Strategy's effect on knowledge sharing in host country networks ☆

Waheed Akbar Bhatti [a,*], Jorma Larimo [a,b], Inmaculada Carrasco [c]

[a] Department of Marketing, University of Vaasa, Wolffintie 34, Vaasa, 65200, Finland
[b] Department of Marketing, University of Vaasa, Vaasa, Finland
[c] University of Castilla–La Mancha, Spain

ABSTRACT

This study investigates how knowledge strategy affects multinational firms' knowledge sharing in host country networks. Network interactions are a source of learning and knowledge acquisition for firms to fill their knowledge gaps. The research presents a quantitative study of organizational-level learning with structural equation modeling on Asian and European telecommunications multinational firms operating in Pakistan. The results suggest that a clearly outlined knowledge strategy positively affects firm's knowledge sharing in host country networks. The acquired knowledge leads to effective market intelligence and improvement in firm's process innovation and consequently in its performance. The knowledge sharing positively affects research and development integration of past projects; however, research and development integration of past projects has no significant effects on firm performance. The implication for managers is to accept failures and remove barriers to knowledge sharing that prevent employees from using their expertise, and to encourage and engage them in solution finding.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

To enter a market and stay competitive, multinational firms require knowledge and access to the host country environment resources. Andersson, Dellestrand, and Pedersen (2014) acknowledges knowledge and resources in host country networks as country-specific advantages. They provide opportunity for the subsidiary to upgrade its competencies and to evolve (Birkinshaw, 1997). The exchange of knowledge through interactions is essential for new knowledge acquisition (Jonsson, 2015). The revised Uppsala Model (Vahlne & Johanson, 2013, p. 195) explains that internationalization process consists of two subprocesses, "experiential learning" and "commitment building." These subprocesses take place at both ends of the network relationships. In order for learning to take place, trust is an essential prerequisite.

Johanson and Vahlne (2011, p. 489) define business networks as a "set of connected relationships." They consider business relationships and connections among them as crucial in the network. The access of a subsidiary to its network resources affects that subsidiary's competitiveness in the market (Andersson, Forsgren, & Holm, 2002). The growth of network relationship depends on knowledge sharing, by learning through interaction and acquiring knowledge (Kogut, 2000). The acquisition of new knowledge identifies opportunities that are not accessible to outsiders (Johanson & Vahlne, 2009). Firms operating in host country environment, as opposed to those operating from a distance or outside the network, reduce uncertainty about the future.

Managers of firms operating in a network of business relationships may apply an inter-firm perspective toward change expectations. The learning and knowledge sharing is an ongoing process between network members. Knowledge sharing is crucial to stay competitive. Firms may learn new work techniques and/or identify opportunities in host country networks (Zander & Kogut, 1995). These advantages may relate to new product or innovation in service (Johanson & Vahlne, 2009). In the era of discontinuous change, firms must apply knowledge benefit quickly and effectively and take advantage from that knowledge before competitors do. Firm's learning capability positively affects both firm's working and competitive advantage (Amiri, Jandghi, Alvani, Hosnavi, & Ramazan, 2010).

Recent studies (Table 1) focus on knowledge transfer within multinational firms (Michailova & Mustaffa, 2012; Song, 2014), on the influence of subsidiary and knowledge transfer (Najafi-Tavani et al., 2014), or on competence development of multinational units through local subsidiary environment (Andersson et al., 2014). Yet evidence on learning of multinational subsidiaries in host country networks is scarce (Dimitratos et al., 2014; Sirén et al., 2012). Furthermore, seemingly, no studies focus on understanding relationships between learning and sharing for subsidiary co-evolvement in host country networks (Jonsson, 2015), acquiring new knowledge ,and identifying opportunities in their host countries (Vahlne & Ivarsson, 2014).

Table 1
Recent research on knowledge sharing in multinational firms.

