The Asian Journal of Technology Management Vol. 9 No. 2 (2016): 120-130

The Influence of Strategic Alliance On Cibinong Science & Technology Park (C-STP) Performance

Anang Hidayat[1*], Tommy Hendrix[2] and V. Susirani Kusuma Putri[2]
[1]Research Center for Regional Resources, Indonesian Institute of Sciences, Indonesia
[2]Center for Innovation, Indonesian Institute of Sciences, Indonesia

Abstract. *Science and Technology Parks (STPs) have generated a thriving debate among academics, practitioners and policy makers on their effectiveness as instruments of innovation policy. Meanwhile, the relationship between factors including the actors involved in the implementation of STP became an obstacle. The strategic alliance is one of the management approaches that can be used to answer the question. The purpose of this study was to analyze the impact of the implementation of the strategic alliance and its influence on the performance of C-STP and examines the relationship between organizations resource availability and absorptive capacity as well as type of alliances with organizational performance. Collecting data in this study using a questionnaire with 32 respondents were then analyzed using Structural Equation Modeling (SEM). The results show that collaboration and partnership is a factor to be considered to enhance the capabilities and performance of C-STP. Meanwhile, C-STP need to increase their efforts in improving internal resources is a source of competitive advantage in order to achieve superior business performance.*

Keyword: *Absorptive capacity, c-STP, resources, strategic alliance, structural equation modeling*

1. Introduction

Rapid technological development is some of the main challenges faced by organizations today. This challenge is particularly felt by organizations that are always in need of renewal of technology. This organization will always examine their strategy to improve the innovative capability to grow and develop. According to Link, A.N., (1988), Organizations use high-tech will feel the pressure to continue to improve their technological capabilities to keep up.

Technological transformation and innovation affect on the organization (Carayannis, & Provance, 2008), especially in the form of services such as Cibinong Science and Technology Park (C-STP). Therefore, the C-STP need to manage their technology strategically by taking steps internally whether to innovate or acquire external knowledge and technological capabilities available in local business organizations or other global business. There are various benefits and advantages that can be obtained from the organization conduct internal innovations, such as changing business ideas C-STP radically, both in terms of technology, products, and processes. However, when the C-STP perform internal innovations such as organizations need to be prepared to face the losses associated with the process. C-STP internal innovation requires internal knowledge and technical expertise. This can be time consuming and costly and have a high risk of failure. On the one hand, these developments will probably take many years, and the C-STP may not have adequate resources.

Meanwhile, the alliance became a popular innovation strategy that enables organizations to reduce of time, cost, and risk to obtain external support, especially the support in the use of technology (Gulati & Ranjay, 1995a). Thus, to deal with these problems need the establishment of a strategic alliance, primarily

*Corresponding author. Email: anang.hidayat@gmail.com
Received: December 9th, 2016; Revised: January 17th, 2017; Accepted: January 25th, 2017
Doi: http://dx.doi.org/10.12695/ajtm.2016.9.2.6
Print ISSN: 1978-6956; Online ISSN: 2089-791X.

associated with the use of technology alliances (Vanhaverbeke, Gilsing, Beerkens, & Duysters. 2009). In this study, the strategic alliance covers all kinds of alliances, such as joint ventures, alliances equity and non-equity alliances between organizations.

In finding the resources, knowledge, and technology to improve their overall business performance, along with maintaining a competitive advantage. Have no literature on the implementation of strategic alliances in developing countries, where the organization formed a strategic alliance to access the resources they lack or do not have and to acquire external knowledge through learning from other organizations. In addition, organizations from developing countries also formed a strategic alliance to adopt and access to foreign technology because they do not have the ability to create their own technology.

Basically, the study of an alliance of business organizations in the field of Science and Technology Park (STP) as C-STP has been confined to the developed countries, for example, the study of strategic alliance based technology has been conducted in the United States, Finland, Italy, Greece, and Russia. Currently, research on strategic business alliances of STP is increases in developing countries such as Taiwan, and China. While research strategic alliances in developing countries is still limited performed, mainly on business STP, because the STP business was a new issue in developing countries, especially in Indonesia. Therefore, this study intends to contribute to the literature on strategic alliances in STP business, particularly in Indonesia with a focus on organizational resources and absorption, as well as the types of alliances as an influential factor in the organization in forming strategic alliances and its influence on organizational performance (Goerzen , A., 2007)

