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Exploring Enterprise Strategic Orientation and Radical Innovation Success

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Abstract

In today's digital economy, the effective use of information communications and web-based computational technologies has intensified global competitive environments for all scientific, health care, industrial, social and business communities. Continuous and radical innovations through exploitation and exploration of product development and/or service value co-creation processes using innovative destruction technologies are essential and desirable for enterprises seeking sustainable survival and growth. This study probes into the strategic orientation of radical innovation from exploration and discovery of the representational issues on linking strategic orientation to radical innovation successes. A practical model, at strategic level of the firm with dynamic capabilities is hence proposed. Five hypotheses and the associated five degrees of measure for each orientation are discussed. The study differs from extant literature on innovation field of research results, which are mainly theoretical and rarely address how strategic orientation should be measured. Further research underway is also highlighted.

Keywords

Digital Economy, Strategic Orientation, Radical Innovation Success, Degree of Measure, Dynamic Capability

INTRODUCTION

The intense competition of today's changing economic environment has led to an extraordinary interest in improving the efficiency of the innovation process to sustain organizational performance. Recent findings have revealed that radical innovation have low rates of commercialization with perhaps more than half of the radical innovation terminated before completion. A substantial body of IS research now offers insights into how to manage radical innovation and into the problems and issues associated with the implementation of radical innovation technology. Yet some scholars remain dissatisfied with previous work, which they have characterized as inadequate and incomplete. For example, to be able to achieve radical innovation, unique strategic orientation and structural arrangements are necessary for radical innovation development in organizations. Literature suggests that strategy is one of the most prominent concerns in innovation development (Laforet 2008). However, the interplay between strategic orientation and innovative performance has yet to be well understood and multiple inconsistent strategic orientations are selected in the empirical studies results from the lack of theoretical foundation (Chou and Yang 2011, Spanjol et al 2011).

While there appears to be no single strategic orientation that leads to superior innovation performance in all situations, more recent literature suggests that an enterprise comprehensive perspective on strategic orientation should be considered (Berthon et al. 2004). In addition, the mainstream of the existing research is focused on what organizational culture and core competencies make a firm innovative, and few empirical studies have documented on what strategies and structures enable a firm to be continuously innovative. Therefore, we attempted to fill some of these lacunae by looking at the both constraining variables and the enabling antecedents contained in radical technological change.

This study probes into the strategic orientation of radical innovation from exploration and discovery as one methodological means way to address such representational issues in innovation management research. We begin with accounting the multidimensional nature of strategy and propose five dimensions of strategic orientation for radical innovation success. Next we further refine the five strategic orientations, and then propose the five

degrees impact (breadth, speed, depth, strength and time horizon) to gauge radical innovation success. Finally, we conclude with a discussion on both the theoretical implications and limitations of our findings for both research and management.

STRATEGIC ORIENTATION

Strategic orientations as a strategic choice provides the business directions and objectives, that drives the way organizations acquire, allocate and utilize resources to generate dynamic capabilities (Zhou and Li 2010). Competitive strategy is synonymous with the term strategic orientation (Morgan and Strong 1998) and refers to how organizations utilize strategy to adapt to varying environmental conditions for a more favourable alignment (Manu and Sriram 1996) or how strategy is used to achieve and sustain competitive advantage (Teece 2009).

Five Dimensions of Strategic Orientation and Hypothesis Formulation

Probing into the representational issues for radical innovations reveals five dimensions of strategic orientation- future orientation, risk orientation, technology orientation, collaboration orientation, and innovativeness orientation. Each strategic orientation is discussed as follows.

Future orientation

Strategic management scholars have historically emphasized the focus of strategy on the future. A future orientation forces an organization to realize the limitations of the current technology and the emergence of the next generation technology that may become dominant in the future (Yadav et al 2007). Future orientation is conceptualized as organizational preparedness for, and positioning in, future environmental situations (Morgan and Strong 1998), and trigger adequate responses to ensure long-term survival and success. Future orientation is derived from Hofstede's (Hofstede and Hofstede 2005) GLOBE model which represents positive, persistent and dynamic cultures that can be related to Confucian dynamism or long-term orientation. More recently, a significant amount of future-oriented techniques and methods have been developed and applied: roadmaps and scenarios, Delphi, relevance trees, trend-impact analysis, cross impact analysis, simulation modelling and systems dynamics, and game theory.