Author	Research focus	Relationship examination	Sample	Data collection method	Analysis method	Future research recommendations
Jonsson (2015)	Knowledge Sharing through practice and logic	Knowledge sharing in practice	Swedish case study	Qualitative	Ethnography	Focus on three logics to explain how knowledge sharing takes place and motivating employees to share knowledge.
Andersson et al. (2014)	Subsidiary locations contribute to competence development of sister units within MNE	Location and competence development	2107 European subsidiaries (7 countries)	Qualitative	SEM (LISREL)	Mechanism that facilitates or impedes the knowledge learning and transfer process in subsidiary and its environment
Dimitratos, Plakoyiannaki, Thanos, and Förbom (2014)	Modes of learning in MNE subsidiaries	Learning modes of MNE subsidiary at host country	Subsidiary case study	Qualitative	Comparative method nudist software	Entrepreneurial and marketing learning performance + investigation of learning agents
Hohenthal, Johanson, and Johanson (2014)	Relationship between experience and business relationship value in foreign market	Early expansion in foreign market networks	1807 Swedish Danish New Zealand	Quantitative	SEM (LISREL)	Knowledge about network actors and relationships is important for understanding network development
Najafi-Tavani, Giroud, and Andersson (2014)	Knowledge-based and network-based activities as determinants of subsidiary influence.	Knowledge-based and network-based activities as internal factors	184 UK Subsidiaries	Quantitative	SEM (LISREL)	Study of internal and external factors of subsidiary for broader view of its influence
Song (2014)	Knowledge transfer between MNC subsidiary	Meta-analysis of MNC subsidiary literature	Multinational subsidiaries	Literature review	Literature review	Research on knowledge transfer to subsidiary from MNE-HQ and that between subsidiaries
Vahlne and Ivarsson (2014)	Globalization of MNEs	Globalization process of MNEs	17 Swedish	Qualitative	Interpretation of interviews and annual reports	How MNEs learning can strengthen capabilities through local environment
Vahlne and Johanson (2013)	Evolution of multinational enterprise (MNE)	Uppsala model	Multinational firms	Theory	Theory development	Evolution: from internationalization to coordination in networks
Sirén, Kohtamäki, and Kuckertz (2012)	Relationship of learning and subsidiary success	Learning entrepreneurial orientation and performance	206 Finland	Quantitative	SEM	New dimensions in relationship of learning and performance

This study investigates the effect of knowledge strategy on knowledge sharing and subsidiary performance. This research focuses on organizational-level learning, where organizational systems such as culture can provide a better understanding of not only organizing but learning as well (Weick & Westley, 1996). This international business study makes three contributions to the literature. First, the study explores the interplay between knowledge strategy and knowledge sharing in host country networks and how they affect firms' learning. Second, the study contributes by explicitly focusing on knowledge sharing's effect on process innovation, market intelligence, and research and development (R&D) integration with past projects through learning from host country networks. Third, analyzing how learning and new knowledge acquisition from host country networks affect firm performance.

The structure of the study is as follows. Section 2 reviews the literature on knowledge sharing and develops the hypotheses. Section 3 describes the sample and the data collection process. Finally, Section 4 presents the empirical findings, a discussion of results, implications, and conclusions.

2. Literature review and hypotheses development

No consensus exists on a definition of knowledge management. Padova and Scarso (2012, p. 288) describe a "hard technology-oriented" and a more "human-oriented" viewpoint to knowledge management. One stream of the literature takes a normative perspective "focusing on how to become successful when implementing a strategy of knowledge management," whereas another stream takes a constructivist perspective "that treats knowledge as a social process" (Jonsson, 2015, p. 47). However, Kumar and Ganesh (2011) emphasize that these two perspectives can complement each other. Yang (2010) highlights that the decisions regarding ownership, structure, process, and environment take place within the firm, thereby affecting performance.

These decisions include allocating resources, developing tools for effective and smooth knowledge transfer, and updating firm's knowledge base to create an environment of sharing and learning, which promotes innovation.

Knowledge strategy is a road map employing firm knowledge (Zack, 1999) to achieve strategic goals in business strategy. Two perspectives exist regarding firm's knowledge strategy, namely, a descriptive and a prescriptive one. The first viewpoint focuses on knowledge-based exploration or exploitation activities (Bierly & Daly, 2007) or developing particular processes to manage various knowledge types (Alavi, Kayworth, & Leidner, 2005). The prescriptive viewpoint highlights theoretical models that assume that managers may develop and implement knowledge strategy for achieving firm's objectives (du Plessis, 2007). Firms should adopt an integrative view of both viewpoints to have a synergetic effect of knowledge strategy (Donate & Canales, 2012).