2. Literature Review

2.1. Strategic of Partnership

Around since the 1980s, collaboration strategies are increasingly recognized as a way for the organization or company for at least reinventing by using a distinct competitive advantage in the pursuit of competitiveness strategically. Collaboration strategy is often raised by different terminology, but all refer to the same meaning, and Hagedoorn and Schakenraad (1994) called the partnering strategy. Partnering is the result of two or more organizations working together toward a common goal, such as sharing of technology, market access, or shortening the time of new product development. Another concept in collaboration strategy is the sharing of information, sharing of resources and increase the capacity of partner organizations are mutually beneficial and to achieve the same goal. In addition, the term strategic alliance is defined as the pooling of resources and specialized expertise by organizations in working together to achieve common goals and specific objectives for individual partnerships. Based on the various terms and concepts above, the implementation of strategic partnerships can be defined as a formal alliance between two or more organizations, and usually formalized in one or more business contracts that form a legal partnership, agency, business or organizational affiliation.

2.2. Definition of Strategic Alliance

The concept of alliances, partnerships, strategic alliances, strategic partnerships and other similar partnerships have the same context. Vyas, Shelburn and Rogers (1995) defines broadly as a strategic alliance agreement between two or more partners to share knowledge or resources that could be beneficial for all parties involved. Based on this definition, strategic alliances can be interpreted two or more organizations to share resources, technology, or marketing and otherwise. It will be very complex, as it involves several organizations or companies that are different characteristics. According to Mohr and Spekman (1994), a strategic alliance is a strategic relationship between the organization's objectives that share compatible goals, strive for mutual benefit, and are in a dependency.

Strategic alliances can be described as a process in which the participants are willing to change their basic business practices in order to reduce duplication and waste in order to improve performance (Frankel, Whipple & Frayer, 1996). A strategic alliance can be done with various motives and purposes, take many forms, and may be crossing the boundaries vertically or horizontally.

The strategic partnership is based on voluntary arrangements between the organization or enterprise involving exchange, sharing or co-product development, technology, or services (Gulati & Ranjay, 1998). According to Lambert, Emmelheinz and Gardner (1999), the partnership is a business relationship that adjusted on mutual trust, openness, risk sharing, and mutual benefit that generate competitive advantage, resulting in business performance greater than when an organization or company move individually. Partnership is a binding agreement by joining forces, the two or more of these organizations will be able to improve efficiency, increase profitability and improve customer service (Lambert, Emmelhainz, & Gardner, 1999).

The goal is to develop strategic alliances and the process towards win-win arrangement (Bagchi & Virum, 1996). Partnerships may occur between competitors or non-competitors and may occur because of their strategic or operational reasons (Ellram and Hendrick, 1995). Tate (1996) compared the strategic alliance as a marriage that is evident in forming relationships based on similarities in many contexts because a successful partnership is like a marriage. Both sides should understand each other's needs and must comply with shared values. Like marriage, a successful partnership requires open communication, mutual commitment to partnerships, fairness and flexibility, so that a successful partnership is based on success in doing cooperative and collaborative with a long-term trust. In practice, the alliance is generally done as a formal contract. Spekman et. al. (1998) stated that a formal agreement will provide guidance on how the process of an alliance. However, the legal system allows one party alliances are not solely dependent on personal relationships (Spekman et. Al., 1998). Kanter R.M. (1987) suggests three forms of alliances: the service alliance of several companies, the alliance in the form of joint ventures and alliances between shareholders. The illustration shows the various definitions of alliance formation and the different dimensions of the strategic alliance, including industrial, arena, relationships, technology, markets, countries and fusion technology (Vyas, Shelburn , & Rogers, 1995).

