

RETHINKING THE BOUNDARIES OF THE FIRM: THE CLOSED/OPEN PARADOX

ABSTRACT

New social media allow for porous firm boundaries that ignore national boundaries. These porous borders challenge the resource based view of the firm, a mainstay in the strategy literature for the past two decades. In this paper we focus on open innovation, a particular use of new social media. We develop a closed/open paradox in which we focus on differences in the resource based view and open innovation. We suggest “both/and”, both the resource based view and open innovation are important to the success of a firm facing an uncertain world; that, for a technologically dynamic firm, the two perspectives need to be viewed together.

Key words: resource based view, knowledge transfer, open innovation, paradox

INTRODUCTION

Increasing internationalization and increasing pace of technological changes are two ways in which the world is changing. Do the theories we have help explain how firms can maintain success in this increasingly international and changing world? The resource based view (RBV) of the firm has been a mainstay within the area of strategy for the past two decades. The implication was that resources, and later knowledge as perhaps the most important resource, was the basis for competitive advantage and therefore needed to be kept in the firm. While this perspective is now well accepted in the field of strategy, there are shortcomings especially under conditions of change, when organizations must innovate. From the field of information systems, we are now seeing an alternative focus in terms of resources, especially technological knowledge. While open innovation is established in the information systems literature, the focus in the management and strategy area is relatively new. There remain many questions regarding what a firm can gain through open innovation.

In this paper we focus on the tensions between the RBV and open innovation. We draw on literature in strategy and information systems to understand these tensions, and, based on this literature, develop the closed/open paradox. We suggest “both/and” approach; both the resource based view and open innovation are important to the success of technologically dynamic firms. For these firms, the two perspectives need to be managed together. This paper will contribute to that understanding by developing the closed/open paradox.

In the main body of the paper, we first present the basic tenets of the resource based view of the firm and discuss the implications that are associated with this perspective. We then give an explanation of open sourcing or open innovation. The underlying tensions between the two perspectives are discussed to develop the closed/open paradox.

BASIC TENETS OF RESOURCE BASED VIEW

Penrose (1959) is acknowledged as the founder of the resource based view. She recognized that firms differed in terms of their resources. And it was these differences in resource endowments and capabilities that lead to differences in performances among firms (Foss, 1997).

Two basic premises of the perspective for sustainable competitive advantage are resource heterogeneity, and resource immobility. Rumelt (1984) viewed the firm as a collection of idiosyncratic and heterogeneous resources, and mechanisms to convert these resources. Peteraf (1993) recognized that it was only with imperfect resource mobility that the rents would be bound to the firm and shared by it. These two basic tenets have implications which have been categorized by Barney (1991) in his VRIO framework. Without going into a discussion of the basis for that framework, we can capture the essence of RBV by stating that it is these strategic resources (as determined by the VRIO analysis) that should be kept inside the firm in order to sustain competitive advantage.

While the RBV is firmly established in the field of strategy, there are a number of issues that have been raised. One of these concerns knowledge transfer within a firm, in particular

knowledge transfer across international units of a multinational organization. The issue is whether knowledge, which has characteristics of being sticky, path dependent and causally ambiguous can be understood and transferred even within the firm. Recent work (see for example, Gooderham's (2007) model of knowledge transfer for international companies includes dynamic capabilities to create social capital. This model emphasizes the need to create social relationships in order to achieve knowledge transfer.

OPEN INNOVATION

Henry Chesbrough (2003) coined the term "open innovation" to describe a new way to innovate in large R&D intensive companies. He defined the term as "... the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively." (Chesbrough, 2006). The paradigm recognizes that firms can advance their technology by drawing on external ideas. In particular research and development are treated as an open system.

Open innovation is closely related to open sourcing which specifically focuses on development and learning in the software industry. The Open Source Initiative has established that software can be called open source if it and its source code can be freely modified and redistributed (Morgan and Finnegan, 2008). In open sourcing, technology is offered for free to anyone who wants it and it is this collective effort and social interaction which are crucial to the development. In open-source, the innovator waives rights to the critical knowledge component of the development such as a programming code, design principle, chemical formula, etc. Anecdotal evidence supports that "superior technological

capabilities are increasingly merging outside the confines of large companies. . .”

(Christensen, 2006, 14).

TENSIONS BETWEEN THE RBV AND OPEN INNOVATION

It is the recognition that knowledge flows not only into organizations but also out, and that this flow can be important for internal innovation, that creates tensions between the RBV which views knowledge as a proprietary resource and open innovation which views it as a common good. Below we identify and discuss several aspects of these tensions. This is the basis for the open/closed paradox.

Creating value; capturing value

A relevant question concerns how open innovation, is related to the competitive advantage. In answering this question, we refer back to the resource based view of the firm, as that has been the basis of sustainable competitive advantage. From this perspective, value is created and captured in the firm. Open innovation can be source of both value creation and value capture. (Chesbrough and Appleyard, 2007). Value is created throughout value chain, and entails identifying relevant customer segments, the value propositions for each, and how that business model will provide that value. Firms capture value from their value creation.

Dynamic sustainability

Hamel, Doz and Prahalad (1990) in a popular HRB paper posit that innovation and changes are developed from the set of resources existing in the firm. Research findings on the

sustainability of the RBV of the firm suggest that the importance of a set of resources may be reduced over time, and there may be rigidities in the resources (Leonard-Barton, 1992).

Although open innovation is relatively new, the concept of open innovation relies on frame-breaking technologies being developed in a community of players, which can be used by a firm.