A firm should improve on its past project experiences by learning from their results and incorporating that information into R&D. Firms can acquire knowledge by learning from failures (Pisano, 2006) and grow through repositioning (Talaga, 2010). Firms cannot develop new capabilities, unless they tolerate failure and insist on openly discussing such failure. To learn from past failures, firms need to first accept and recognize those failures as results of their own actions. In a dynamic environment, firms need to decide how effectively they can use their intellectual capital to create value and achieve competitive advantage.

H1. Subsidiary's knowledge strategy positively effects research and development integration by learning from past projects.

Human capital (Bontis, Crossan, & Hulland, 2002) consists of all attributes related to firms' employees: their exposure, experience, and skills, and their innovative and creative capabilities. Human capital comprises

all intangible information and knowledge in the human mind, which forms the critical base of an organization's innovative and strategic sustainability. A superior human capital relates to that firm's superior output and higher compensation or earning (Wilson & Larson, 2002). Therefore, firms strive to recruit and groom the best possible team to achieve competitive advantage. The effective implementation of knowledge strategy relies on the facilitation of innovation and value creation by firm employees.

Process innovation allows to achieve this objective (Santosus & Surmacz, 2002). Process innovation refers to the extent a firm develops and performs its activities through imaginative means. Firms need to aggressively remove barriers to sharing, and encourage employees to use their experiential knowledge in problem solving. Solving problems through innovative creative means holds multifold benefits for the firm. Kamara, Anumba, and Carrillo (2002) argue that successful firm's creative and innovative abilities are optimal when they implement knowledge strategy. Most individuals do not know their potential until they try something new. How often do firms allow employees the space to experiment? Normally, firms expect employees to follow a linear path, but risk-taking is not linear. In a dynamic environment, firms need to encourage and support employees to think out of box, openly sharing their ideas. Innovation helps transform competencies to offer products, processes, and service improvements that help firms to achieve competitive advantage (Danneels, 2011).

H2. Subsidiary knowledge strategy in host country networks positively affects process innovation through knowledge sharing.

Market intelligence consists of firm's relationship with its external network and how they perceive firm's product and or services. This concept also refers to the degree to which information about the external environment is available, bringing forth information on consumers, competitors, and market. The firm processes this information into knowledge to achieve a better fit of strategy. Deschamps and Nayak (1995) describe market intelligence as a form of competitive intelligence, critical for understanding consumer needs, preferences, market opportunities, and threats. Firms need to effectively use and integrate market information in the knowledge creation process, to provide a strong market intelligence solution. This process helps implement knowledge strategy to achieve better performance. The acquired market knowledge plays an important role in success of new product, and in staying ahead of competition (Wren, Souder, & Berkowitz, 2000).

H3. Subsidiary knowledge strategy in host country networks positively effects market intelligence through knowledge sharing.

The collective utility, interactivity, alignment of intangible assets, and balance knowledge flow between them ensures the best possible value creation for a firm's product or service (Kong, 2007). Knowledge is valuable to individuals, and sharing knowledge within a firm is a symbol of unity and trust. Firms may foster knowledge sharing through incentives. The best method of effective creation and sharing of knowledge is the establishment of a knowledge-sharing culture within the firm. Value creation is one of the means through which intangible resources contribute to a firm's competitiveness (Peppard & Rylander, 2001). Knowledge plays an important role in nurturing firm's capability, supporting its competitive sustainability and pushing its growth and ensuring future earnings (Marr, 2008).

H4. R&D integration with past projects through knowledge sharing positively affects firm performance.

The enhancement of firm's capabilities through knowledge sharing and learning through R&D integration influences firm performance (Shin, Kim, & Park, 2015). The sustainability of competitive advantage establishes the firm's ability to reconfigure and renew its knowledge resources and capabilities (Eisenhardt & Martin, 2000). Fritsch and

Meschede (2001) establish that process innovation positively influences product innovation. They reveal that process innovation facilitates firms' improvement of product and services' quality. Management of new practices positively influence firm performance (Camisón & Villar-López, 2014).

H5. Process innovation through knowledge sharing positively effects firm performance.