In addition to cope with the environmental changes and grow with new market conditions, adaptive organizations need to raise a future-oriented culture and build corporate foresight. In general, there are two circumstances where corporate foresight can contribute to the innovation process: before the idea is generated and after the idea is already established. In the first case, corporate foresight is applied as a source of inspiration and stimulation for innovation. Corporate foresight delivers comprehensive insight into the future economic growth and environment development, which in turn stimulates ideas for new products and services. In the second case, corporate foresight is applied to assess the viability of innovation processes. In both cases, corporate foresight is undertaken as a proactive means to better cope with uncertainties by preventing organizations from investing time, money and other resources in ideas that might not prove to be potentially successful innovations in the future. Thus, corporate foresight can be recognized as an overarching futures orientation of an organization and is, therefore, considered a part of strategic innovation management. An empirical study amongst 152 large European organizations indicates that 57.5% of the respondents perceive corporate foresight as an improvement of the innovation process and improvement of the speed in responding to environmental change (Daheim and Uerz 2008). On the one hand, corporate foresight is by an increasing number of international organizations regarded as the crystal balls of oracles to divine the future by generating different emerging trends (technological change, customer shifts and market evolution), a long-term strategic vision, and ideas for product innovations. On the other hand, corporate foresight has gained popularity as a means for connecting the company with the future and painting a roadmap to the future, a force shaping the future, and not just reacting to any trends. Therefore we perceive corporate foresight as a future-oriented driver of innovations focused on sustainable solutions mapped onto strategy priorities and objectives.

Rohrbeck and Gemünden (2011) identified three pivotal roles that corporate foresight can play to help the advancement of innovation competence. As an initiator role, corporate foresight increases the number of innovation concepts and ideas by identifying new customer needs, technologies, and product concepts and monitoring competitors. As a strategist role, corporate foresight supervises innovation activities by creating visions, delivering strategic guidance, consolidating opinions, evaluating and repositioning innovation portfolios, and identifying the new business models of competitors. As an opponent role, corporate foresight challenges the fundamental assumptions to create better and more successful products, challenging the state-of-the-art of R&D projects, and perusing for disruptions that could endanger current innovations. In contrast of just exceeding quarterly financial expectations, future oriented organizations emphasize on building sustainable competitive advantage over the long term (Johnson et al 2012). Therefore, we hypothesize the following:

H1: Future orientation has a positive effect on radical innovations.

Risk Orientation

Herrmann et al. (2007) regarded the most prominent characteristic of radical innovations is high uncertainty, it can be anticipated that organizations with higher appetite for risk-taking are likely to take on more innovation projects. About half (54%) of the executives interviewed by March and Shapira (1987) considered uncertainty as a factor in risk, therefore, organizations should treat uncertainty about positive outcomes as an important aspect of risk. However, they found the reality is that eighty percent of the executives considered that risk is associated with the negative outcomes only. Risks are not always undesirable events. Risk taking can sometimes be a remarkable thing. If organizations are not willing to take calculated risks their advancement in technology and business may be hindered. Thus organizations have to be circumspect with the risks they are willing to take and manage them properly.

Hence we argue that risk orientation evolves proactive behaviours (or proactiveness) and is critical to radical innovation success. As Crant (2000) proposed, proactive behaviour sometimes as challenging the status quo by taking initiative in improving current circumstances and striving to shape the environment, so as to achieve a competitive edge rather than passively adapting to present conditions. However, risk-taking is not just about realizing positive outcomes. Despite the customer requirements for the upcoming product, it is challenging to assess the performance and feasibility of the new technology as well as the speed at which it will take to develop. The risk is even increased by the hardly predictable interaction between the newness of the technology and the newness of the market. The notion of risk can be considered by way of the possible losses and gains that can be derived from a chosen action or activity. Without these choices of actions, new potential gains result from upcoming innovative products or products themselves would not emerge. As Dewett (2006) and Georgellis et al. (2000) suggest, willingness to take risks becomes a necessary antecedent to radical innovation success. Therefore, innovative organizations should encourage a sufficient willingness to take risks.

