

Measuring Corporate Innovation Capacity: Experience and Implications from i2Metrix Implementation in Vietnam

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Abstract

This paper discusses the issue of measuring corporate innovation capacity, and proposes a method for implementing such measurement program (i2Metrix). The actual survey on 19 Vietnamese leading businesses suggests that the i2Metrix design is working and can be further improved for future use. Responses by firms' executives show not only their awareness of innovation but also interest in management tools and methods to make use of this crucially important but elusive concept and resource. Insights from the survey highlight a disciplined process of innovation, adoption, and diffusion.

Keywords: Creativity / Innovation, Technology management, Corporate culture, Core competency, Strategic management

J.E.L. classifications: C42; M13; O31; P27

1. Introduction

The Vietnamese economy has, since the launch of extensive economic reforms, called '*Doi Moi*', been in transition, transforming from an old-fashioned Soviet-styled command economy to a more modern market-oriented emerging economy. From a low base of production, as little as US\$10 billion annual output in early 1990s (using the official exchange rate), the country's output (measured by gross domestic product; or GDP) has increased to approximately US\$150 billion for the fiscal year of 2013, due largely to higher growth periods such as 6.9% per annum (1996-2000), 7.5% p.a. (2001-05) (Vuong, 2012). It currently has a 'golden population structure' with 65% of people of working age, and a high literacy of over 90%. The agriculture-based economy produces sufficient food for its own safety and exports. Currently the country is the world's second largest exporter of rice and coffee (and largest exporter of robusta variety), and a major exporter of aqua-products, furniture, garments/textile, along with several other products. In 2013, Vietnam exported goods and commodities worth \$120 billion, a staggering increasing in both ratio exports to GDP and in absolute values compared to those of the turn of the millennium.

The corporate sector, nowadays comprising three major subsectors state-run, foreign-invested (FDI) and privately run firms, has emerged as the country's most important economic force, enjoying benefits that *Doi Moi* has brought about to the economy. From a few thousand firms established in the early 1990s when the Law on Private Enterprises was introduced, official statistics shows that in total some 700,000 firms have been established since the start of *Doi Moi*. Roughly, 14,000 FDI firms of all types have committed over \$220 billion to the domestic economy. Investments in the national

infrastructure have been increasing quickly over the years, helping to improve the conditions for economic activities and operations of commercial firms, with large supports from such multi-donor institutions as the World Bank, ADB, and bilateral ODA partners like Japan, France, England, Australia, etc. An example is within the 2001-05 alone, nearly \$15 billion in ODA was committed by various donors to support Vietnam's economic transition, of which half was disbursed (Vuong, 2012).

Almost all factors seemed right for Vietnam to take off. But economic realities have turned out very differently from what was expected and hoped for. The Vietnamese economy has gone through a tumultuous transition period from 2007 till 2014, with no clear sign of bottoming out, including several crashes of its stock markets in the past 7 years, and then a free fall of the real estate market. Vietnam's GDP growth has declined to an average of around 5.6% p.a. on the 2010-13 period (Nguyen, 2013).

These major problems reflect the economy's vulnerability to both external shocks (such as the global financial meltdown 2008-09) and internal shocks (like recurring problems of high inflation and home-made liquidity crunch). But deep down, observers with economic acumen have noted other deeper reasons, in particular the absence of innovation-led value added in various corners of the economy.

Vuong & Napier (2014) examined empirical data on Vietnam's corporate sector to explore the problem of 'resource curse' as counterexample of local firms' determination of pursuit for innovation and creative performance. Abundance of resources, both physical and financial, has become a curse on corporate performance when a clear strategic goal for pursuing innovation is absent. In other words, as firms become addicted to over-reliance on resources, they face a downward spiral of productivity and economic efficiency. In fact, firms that rely on amassing capital/physical assets tend to downplay the value and potential contribution of creative performance and innovation in their strategic pursuits. Such a pattern of commercial pursuits without a clear strategy for making innovations soon becomes the so-called 'destructive creation' (a play on Schumpeter's famous term 'creative destruction').

In reality, the Vietnamese culture-reflecting legacy of the Confucian value system appears to reduce the willingness for risk and radical changes, whether in business or socio-political settings, and thus hinders innovation process (Vuong & Tran, 2009). Simply put, firms are unfamiliar with the idea of tapping creative performance and innovation as an emerging and valuable resource. Many (including successful) entrepreneurs regard innovation as unknown and thus painful and thus transform themselves to into 'capitalists' in a risk-adverse fashion (Vuong, Tran & Nguyen, 2010), avoiding the two part 'tango' of entrepreneurship-creativity (Napier, Dang & Vuong, 2012). Being capitalist almost means shifting from resource-less entrepreneurial undertakings to capital-intensive business operations, which by nature demands more financial resources. Nevertheless, innovation is both possible and needed in emerging market economies, especially when it comes to notions creating and implementing organizational change in a disciplined way.

Given the value of innovation and creativity in emerging markets along with the lack of understanding of it, this paper seeks to offer a research based way to help organizational leaders assess their own capacity for innovation and evaluate its contribution for performance. This set of metrics, called Inclusive Innovation Metrics (or "i2Metrix") helps measure corporate innovation capacity, actual and potential, and as they become better known, enhance public knowledge about the purpose and value of innovation for organizations. The paper, therefore, includes several sections to explain and analyze this concept. First, the paper reviews literature that examines which aspect or dimensions to evaluate, proposes a practical approach to measuring those dimensions in the field, and a report on important insights and implications gained from a pilot test of the survey in the early 2014.

2. A literature review on possible metrics of innovation/creativity

In this section, we focus on selected theoretical and empirical discussions about measurement of creativity and innovation within organizations. In particular, this section covers ten key areas that come into play and support the notion of metrics for assessing creativity and innovation capacity. They include (1) the outcome of the innovation process; (2) the innovator factor; (3) financial resources available for innovation; (4) institutional supports; (5) process and product differentiation; (6) ability to set or catch up with emerging trends; (7) information process toward innovation; (8) core

values and mindsponge; (9) efficiency of the implementation process; and (10) readiness for market competition.