A knowledge-based firm culture encourages exchange and sharing of knowledge leading to innovation (Nonaka, 1994). Jaworski and Kohli (1993) identify market intelligence acquisition and its dissemination as two important factors in improving performance. Managers play a key role as facilitators supporting work independence and experimentation, as both are essential to stimulate creativity (Davenport & Prusak, 1998). The effective use of firm processes ensures the accomplishment of knowledge objectives (Donate & Canales, 2012; Kong, 2010).

H6. Market intelligence through knowledge sharing positively effects firm performance.

3. Research design

The study empirically tests the application of knowledge strategy in subsidiary knowledge sharing in the host country context. The developing economies play an important role in international supply chain; thus, understanding business processes in those countries is relevant. This research follows the proportionate stratified sampling method to select a sample from the target population. This method ensures precision, greater efficiency, and better representation of targeted population. This method is also very useful in generalizing and/or drawing statistical conclusions from the acquired data (Hair, Anderson, Tatham, & Black, 1998).

The data comes from all five Asian and European multinational telecommunication firms providing mobile service in Pakistan. The target population consists of sales/marketing and operations managers and staff in those mobile service providing firms. The government of Pakistan revised its policy in 2003 and allowed participation of private sector telecom firms in the previously monopolistic public sector. The reason for selecting telecom sector is its rapid growth in Pakistan's economy over the last decade. The tele density grew from 8.3 in year 2003–2004 to 79.89 in year 2013–2014. The number of cellular service subscribers grew from about 5 million in year 2003–2004 to over 140 million in 2013–2014. The telecom revenue grew from $ 1.17 (billion) in year 2003–2004 to over $ 4.65 (billion) at the end of year 2013–2014 (PTA, 2015). The names of firms remain anonymous as per understanding reached with them before starting data collection. The respondents received the instrument via email and via courier to telecommunications firm's offices in major cities. The concerned firms randomly distributed over 1100 survey instruments in marketing and operations departments through their intranet. Managers and staff received the questionnaires. The total instruments returned were 323, 303 of them usable responses, showing a usable response rate of 27.5%. The respondents were 75.4% males and 24.6% females. Almost 65% of the respondents were between the ages of 25 and 35 years. The educational level of over 75% was a university degree. Similarly, 52% had industry experience from 5 to 10 years and 13% had more than 10 years, whereas the remaining 35% had experience from 1 to 5 years. The received responses met the minimum criteria of 100 for factor analysis. The sample size was sufficient to do regression analysis because the size was well over 10 times the number of research variables (Hair et al., 1992).

4. Results

The statistical analysis of the data draws on structural equation modeling, using AMOS. For the measurement scale model, the study

checks different dimensions, including content validity, reliability, and convergent and discriminant validity. To measure questionnaire responses, the study uses a 5-point Likert scale, where 1 means strongly disagree and 5 means strongly agree. Then the study conducts a confirmatory factor analyses (CFA) for each factor of the model constructs.

4.1. Knowledge strategy (K)

Drawing on the results of the CFA, K constructs indicate an excellent fit with χ^2 statistic of 4.326 (degrees of freedom = 2, $p < 0.001$), with the χ^2/df ratio having a value of 2.163 that is less than 3.0. Jöreskog and Sörbom (1993) suggest that the value should be between 0 and 3 with smaller values, indicating better fit. The goodness fit index (GFI) is 0.99, the adjusted goodness of fit index (AGFI) is 0.97, the comparative fit index (CFI) is 0.98, and the Tucker–Lewis coefficient (TLI) is 0.95. These scores are very close to 1.0, where a value of 1.0 indicates perfect fit (Bentler, 1992).

4.2. R&D integration of past projects (R)

R constructs indicate an excellent fit with χ^2 statistic of 117.29 (degrees of freedom = 9, $p < 0.001$), with the χ^2/df ratio having a value of 13.03 that is more than 3.0. Jöreskog and Sörbom (1993) suggest that this value should be between 0 and 3 with smaller values indicating poor fit. The goodness fit index (GFI) is 0.88, the adjusted goodness of fit index (AGFI) is 0.72, the comparative fit index (CFI) is 0.90, and the Tucker–Lewis coefficient (TLI) is 0.84. These scores are close to 1.0, where a value of 1.0 indicates perfect fit (Bentler, 1992).