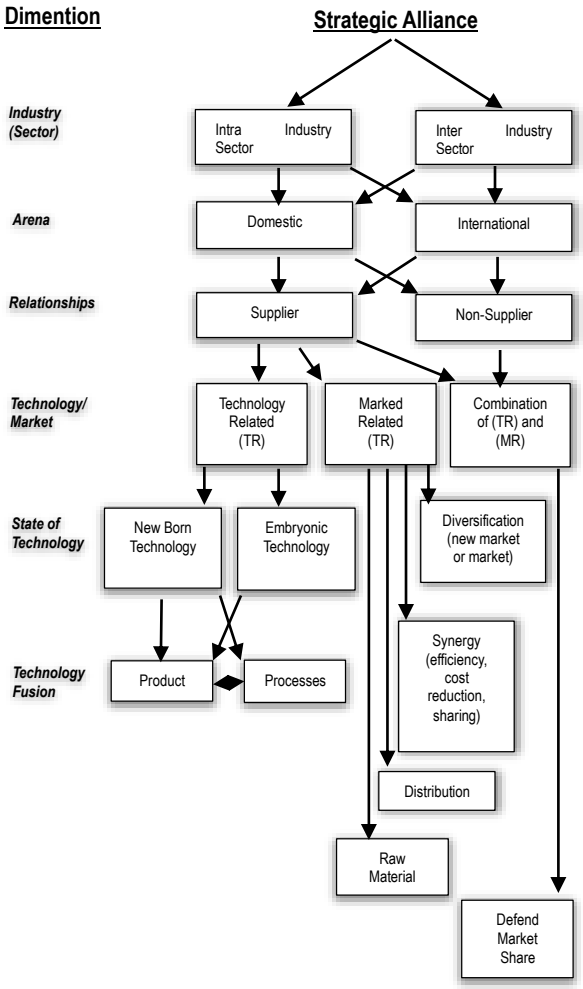


Figure 1. Dimensions of Strategic Alliance

Ellram and Krause (1994) in their study stated that a business partnership in manufacturing and non-manufacturing may take place if the company's relationships have similarities. The main difference is that such an organization or company, as well as the Science and Technology Park (STP) who expect to benefit from a more procedural and

administrative, while producers or (tenants) are more likely to seek the improvement of production, distribution and quality performance of suppliers.

Alliance or various forms of cooperation generally have various dimensions in accordance with its objectives. In the study by Gill and Allerheiligen (1996) divides the cooperation in the form of a distribution channel into four groups, namely; (1) horizontal cooperation, the relations among members of the same channel, namely retailers in cooperation with retailers; (2) Intertype cooperation, the relationship between the channel members of various kinds at the same channel in collaboration with department; (3) vertical cooperation, the relationship between channel members at different levels in the channel, which manufacturers cooperate with wholesalers. (4) the duct system of cooperation, cooperation in which the channel system for one product co-operate with the channel system for both products.

Some literature concept of strategic alliances and partnerships are presented with different dimensions. For example, a comparison is to distinguish between vertical and horizontal relationships Gattorna and Walters (1996). In addition, Virolainen (1998) state that vertical relationship between the supplier and the buyer is defined as a horizontal partnership between the two suppliers as an alliance. Apart from the various definitions of strategic alliances, all have a certain similarity (Spekman et al, 1998), namely; (1) each have a compatible good purpose and directly related to the strategic objectives of their partner; (2) each have a commitment, and access to the resources of its partners; and, (3) each represent an opportunity for organizational learning. Based on the dimensions of strategic alliances can be seen that, form strategic alliances are the most appropriate to be applied to the C-STP is a partnership approach business submitted by Ellram and Krause (1994) with four forms of strategic cooperation by Gill and Allerheiligen (1996), Horizontally, vertically and Intertype.

2.3. Type of Alliance

The alliance could create a unique learning opportunity for the organization to have different skills, knowledge base and organizational culture. learning outcomes in alliances depending on the type of alliance was formed. Learning outcomes of the alliance depends on the nature and type of the alliance and the opportunities that can be generated. For example, non-equity alliances, such as licensing requires a commitment of resources is small or even non-existent. Commitment is required in this type of collaboration is usually non-monetary, such as business organizations. However, alliances and joint venture equity investment requires a certain number of resources as a sign of commitment to the collaboration agreement. While it would be a greater learning opportunities in joint ventures and alliances in equity, compared with non-equity alliance. However, there is a challenge for organizations to maintain balance when sharing knowledge with partners, and organizations must be able to control the flow of knowledge in order to avoid unwanted divulgence of confidential information. Therefore, the first hypothesis (H1) in this study can be stated as follows: Type of alliance was positively related to the formation of strategic alliances.

2.4. Availability of Resources

Availability of resources is a situation where the organization acts as a collector of resources that include tangible assets and capabilities (or intangible asset that is semi-permanent and attached to the organization). A collection of shared resources must be valuable, rare, imperfectly, imitable and non-substitutable, and also a source of sustainable competitive advantage of organizations. The organization will be involved in a strategic alliance when there is a need for additional resources (eg. specific technologies) are expensive and difficult to replicate in a given period of time and can increase the value of existing resources in the organization. From this perspective, the organization adopted the alliance as a means to expand their collection of sources of value creation which can otherwise be achieved independently.

Therefore, this study defines the availability of resources as tangible assets of the organization, as well as intangible assets that include technology and knowledge that is embedded in the product ingredients, physical assets and production processes, and management capabilities. Basically, the organization will continue to seek complementary sources when forming alliances. Forming alliances with organizations that have the resources of different but complementary will enable greater performance than the alliance formed with organizations that have the same resources. However, the organization can also form an alliance to expand the reach of their unique resource through learning and knowledge acquisition. Learning and acquisition of knowledge through alliances allow organizations to internalize their alliance partner knowledge and combine it with their own knowledge in developing competence. Therefore, it can be concluded that organizations with complementary resources shortage will have a higher tendency to form strategic alliances to access the resources they want. Therefore, it is proposed second hypothesis (H2) as follows: Availability of resources for the organization negatively related to the formation of strategic alliances.