Competitive advantage

Although open innovation is, in terms of research findings, relatively new, there is growing evidence (see the special issue on The Interplay between Digital and Social Networks, in *Information Systems Research*) that sharing technology does not necessarily lead to loss of competitive advantage. Rather, the work on open innovation indicates that the technological ideas developed are used in many different ways by companies; ways that can improve the competitive advantage for those participating (Agarwal, Gupta, Kraut, 2008).

Collaboration

Collaboration has been an important foundation of sustainable competitive advantage. From the perspective of the resource based view, strategic resources may come from relationships with other firms (Prahalad and Hamel, 1989). In the open innovation perspective, the focus has been on collaboration with universities and research institutes. Chesbrough and Prencipe, (2008) suggest that in early stages, when the technology itself is unclear, and being developed, the network should consist of those with knowledge related to the different components and interactions. The organization can explore alternatives as suggested by research centers and universities. Later, as the technology is better understood, and can be

shared, then the networks should allow exploiting the technology, for example with customers and suppliers.

Management Issues

There are implications for management as well. The management focus of RBV is on protecting the black box, while with open innovation, there is a need to manage the open space.

Figure 1: The Closed/Open Paradox

	RESOURCE BASED VIEW	OPEN INNOVATION
View of knowledge	Proprietary	Common good
Knowledge flows	Into the organization	In and out of the organization
Value creating	Internal to the firm	Created by community development of technology
Value capturing	Captured and owned by the firm	Captured by firm and still available to others
Dynamic sustainability	New uses for old resources	New technology – new opportunities
Competitive advantage	Sustainable?	Improve competitive advantage for those participating
Collaboration	Inside value network	Open system
Management issue	Protecting the “black box”	Managing the open space

“BOTH/AND”

It is the heterogeneity, and not the homogeneity, of the productive services available or potentially available from its resources that gives each firm its unique character. Not only can the personnel of a firm render a heterogeneous variety of unique services, but also the material resources of the firm can be used in different ways, which means that they can provide different kinds of services. (Penrose, 1959: 75).

In this conclusion we focus on the “both/and” aspect of the paradox. The quote from Penrose indicates that resources are used in many different ways, allowing for heterogeneity among firms. This is easily demonstrated with regard to knowledge. Knowledge will be used differently depending on the experiences and routines already existing in a firm, as suggested by the RBV. At the same time, we know that knowledge can be shared without a firm giving up its competitive advantage. Knowledge is not a null-sum game; it can be used again and again by many firms in many ways. So open innovation allows for a new way of thinking about how organizations can maintain dynamic capabilities. But open innovation will not replace internal innovation, not all research will be externalized (Christensen, 2006).

For a business that uses open and networked innovation, it matters less where ideas are invented. Managers need to focus on extracting value from ideas, wherever they come from. (The Economist, Oct. 13, 2008).

REFERENCES

- Agarwal, Ritu, Gupta, Anil K. and Kraut, Robert, 2008, Editorial Overview The Interplay Between Digital and Social Networks, *Information Systems Research*, 19(3) 243-252
- Barney, J. (1991) Firm resources and sustained competitive advantage, *Journal of Management*, 17(1): 99-120.
- Chesbrough, H. (2003) *Open Innovation*, Harvard Business School Press.
- Chesbrough, H. and Appleyard, M. (2007) “Open innovation and strategy”, *California Management Review*, 50(1), 57-76.
- Chesbrough, H. and Prencipe, A. (2008), “Networks of innovation and modularity: a dynamic perspective, *International Journal of Technology Management*, 42(4) 414-425.
- Chesbrough, H., Vanhaverbeke, W. and West, J. 2006 *Open Innovation: Researching a New Paradigm*. Oxford University Press.
- Christensen, J. (2006) “Withering core competency for the large corporation in an open innovation world?” In Chesbrough, H., Vanhaverbeke, W. and West, J. (eds.) *Open Innovation: Researching a New Paradigm*. Oxford University Press.
- The Economist* (2007) The Love – In, Oct 13, special section on innovation, pp. 12-15
- Foss, N. (1997) “Resources and strategy: A brief overview of themes and contributions”, in Foss, N. (ed.) *Resources Firms and Strategies*, Oxford University Press, 3-20.
- Gooderham, P., (2007) “Enhancing knowledge transfer in multinational corporations: a dynamic capabilities driven model”. *Knowledge Management Research & Practice*, 5: 34-43.

Hamel, G., Doz, Y and Prahalad, C.K. (1989) “Collaborate with your competitors – and win”, *Harvard Business Review*, 67.

Leonard-Barton, D. (1992) “Core capabilities and core rigidities: A paradox in managing new product development”, *Strategic Management Journal*, 13(S1): 111-125.

Morgan, L. and Finnegan P., (2008) in IFIP International Federation for Information Processing, Volume 287, Open IT based Innovation: Moving towards cooperative IT transfer and Knowledge diffusion, eds. León, G., Bernardos, A., Casar, J., Kautz, LK,. And DeGross, J. Boston: Springer, pp. 229 246.

Penrose, E. (1959) *The Theory of the Growth of the Firm*, Wiley, New York.

Peteraf, M. (1993) “The cornerstones of competitive advantage: A resource-based view”, *Strategic Management Journal*, 14, 179-191.

Prahalad, C.K. and Hamel, G. (1990) “The core competence of the corporation”, *Harvard Business Review*, 68.

Rumelt, R. (1984) “Toward a strategic theory of the firm”, in R. Lamb (ed.) *Competitive Strategic Management*, Upper Saddle River, NJ: Prentice Hall, 556-570.