Top management teams must also be willing to accept failures as a learning process, thinking in terms of the long-term welfare of their organizations (Fernald 1989). Viewing failures as a learning opportunity, this will allow sufficient time for innovative ideas to incubate and develop, and encouraging champions to help overcome resistance and lead to new directions. If management does not endure failures as part of the innovation process, the fear of failure would trigger negative reactions to innovations: suppressing ideas, and avoiding risky concepts (Kuyatt 2011). The innovations will completely change the industry would also be avoided because of fear under certain circumstances.

Tolerance for failure spurs unhesitating willingness to cannibalize as the extent to which organizations are prepared to reduce the actual or potential value of their investments for creating and introducing new products and services. Willingness to cannibalize involves risk-taking activities and is a powerful driver of radical product innovation. Based on the willingness to cannibalize framework, expanded and identified willingness to cannibalize current sales, organizational routines, and prior investments as three dimensions of the framework. They also argue that cannibalization of sales involves less uncertainty than cannibalization of investments and capabilities.

One important initial concern with radical innovation is that it often does not meet the needs of existing customers, or exceed the expectations of current management in terms of market share or profitability (Kuyatt 2011). A great innovative idea may take several years or decades to develop into a successfully commercialized product, may also experience several setbacks at first. One example is the Apple Newton, project started in 1987, product launched in 1993 and was finally withdrawn from the market in 1998 (Minshall 1999). Although Newton ultimately became a personal digital assistant (PDA), its original concept resembled the hardware of a tablet computer. Against that enormous failure, Apple later took the time to redevelop the concept, and then introduced the iPad in 2010. It has since rapidly become the technology that is revolutionizing the computer experience and taking the world of portable tablets to a whole new level. Past failure can lead to future success. Consequently, risk orientation requires that organizations be tolerant of risk and accept the possible failures.

Elements of risk orientation that are important to innovation can be summarized as encourage risk taking, permit challenging the status quo, eliminate Not-Invented-Here (NIH) syndrome, willingness to cannibalize, and learn to accept failures. Thus

H2: Risk orientation has a positive effect on radical innovations.

Technology Orientation

Reflecting the philosophy of technological push, technology orientation posits that consumers desire products and services that offers technologically superior (Zhou et al 2005). Technology-oriented organization has the ability and will to acquire a substantial technological background and utilize it in the development of new

products. A firm's technological orientation includes the use of sophisticated technologies in new product development (NPD), the rapid integration of new technologies, and proactively developing new technologies and generating new product ideas. Despite this, the literature's findings show that high impact firms are more likely to have a strong technological orientation, to pursue new markets than firms with low new product impact. Their results imply that, in such firms, technology facilitates the NPD effort. In other words, new products are introduced based on major technological advances and changes.

The combination of being advanced technology driven and aggressively pursuing new markets involves significant risk for these firms. In order to counteract the risk, such firms tend to launch new products which have some synergy with their existing products. By so doing, high impact firms rely on at least one primary competence when creating new products. The strong technological orientation of high impact firms implies that they are inclined to accept complex, high risk, state-of-the-art projects. Such undertakings are inextricably linked to R&D people by placing responsibility and decision making in the hands of those who have the technical skills and expertise. It may be argued that technology policy demonstrates the organization's attitude toward innovation and its commitment to innovation. These policies include recruiting technical personnel, committing funds to new technology development and building or maintaining a tradition of being at the forefront of a technological area in a particular industry.

Technological orientation is likely to lead to more radical innovations with the potential for superior competitive advantage. Crazy ideas or instinctive interests in developing something drastically new are tolerated and often encouraged in technology-oriented organization. Herrmann et al. (2007) later described an orientation towards technological innovation is a critical component of an innovation culture. The strategic studies literature suggested that technology orientation increases the commercial performance of an innovation. Technology orientation impels organizations to build a long-term relationship with technological development at close range, to perceive technological and innovative opportunities before competitors and to transform them into innovations.