2.5. Absorption Capacity

The absorption capacity is largely associated with the organizational level of prior knowledge. Meanwhile, re-conceptualized absorption is a set of organizational practices and procedures, in which organizations acquire, assimilate, transform and exploit external knowledge. Effective learning taking place and collaborating in the organization must have the knowledge that do not overlap. Therefore, knowledge of overlapping organizations that are too high or too low, it will be able to hinder the success of learning in collaboration. The ability to absorb new technology or new business practices is an important factor in the formation of the alliance. This can be seen as a potential source of competitive advantage for the organization through improved operational performance and in seizing the market opportunities that exist. Thus, the organization will be able to engage with both the alliance and able to respond quickly. Organizations should aggressively to remain competitive in the business environment there. Much of the information that needs to be absorbed quickly when organizations choose to form alliances. Information and knowledge to be transferred through the alliance will be very complex.

Therefore, it is very important for organizations to be able to absorb, internalize and exploit knowledge, because it may affect the achievement of revenue and profits higher. In short, organizations that have successfully gained the ability to absorb knowledge from their alliance would have a greater tendency to form a broader alliance in the future. This is because the organization has gained the ability to benefit from all internal and external sources of the alliance process. It is, therefore, important for organizations to embrace a level consistent with absorptive capacity prior to forming alliances that enable strategic alliance to be successful. Therefore, the third hypothesis (H3) can be proposed as follows: Absorption of organizations have a positive relationship in the formation of strategic alliances.

2.6. Organizational Performance of C-STP

There is evidence that organizations are forming alliances to increase their performance. There is also evidence to suggest that the various steps towards a successful alliance, namely; to the satisfaction of partners, product, market and financial performance, profitability, and innovation. Due to complex production processes, including distribution, marketing, and R & D, the efforts of the organization C-STP perform various initiatives and schemes to encourage alliances with various stakeholders and shareholders and other research institutions to strengthen their performance. Therefore, in this study may be proposed fourth hypothesis (H4), namely: strategic alliance formed by the organization will be a hedge positively to organizational performance of C-STP.

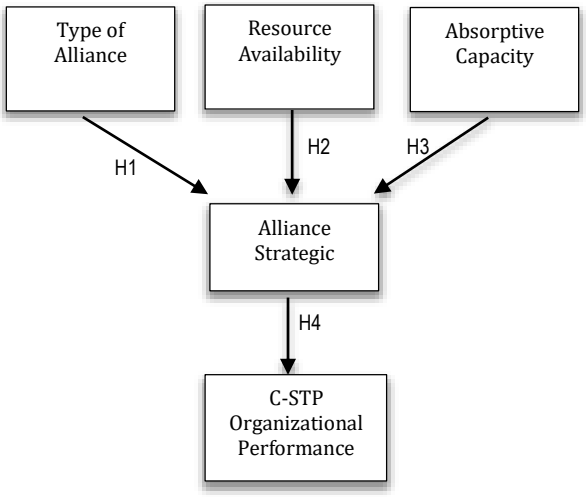


Figure 2. Theoretical Framework

2. Research Methodology

Type of research is quantitative, while the location of data collection is Cibinong Science and Technology Park (C-STP) Indonesia. The data collection method is by questionnaire. Data from this study were collected through the procedure as follows: (1) Empirical studies conducted to generate measurement instruments, namely the exploratory study using multiple techniques, including literature searches, surveys, and interviews. A questionnaire survey was designed to follow a literature review to produce data that will be tested. While the preliminary survey carried out to test the reliability of the instrument and to assess the validity of the instrument. Two successive rounds of pre-testing done to ensure that respondents understand the questions posed in the questionnaire design.

First, a questionnaire is reviewed by three academic researchers who are experienced in the design of the questionnaire and then reviewed by the four leaders of the management of C-STP. Further refinement of the questionnaire conducted in-depth interviews with C-STP management leaders and academic researchers who are experienced; (2) Survey of large-scale randomized against 43 respondents involved in the management of C-STP are selected. The target respondent of this survey is the manager of C-STP or tenants who understand the management of C-STP, especially their understanding of the business C-STP ongoing. The process resulted in 41 survey respondents who agreed to participate in the study and completed it with a good survey questioner. In this study, non-response is defined as the failure to fill out a complete survey can be used. There were 32 surveys completed over one-month data collection period resulted in a response rate of 78.04% can be used for this study, with the contribution of 6 top management and 26 middle management. Furthermore, the data were analyzed with the approach of structural equation modeling (SEM) using SPSS 24 and Amos 24.