2.1. Outcome of innovation process

When it comes to the innovation process, two key questions for practitioners and academics have been what is the process and is what the outcome of the process of innovation (Runco & Richards (1997), and Napier & Nilsson (2008)). Despite such a demand, until the late 1980s, it was difficult to find appropriate metrics even for economic activities like manufacturing. Schroeder, Scudder & Elm (1989) acknowledge "further understanding is needed, especially in the definition and measurement of innovation in manufacturing" because they are often confused (process and outcome).

Despite such interest, the range of options for measuring the outcome of innovation is limited. Acs, Anselin & Varga (2002) show that the major indicators of outcome of innovation process are patents, as in inventions and process; further, 'direct innovative output' refers to economic value (new innovative product/process/service and turnover). However, despite the shortcoming, the widespread practice is still to measure patent count data as innovative output appears to be more difficult for collecting data.

According to Ling (2003), impacts of innovation adoption (which might be a reflection of 'perceived outcome') may be felt by organization members by such factors as level of interest of project team members, working environment, formation of task groups, and the capabilities of the people involved in the innovation.

2.2. The innovator factor

The innovator factor deals with human resources that work in unit(s) charged with creating new products, processes and ideas in business organizations. The central concept of this 'innovator factor' is knowledge creation, which, given rising uncertainty in today's business world, makes this the most lasting competitive advantage (Nonaka, 1991). Chiu & Kwan (2010), echoing Nonaka, also suggest that culture has profound impact on real-world knowledge creations.

Innovation ranges from new products, services, and methods in the workplace as well as innovative behaviors, evident in leaders, individuals and groups in terms of how problem-solving efficiency and work group relations (Scott & Bruce, 1994). Griffith, Huergo, Mairesse & Peters (2006) present econometric evidence suggesting that across systems, innovators' efficiency and payoffs affect organizations' innovation outcome in general and productivity in particular. However, an innovator's capacity changes over time. Peters (2009) reports that only 51% of the innovators are still involved in innovation after three years. That appears due to the relationship between entrepreneurship and innovation, according to Day (1995). In a similar view, Lumpkin and Dess (1996) establish a connection between the entrepreneurial orientation (EO) and firm performance, while Greenfield & Strickon (1981) argue that a typical entrepreneur by nature possesses qualities of an innovator. The fact that entrepreneurs must work hard, following strict disciplines to hope for any success makes the innovation style of an entrepreneur more of a disciplined one, the view that is advocated by Unsworth & Clegg (2010), (Barczak, Lassk & Mulki, 2010), and McAdam & Keogh (2004). In addition, because an innovator is hard to find, he or she becomes a scarce resource (Egan, 2005).

2.3. Financial resource available for innovation

Economic activities demand financial resources, and innovative activity is no exception. Griffith *et al.* (2006) also show that for developed economies in the European Union, higher per employee R&D investment improves the chance for a firm to become innovator. The fact that large and international firms tend to be more active and engaged in R&D activities also suggests that availability of finance has significance on firms' determination of becoming innovators in a broad sense.

In addition, part of the financial issue with innovation is caused by team and organization's failure to realize potential value of innovation, according to Klein and Knight (2005). As innovation is never an easy job to do, once top management decides to adopt it, they have to devote resources to its implementation.

2.4. Institutional supports

Creativity and innovation are complex tasks as described by Udvardia (1990:76), and thus require various institutional supports. In Udvardia's structure for the innovation process, there is a cascade of connected creative processes, including interdisciplinary, marketing, manufacturing, design and R&D. Although this is only one of many models, it shows the complexity of the task of implementation, which gives rise to the need for organized institutional support.

Ettlie, Bridges & O'keefe (1984) show that process adoption and innovation require appropriate strategy and structure of an organization. Strategy and structure then need an aggressive technology policy and concentration of technical experts, especially for obtaining achievement of radical innovation. The authors suggest, "a greater support of top managers in the innovation process is necessary to initiate and sustain radical departures from the past for that organization."

Successful adoption of innovation is related to firm's culture, market orientation and especially organizational learning (Hurley & Hult, 1998). Participative decision making also contributes to higher levels of innovativeness at firms, which represents institutional supports to innovation regarding the decision of adoption and implementation.

Hurley & Hult (1998) reflect an important insight from Eisenberger, Fasolo & Davis-LaMastro (1990) that perceived organizational support is assumed by team members to improve effectiveness and commitment to complex tasks. In such an environment, team players tend to believe that "greater efforts toward meeting the organizational goals will be rewarded," and this would normally include innovation as well.

2.5. Product and process differentiation

In this regard, Damanpour (1991) provides evidence that radical innovations usually take place in units that are created for this task, and that there is a significant relationship between specialization, differentiation, technical knowledge and innovation. Gupta & Loulou (1998) find that "process innovation accentuates the profit difference between integrated and decentralized channels."

In addition, Hull & Rothenberg (2008) show that "innovation drives firm innovation and the level of differentiation in the industry." They also indicate that financial performance from successful differentiation using innovation would benefit the firm innovation strategy, bearing in mind an additional advantage that innovations usually challenge and improve firm learning capabilities.

Dougherty (2001) finds that in firms with innovative capabilities people understand value creation as a long-term working relationship with the market, leading to a differentiation driver to learn how to solve customers' need and a reshaping of the notion of 'integration of work.'

2.6. Ability to set or catch up with emerging trends

Rombach & Achatz (2007) confirm, "the most comfortable position is the position of a trendsetter." A trendsetter drives innovation, self developed or acquired, and has the market power to successfully define the rules of the game in the market..." In light of this, part of Dell'Era & Verganti's (2010) study addresses the question: "Does the capability to propose new product trends allow companies to be recognized as innovators?" using empirical data from Italian furniture makers in the 1996-2005 period. Its findings confirm that trend-setters can attain the best performance when consumers take part in the early phase of diffusion.