4.3. Process innovation (P)

Building on the results of the CFA, P constructs indicate an excellent fit with χ^2 statistic of 52.41 (degrees of freedom = 9, $p < 0.001$), with the χ^2/df ratio having a value of 5.82, higher than 3.0. According to Jöreskog and Sörbom (1993), this value should be between 0 and 3, with smaller values indicating not a good fit. The goodness fit index (GFI) is 0.94, the adjusted goodness of fit index (AGFI) is 0.87, the comparative fit index (CFI) is 0.92, and the Tucker–Lewis coefficient (TLI) is 0.87. These scores are close to 1.0, where a value of 1.0 indicates perfect fit (Bentler, 1992).

4.4. Market intelligence (M)

M constructs indicate an excellent fit with χ^2 statistic of 67.55 (degrees of freedom = 5, $p < 0.001$), with the χ^2/df ratio having a value of 13.51 that is more than 3.0. Jöreskog and Sörbom (1993) suggest that this should be between 0 and 3 with smaller values indicating poor fit. The goodness fit index (GFI) is 0.99, the adjusted goodness of fit index (AGFI) is 0.76, the comparative fit index (CFI) is 0.96, and the Tucker–Lewis coefficient (TLI) is 0.91. These scores are close to 1.0, where a value of 1.0 indicates perfect fit (Bentler, 1992).

4.5. Firm performance (FP)

The CFA results indicate that FP constructs indicate an excellent fit with χ^2 statistic of 29.22 (degrees of freedom = 5, $p < 0.001$), with the χ^2/df ratio having a value of 5.84, more than 3.0. Jöreskog and Sörbom (1993) suggest that this value should be between 0 and 3, with smaller values indicating better fit. The goodness fit index (GFI) is 0.96, the adjusted goodness of fit index (AGFI) is 0.89, the comparative fit index (CFI) is 0.97, and the Tucker–Lewis coefficient (TLI) is 0.95. These scores are close to 1.0, where a value of 1.0 indicates perfect fit (Bentler, 1992).

4.6. Model fit

The study assesses the overall fit of the measurement model following the guideline in Hair et al. (1998). Separate CFA (implemented in AMOS) assess the psychometric properties of the constructs. For all the scales in this study, the loading of one indicator for each factor is a fixed value of 1.0. The model consists of a five constructs structure comprising knowledge strategy (K), R&D integration with past projects (R), process innovation (P), market intelligence (M), and firm performance (FP). The study tests the model for the data collected from employees of multinational telecommunications firms in Pakistan ($n = 303$).

The first-order confirmatory test with multiple factors result shows an adequate fit (Table 2). The χ^2 statistic is 716.54 (degrees of freedom = 265, $p < 0.001$), with the χ^2/df ratio having a value of 2.70, which is less than 3.0. Jöreskog and Sörbom (1993) suggest that this value should be between 0 and 3 with smaller values indicating better fit. The goodness fit index (GFI) is 0.85, the adjusted goodness of fit (AGFI) is 0.81, the comparative fit index (CFI) is 0.85, and the Tucker–Lewis coefficient (TLI) is 0.83. These scores are below 0.9, indicating a good fit. Browne and Cudeck (1993) propose that values less than 0.08 indicate a good fit, and values higher than 0.08 represent reasonable errors of approximation in the population. The next set of fit statistics focuses on the root mean square error of approximation (RMSEA). This value is 0.075, less than 0.08, and thus indicates good fit.

4.7. Hypothesis testing and results

The study uses structural equation modeling with the AMOS software to test the hypotheses. Table 3 shows the theoretical structural model used to test the study hypotheses with the paths associated with each of the direct hypotheses tests.

