

Technical University of Denmark



The impact of partnership network stability on new product development cost in the pharmaceutical industry

Buonansegna, Erika; Li-Ying, Jason; Maier, Anja; Salomo, Søren; Schultz, Carsten ; Stargardt, Tom

Publication date:
2013

[Link back to DTU Orbit](#)

Citation (APA):

Buonansegna, E., Li-Ying, J., Maier, A., Salomo, S., Schultz, C., & Stargardt, T. (2013). The impact of partnership network stability on new product development cost in the pharmaceutical industry. Abstract from 2013 Product Innovation Management Conference (PIM 2013), Phoenix, AR, United States.

DTU Library

Technical Information Center of Denmark

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

**THE IMPACT OF PARTNERSHIP NETWORK STABILITY ON NEW
PRODUCT DEVELOPMENT COST IN THE PHARMACEUTICAL
INDUSTRY**

**Erika Buonansegna^{a*}, Jason Li-Ying^a, Anja M. Maier^a, Søren Salomo^a,
Carsten Schultz^b and Tom Stargardt^c**

^aDTU Management Engineering, Technical University of Denmark, Denmark

^bInstitute for Management, Christian-Albrechts-University zu Kiel, Germany

^cHamburg Center for Health Economics, Universität Hamburg, Germany

*Corresponding author

erbou@dtu.dk

Technology-based industrial markets are increasingly characterized by collaborative business-to-business relationships in new product development (NPD) (Ojanen and Hallikas, 2009). While business-to-business relationships become increasingly long-term and each relationship is part of a network of relationships, the rate of partner dissatisfaction and alliance termination in the early years of the partnership is still high (e.g., Bleeke and Ernst, 1993; Harrigan, 1985; Kogut, 1989). Thus, one of the challenges faced by organizations is to handle this complex network of NPD relationships (Johnston, Clark, and Shulver, 2012) and at the same time increase the efficiency and the effectiveness of collaborations. Managers seek guidance on how to manage their NPD partnerships (De Ruyter, Moorman, and Lemmink, 2001), as ineffective relationship management is a major contributor to new product failure in such a setting (Nesse and Skjelnes, 1994).

Relationship management in times of open innovation has been shifting its focus from dyadic relationships to network of relationships. Thus, the partnership network with its temporal and spatial perspectives becomes the new unit of analysis and new trade-offs for organizations emerge as relevant. Organizations have to choose between (1) exclusive or shared partnership, i.e. choose between secure IP due to the developed trust and access to distributed knowledge; (2) have previous history with a partner or build a new

relationship with a new partner, i.e. trust and efficiency with old partners against a new partner fitting the concrete problem (path-dependency); (3) proximate partners or long-distance partners, i.e. utility against fit with the problem.

Though a large body of literature deals with how NPD partnerships influence performance and innovation (Ahuja, 2000; Gulati, 1995; Powell, Koput, and Smith-Doerr, 1996), the effects of specific partnership characteristics on NPD performance remains less studied. This research is concerned with how these factors - previous partnership, exclusivity, and proximity - influence the NPD testing costs. We also include product innovativeness, outsourcing, and portfolio complexity as relevant moderating factors influencing the NPD partnership costs.

In developing the theoretical framework for this analysis, we mostly rely on the relational view in the strategic management literature (Dyer and Singh, 1998). Idiosyncratic inter-firm linkages are seen as source of firm competitive advantage because they are difficult to imitate or acquire (Dyer and Singh, 1998; Gulati, 1998; Powell, Koput, and Smith-Doerr, 1996). Heavily influenced by the transaction cost economics (Williamson, 1985), the relational view indicates how informal social control (e.g. trust) is a supplement to formal controls and eases the complicated transaction between the parties avoiding detailed formal agreements (Håkansson and Henders, 1992). Developing trust between partners contributes to reducing transactional uncertainty. The economic value of trust is the minimization of transaction-costs and the enhancement of efficiency (De Jong and Woolthuis, 2008; Dyer and Chu, 2003). Thus, the relational view inspires hypotheses on how the above-mentioned partnership characteristics influence the testing costs.

The developed hypotheses were tested on R&D partnership data in the pharmaceutical industry, where pharmaceutical companies (the sponsors) engage in testing new developed drugs with hospitals (the sites) and third parts (contract research organizations) in business-to-business relationships and have the goal of minimizing the partnership costs. We used a proprietary Pharmaceutical Investigators Cost Assessment Service (PICAS) database provided by Medidata Solution, Inc. The PICAS database contains 27,500 protocols and more than 260,000 negotiated investigator grant agreements between 200 sponsors and sites collected from 1990 to 2010. The sample includes a broad area of pharmaceutical firms, which constitute the core of the global industry. We

conducted a multilevel and longitudinal regression analysis of the data. Over the last two years, we also interviewed more than 20 experts in the pharmaceutical industry, who were actively involved in testing new drugs. We used the accumulated knowledge to both validate our arguments leading to the hypotheses and to substantiate our discussion based on our results.

This work contributes to the NPD theory as it identifies the network related factors affecting the NPD testing costs and reveals the role of the partnership stability in decreasing these costs. Moreover, the findings are of value to practitioners involved in cost control of new product testing and any practitioner dealing with partnership management.

Key words: partnership network, pharmaceutical industry, new product development process.

References

- Ahuja, G. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly*, 45(3), 425–455.
- Bleeke, J., and Ernst, D. (1993). *Collaborating to compete: using strategic alliances and acquisitions in the global marketplace*. Wiley.
- De Jong, G., and Woolthuis, R. K. (2008). The Institutional Arrangements of Innovation: Antecedents and Performance Effects of Trust in High-Tech Alliances. *Industry & Innovation*, 15(1), 45–67.
- De Ruyter, K., Moorman, L., and Lemmink, J. (2001). Antecedents of Commitment and Trust in Customer–Supplier Relationships in High Technology Markets. *Industrial Marketing Management*, 30(3), 271–286.
- Dyer, J. H., and Chu, W. (2003). The Role of Trustworthiness in Reducing Transaction Costs and Improving Performance: Empirical Evidence from the United States, Japan, and Korea. *Organization Science*, 14(1), 57–68.
- Dyer, J. H., and Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of management review*, 23(4), 660–679.
- Gulati, R. (1995). Social Structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly*, 40(4), 619–652.

- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, 19(4), 293–317.
- Håkansson, H., and Henders, B. (1992). International Co-operative Relationships in Technological Development. In M. Forsgren & J. Johanson (Eds.), *Managing Networks in International Business*. Amsterdam: Gordon and Breach.
- Harrigan, K. R. (1985). *Joint ventures and competitive strategy* (Vol. 158, pp. 141–158). Lexington Books.
- Johnston, R., Clark, G., and Shulver, M. (2012). *Service Operations Management: Improving Service Delivery* (4th ed.). Pearson.
- Kogut, B. (1989). The Stability of Joint Ventures : Reciprocity and Competitive Rivalry. *Journal of Industrial Economics*, 38(2), 183–198.
- Nesse, P. J., and Skjølnes, A. B. (1994). *Successful Market Assessment During Product Innovation Projects Organized in Dyad Relationships*. Cast Metals Development.
- Ojanen, V., and Hallikas, J. (2009). Inter-organisational routines and transformation of customer relationships in collaborative innovation. *International Journal of Technology Management*, 45(3/4), 306.
- Powell, W. W., Koput, K. W., and Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 116–145.
- Williamson, O. (1985). *The economic institutions of capitalism*. New York: The Free Press.