, differences between partners, breached agreements, changes in strategic goals, financial reasons and the achievement of alliance goals. Alliance experiences can produce positive results and benefit R&D productivity (Sorrentino and Garraffo, 2010). The income-based approach is a method for measuring the true returns of innovation (Lopes, 2011), even when a R&D alliance does not provide short-term financial returns (Parise and Sasson, 2002).

There is evidence indicating that the outcomes of commercialisation are enhanced when organisations adopt licensing strategies for innovations, particularly for the licensing of technology. Organisations pursue both internal commercialisation strategies, by developing products and services and commercialising them for the market, and external commercialisation strategies, by licensing technology products to other organisations for compensation (Rivette and Kline, 2000).

The revenues and profits generated through an alliance should be distributed proportionally to all partners. To avoid conflict at the end of the project, it is critical to establish that the revenues and profits generated through the alliance will be distributed proportionally and based on the contribution to the project when the alliance is initially formed. It is also important to manage the stability of the alliance to maintain the potential for future collaborations with current partners. The distribution of revenues and profits is closely related to the ownership of the IPR generated by the project. Because these aspects of alliances are rarely discussed in the literature, the present paper focuses on the profits generated through commercialisation, profit-sharing based on IPR ownership, and IPR licensing as important issues during the post-project phase.

Proposition 5c The tangible factor of revenues generated through the commercialisation of inventions and IPR must be evaluated and managed under open innovation.

3 Methodology

The proposals presented in this paper were based on a review of the literature. In this study, an inductive approach was adopted, employing archival studies and a literature review to develop propositions, identify gaps in the extant research and develop a model of open innovation based on contractual R&D projects for future research. This model integrates the theoretical perspectives of knowledge management theory and the RBV. This paper introduces a model for forming effective alliances between energy companies in developed and developing countries to increase and accelerate R&D activities.

4 Results

The review of the literature and archival studies revealed that companies can establish contractual project-based alliances to improve their R&D activities through open innovation. From the perspective of an energy company in a developed country, alliances

provide access to resources; from the perspective of an energy company in a developing country, alliances provide access to knowledge. This study further revealed the need to investigate methods for integrating alliance strategies during the project phase for both the intangible factor of knowledge management and the tangible factor of resources.

5 Conclusions

This section discusses the contributions of the study, its theoretical and managerial implications, the limitations of the research and future research directions.

5.1 Contributions of the study

Based on archival studies and a review of the literature, a comprehensive model for R&D alliances addressing strategies for contractual projects between energy companies in developing and developed countries was developed in the present study. The model extended earlier studies by incorporating both the intangible factor of knowledge and the tangible factor of resources. Because the outcomes of R&D activities involve both intangible and tangible assets, it is important to include both factors in the model.

5.2 Theoretical and managerial implications

The review of the literature revealed the need to discuss and investigate alliance strategies for R&D activities between energy companies in developed and developing countries.

1 Although some studies have discussed contractual project-based R&D activities in the information technology and telecommunications industries, few studies have focused on contractual project-based R&D alliance strategies in energy companies. Innovation processes in information technology and telecommunications companies exhibit different characteristics from innovation processes in energy companies. In information technology and telecommunications companies, the innovation process is rapid due to consumer demand and the nature of the market. In energy companies, innovation processes focus on the discovery of new technologies and expansion to process natural resources to make them more valuable, particularly with respect to renewable energy.

2 Alliance strategies between companies from developed and developing countries are beneficial when the knowledge and resources of the companies are complementary. From the perspective of partners in developing countries, collaborative partnerships provide a way to acquire new technology, knowledge, culture and practices in R&D activities and to increase the competencies and capabilities of researchers. From the perspective of partners in developed countries, collaborative partnerships provide a way to access new markets and natural resources.

From a managerial perspective, the model for contractual project-based R&D alliances provides a framework for maximising the benefits of an alliance.

5.3 Limitations of the research

The current research exhibits a number of limitations because the model incorporated only the RBV and knowledge-based theoretical perspectives and focused only on companies in the energy sector.

5.4 Future research directions

Future research using this framework should be performed to increase and accelerate R&D processes through open innovation based on contractual projects between energy companies in developed and developing countries. Future research might also incorporate other theoretical perspectives and investigate other sectors in addition to the energy sector.

References

Arrigo, E. (2012) 'Alliances, open innovation and outside-in management', *Emerging Issues in Management*, Vol. 2, No. 1, pp.53–65.