H1 relates to the relationship between knowledge strategy and R&D integration of past projects. The results confirm significant positive effect of K on R with a beta (β) = 0.90 ($p < 0.001$). The result is in line with previous research (Pisano, 2006; Talaga, 2010), confirming that a clear knowledge strategy leads to R&D integration through learning from past successes and failures and repositioning building on acquired knowledge. H2 refers to the relationship between knowledge strategy and process innovation. The results confirm significant positive effect of K on P with a beta (β) of 0.84 ($p < 0.001$). The results confirm that knowledge acquisition from sharing in networks leads to improvement in firm process innovation. In the dynamic environment and growing customer awareness, solutions to customer issues need to be innovative and effective. In the telecom industry, the unhappy customer will not take long to switch to other service provider firm unless the firm addresses his or her grievances. The results confirm the relationship between knowledge strategy and market intelligence (H3). K exerts a significant positive effect on M with a beta (β) 0.254 ($p < 0.001$). The results verify past research (Jonsson, 2015), indicating that new acquired knowledge from firm's networks leads to improved market intelligence. The telecom service provider networks in Pakistan need to be alert to market needs and be willing to address them to sustain their market share.

The results fail to support the relationship between R&D integration with past projects and firm performance (H4); R has no effect on FP, with a beta (β) 0.042 ($p > 0.1$), which is insignificant. The failure of firms to effectively employ acquired knowledge and learning from past projects can explain the insignificant effect on performance. The results confirm the relationship between Process innovation and firm performance (H5), confirming a significant positive effect of P on FP with a

Table 2
Model summary.

Model	χ^2	Df	p-value	χ^2/df	GFI	AGFI	CFI	TLI	RMESA
	716.54	265	0.000	2.70	0.85	0.81	0.85	0.83	0.075

Table 3
Research hypothesis and statistical tests (regression weights).

			Estimate	SE	CR	P	Results
R	←	K	0.900	0.029	30.98	***	Accepted
P	←	K	0.841	0.047	17.96	***	Accepted
M	←	K	0.254	0.044	5.73	***	Accepted
FP	←	R	0.042	0.059	0.71	.480	Rejected
FP	←	P	0.261	0.051	5.07	***	Accepted
FP	←	M	0.449	0.060	7.46	***	Accepted

beta value of $B = 0.261$ ($p < 0.001$). The results are in line with previous research (Camisón & Villar-López, 2014; Shin et al., 2015) that indicate that new practices positively affect performance. The results confirm the relationship between market intelligence and firm performance, indicating a significant positive effect of M on FP with a beta value of $B = 0.449$ ($p < 0.001$). The results verify Donate and Canales (2012) idea that effective utilization of strategy to fill market knowledge gaps leads to improved performance.

5. Conclusion and implications

This research studies how knowledge strategy affects knowledge sharing in host country networks. The results suggest that learning and new knowledge acquisition from knowledge sharing in networks adds to firm competence and consequently to its performance. Managers should develop an understanding of how to manage acquired knowledge from host country networks. To do so, the focus should be on three logics of knowledge sharing in practice. The logics are "how to handle knowledge, how to share it, and how to develop it" (Jonsson, 2015, p. 55). Research suggests that firms usually identify knowledge gaps when dealing with quality problems or development of new products or providing solutions to customers (Earl, 2001; Zack, 1999). The strategy of a firm depends on creative flexibility of the human mind. The knowledge environment highly values creativity and innovative competence and rewards those characteristics accordingly. Firms should encourage employees to share ideas and information freely and bring out their creative abilities and innovate. Process innovation interacts with knowledge strategy and knowledge management tools to achieve continuous development in product and service.

The experiential knowledge acquired from networks is the driving force in the process of firms' internationalization. This knowledge generates learning, which in turn, leads to the increase in resource commitment (Johanson & Vahlne, 2009). Experiential learning is the process where members not only learn about each other but also about their capabilities and intentions (Vahlne & Johanson, 2013). This research supports the above idea based upon achieved results. The implication of this study is creating awareness of strategic potential of knowledge sharing in daily operations and its role in improving performance. The interpretation of the results must take into account the limitations. Given that the sample only includes telecommunication firms, issues concerning generalizability of the findings to other settings may arise. Future research should study obstacles to knowledge transfer in networks and analyze the interplay between knowledge strategy and knowledge sharing in networks.

References

Alavi, M., Kayworth, T., & Leidner, D. (2005). An empirical examination of the influence of organizational culture on knowledge management practices. *Journal of Management Information Systems*, 22(3), 191–224.

