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Alliances for Innovation

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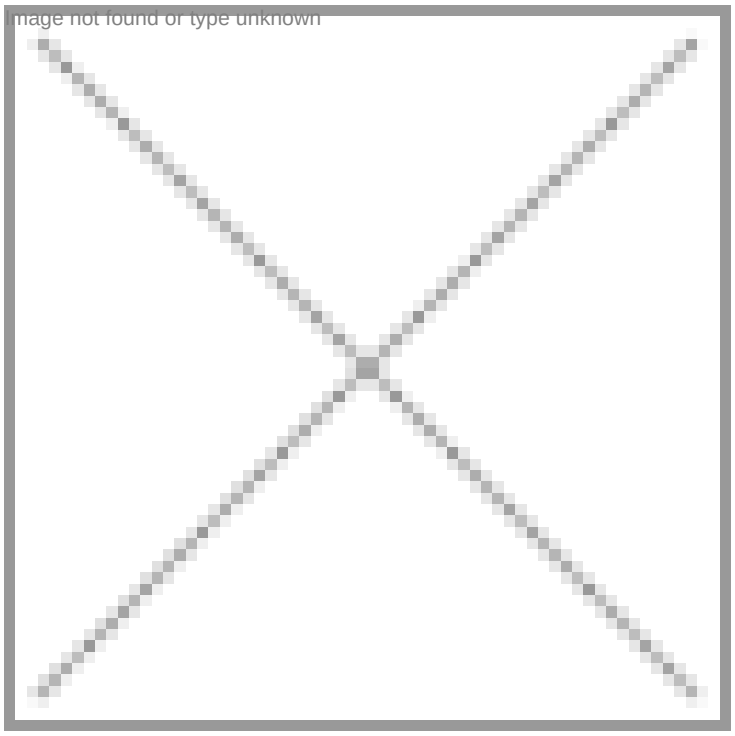


Alliances for Innovation

The BioSpectrum-ABLE & IIM Bangalore Survey 2007 attempts to bring to the forefront the strategies that the Indian biotech companies can adopt in mushrooming their alliances.

As companies face the pressure from increased competition, shortening product life cycles and growing product complexities, many are finding they need to change the way they develop new technologies, products and services. As companies realize they can no longer afford to rely solely on their own R&D and need to acquire ideas from others, there has been a trend in many sectors away from a mostly closed to a more open model of innovation.

The innovative competence of the firm has traditionally been linked to intra-organizational factors such as R&D investments and gifted inventors (Ruttan, 2001; Schumpeter, 1955; Shane and Venkataraman, 2000). The literature review and recent research (Burt, 1992; Van de Ven et al., 1999) however, provide evidence that inter-organizational alliances play a central role in determining a firm's innovative capability by demonstrating that innovation occurs in alliances of organizations across multiple contexts

Over the last two decades there has been unprecedented growth in the number of inter-organizational alliances (Hagedoorn, 2002). There has been a surge in the number of strategic alliances within the technology-intensive industries. The examples are semiconductors, computers, software, and commercial aircraft. The focus of these studies is joint R&D, product development, and higher levels of knowledge exchange and technology transfer (Mowery, Oxley and Silverman, 1996). The

theoretical model that predominantly has been applied to the analysis of alliances is the resource-based view of the firm (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). The central point of the resource-based view is the assumption that firms achieve and sustain a competitive advantage through heterogeneity of resources located within the firm.

Preliminary results

Hypothesis 1 predicts that lesser the organizing cost for the alliance, the more will be the firm's ability to internalize partner knowledge and reduce partner dependency. The coefficient for internalization in our model is coming positive, thus supporting alternate of Hypothesis 1.

Hypothesis 2a predicts that lesser the organicity in the alliance structure, higher will be the internalization of knowledge. The coefficient in our model is negative but not significant, thus partially supporting the arguments.

Hypothesis 2b predicts that higher the organicity in the firm's organizational structure, higher will be the recombination and application of knowledge from the said firm. The coefficient in our model is positive and significant, thus supporting Hypothesis 2b and past findings reported in the literature.

Hypothesis 3a predicts that higher the openness in communication within the alliance structure, higher will be the internalization of knowledge by the said firm. The coefficient in our model is negative and not significant, thus not supporting Hypothesis 3a.

Hypothesis 3b predicts that higher the openness in communication within the firm's organizational structure, higher will be the recombination and application of knowledge from the said firm. The coefficient in our model is positive and significant, thus supporting Hypothesis 3a.

Also this study points out the following:

Considering the smaller size of the Indian Biotech industry, the growth can be effectively managed by pooling resources (Research facilities, technological competence, manpower requirements, risk taking ability etc) and passing the knowledge between firms more quickly and effectively to catch up with the industry in the west. The latest technologies in the information and communication field could be used to achieve the same. Also the knowledge spillover can be effectively used for the industry by managing the clusters effectively.