Intuitively technology orientation has a significant direct impact on product innovativeness. Technology orientation focuses primarily on new technologies and thus has direct implications for product innovativeness. Technology orientation also plays a critical role for the success of innovation. Indeed, a technology-oriented organization especially favours technology push innovations and does not view market requirements as a top priority. It expresses the conviction that technology has the potential to change the lifestyle and behaviour patterns of customers, uncover completely new needs, and construct new markets. Although a balance of technological orientation focus and market orientation focus is possible (Kohli and Jaworski 1990), organizations in high technology industries usually allocate more resources to technology to manage the uncertainty created by technological turbulence and create an organizational culture that supports learning and creativity. Emphasis on technological orientation as a means of competitiveness ought to reduce the importance of market orientation. For instance, Apple solely focuses on a technology-push approach, however, Steve Jobs and his team neither emphasize on market research, nor does it concentrate on what its competitors do (Müller 2010). Customers will frame their needs in the context of something they already have. In this way, we can think of Market orientation is only important for developing incremental innovations but rarely contributes to the development of radical innovations. Thus:

H3: Technology orientation has a positive effect on radical innovations.

Collaboration Orientation

Collaborative climate is a major determinant that influences effectiveness of knowledge building. Numerous studies have reported that, an early and intensive collaboration within organization leads to shorter innovation processes, reduced innovation expenses and greater innovative results (Müller 2010). Empirical evidence (Müller 2010) that collaboration with different partners on research and development increases the probability of achieving product innovation. Menton (2011) believes that organizations engaged in collaboration with universities and research centres aim at radical reaching breakthrough innovations. Collaborative climate should substantially enhance innovation due to the amount and diversity of knowledge to be engaged, thereby enabling the partners to complement with their resources and skill endowments. Organizations engage in a collaborative network can function to acquire complementary resources and competencies through the network. Blomqvist and Levy (2006) argue that this complementary knowledge is needed in raising innovative ideas for new products, which explains why the collaboration will be extraordinarily efficient and fruitful if the organization has a partner with resources that complement its own and that are relevant to the innovation being sought. Therefore, it is possible for win-win outcomes to be achieved by organizations in strategic alliances where both parties share value non-adversarially. A strategic alliance here is defined as an agreement between organizations to work together to create a common product and/or service, from which it is possible for both to earn above normal returns (although this may not always occur). One example can be found from the classic technology

collaborations between Intel and Microsoft, which led to the lengthy dominance of the Wintel platform technologies.

Collaboration delivers significant benefits, both measurable and less easily quantifiable outputs, it also brings enormous challenges. Continuing concerns in relation to sustainability, for example, maintaining momentum in collaboration and delayed accomplishments. The open innovation concept further emphasizes the importance of collaboration and knowledge flow between organizations. Open innovation is defined as the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the market for external use of innovation, respectively. A fostered collaborative climate could accelerate implementing open innovation practices. Collaborative orientation would significantly increase the chance to produce enduring network relationships that contribute to business success. In particular, collaboration with suppliers assists an organization to reduce the risks and lead times of product development, while improving flexibility, product quality and time to market. Therefore:

H4: Collaboration orientation has a positive effect on radical innovations.

Innovativeness Orientation

Innovativeness has been the subject of lengthy and extensive study in several areas of behavioural science and social science. Innovativeness is the degree to which an individual or other organizational unit is relatively earlier in adopting new ideas than others in a social system. Since his early seminal work on diffusion, the temporal conception of innovativeness became central to several of the research article (Salavou 2005) and leads directly to the employment of the relative time of adoption methodology in many studies.

Innovativeness is viewed as a willingness to depart from existing technologies or practices and venture beyond the current state-of-the-art. Innovativeness as one vital construct of the entrepreneurial orientation, and argued that it is the firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may lead to new products, services, or technological processes. Innovativeness as one of the core value-creating strategies that relates to the organizational capacity to engage in innovation, that is, the introduction of new products, services, or ideas in the organization. This capacity to innovate has been viewed as among the most important factors that impact on long-term business performance.

According to the resource-based view (RBV) of the organization, competitive advantage can occur only by possessing inimitable, non-substitutable, rare, and valuable resources and capabilities. Various skills and resources are important, however, none of which lead to a sustained competitive advantage. Instead, organizations must be willing to constantly destroy and reconstruct (i.e. to innovate) their core competencies in order to remain market positions. The RBV therefore, provides an ontological foundation for grounding the concept of innovativeness orientation. Knowledge-based view (KBV) also implies that knowledge development and deployment may be the basis for a truly sustainable competitive advantage. This idea of knowledge development and deployment becomes an integral part of the innovativeness orientation as well. Because understandings and beliefs about innovation are imbedded in innovativeness orientation, new knowledge is continuously being developed and this knowledge capital is also constantly growing and evolving, which help organizations to identify the next position of strength needed to keep ahead of competitors and markets. Therefore, a real potential source of competitive advantage is an innovativeness orientation.