Rahaman & Muhamad (2004) show that the trend-setting comes after micro- and macro-environment analyses are performed, with the former (micro) examining the organization's internal resource strength/weakness, and the later (macro) giving clues about how external factors may affect a firm's well being. These analyses are critical for a 'the new product development' plan as a step toward new product innovation. Their findings also confirm that only a small percentage of successful innovators rely purely on technology as a driver; the majority adopt a 'dual strategy,' accommodating both technology and market drivers.

2.7. Information, information processing and innovation

Information and information processing play a central role in making innovation, which appears in several ways in the literature. Bradford & Florin (2003) advocate the central role of enterprise resource planning (ERP) systems in coordinating various functional strategies of a business, with presence of profound impact of innovation diffusion factors. Napier and Nilsson (2008) argue

that the more organizations seek new products and processes, including emergent business models, innovation requires improved information quality and information processing. Improving information flows and better processing information as input for producing innovation result in Aha! moments (Napier, Bahnson, Glen, Maille, Smith & White, 2009), serendipity (Napier & Vuong, 2013) or a disciplined approach to creativity and innovation (Napier & Nilsson, 2008).

2.8. Core values and 'mindsponge'

As an early recognition of core entrepreneurial value for innovation, Greenfield and Strickon (1981) argue that entrepreneurial values include characteristics of risk appetite and alertness to new opportunities, which boost creativity/innovation capacity to turn them into lucrative commercialization.

Entrepreneurial orientation and a core value of innovation may enhance firm-level performance (Lumpkin & Dess 1996; Shane 1993). Shane (1993) found that "rates of innovation are most closely associated with the cultural value of uncertainty acceptance, but that lack of power distance and individualism also are related to high rates of innovation." The author also suggests that "nations may differ in their rates of innovation because of the cultural values of their citizens." According to Shane (1993), capita income appears to be more economically important than industrial structure, as 'innovation-demanding' has become a culture in wealthier societies for the sake of labor-saving and differentiated goods. From another angle, Leonard-Barton (1995) suggests that clarity of a goal must be part of the core value if an organization is to innovate and, further, knowledge building has to be related to innovation.

Hurley & Hult (1998) conclude that creating a culture that supports innovation requires a system of value and beliefs that supports participative decision-making, learning and development. To reach toward innovation, Ulijn, Nagel & Tan (2001) indicate that the transition from an innovator to entrepreneur requires a change in mindset on the part of the innovation agent, giving rise to a new core cultural value. National context and cultures tend to have profound impact on this transition. Further, Tidd & Bessant (2011) and Unsworth & Clegg (2010) emphasize that leaders' shared vision and will to innovate must be part of the value system. We also notice that Barczak, Lassk & Mulki (2010), in a survey of student teams at a large American university, suggest that team emotional intelligence promotes team trust, which in turn, fosters a collaborative culture, which enhances the creativity of the team.

More recently, Vuong & Napier (2013) provide the notion of 'mindsponge' as a mechanism for introducing and rejecting a core value that is relevant to the determination of cultural systems that constitute an ecosystem for innovation/creativity at organizational level. As an individual (or ultimately a collection of individuals within an organization) considers what values to hold or reject, they build to become a mindset or way of operating. If that includes becoming more creative and innovative, then the values that may need to be rejected and absorbed (via the 'mindsponge') could become critical for changing a culture as well.

2.9. Efficiency of the implementation process

Leonard-Barton (1995) show conditions for successful implementation of innovations from initial creative ideas, namely: Characteristics of task, knowledge and skill diversity, external demands, integrating group processes and intra-group safety. In West's (2002) study, although diversity of knowledge and skills is a powerful predictor of innovation, processes employed by groups and core competency are factors that determine the success of innovation.

For efficient implementation to occur, Hurley & Hult (1998) argue that "receptivity to innovation, which is at the core of adaptiveness and change, is related systematically to other dimensions of culture. Leaders cannot simply select an organization's culture; they must shape it. Organizations may want innovation, but when their implicit norms and values reinforce the status quo, it is not forthcoming." The role of a leader is critical here. Success depends on the leader's vision of what the firm can accomplish toward a strategic goal. Leaders of innovation firms, then, must consciously manage the value systems, culture and atmosphere that support innovation (or risk having it devolve to a culture that they cannot control or does not support key values). Klein & Knight (2005) show that although innovation at work is imperative, many fail to realize its expected value because of implementation failure, not necessarily innovation failure. They suggest the organizational

characteristics that together improve the chance of implementation success include a strong, positive climate for implementation; management support for innovation implementation; financial resource availability; and a learning orientation.

Naturally, trust has a great role to play in cementing team efforts toward the implementation success of innovation (Barczak, Lassk & Mulki, 2010). Bissola & Imperatori (2011) show that creativity is not only about creative genius. Enhancing creativity requires, obviously, creative skills, and also team dynamics and organizational solutions. An organization's collective performance that produces innovations should be an interaction between the above key elements, which should be combined in a well coordinated innovation implementation process. In addition, Unsworth & Clegg (2010) examine the motivation for people to undertake creative actions at work: "... General work motivation, creativity requirements, cultural support for creativity, time resources, and autonomy were all used as cues in deciding whether undertaking creative action would be worthwhile via judgmental processes of expectancy and instrumentality." Clearly, the shift to market orientation, and product commercialization, is of primary concern for such an implementation, in line with suggestion by Tidd & Bessant (2011).

We learn from Rothaermel & Hess (2007) that "antecedents to innovation can be found at the individual, firm, and network levels." This knowledge is important, as in line with this, an efficient implementation process will have to avoid the risk of concentrating efforts and resources on some 'specific factors' without fully appreciating the value of the systemic coordination. Also, there is evidence that radical-innovation plans must be implemented and managed differently from incremental-innovation ones, as radical innovations are subject to 'abundance of uncertainties and discontinuities' (Leifer, O'Connor & Rice, 2001).