Aspara, J., Tikkanen, H., Pontiskoski, E. and Jarvensivu, P. (2011) 'Exploration and exploitation across three resources classes', *European Journal of Marketing*, Vol. 45, No. 4, pp.596–630.

Austin, J. (2000) *The Collaboration Challenge*, Jossey-Bass, San Francisco.

Barkema, H.G., Bell, J.H.J. and Pennings, J.M. (1996) 'Foreign entry, cultural barriers, and learning', *Strategic Management Journal*, Vol. 17, No. 2, pp.151–166.

Barney, J.B. (1999) 'How a firm's capability affects boundary decisions', *Sloan Management Review*, Spring, Vol. 40, No. 3, pp.137–45.

Baughn, C.C., Denekamp, J.G., Stevens, J.H. and Osborn, R.N. (1997) 'Protecting intellectual capital in international alliances', *Journal of World Business*, Vol. 32, No. 2, pp.103–117.

Beamish, P.W. (1987) 'Joint ventures in LDCs: partner selection and performance', *Management International Review*, Vol. 27. No. 1, pp.23–37.

Bogers, M. (2011) 'The open innovation paradox : knowledge sharing and protection in R&D Collaborations', *European Journal of Innovation Management*, Vol. 14, No. 1, pp.93–117.

Chesbrough, H.W. (2006) 'Open innovation: a new paradigm for understanding industrial innovation', in Chesbrough, H.W., Vanhaverbeke, W., and West J., (Eds.): *Open Innovation: Research in a New Paradigm*, pp.1–12, Oxford University Press, Oxford.

Chiu, S. and Chang, K. (2009) 'Organizational structure, support mechanism, and commercialization performance', *International Journal of Commerce and Management*, Vol. 19, No. 3, pp.183–194.

Cimon, Y. (2004) 'Knowledge-related asymmetries in strategic alliances', *Journal of Knowledge Management*, Vol. 8, No. 3, p.17.

Cohen, W.M. and Levinthal, D.A. (1990) 'Absorptive capacity: a new perspective on learning and innovation', in W.H. Starbuck and P.S. Whalen (Eds.): *Administrative Science Quarterly*, Vol. 35, No. 1, pp.128–152.

Collin, L. (2007) 'Embedding innovation into the firm', *Research Technology Management*, Vol. 50, No. 2, pp.5–6.

Conner, K.R. and Prahalad, C.K. (1996) 'A resource-based theory of the firm: knowledge vs. opportunism', *Organization Science*, Vol. 7, No. 5, pp.477–501.

Cunningham, G.B. and Rivera, C.A. (2001) 'Structural designs within American intercollegiate athletic departments', *The International Journal of Organizational Analysis*, Vol. 9, No. 4, pp.369–390.

Dacin, M.T., Hitt, M.A. and Levitas, E. (1997) 'Selecting partners for successful international alliances: examination of US and Korean firms', *Journal of World Business*, Vol. 32, No. 1, pp.3–16.

Das, T.K. and Teng, B.S. (2001) 'Trust, control, and risk in strategic alliances: an integrated framework', *Organization Studies*, Vol. 22, No. 2, pp.251–283.

Datta, A., Jessup, L. and Reed, R. (2011) 'Corporate reputation and the commercialization of innovation: does reputation match reality, and does innovation matter?', *Technology and Investment*, Vol. 2, No. 1, pp.256–272.

Enkel, E., Gassmann, O. and Chesbrough, H. (2009) 'Open R&D and open innovation: exploring the phenomenon', *R&D Management*, Vol. 39, No. 4, pp.311–316.

Geh, E. (2011) 'Understanding strategic alliances from the effectual entrepreneurial firm's perspective – an organization theory perspective', *S.A.M. Advanced Management Journal*, Vol. 76, No. 4, pp.27–46.

Gerwin, D. and Ferris, J.S. (2004) 'Organizing new product development projects in strategic alliances', *Organization Science*, Vol. 15, No. 1, pp.22–37.

Gibson, C.B. and Gibss, J.L. (2006) 'Unpacking the concept of virtuality: the effects of geographic dispersion, electronic dependence, dynamic structure, and national diversity on team innovation', *Administrative Science Quarterly*, Vol. 51, No. 1, pp.451–495.