Innovation-oriented culture encourages employees to be innovative and indicates an organizational receptiveness towards the development of new products or processes. In an innovation-oriented climate, new ideas are encouraged and managers and employees share common vision and goals. Thus, we argue that human resource practices are also an integral of the innovative orientation. Innovativeness orientation is composed of beliefs and understandings that lead to innovative action, thus innovative actions are the outcomes of an innovativeness orientation.

H5: Innovativeness orientation has a positive effect on radical innovations.

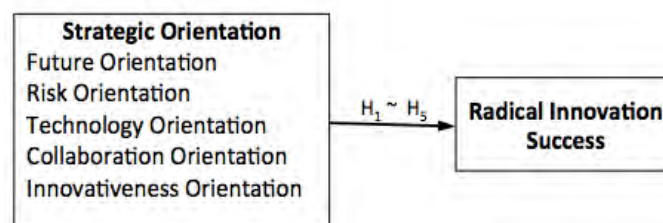


Figure 1. Dimensions of strategic orientation that impact on radical innovation success

Thus, the framework suggested by Figure 1 presents factors that may affect the relationship between a strategic orientation and radical innovation success. To address these issues, we review strategic orientation contingencies

that have been suggested in the literature. Then, we provide a fresh perspective to demonstrate how the role of each dimension in strategic orientation can be investigated.

PROPOSED FIVE DEGREES OF MEASURE FOR STRATEGIC ORIENTATION

To ensure full coverage of depth and scope of strategic orientation, we propose five degrees of measure.

	Degree of time horizon
Scope of future coverage (Future Orientation)	Level of technology foresight
	Level of competitor foresight
	Level of consumer foresight
	Level of political environment foresight
	Degree of breadth
Level of risk aversion (Risk Orientation)	Extent of freedom to explore and develop
	Extent of risk posture of top management
	Extent of autonomy
	Extent of organizational openness
	Degree of depth
Intensity level of technological R&D (Technology Orientation)	Amount of R&D expenditure
	Amount of R&D manpower
	Quality of technical superiority
	Quantity of patent counts
	Degree of speed
Tightness level of collaboration (collaboration Orientation)	Impact of trust in network
	Impact of network density
	Impact of betweenness centrality
	Impact of collaboration agreement
	Degree of strength
Level of organizational innovativeness (Innovativeness Orientation)	Degree of openness to innovation
	Degree of intention to be innovative
	Degree of capacity to innovate
	Degree of personal innovativeness

Table 1. Strategic orientation: its five degrees impact on radical innovation success

Degree of Time Horizon

To achieve sustainable survival and growth, organizations need to explore opportunities for the future. They must also be proactive and forward thinking about their strategic planning and objectives. By detecting weak signals of emerging trend at the periphery of their industry, organizations will be able to monitor the coherence between trends and strategic direction and react strategically. Future coverage has been proposed as a methodology to evaluate the content and coherence of the vision and of product with relevance for the trend (Battistella and De Toni 2011). The outputs are three measures: external alignment of the vision with current trend, internal alignment between vision and product, and external alignment between trend and product.

The scope of future coverage is related to the four dimensions of strategy foresight: technology foresight, competitor foresight, consumer foresight and political environment foresight. The role of technology foresight is about the identification and assessment of emerging technologies and technological discontinuities. The role of competitor foresight is about the assessment of competitors and the identification and assessment of products and services in development in the related markets. The role of consumer foresight is about the identification, assessment and anticipation of consumer needs as well as lifestyle and socio-cultural trends. The role of (political) environment foresight is about the identification, assessment and usage of information on legislation, the political environment and on shifts in the political landscape.

Following the strategy foresight the time horizon of corporate foresight activities ranges from short (1-4 years) to medium (5-9 years) and long term (10 year+), which measures how much the strategy oriented to the future effectively covers trends. Corporate foresights in innovative organizations normally cover a time horizon of 10 years (Vecchiato and Roveda 2010). To ensure the business strategy is oriented in the same direction as trends, the investigation of emerging trends is carried out every year, and is scheduled for fitting the annual strategy calendar.