2.10. Readiness for market competition

Greenfield & Strickon (1981) indicate that readiness for market competition represents another critical success factor for entrepreneurial orientation and innovation capability to tap a firms' opportunity for profitable commercialization of products. The degree of commercial readiness is partly defined by perceived organizational support, diligence, and commitment by employees, according to Eisenberger, Fasolo & Davis-LaMastro (1990).

Li & Calantone (1998) show that each of the processes that generate and integrate market knowledge has significant impact on firms' new product advantage, using data from the software industry, leading to positively correlated product market performance. More importantly, top managers' perception of importance of market knowledge has the largest impact on the processes of market competence.

According to Miller & Friesen (1982), both 'conservative' and 'entrepreneurial' models of strategic momentum reflect the value of innovation in the process of marketization of a new product. In the conservative model, innovation is performed reluctantly, in response to serious challenges. Thus, innovation will correlate positively with environmental, information processing, structural and decision-making variables that represent, or help to recognize and cope with these challenges. In contrast, the entrepreneurial model suggests that innovation is always proactively pursued leading to negative correlations between innovation and the variables that can provide such warning 'to slow down' with evidence from 52 Canadian firms.

As for SMEs in developing economies, Keskin (2006) provides survey results showing that firm innovativeness positively affects firm performance. But the more important insights also include a positive influence of market-orientation on firm learning orientation, with learning orientation serving as 'mediator' between market orientation and innovativeness. Consequently, the research concludes, "firm market-orientation indirectly impacts firm performance via firm innovativeness and learning." Tidd & Bessant's (2011) paper on aspects of commercializing an innovation (i.e., developing business plan; forecasting outcome of innovation; assessing risk / uncertainty; anticipating resources; estimating adoption of innovation) is compatible to Keskin's (2006) results.

Weerawardena (2003) seeks to discuss more deeply the issue of relationship between marketing capability with firm innovation toward a well founded competitive strategy. The research points out that the role of marketing capabilities in competitive strategy has been inadequate. There have been inadequacies in the conceptualization and operationalization of innovation and sustained competitive advantage constructs. The author suggests that marketing capabilities influence both firm

innovation intensity and competitive advantage, and that measures of entrepreneurship, marketing capabilities, and organizational innovation are very useful for sustaining firm competitive advantages.

3. The design of i2Metrix and the surveying process

The long established need for and value of innovation in the workplace calls for some approach to measure the capacity of innovation within firms and determine the impact on performance of various measures of innovation. The i2Metrix is designed to provide measurements of corporate capability of creativity and innovation. Initially, ten proposed dimensions - each consisting of 4-6 facets - form the foundation (see Table 1). Before conducting the survey, the dimensions, facets and survey method were presented to owners and top managers from Vietnam's Leading Businesses Club (LBC) - whose members are the most popular brands in Vietnam as voted by consumers - for calibrating questionnaires and examining availability of data.

An initial pilot surveyed 19 of the 30 Club members, most in multiple hour-long interviews as well as written surveys, who agreed to an ongoing longitudinal relationship. The full survey and questions used in the semi-structured interviews appear in Table 1

Table 1. i2Metrix: Dimensions and Facets

1	Output: Values added/created by corporate creativity and innovation
1.1	Contribution of innovation and creativity to sales growth
1.2	Sales of new products and services
1.3	Number of proposed ideas and solutions
1.4	Number of registered patents
1.5	Efficiency of innovation-related decisions
2	Innovators: Quality of the human resources for carrying out creativity and innovation
2.1	Number of staff in the R&D Department
2.2	Quality of R&D team
2.3	Sources of ideas and solutions: internal and external
2.4	Levels of entrepreneurial spirit of corporate leader(s): risk appetite, determination of pursuing innovation and economic independence.
2.5	Usage of external experts
2.6	Level of readiness to change of staff members
3	Financial resources for creativity and innovation
3.1	Ratio of R&D budget to operating expenses
3.2	Level of readiness to reallocate financial resources for innovation
3.3	Capital structure of R&D investment
3.4	Expectation of returns on investment in R&D and innovation
4	Institutional Support for innovation and creativity
4.1	Level of importance and strategic role of R&D and innovation defined by corporate leader(s)
4.2	Level of importance and strategic role of R&D and innovation defined by corporate managers
4.3	Level of availability of management policies that encourage and facilitate innovation
4.4	Level of engagement of corporate members to innovation
4.5	Level of readiness to change of business plan, corporate strategy in order to adapt to early results of innovation
5	Differentiation: Levels of difference of corporate products/services/management in comparison to industry rivals and the economy's average
5.1	Level of differentiation of products and serviced made by innovation
5.2	Level of differentiation of production and management in comparison to industry rivals
5.3	Level of differentiation of allocating resources to innovation in comparison to industry rivals
5.4	Level of differentiation of finding new ideas and solutions
5.5	Level of differentiation of implementing innovation
6	Trend-setting: Levels of adaption to market trends, product cycles, or creating of new