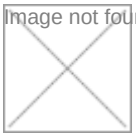
Alliances have become very popular on account of the desire by most companies to achieve higher returns in their R&D as well as operations. Innovations have become the key to survival and growth in this highly growing technological era. Owing to the limitations of knowledge resources to generate greater innovative capabilities, companies have taken the route of collaboration. Alliances provide access to complementary skills and capabilities and also bring economies of scale and scope. Chesbrough (2003) argues that the older view of successful innovation requires control which he terms as closed innovation paradigm is to be replaced with open innovation paradigm where rules are just opposite. The fundamental arguments and differences are in creating value through business models in both paradigms. The factors which fundamentally question the assumptions of the closed innovation paradigm are growing mobility of experienced people, faster time to market and the growing presence of private venture capital fund. To learn through an alliance, a firm must have access to partner knowledge and must work closely with its partner. As a result, both collaborative process and firm specific perspectives must be understood (Inkpen, 2002).

While a lot of work has been grounded in the R&D innovations internally, not much work has been done to understand the model of appropriating technology from the partner and use the same in the said firm's innovative efforts. Innovation is taken as an iterative process by which a knowledge base is developed by an organization to devise and design tools and procedures for their use which decreases the uncertainty for meeting a set of needs or problems. Study of learning appropriate technology from the partner and combining it with one's own competence and diffusing it is not happened. So this research focuses on those firms with the intent to build competencies by appropriating skills, technology and other strategic capabilities from the partner.

The learning alliances in the Indian biotechnology industry are chosen as the context for this study, since those alliances are predominantly for the purpose of innovation.

Since our main aim is to understand alliances as causation for innovation and to find out what kind of organizational mechanism optimizes this causation. The moderating factors such as absorptive capacity, characteristic of knowledge, trust, age, size, and R&D spending are discussed. We strongly feel the learning dimension may have a significant impact on the resulting innovation from alliances. The way alliances are organized may pose either positive or negative consequences in its learning ability. Top management puts together strategic alliances and sets the legal parameters for exchange. But what actually gets traded is determined by day-to-day interactions of engineers, marketers, and product developers: who says what to whom, who gets access to what facility, who sits on what joint committees. Limited unintended transfers ultimately depend on employee loyalty and self discipline. So when we try to realize the innovative outcomes through alliances, the alliance management issues become a key in the transfer, recombination and application of knowledge from one partner to the other. The firm specific factors may also determine this outcome.

The data was collected through a survey of top management with prior alliance experience.



A strategic alliance involves at least two partner firms that:

- Remain legally independent after the alliance is formed
- Share benefits and managerial control over the performance of assigned tasks and
- Make continuing contributions in one or more strategic areas, such as technology or products (Yoshino and Rangan, 1995).

The questionnaires were designed and the survey implemented according to Dillman's (2000) tailored design method. We used management doctoral students to assess whether the content of the items tapped the conceptual domain of the focal construct (DeVellis, 1991). This yielded a set of fine-tuned questionnaire items that we used in survey with CEOs of Indian biotechnology firms involved in strategic alliances.

Dependent variables

We measured knowledge transfer and innovation using a three-item Likert scale reflecting (1) the extent to which the firm has learned about the technology/ process know-how held by its partner, (2) the extent to which the firm has greatly reduced its initial technological reliance or dependence upon the partner since the beginning of the alliance, (3) the extent to which the technology/process know-how held by the firm's partner has been assimilated by the firm and has contributed to other projects developed With a Cronbach's alpha of 0.81, the performance scale demonstrated high reliability (DeVellis, 1991; Nunally, 1978).

Independent variables

We measured governing cost using a three-item Likert scale reflecting the extent to which the firm has committed time and resources for planning, monitoring and managing the alliance activities. With a Cronbach's alpha of 0.89, the performance

scale demonstrated high reliability. We measured organicity and mode of communication using a six point and one point item Likert scale developed by Khandwalla (1976/1977). The Cronbach's alpha of 0.91 demonstrated a high reliability for the organicity construct.

Discussion and future research

Our research provides significant insights about how the alliance management issues affect the extent of internalization of knowledge, skills and competencies and the application and recombination of internalized knowledge in the firm's innovativeness when it takes an alliance route to innovation. Specifically, the study points out the need to look more intensely into the structure and management of alliances if your need is to learn for innovation. Researchers and managers ought to take into account the type of governance and structure to understand the potential for learning. In our study, the alliance, governance cost, flexibility in the structure of alliance and the mode of communication came as significant factors in the context of learning for innovation. We hope that our study will encourage future studies that will look in more detail the effect of alliance management issues in the context of learning for
innovation.

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Note: Detailed results will be published in the future issues of BioSpectrum.