3. Finding and Discussion

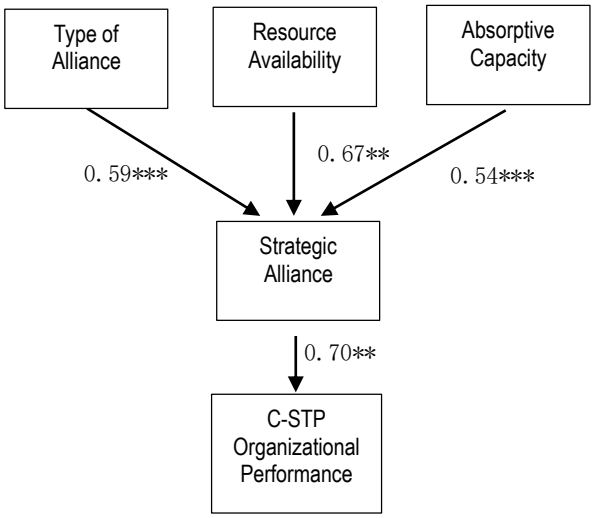
Before testing the fit model, the level of reliability and validity of the measures and construction are analyzed using SPSS 24. First, the items from each construct was assessed using Cronbach (α) coefficient and item-to-total. All construction has a value of more than 0.7 degree of the cut-off set for basic analysis. Second, exploratory factor analysis using the Principal Axis Factoring. Direct extraction methods and rotation Oblimin used to assess the underlying structure in both exogenous and endogenous, ie, the availability of resources, visibility, type of alliances, strategic alliances, and organizational performance of C-STP. This is done to test whether the items in the underlying factor is singular or uni-dimensional.

The Kaiser-Meyer-Olkin (KMO) and Bartlett's test was conducted to test the suitability of the factor analysis. Both results show that the matrix is factorable to test the value of Kaiser-Meyer-Olkin (0.93) and Bartlett's test of the value of $p<0.001$. Principal Axis Factoring identifies six factors with eigenvalues above 1, and the value of extracted factors with a value of 55.54% of the total variance. All factor loadings are generally high, in which the lowest loading is equal to 0.50. Confirmatory factor analysis was conducted to test whether an item is uni-dimensional construction. The statistical test used to evaluate the fit reception of each

model factors. The purpose of the whole in models of uni-dimensional measurement on each set of indicators is to determine the unique relationship between the variables they represent, so ambiguous meaning can be given to each construct. Standard root means square value (SRMR) is 0.05 or less Normal fit index (NFI) of 0.95 which also indicates that the data correspond well with the model. As recommended by Bentler and Bonnet, goodness-of-fit index (GFI) is used and acceptable if above the recommended value of 0.95. In addition, comparison of fit index (CFI) and the Tucker Lewis Index (TLI) is also used to assess model fit as indicated by the CFI and TLI above the value of 0.95. Root mean square error of approach (RMSEA) shows values ≤ 0.05 (model close fit) and ≤ 0.08 (reasonable models fit).

Furthermore, given that the purpose of this study was to test the hypothesized causal relationships in the model, then the AMOS 24.0 structural equation modeling software can be utilized. Data does not fit of goodness model, where, $\chi 2 = 8.99$, $p = 0.03$. Therefore, post-hoc procedure is applied, and the data fit of goodness model with Bollen-Stine $p = 0.31$. Other fit indices include: SRMR = 0.04, GFI = 0.99, CFI = 0.99, NFI = 0.99, TLI = .97 and RMSEA = 12:07 indicates that the model is fit. After assessing the overall fit of the structural model, the relationship could theoretically be continued in the analysis phase. Meanwhile, the parameter estimates and significance of each variable shown in the figure. 3. The findings of this research generally supports the conceptual model in which four hypotheses have been supported.

SEM analysis showed that significant positive of absorption availability is influence the strategic alliance (Coef. 0,54), thus it can be stated that it had supported the third hypothesis [H3]. Besides the first hypothesis [H1] is also supported, it indicates that the type of positive alliance leads to the formation of strategic alliances (Coef. 0,59). Likewise, with the positive support on the relationship between organizational resources by forming strategic alliances (Coef. 0,67), so that the second hypothesis [H2] is acceptable. While the fourth hypothesis [H4] can be received indicating that a strategic alliance has positive influence on organizational performance C-STP (Coef. 0.70).