	market demand
6.1	Usefulness of innovation (Innovation results help extend business cycle and/or add more value to existing products and services.)
6.2	Novelty of innovation (Innovation results are new products and services that create new market demand)
6.3	Impacts of innovative performance on internal changes
6.4	Impacts of innovative performance on firm's position in the supply/value chain.
6.5	Impacts of innovative performance on firm's core values and strategy
7	Multi-filtering: Ability to process/digest information for primitive insights which are prerequisites of disciplined process of innovation
7.1	Appropriateness and efficiency of procedures for proposing new ideas and solutions
7.2	Level of connections to top experts in different fields related to firm's business
7.3	Level of usage and exploitation of available information sources (newspaper, published academic and scientific works, market feedbacks, expert opinions)
7.4	Level of efficiency of management information system
8	Mindsponge: Ability to absorb and integrate new cultural values into corporate mindset toward innovative change and creative performance
8.1	Level of readiness to accept a new idea, new solution, new cultural value
8.2	Level of clear explanation, with concrete evidence, for firm's core values
8.3	Level of trust of corporate leaders in team's capability of proposing new ideas and solutions
8.4	Level of trust of team in corporate leaders' capability of evaluating new ideas and solution and making right decisions (accept or reject)
8.5	Level of appropriateness of process/procedure for evaluating then accepting or rejecting a new idea or new solution by corporate leaders
9	Implementation: Ability to coordinate and implement the innovation process to final outcomes- i.e., new products, services, method of management
9.1	Level of corporate consensus on implementation of innovation
9.2	Level of effective coordination among different functional departments in order to transform an innovative idea into actual result.
9.3	Ability and skill of corporate team in implementation of innovation
9.4	Level of corporate leader(s)'s commitment to implementation of innovation
9.5	Level of appropriateness of innovation implementation and strategy implementation
10	Competition Readiness: Ability to observe and forecast threats/risks as well as estimate future costs and benefits of pursuing innovation – for instance, cutting loss and moving to other directions
10.1	Ability to foresee market trends and science/technology achievements that generate new demand for innovation by corporate leader(s)
10.2	Ability to foresee challenges and problems that occur in the implementation of innovation by corporate leader(s)
10.3	Ability to connect with communication systems (the media) to facilitate innovation process
10.4	Level of usage and mobilization of communication systems (the media) in receiving primitive insights as well as implementing innovation and introducing new products/services
10.5	Impacts of success and failure lessons on firm's interest and implementation of innovation

The value of a dimension was determined as the average of the results on the dimension's multiple facets. The value of each facet is the average of assessments by (i) research/survey team, (ii) surveyed enterprises, (iii) the media, (iv) experts, and (v) public consumers. In the first survey on 19 members of LBC, only the first three sources of assessment are available.

Executives were interviewed by two researchers. While going through the questionnaires, the interviewers provided firm's representatives with explanation, illustration, and guidance for making their own assessment on innovative performance of the firms. The two interviewers also had their assessments noted separately. It is important to note that although the interviewers and the

interviewees were mentioning about the same activity and/or answering the same question, their assessments are independent from the others.

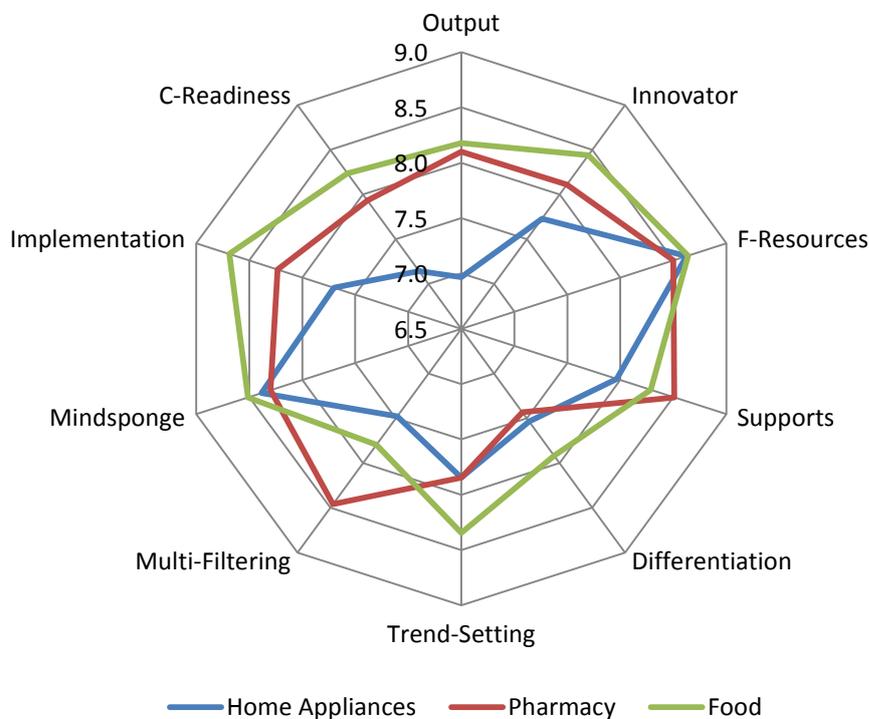
Business reporters did not join the interview. i2Metrix researchers helped them understand the questionnaires, then they gave assessments based on their own information sources and experience of the firms.

Assessments are quantified from 1 (one) to 10 (ten) where the higher the point is the closer the actual performance to assessor's expectation.

4. Insights and implications from the i2Metrix survey

The first survey sample consists of 19 LBC members in eight manufacturing industries, including home appliances, food, pharmacy, ceramic and porcelain, tire, plastics, agriculture machinery, and paper. Those firms have had total assets of approximately US\$1.14 billion, provided 28,000 jobs, and generated US\$1.67 billion revenue in 2013.

Figure 1: i2Metrix by Industry



Home appliances, pharmaceutical and food are three industries that have at least three firms joining the first i2Metrix survey. Innovation capabilities of the industries are illustrated in Figure 3. The fact that the radars of pharmacy and food industries cover that of home appliances is reasonable. Products of the first two industries directly affect clients' health thus have to meet much higher quality requirements and standards.