Amiri, A., Jandghi, G., Alvani, S., Hosnavi, R., & Ramazan, M. (2010). Increasing the intellectual capital in organization: Examining the role of organizational learning. *European Journal of Social Sciences*, 14(1), 98–108.

Andersson, U., Dellestrand, H., & Pedersen, T. (2014). The contribution of local environments to competence creation in multinational enterprises. *Long Range Planning*, 47(1), 87–99.

Andersson, U., Forsgren, M., & Holm, U. (2002). The strategic impact of external networks: Subsidiary performance and competence development in the multinational corporation. *Strategic Management Journal*, 23(11), 979–996.

Bentler, P. (1992). On the fit of models to covariances and methodology to the bulletin. *Psychological Bulletin*, 112(3), 400–404.

Bierly, P. E., & Daly, P. S. (2007). Alternative knowledge strategies, competitive environment, and organizational performance in small manufacturing firms. *Entrepreneurship: Theory and Practice*, 31(4), 493–516.

Birkinshaw, J. (1997). Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives. *Strategic Management Journal*, 18(3), 207–229.

Bontis, N., Crossan, M., & Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies*, 39(4), 437–469.

Browne, M., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage Focus Editions*, 154, 136.

Camisón, C., & Villar-López, A. (2014). Organizational innovation as an enabler of technological innovation capabilities and firm performance. *Journal of Business Research*, 67(1), 2891–2902.

Danneels, E. (2011). Trying to become a different type of company: Dynamic capability at Smith Corona. *Strategic Management Journal*, 32, 1–31.

Davenport, T., & Prusak, L. (1998). *Working knowledge: How organisations manage what they know.* Boston, Massachusetts: Harvard Business School Press.

Deschamps, J., & Nayak, P. (1995). *Product Jugger nauts.* MA: HBS Press.

Dimitratos, P., Plakoyiannaki, E., Thanos, I. C., & Förbom, Y. K. (2014). The overlooked distinction of multinational enterprise subsidiary learning: Its managerial and entrepreneurial learning modes. *International Business Review*, 23(1), 102–114.

Donate, M., & Canales, J. (2012). A new approach to the concept of knowledge strategy. *Journal of Knowledge Management*, 16(1), 22–44.

Earl, M. (2001). Knowledge management strategies: Toward a taxonomy. *Journal of Management Information Systems*, 18(1), 215–233.

Eisenhardt, K., & Martin, J. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10–11), 1105–1121.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1992). *Multivariate data analysis with readings* (3rd ed.) Macmillan, New York.

Fritsch, M., & Meschede, M. (2001). Product innovation, process innovation and size. *Review of Industrial Organization*, 19(3), 335–350.

Hair, J., Anderson, R., Tatham, R., & Black, W. (1998). *Multivariate data analysis* (5th ed.). London: Prentice Hall International.

Hohenthal, J., Johanson, J., & Johanson, M. (2014). Network knowledge and business-relationship value in the foreign market. *International Business Review*, 23(1), 4–19.

Jaworski, B., & Kohli, A. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing*, 57(3), 53–71.

Johanson, J., & Vahlne, J. E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, 40(9), 1411–1431.

Johanson, J., & Vahlne, J. -E. (2011). Markets as networks: Implications for strategy-making. *Journal of the Academy of Marketing Science*, 39(4), 484–491.

Jonsson, A. (2015). Beyond knowledge management-,understanding how to share knowledge through logic and practice. *Knowledge Management Research and Practice*, 13, 45–58.

Jöreskog, K., & Sörbom, D. (1993). *LISREL 8: Structural Equation Modeling with the SIMPLIS command language.* Chicago, IL: Scientific Software International Inc.

Kamara, J., Anumba, C., & Carrillo, P. M. (2002). A CLEVER approach to selecting a knowledge management strategy. *International Journal of Project Management*, 20, 205–211.

Kogut, B. (2000). The network as knowledge: Generative rules and the emergence of structure. *Strategic Management Journal*, 21, 405–425.

Kong, E. (2007). The strategic importance of intellectual capital in the non-profit sector. *Journal of Intellectual Capital*, 8(4), 721–731.

Kong, E. (2010). Intellectual capital and non-profit organizations in the knowledge economy. *Journal of Intellectual Capital*, 11(2), 97–106.