Note: ***p<.001, *p<.05, ns=not significant

Figure 3. Structural Parameters of Proposed Relationships

5. Conclusion

This study supports the research of Anand and Khanna (2000); and Carayannis, E. G., & Provance, M. (2008), but does not support the research of Cohen and Levinthal (1990), in which the absorption ability of technology does not affect on the strategic alliance. Collaboration should be an opportunity to create, save and apply business knowledge in STP. Further, the C-STP management must consider how to manage such a partnership in improving the capability and performance of the organization. Forms of learning will increase the knowledge base of the organization with the internalization of knowledge where none previously existed. Additionally, as the C-STP management leaders need to incorporate new methods of business process, there must be a willingness to face the risk of vulnerability and trust among partners.

This study has tested the variables related to the strategic alliance between organizational resources and absorption as well as the type

of alliances to organizational performance of C-STP. The results show that collaboration and partnership is a factor to be considered to enhance the capabilities and performance. From the theoretical point of view, the development of the study of strategic alliance has been trailing far behind studies organizational strategy in improving the ability of organizational innovation. The problem is knowledge of strategic alliances in developing countries including Indonesia are still very weak.

The results described in this study can be used to bridge the gap between the existing theories with an approach that is needed to improve the effectiveness of strategic alliances in developing countries like Indonesia. In addition, this study provides insight for governments and policy-makers in developing incentives for the development of STP. So, it is with opportunities for public investment and additional support major industries associated with an increased number of programs and incentives, such as tax breaks and grants technology. While the benefits to C-STP is to improve the competence of its technology diffusion. Therefore, the strategy is the key performance objectives of the C-STP in shaping the business environment. So, that as the leader of C-STP management can focus on improving their absorption and ability to learn, especially in terms of technology acquisition.

Research Implications, Limitation and Further Study

This study intends to contribute to the literature on strategic alliances at STP business in Indonesia, specialy for C-STP with a focus on organizational resources and absorption as well as the types of alliances as factors that effect on organizations form strategic alliances and its influence on organizational performance.

The findings presented in this study has the following limitations: first, it is difficult to identify respondents who understand the concept correctly forms an alliance, if the sampling technique is more effective as stratified random sampling will be applied. In addition, samples of this study were obtained almost the entire population is in the place of observation (C-STP). Therefore, it is suggested that further research may include more than one STP which have similar characteristics. Second, because the data is collected only at the one STP, the findings and conclusions cannot be generalized for the entire STP in Indonesia. Therefore, to believe that a comparative study on the future of the strategic alliances needed to be more thorough in STP will be able to help understand the model proposed in this study to be better.

References

Ahuja. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly,* 45, 425-455.

Anand & Khanna. (2000). Do firms learn to create value? The case of alliances. *Strategic Management Journal,* 21, 295-315.

Anderson & Gerbing. (1988). Structural equation modeling in Practice: A review and recommended two-step approach. *Psychological Bulletin,* 103(3), 411-423.

Barney. (1991). Firm resources and sustained competitive advantage. *Journal of Management,* 17(1) 99-120.

Bentler & Bonnet. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.

Browne & Cudeck. (1993). *Alternative ways of assessing model fit, in Testing structural equation models,*. Bollen & Long, Editor.,Newbury Park, CA: Sage, 1993.

Carayannis, E. G., & Provance, M. (2008). Measuring firm innovativeness: towards a composite innovation index built on firm innovative posture, propensity, and performance attributes. *International Journal Innovation and Regional Development*, *1*(1), 90-107.

Chen & Wang. (2009). *Technological innovation and technology-intensive manufacturer: A case study of CSR*. Proceedings of the 4th International Conference on Product Innovation Management, Vols I and Ii, ed. S.H. Hu and H. Thota. Wuhan:

Hubei Peoples Press. 509-513.

Chung, Singh, & Lee. (2000). Complementarity, status similarity and social capital as drivers of alliance formation. *Strategic Management Journal,* 21, 1-22.

Churchill. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research,* 16 (1), 64-73.

Churchill. (1999). *Marketing Research: Methodological Foundations".* 7th ed: The Dryden Press, Hancourt Brace College Publishers.

Cohen & Levinthal. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly,* 35, 128-152.

Colombo, Grilli, & Piva. (2006). In search of complementary assets: The determinants of alliance formation of high-tech start-ups. *Research Policy,* 35, 1166-1199.

Pateli. (2009). Decision making on governance of strategic technology alliances. *Management Decision,* 47(2), 246-270.