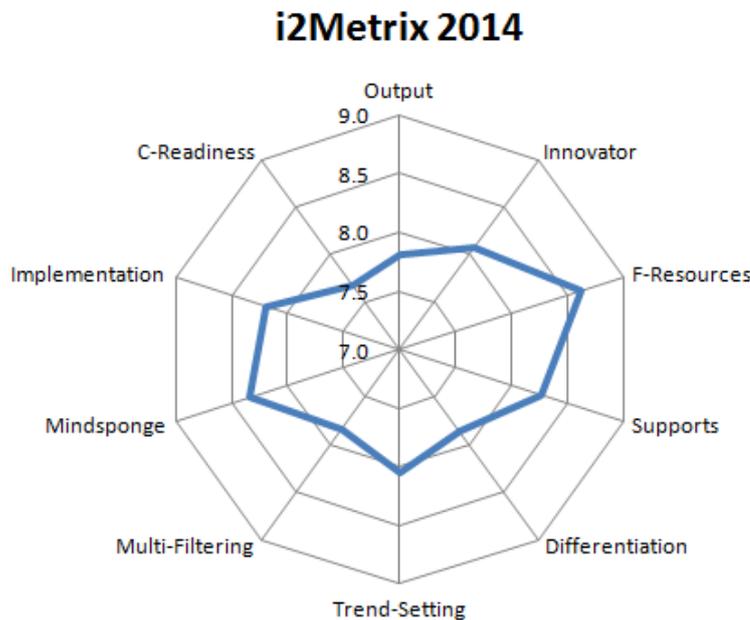
Grouping of dimensions

i2Metrix considers innovation a process. The ten dimensions, therefore, are divided into three groups as follows:

- Input Group consists of two dimensions: Innovator and F-resources
- Output Group consists of three dimensions: Output, Differentiation, and Trend-setting
- Support Group consists of five dimensions: C-readiness, Multi-filtering, Implementation, Support, and Mindsponge

The averages of dimensional values vary between 7.5 and 8.5 (see Figure 2), tentatively suggesting firm's innovation capability and their market positions.

Figure 2: i2Metrix of 19 LBC members



On the Output Group. Survey results reveal that while contributions of innovation (i.e., new product, service and process) to sales, profits, and cost saving are modest, business leaders appreciate the pivotal role of innovation in making a difference. Sales growth from improved and/or new products is less important than perceiving and setting a new trend of consumption as well as making the firm different from its rivals.

On the Input Group. Inputs for innovation process are abundant with assessments of Innovator and F-resource at 8.1 and 8.6 respectively.

Firm leaders' determination to pursuit innovation is decisive and not the firm's stage of development. Mr. Co Gia Tho – President and CEO of Thien Long Group (HOSE: TLG), stationary business – believes that “*One must not say ‘because my company is still poor I will not invest in R&D’ if one wants one’s company to keep going and growing.*” In fact, leverage ratios – measured by percentage of total debts over total assets) are less than 5% at surveyed firms. Innovation efforts are mostly financed by retained earnings and/or almost riskless finances.

The roles of the firm's leaders are crucially important in family businesses, which accounted for more than one third of the sample. Most of them are in a transition process where parents are training the next generation in various functions of the business before handing over the family fortune. It is also noteworthy that a higher average score of the ‘mindsponge’ dimension likely indicates that the business leaders have institutionalized some working mechanism for inducting emerging cultural values that may support their longer-term pursuit while effectively safeguarding those values at the heart of the cultural systems. In addition, most business owners sent their sons and daughters abroad to study management theories, techniques and global best practices. As a consequence, the new generations tend to be significantly different from their parents who have built the business out of private experiences and successful adaptation to the emerging market economy modus operandi. For instance, at Minh Long I, the father – currently the ultimate decision maker – who regards the ceramic and porcelain business as a game of life and very much appreciates personal abilities of his lifetime and loyal partners – accepts his Canada-educated son's proposal for documenting manuals of all machines, equipment, and tools in factories. When completed, this multi-million-dollar effort will create a standardized production system that puts the institutional sustainability first, instead of private experience and skills.

On the Support Group. Support dimensions reflect the state of the ecosystem for innovation in the businesses, describing how firm put tangible inputs of Innovator and F-resources in use. The

metrics define internal corporate capability of making the best use of limited physical inputs. For example, executives of Phu Nhuan Jewelry (HOSE: PNJ) and SG Food managed to find ideas for new products and solutions by getting more primitive insights from their staff members, not spending more on market survey and R&D activities. They often visit workshops and talk directly to the workers in order to grasp information for the multi-filtering process of creativity, similar to the model described in Vuong and Napier (2012).

Removing the ‘entrepreneurial curse of innovation’

While understanding the pivotal role of innovation, firms see the risk of abusing innovation, too. If reliance on physical resources – such as, capital and business privileges – may create ‘destructive creation’ (Vuong & Napier, 2014) then scrambling for innovation may cause an entrepreneurial curse of innovation to firms (Maddock, 2013). They understand Maddock’s argument that finding innovative ideas is challenging but still much easier than transforming it into commercial products and services that are accepted by consumers and clients. The commercialization process of innovation is often costly, requiring a huge effort in innovative solutions to marketing, cost optimization, effective distribution and the likes. Entrepreneurs who trust in the power of innovation may fall into the ‘innovation trap’ – a potential failure of business. That is, instead of being innovators who first find the largest unmet demand then innovate products, services, solutions to market’s problems, many are inventors who start with their innovative thinking then try to convince market to buy what they offer.

Mc Donald’s and Coca-Cola provide researchers and managers with famous case studies on successfully selling the same products in tens, even hundreds, of years. Coca-Cola, moreover, faced serious sales drop when introducing Coke with new formula in 1985. Although the two cases are often employed as counter-example of innovation, it is worthwhile to question how the firms maintain their global leading brands. It is expected that innovation is valuable somewhere inside the giants, for instance, in management of a multi-cultural workforce. The history of Coca-Cola reveals that the firm had activated its mindsponge to find out proper solution to acculturation problems (Gupta & Govindarajan, 2002). In order to secure its global soft drink empire, Coca-Cola’s board of directors appointed Douglas N. Daft, who was born in Australia and spent most of his career outside America prior to the appointment, as President and CEO. This was the first time Coca-Cola had a non-native American in such positions. Daft led Coca-Cola by the motto, “think locally, act locally.”