Therefore, the longer time horizon of corporate foresight, the new strategic heights can be earlier to be realized. In other words, more detailed future coverage gets more comprehensive insight in both business vision and

product positioning. Specifically, the scope of future coverage is determined by the level of technology foresight, the level of competitor foresight, the level of consumer foresight and the level of political environment foresight.

Degree of Breadth

Organizations devoted only to incremental innovation are risk averse, but in the meanwhile are missing opportunities. Particular emphases were placed on successful outcomes and market-pull products, exploratory developments were, however, avoided in exchange for focusing on product enhancements. Strategic orientation that expedites radical innovation has a tendency to be more tolerant of risk taking and ambiguity, and the uncertainty that accelerates this type of innovation.

Decision maker's level of aversion to risk is related to the degree of freedom to explore. This is in resonance Nijhof et al. (2002) suggests that freedom to develop ideas as a necessity for innovation and creativity. Risk posture of top management impacts the way organizational members deal with uncertain situations. A corollary of freedom is autonomy. In an organizational context, autonomy refers to the independent action taken by organizational members to generate an idea or a vision in the pursuit of opportunities and implement it through to completion with free of organizational constraints. Organizational characteristics such as openness are also supportive of generating creativity.

Therefore, the lower level of risk aversion, the more possibilities the organization can achieve. In other words, more fertile innovations get more breadth in both objectives and knowledge sources. Specifically, the level of aversion to risk is determined by the extent of freedom to explore and develop ideas, the extent of risk posture of top management, the extent of autonomy and the extent of openness of organization.

Degree of Depth

In practice, the relative amount of resources allocated to research and development (R&D) impacts the innovation performance of an organization. Dorf (2010) in his book defined that depth of technology strategy is organization prowess within the various core technologies. Depth of technology strategy can be articulated as the variety of technical options that an organization has accessible. Greater technological depth enhances the benefit of increased flexibility and the ability to respond quickly to changes.

The level of R&D intensity is related to the degree of technology depth within an organization. We argue that R&D intensity as the input of technology complexity is evaluated as the sum of the level of R&D expenditure and the level of R&D manpower. Organizations with higher R&D expenditures (i.e., expenditures on both development and research) and richer R&D manpower (i.e., employment of scientists, engineers, and technicians) can be expected to get better R&D outcomes. R&D intensity of an organization reflects the strategic importance of innovation to the organization. Although a high level of R&D intensity does not assurance that the generation of successful innovations, organizations that invest heavily in R&D have more chance to realize on the basis of innovativeness and technology breakthrough.

Patent counts and technical superiority have been used frequently as indicators of output of R&D and technology complexity. The technical superiority drives innovation to deliver a unique user experience. Because of its technical uniqueness, an organization enjoys the greatest marginal return with a first mover advantage.

Therefore, the more depth of technology strategy, the more technological superiority can be achieved. In other words, more intensive R&D gets more technology complexity in both technical uniqueness and competitive advantage. Specifically, the intensity level of technological R&D is determined by the amount of R&D expenditure and the amount of R&D manpower, and resulting in quality of technical superiority and quantity of patent counts.

Degree of Speed

The frequency of interactive relationships has evidenced to accelerate the innovation process. Procuring knowledge and competences through collaboration is perceived to be an effective and efficient approach of successful innovation. Gathering tacit knowledge from collaborative networks could diminish the risk and ease the cost pressure in R&D intensive innovation projects by sharing risks and resources with partners thus shortening product development cycles while ensuring effective innovation.

The tighter the relationship between collaboration partners, the greater the speed of the tacit knowledge transfers. The underlying rationale is that collaborative networks positively influence the capability of organizations to recognize and understand mechanisms for knowledge gathering, interpretation and diffusion, which promote efficiency of knowledge transfer.

The tightness of partnerships is related to level of trust. Success in collaboration requires high level of trust, environment in which proprietary information and intellectual property can be safely shared. Organizations use trust to promote interaction and accept risk in situations where they have only partial knowledge and resources. Empirical results indicate that trust promotes coordination and cooperation for mutual benefit. Collaboration networks with an atmosphere of mutual trust are more successful than those exhibiting lower level of trust.