Das & Teng. (2000). A resource-based theory of strategic alliances. *Journal of Management,* 26(1), 31-61.

Das & Teng. (1998). Resource and risk management in the strategic alliance making process. *Journal of Management,* 24(1), 21-42.

Di Benedetto, Calantone, & C. Zhang. (2003). International technology transfer: Model and exploratory study in the People's Republic of China. *International Marketing Review*, 20(4), 446-462.

Duysters & Hagedoorn. (2002). External appropriation of innovative capabilities: The choice between strategic partnering and mergers and acquisitions. *Journal of Management Studies,* 39(2), 167-188.

Dussauge, Garrette, & Mitchell. (2000). Learning from competing partners: Outcomes and durations of scale and link alliances in Europe, North America and Asia. *Strategic Management Journal*, 21, 99-126.

Eisenhardt & Schoonhoven. (1996). Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms. *Organization Science* 7(2),136-150.

Goerzen. (2007). Alliance Networks and firm performance: The impact of repeated partnerships. *Strategic Management Journal*, 28, 487-509.

Goerzen, A. & Beamish, W. (2005). The effect of alliance network diversity on multinational enterprise performance. *Strategic Management Journal*, 26(5) 333-354.

Grant. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review,* 33(3), 114-135.

Gulati, R. (1998). Alliances and networks. *Strategic Management Journal,* 19, 293-317.

Gulati, R. (1995a). Does familiarity breed trust? The implications of repeated ties for contractual choices in alliances'. *Academy of Management Journal*, 38, 85-112.

Hagedoorn. (1996). Trends and patterns in strategic technology partnering since the early seventies. *Review of Industrial Organization*, 11, 601-616.

Hagedoorn & Schakenraad. (1994). The effect of strategic technology alliances on company performance. *Strategic Management Journal,* 15(4), 291-309.

Hagedoorn & Sedaitis. (1998). Partnership in transition economies: International strategic technology alliances in Russia. *Research Policy,* 27, 177-185.

Hagedoorn, Carayannis, & Alexander. (2001). Strange bedfellows in the personal computer industry: Technology alliances between IBM and Apple. *Research Policy*, 30, 837-849.

Hamel. (1991). Competition for competence and inter-partner learning within international strategic alliances. *Strategic Management Journal,* 12, 83-103.

Harrison, J.S. , Hitt, M.A., Hoskisson, R.E., & Ireland, R.D. (1991). Synergies and post-acquisition performance: Differences versus similarities in resource allocations. *Journal of Management,* 27, 679-690.

Hitt. (1998). Twenty-first century organizations: business firms, business

schools, and the academy. *Academy of Management Review,* 23, 218-224.

Hu & Bentler. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling,* 6(1),1-55.

Ireland & Hitt. (1999). Achieving and maintaining strategic competitiveness in the 21st century: the role of strategic leadership. *Academy of Management Executive*, 13, 43-57.

Jamali. (2004). Success and failure mechanisms of public private partnerships (PPPs) in developing countries: Insights from the Lebanese context. *International Journal of Public Sector Management*, 17(5), 414-430.

Jegathesan, Gunasekaran, & Muthaly. (1997). Technology development and transfer: Experience from Malaysia. *International Journal of Technology Management,* 13(2), 196-214.

Jones, Lanctot, & Teegen. (2000). Determinants and performance impacts of external technology acquisition. *Journal of Business Venturing,* 16, 255-283.

Ju, T.L., Chen, S.-H., Li, C.-Y., & Lee, T.-S. (2005). A strategic contingency model for technology alliance. *Industrial Management & Data Systems,* 105(5), 623-644.

Judge & Dooley. (2006). Strategic alliance outcomes: A transaction-cost economics perspective. *British Journal of Management*, 17, 23-37.

Kanter, R. M. (1987). From status to contribution: Some organizational implications of the changing basis for pay. *Personnel*, 64, 12–37.

Kogut. (1988). Joint ventures: Theoretical and empirical perspectives. *Strategic Management Journal,* 9, 319-332,

Kristinsson & R. Rao. (2008). Interactive learning or technology transfer as a way to catch-up? Analyzing the wind energy industry in Denmark and India. *Industry and Innovation,* 13(3), 297-320.

Kurukawa. (1997). Make-or-buy decisions in R&D: Small technology based firms in the United States and Japan. *IEEE Transactions on Engineering Management,* 44(2), 124-134.

Leech, Barrett, & Morgan. (2005). *SPSS intermediate statistics: Use and interpretation"*. 2nd ed: Lawrence Erlbaum Associates, Mahwah, New Jersey.