Kumar, J., & Ganesh, L. (2011). Balancing knowledge strategy: Codification and personalization during product development. *Journal of Knowledge Management*, 15(1), 118–135.

Marr, B. (2008). Disclosing the invisible: Publishing intellectual capital statements. *CMA Management*, 82(5), 35–39.

Michailova, S., & Mustaffa, Z. (2012). Subsidiary knowledge flows in multinational corporations: Research accomplishments, gaps, and opportunities. *Journal of World Business*, 47(3), 383–396.

Najafi-Tavani, Z., Giroud, A., & Andersson, U. (2014). The interplay of networking activities and internal knowledge actions for subsidiary influence within MNCs. *Journal of World Business*, 49(1), 122–131.

Nonaka, I. (1994). A dynamic theory of knowledge creation. *Organization Science*, 5(1), 14–37.

Padova, A., & Scarso, E. (2012). Managing large amounts of knowledge objects: Cognitive and organisational problems. *Knowledge Management Research and Practice*, 10, 287–295. http://dx.doi.org/10.1057/kmrp.2012.7.

Peppard, J., & Rylander, A. (2001). Leveraging intellectual capital at ApiON. *Journal of Intellectual Capital*, 2(3), 225–235.

Pisano, G. (2006). *Science Business: The Promise, the Reality, and the Future of Biotech.* Boston: Harvard Business School Press.

du Plessis, M. (2007). Knowledge management: What makes complex implementations successful? *Journal of Knowledge Management*, 11(2), 91–101.

PTA (2015). *Pakistan Telecommunication Authority* http://www.pta.gov.pk/index.php

Santosus, M., & Surmacz, J. (2002). *ABCs of knowledge management.* (Available from:) www.cio.com

Shin, K., Kim, S., & Park, G. (2015). How does the partner type in R&D alliances impact technological innovation performance? A study on the Korean biotechnology industry. *Asia Pacific Journal of Management* (Online 14 October, 2015).

Sirén, C., Kohtamäki, M., & Kuckertz, A. (2012). Exploration and exploitation strategies, profit performance, and the mediating role of strategic learning: Escaping the exploitation trap. *Strategic Entrepreneurship Journal*, *6*(1), 18–41. http://dx.doi.org/10.1002/sej.1126.

Song, J. (2014). Subsidiary absorptive capacity and knowledge transfer within multinational corporations. *Journal of International Business Studies*, *45*(1), 73–84. http://dx.doi.org/10.1057/jibs.2013.55.

Talaga, P. (2010). Opinion: The future of pharmaceutical R&D: Somewhere between open and reverse innovation? *Future Medicinal Chemistry*, *2*(9), 1399–1403. http://dx.doi.org/10.4155/fmc.10.213.

Vahlne, J., & Johanson, J. (2013). The Uppsala model on evolution of the multinational business enterprise—From internalization to coordination of networks. *International Marketing Review*, *30*(3), 189–210.

Vahlne, J. -E., & Ivarsson, I. (2014). The globalization of Swedish MNEs: Empirical evidence and theoretical explanations. *Journal of International Business Studies*, *45*(3), 227–247. http://dx.doi.org/10.1057/jibs.2013.60.

Weick, K. E., & Westley, F. (1996). Organizational learning: Affirming an oxymoron. In S. R. Clegg, C. Hardy, & W. R. Nord (Eds.), *Handbook of organization studies*. London: Sage.

Wilson, M. I., Wilson, M. I., & Larson, R. S. (2002). Non-profit management students: who they are and why they enrol? *Non-profit and Voluntary Sector Quarterly*, *31*(2), 259–270.

Wren, B. M., Souder, W. E., & Berkowitz, D. (2000). Market orientation and new product development in global industrial firms. *Industrial Marketing Management*, *29*(6), 601–611.

Yang, J. (2010). The knowledge management strategy and its effect on firm performance: a contingency analysis. *International Journal of Production Economics*, *125*(2), 215–223.

Zack, M. (1999). Developing a knowledge strategy. *California Management Review*, *41*(3), 125–145.

Zander, U., & Kogut, B. (1995). Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test. *Organization Science*, *6*(1), 76–92.