Highly central organizations enjoy the greatest benefits of their explorative innovation performance and this effect declines steadily when their betweenness centrality decrease. Betweenness centrality quantifies how often a company acts as a bridge along the shortest path between two other companies in the network.

Intra-firms collaboration can be perceived as co-production of knowledge where inputs are converted into economic outputs. Knowledge spillovers are expected to occur as a by-product of such processes. Collaboration may also contribute to co-patenting (Pond et al 2010). In this case co-patenting activity often tends to evolve at an intermediate stage as a by-product of the collaboration. Hence, a rigorous collaboration agreement (e.g., patent-based licensing arrangements) between collaborating parties will advance the collaboration process.

Therefore, the higher tightness of collaboration, the shorter innovation development cycles can be achieved. In other words, more abundant innovations get more velocity in both development and production time. Specifically, the tightness level of collaboration is determined by the impact of trust in network, the impact of network density, the impact of betweenness centrality and the impact of collaboration agreement.

Degree of Strength

An innovativeness orientation refers to organization and member's values associated with new idea generation. Organizational innovativeness emerges the creation of new knowledge, or an innovative recombination of existing knowledge. Therefore it is effectively related to human capital and organizational learning (Slater and Narver 1995). Whereas individuals perceive objects differently, this could potentially affect how individuals respond to innovations. The construct of personal innovativeness is used to measure the willingness of early adoption of innovation, and consequently, operationalized as the time of adoption. On the other side of the coin, a group of highly committed uniquely capable people could shape and deploy organizational resources in ways that breed organizational innovativeness.

The degree of cultural openness is related to the level of personal innovativeness, because an organization with high willingness to cultural openness generally attracts innovators, thinkers, and creative talents. It may be argued that cultural openness and diversity spur more creative and innovation for organizations. This concept is similar to "openness to innovation" which reflects the organization's tendency to seek the development of new products or processes. Besides, the capacity to innovate of an organization refers to the organization's ability to recognize the value of new information, which depends in part on the intellectual skills, the acquired knowledge and know-how, the problem-solving competencies and largely depends on absorptive capacity. Absorptive capacity has been developed theoretically through an investigation of the organization's cognitive structures. The development of absorptive capacity is path-dependent to knowledge within the organization and prior related knowledge that underlie learning.

Therefore, the more intensive organizational innovativeness, the more possible innovation developments can be initialized. In other words, greater diversity of innovations gets more intension in both magnitude and direction. Specifically, the level of organizational innovativeness is determined by the degree of openness to innovation, the degree of intention to be innovative, the degree of capacity to innovate and the degree of personal innovativeness.

CONCLUSION AND FURTHER RESEARCH

Exploiting and exploring relationships between strategic orientation and radical innovation is indispensable, given the intensive competition faced by organizations in today's rapidly changing operational environment. Our goal has been to build on prior theory and research in order to (a) clarify the multidimensional nature of the strategic orientation construct in its theoretical foundation and (b) suggest a fresh perspective model (Five Degrees) that provide unique insight into the strategic orientation and radical innovation success relationship. We believe this research will contribute to a more complete understanding of innovation management by building the five dimensions of strategic orientation for radical innovation success. In the discussion of each dimension, we have attempted to highlight several important areas concerning the role of each orientation in strategy. A broader goal (c) is in response to the call from practitioners and researchers for greater knowledge about the business practices that support innovation and the nature of the direct role in managing innovation process. The present study suggests that certain strategic orientations facilitate radical innovation. Therefore, an organization hoping to enhance organizational performance through innovation should evaluate its strategic performance based on the

five degree impacts proposed.

Limitations of this study include: Firstly, although this study uses broad measures for strategic performance, these measures are subjective; and secondly, should focus on the discussion of the role of environmental dynamism and organizational characteristics on innovation process. Further research efforts should also be directed at understanding the dimensionality of the strategic orientation construct and the role of dimensions in explaining its relationship to innovation performance. Such efforts will contribute to further theoretical development in the field of creativity and innovation. Investigation to refine measures, explore the underlying processes associated with strategic orientation, and recognize the multidimensional nature of strategic behaviour also will further enhance our understanding of strategic orientation and its relationship to innovation performance that emerge in this field.

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