Lee & Tan. (2006). Technology transfer, FDI and Growth in the ASEAN Region. *Journal of the Asia Pacific Economy*, 11(4), 394-410.

Lei. (1993). Offensive and defensive uses of alliances. *Long Range Planning*, 26(4), 32-41.

Majumdar. (2009). Technology transfer by foreign firms and the utilization of competencies within Indian industry. *The Journal of Technology Transfer*, 34(1), 95-117.

McKeown. (2008). *The truth about innovation"*. London: Prentice Hall.

Nielsen. (2007). Determining international strategic alliance performance: A multidimensional approach. *International Business Review,* 16, 337-361.

Lee. (2007). Strategic alliances influence on small medium firm performance. *Journal of Business Research,* 60, 731-741.

Link, A.N. (1988). Acquisitions as sources of technological innovation. *Mergers and Acquisitions,* 23 (3), 36-39.

Norman. (2004). Knowledge acquisition, knowledge loss, and satisfaction in high technology alliances. *Journal of Business Research,* 57, 610-619.

Nagarajan & W. Mitchell. (1998). Evolutionary diffusion: Internal and external methods used to acquire encompassing, complementary, and incremental technological changes in the lithotripsy industry. *Strategic Management Journal*, 19, 1063-1077.

Nunnally. (1978). *Psychometric theory*. New York: McGraw-Hill.

Oxley & Sampson. (2004). The scope and governance of international R&D alliances. *Strategic Management Journal*, 25, (8-9), 723-749.

Peteraf. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14, 171-191.

Rothaermel & Deeds. (2006). Alliance type, alliance experience and alliance management capability in high-technology ventures. *Journal of Business Venturing*, 21, 429-460.

Schoenmakers & Duysters. (2006). Learning in strategic technology alliances. *Technology Analysis & Strategic Management*, 18(2), 245-264.

Simonin. (2004). An empirical investigation of the process of knowledge transfer in international strategic alliances. *Journal of International Business Studies,* 35, 407-427.

Shenkar & Li. (1999). Knowledge search in international cooperative ventures. *Organization Science*, 10, 134-143.

Soh & Roberts. (2005). Technology alliances and networks: An external link to research capability. *IEEE Transactions on Engineering Management*, 52(4), 419-428.

Spekman, K, Jr, & Myhr. (1998). An empirical investigation into supply chain management, a perspective on partnerships. *International Journal of Physical Distribution & Logistics Management*, 28(8), 630-650.

Spekman, R. E, Isabella, L.A., MacAvoy, T.C., & T. Forbes III. (1996). Creating Strategic Alliances which endure. *Long Range Planning,* 29 (3), 346-357

Spekman, Salmond, & Lambe. (1996). Consensus and Collaboration: norm regulated behavior in industrial marketing relationships. *European Journal of Marketing,* 31(11/12), 832-856.

Szulanski. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within a firm. *Strategic Management Journal,* 7(winter special issue), 27-43.

Tsai & Wang. (2009). External technology sourcing and innovation performance in LMT sectors: An analysis based on the Taiwanese Technological Innovation Survey. R*esearch Policy,* 38, 518-526.

Vanhaverbeke, W., V.A. Gilsing, B. Beerkens & G.M. Duysters. (2009). Explorative and exploitative learning in technology alliance networks: a local action approach. *Journal of Management Studies,* 46(2), 215 - 244.

Verspagen & Duysters. (2004). The small worlds of strategic technology alliances. *Technovation,* 24, 563-571.

Vilkamo & T. Keil. (2003). Strategic technology partnering in high-velocity environments - lessons from a case study. *Technovation*, 23, 193-204.

Vyas, Niren M., William L Shelburn, & Dennis C Rogers. (1995). An analysis of strategic alliances: forms, functions and framework. *Journal of Business and Industrial Marketing,* 10(3), 47-60

Wahab, A., & Che Rose. (2009). A framework on the effects on inter-firm technology transfer in international joint venture. *The Journal of International Social Research.* 2(9), 423-443.

White & Bruton. (2007). *The management of technology and innovation: A strategic approach,* 1st ed., Thomson South-Western.

Wenerfelt. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5, 171-180.

Ybarra & Turk. (2009). The evolution of trust in information technology alliances. *Journal of High Technology Management Research,* 20(1), 62-74.

Zahra & George. (2002). Absorptive capacity: A review, reconceptualization, and extension. *Academy of Management Review,* 27(2), 185-203.

Zahra. (1996). Technology strategy and financial performance: Examining the moderating role of a firm's competitive environment. *Journal of Business Venturing,* 11, 189-219.