Gonzalez, G.M., Tato, M.G. and Soto, C.F. (2013) 'Business strategy and enterprises cooperation agreements in research and development', *International Journal of Business Innovation and Research*, Vol. 7, No. 1, pp.1–22.

Gulati, R. (1998) 'Alliance and networks', *Strategic Management Journal*, Vol. 19, No. 4, pp.293–317.

Gulati, R., Nohria, N. and Zaheer, A. (2000) 'Strategic networks', *Strategic Management Journal*, Vol. 21, No. 3, pp.203–215.

Hitt, M.A, Dacin, T.M., Levita, E., Arregle, J.L. and Borza, A (2000) 'Partner selection in emerging and developed market contexts: resource based and organizational learning perspectives', *Academy of Management Journal*, Vol. 43, No. 3, pp.449–67.

Hitt, M.A., Tyler, B.B., Hardee, C. and Park, D. (1995) 'Understanding strategic intent in the global market place', *Academy of Management Executive*, Vol. 9, No. 2, pp.12–19.

Inkpen, A.C. and Ross, J. (2001) 'Why do some strategic alliances persist beyond their usefullife?', *California Management Review*, Vol. 44, No. 1, pp.132–148.

Jaaskelainen, M.A., Hinkkanen, J.J. and Vaatanen, J. (2013) 'Collaborative R&D in Russian companies: empirical evidence on successful partnerships', *International Journal of Business Innovation and Research*, Vol. 7, No. 1, pp.23–39.

Kalaiarasi, H. and Srividya, V. (2013) 'An investigation on online banking adoption', *International Journal of Business Innovation and Research*, Vol. 7, No. 1, pp.99–112.

Kanter, R.M. (1994) 'Collaborative advantage: the art of alliances', *Harvard Business Review*, July–August, Vol. 72, No. 4, pp.96–108.

Khamseh, H.M. and Jolly, D.R. (2008) 'Knowledge transfer in alliances: determinant factors', *Journal of Knowledge Management*, Vol. 12, No. 1, pp.37–50.

Kirkman, D.M. (2011) 'Knowledge management strategies in an open innovation environment', *Academy of Strategic Management*, Vol. 10, No. 1, pp.53–60.

Lambert, D., Emmelhainz, P. and Gardner, J. (1996) 'Classifying relationships', *Marketing Management*, Vol. 5, No. 2, p.28.

Lane, C. and Bachman, R. (1998) *Trust within and between Organizations – Conceptual Issues and Empirical Applications*, Oxford University Press, Oxford.

Large, D., Belinko, K. and Kalligatsi, K. (2000) 'Building successful technology commercialization teams: pilot empirical support for the theory cascading commitment', *Journal of Technology Transfer*, Vol. 25, No. 2, pp.169–180.

Liebowitz, J. (1999) *The Knowledge Management Handbook*, CRC Press, Boca Raton, FL.

Lin, C., Jiang, J., Wu, Y.J. and Chang, C. (2011) 'Assessment of commercialization strategy using R&D capability', *Industrial Management & Data System*, Vol. 111, No. 3, pp.341–369.

Lopes, I.T. (2011) 'The boundaries of intellectual property valuation: cost, market, income based approaches and innovation turnover', *Intellectual Economics*, Vol. 1, No. 9, pp.99–116.

Madhok, A. and Tallman, S.D. (1998) 'Resources, transactions and risks: managing value through interfirm collaborative relationships', *Organization Science*, Vol. 9, No. 2, pp.326–339.

Malairajan, R.A., Ganesh, K., Muhos, M. and Anbuudayasankar, S.P. (2013) 'Calss of resources allocation problems in supply chain – a review', *International Journal of Business Innovation and Research*, Vol. 7, No. 1, pp.113–139.

Markman, G.D., Siegel, D.S. and Wright, M. (2008) 'Research and technology commercialization', *Journal of Management Studies*, Vol. 45, No. 1, pp.1401–1423.

Nielsen, B.B. and Gudergan, S. (2012) 'Exploration and exploitation fit and performance in international alliance strategy', *International Business Review*, Vol. 21, No. 4, pp.558–574.

Odagiri, H. (2003) 'Transaction costs and capabilities as determinants of the R&D', *Managerial and Decision Economics*, March–May, Vol. 24, No. 2, p.187.

Parise, S. and Sasson, L. (2002) 'Leveraging knowledge management across strategic alliances', *Ivey Business Journal*, March/April, Vol. 66, No. 4, p.41.