The i2Metrix 2014 survey finds that surveyed firms’ managers have been able to strike a balance between emphasizing innovation capability and converting it to real-world results. On the one hand, they are devoted to motivating their teams to engage in innovation practices and institutionalize ‘the innovation disciplines’ in line with Napier and Nillson (2008). On the other hand, they refrain from introducing too many (incremental) innovations that may confuse the management and the market.

Mr. Nguyen Lam Vien – who founded Vinamit, a leading dried jackfruit and frozen tropical fruits brand, in 1991 – helps us confirm that innovation is an on-going and never-ending process, but executives must plan well when, where and how to introduce innovative products to market.

In NaMiLux (a mini gas stove manufacturer) and Traphaco (pharmaceuticals manufacturer), innovations have to be in line with corporate responsibilities to secure sustainable supply and employment. Japanese buyers offer NaMiLux a long-term partnership largely because of the firm’s engineering team’s ability to design production plans for manufacturing complicated and high-quality gas cookers at comparatively competitive production costs. However, CEO Nguyen Manh Dung insists that any innovative solution, even the smallest one, must be tested and consulted with Japanese partners before introducing it to production lines. “A minor mistake can create big damage in mass production,” he remarks, “and we have to be the most reliable manufacturer supplying sufficiently and continuously.” As for Chairwoman Vu Thi Thuan of Traphaco, replacing hundreds of workers with automatic production lines is not an innovation. Her firm has to not only secure jobs for loyal workers but also provide a stable income source to their families. Traphaco’s innovation efforts, therefore, focus on smarter and friendlier marketing and distribution as the firm is serving special clients – the patients.

Innovation in a hierarchical environment

Hierarchical systems – where the junior has to obey the senior – are common in the Confucianist cultural environment of Vietnam private firms (Vuong & Tran, 2009). Does this reality prevent surveyed firms from being innovative? Napier and Nilsson (2008) suggest that the answer should be “No” because common features of innovative firms are (i) out of discipline thinking, (ii) within discipline expertise, and (iii) a discipline process of implementation. The question is whether these apply in a Confucianist cultural environment as well.

The first discipline is to seek new ideas out of the firm and the industry, even dream about solutions or future products. Innovators who are able to think out-of-the-discipline collect primitive insights from related and unrelated fields then try to apply these insights in solving their issues. The second is to employ the best expertise in different professional functions. When the best experts work in a team, they not only share their knowledge, but also learn from others. The results of such a learning and self-improving process are innovative outcomes. The third discipline is a process of putting together creativity methods and inputs in a consistent manner to strive for innovations. Such a process releases innovators from administrative disturbance and makes them highly focused on generating innovations. Responses from the i2Metrix survey unveil that although the firms’ executives may have not learnt about the three disciplines, they naturally follow the three.

Executives often quickly accept the first two disciplines – keep finding new ideas from any where, and making themselves the best experts. Some, however, may feel it difficult to practice the third. Developing a systematic process of generating innovation seems to be more challenging and costly than just trial-and-error. Many are afraid of missing an opportunity but not worried about failure of making a new idea into opportunity.

Christensen and Overdoft (2000) argue that well-established corporations face an innovation dilemma. High-quality teams, working in a comfortable environment, are not able to propose new ideas and solutions as unacceptable if failure puts extremely high pressure on them. What a corporation can do or cannot do depends on (i) resources – what the corporation possesses, (ii) process – how the corporation operates, and (iii) core values that the corporation’s members trust in then defines their priority. The larger the corporation, the more important a role that a team’s consistent understanding of core values plays. The only way to solve the innovation dilemma is to build the corporate core value of pursuing innovation and creation of new market values.

Schumpeter (1994[1942]) stresses the critical importance of entrepreneurship, in relation to innovation, in economic development. In his creative destruction, the boom-bust cycles of an economy are driven by advanced creativity. In the expansion stage, innovations and inventions increase productivity and encourage investment. In the mature stage, investors are getting harder to find a place to put their money, and the law of diminishing returns appears. As a result, businesses face stagnation and some dissolve. A depression comes. A new cycle will not start until new innovations and inventions destroy backward methods of production, lower inputs for the same amount of outputs, and require new inputs for producing new products. A wealthy economy has to build a comfortable socio-economic setting for the process of creative destruction to continue.

Agreeing with Napier & Nilsson (2008), MacDonald (2008) argues that innovation is possible in the most bureaucratic of institutions. MacDonald considers a corporate team’s desire for creating new market values a prerequisite for innovation while emphasizing the corporate leaders’ entrepreneurial determination to pursue innovation.

The survey on 19 LBC members affirms that firms’ leaders play decisive roles of making innovation happened. On the one hand, this reality raises concerns over sustainability of corporate innovation, especially where leadership is transferred to the next generation. On the other hand, the fact that those executives are trying to build a disciplined process of creativity sends a reliable signal for a bright future of Vietnamese corporate innovation. Such insights are in line with Vuong, Napier, Tran & Nguyen’s (2013) suggestion – that is, the association between business approach (i.e., rent-seeking vs. creativity making) and corporate orientation (i.e., tapping out resources or seeking prospective market) is the best-fit predictor for financial collapse. The examination of 256 cases in 2007-2013 period points out that the cause of Vietnamese financial collapse is not asymmetric information (Pressman, 1998) but “the lack of cost-benefit consideration and multi-layer filtered information.”

The story about Minh Long Ceramic and Porcelain is typical of the success of a disciplined process of creativity. At the beginning of the i2Metrix interview, the head of the family – Mr. Ly Ngoc Minh – affirms, “No innovation effort of Minh Long is not a success.” It is because he understands that innovation is a never-ending process and patience is necessary. Accidentally, Minh Long employs all three disciplines by Napier & Nilsson (2008).