Pearson, M. (2012) 'Principles and practitioners of open innovation', *Logistic Management*, Vol. 10, No. 1, pp.26–30.

Podmetina, D., Vaatanen, J., Torkkeli, M.T. and Smirnova, M.M. (2011) 'Open innovation in Russian firms: an empirical investigation of technology commercialisation and acquisition', *International Journal of Business Innovation and Research*, Vol. 5, No. 3, pp.298–317.

Rivette, K. and Kline, G. (2000) 'Discovering new value in intellectual property', *Harvard Business Review*, January–February, Vol. 78, No. 1, pp.18–19.

Robertson, P.J. (1998) 'Interorganizational relationships: key issues for integrated services', in J. McCroskey and S.D. Einbinder (Eds.): *Universities and Communities: Remaking Professional and Interprofessional Education for the Next Century*, pp.67–87, Praeger, Westport, CT.

Rossi, P.H., Mark, W.L. and Howard, E.F. (2004) *Evaluation: A Systematic Approach*, 7th ed., Sage Publications, Thousand Oaks, CA.

Sampson, R.C. (2004) 'Organizational choice in R&D alliances: knowledge-based and transaction cost perspectives', *Managerial and Decision Economics*, Vol. 25, No. 1, pp.421–436.

Sarkar, M.B., Echambadi, R., Cavusgil, S.T. and Aulakh, P.S. (2001) 'The influence of complementarity, compatibility, and relationship capital on alliance performance', *Journal of The Academy of Marketing Science*, Vol. 29, No. 4, pp.358–373.

Serapio, M.G. and Cascio, W.F. (1996) 'End games in international alliances', *Academy of Management Executive*, Vol. 10, No. 1, pp.62–73.

Simonin, B.L. (1999) 'Transfer of marketing know-how in international strategic alliances: an empirical investigation of the role and antecedents of knowledge ambiguity', *Journal of International Business Studies*, Vol. 30, No. 3, pp.463–483.

Slowinski, G., Rafii, Z., Tao, J., Gollob, L. and Krishnamurthy, K. (2000) 'Integrating R&D organizations in a merger & acquisition', *Research Technology Management*, September/October, Vol. 43, No. 5, p.11.

Sorrentino, F. and Garraffo, F. (2010) 'Explaining performing R&D through alliances: Implications for the business model of Italian dedicated biotech firms', *Journal Management Government*, Vol. 16, No. 1, pp.449–475.

Spillett, R. (1999) 'Strategies for win-win alliances', in I. Somerville (Ed.): *Leading Beyond the Walls*, Jossey-Bass, San Francisco.

Townsend, J.D. (2003) 'Understanding alliances: a review of international aspects in strategic marketing', *Marketing Intelligence Planning*, Vol. 21, No. 3, p.143.

Tranfield, D., Denyer, D., Marcos, J. and Burr, M. (2004) 'Co-producing management knowledge', *Management Decision*, Vol. 42, Nos. 3/4, pp.375–386.

Ulset, S. (1996) 'R&D outsourcing and contractual governance: an empirical study of commercial R&D projects', *Journal of Economic Behavior & Organization*, Vol. 30, No. 1, pp.63–82.

Waddock, S.A. (1989) 'Understanding social partnerships: an evolutionary model of partnership organizations', *Administration & Society*, Vol. 21, No. 1, pp.78–100.

Waide, P.J. Jr. (1999) 'Principles of effective collaboration', in Somerville (Ed.): *Leading Beyond the Walls*, Jossey-Bass, San Francisco.

Williamson, O.E. (1991) 'Comparative economic organization: the analysis of discrete structural alternatives', *Administrative Science Quarterly*, Vol. 32, No. 2, pp.269–96.

Wohlstetter, P., Joanna, S. and Courtney, L.M. (2005) 'Strategic alliances in action: toward a theory of evaluation', *The policy Studies Journal*, Vol. 33, No. 3, pp.419–442.

Wu, C.S. and Hsu, Z.S. (2013) 'International strategy alliance: macro-institutional environment perspective', *The Journal of Global Business Management*, Vol. 9, No. 1, pp.35–43.

Ybarra, Y.C. and Wiersema, M. (1999) 'Strategic flexibility in information technology alliances: the influence of transaction cost economics and social exchange theory', *Organization Science*, Vol. 10, No. 4, pp.439–459.

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