Minh Long first participated Abiente Frankfurt 15 years ago. But until Abiente The Show 2014, the leader of Vietnamese ceramic and porcelain producers gains the first achievement. Spending a lot of money on participating in the most expensive international trade fairs that is always organized during Lunar New Year holidays while receiving no orders really challenges Ly. “Several sales managers left Minh Long because I insisted on bringing our products to Frankfurt,” he says. Ly’s determination is rooted in his careful study about the Fair, which strongly affirms that Abiente Frankfurt is the eldest and most famous Trade Fair where the best ceramic and porcelain wares have been bought by the most respected buyers in the world. In short, this is the place of the bests.

In addition, Minh Long does not go to Frankfurt to sell their products. “I want to see what are the best ceramics and porcelains, try to learn how they were made, explore how the producers sell their best products, and investigate what the buyers look for,” Ly says. “In the first years, I knew the quality of our products were low and that we could not sell any thing at the fair,” he smiles. Ly’s thought is really out of the box.

Explaining his patience with costly Frankfurt, Mr. Ly outlines five principles that key members at Minh Long have to learn by heart and constantly practice at work: 1) Simple and effective (ideas and solutions); 2) Double check (at least); 3) Never give up; 4) Open and optimistic; 5) Honesty. “The first three are for internal operation, and the last two are for external relations,” Ly adds.

Hidden power of innovation

Firms’ executives, who joined the i2Metrix survey, highly appreciate the contribution of innovation to their business successes. However, half of them do not think that their innovation capabilities are good enough. 9 out of 19 executives rate themselves lower than the average i2Metrix which is compiled by assessments of respondents, i2Metrix researchers, and reporters.

Strong entrepreneurial spirit of the firms’ leaders is not only a powerful motivator but also a destroyer of self-satisfaction. The Chairwoman and CEO of Phu Nhuan Jewelry (HOSE:PNJ) repeatedly quotes Voltaire’s “the best is the enemy of the good.”

Entrepreneurship is most important force that created economic achievements of the Vietnamese economy in the last three decades of *Doi Moi* (Vuong, Dam, Van Houtte & Tran, 2011). Entrepreneurial process, however, is just only able to release the labor force from the centrally planned economy and to introduce commercial incentives to the economy. In a fast-changing competitive environment, the Vietnamese corporate sector has to build both innovative business methods and mindsets.

Corporate innovation capability is getting more important than traditional inputs of production, namely land, capital and labor, especially when the economic turbulence reaffirms the law of diminishing returns. When Vuong, Napier & Tran (2013) examine relationships between culture, creativity and business stage of 115 business success stories in Vietnam, they find that cultural values and methods of creativity are critical to business performance in the entrepreneurial phase. Their roles diminish as the business grows. Therefore, it is noteworthy that ability to nurture strong entrepreneurial leadership is a reliable signal for predicting the future performance of a business. For those respondent executives who are still unhappy with their corporate innovative performance, it is safe to conclude that their firms possess hidden powers of innovation.

5. Limitations of this research

Although the design of i2Metrix is a joint-product of international proficient research teams and veteran business executives, the following limitations well acknowledged.

Small sample size. 19 respondents are not able to provide a statistically confident conclusion. It is expected that the sample will be larger in the next years as more businesses are registering to join i2Metrix survey.

Survey sample is not typical of the Vietnamese corporate sector. The 19 LBC members are upper stratum corporations. Most, if not all, of them are leaders in their industries. As a result, their i2Metrix composites are skewed as varying from 7.1 to 8.9. Such skewness, however, is necessary and allows people to hope for a bright future of the Vietnamese economy.

Subjectivity in assessments. Although innovations are concrete outputs – i.e., new production, new solution, new management – the process of innovation is intangible and vague. Subjectivity in assessments, therefore, is unavoidable, especially when data is collected by in-depth interviews with numerous qualitative questions. In order to minimize human errors and personal opinions, the three sources of assessments – including firm's executive, survey teams, and reporters – are unweighted.

Large difference between assessments. There are possibly large differences between assessments by different sources. Since the final measures of facets are an unweighted average it is expected such measures will be maximum likelihood when the number of evaluators increases.

Unclear instructions on how to assess. i2Metrix introduces just only principles for evaluators to assess the difference between personal expectation/target and actual performance. On the one hand, the absence of a standardized benchmark prevents the survey from getting homogenous results. On the other hand, the quality of assessment largely depends on professional capability and understanding of business culture and environment of evaluators as well as their learning and inductive attitudes.

6. Closing remarks

The fact that i2Metrix is welcome by the business community (with executives spending their valuable time on in-depth interviews), local government (Deputy Chairman of An Giang asked enterprises located in the southern province to join the survey), and policy makers (Minister of Science and Technology employed the i2Metrix scores when giving awards to 17 typical innovative enterprises), it unveils an improving awareness of innovation and a rising demand for a quantitative approach to innovation management and strategy. Examining the elusive innovation by ten distinctive dimensions and concrete facets helps business executives intuitively review innovation practices of their firms and improve their confidence in managing the intangible innovation resource. Such visualized understanding of corporate innovation capability, perhaps provides firms – which are seeking non-traditional ways of developing competitive capability - with primitive insights for designing and implementing innovation strategies.

Open design and theoretical foundation, which are based on globally grounded theories of creativity and innovation, allow the i2Metrix survey and analytical framework to be imitated in other economies, especially the ASEAN neighbors. Enlarged samples and cross-country comparisons are expected to offer better insights for business managers and policy makers in the context that innovation is “wanted dead or alive.”

7. References

- Acs, Z. J., Anselin, L., & Varga, A. (2002). Patents and innovation counts as measures of regional production of new knowledge. *Research Policy*, 31(7), 1069-1085.
- Barczak, G., Lassk, F. & Mulki, J. 2010. Antecedents of team creativity: An examination of team emotional intelligence, team trust and collaborative culture. *Creativity and Innovation Management*, 19, 332-345.
- Bissola, R., & Imperatori, B. (2011). Organizing individual and collective creativity: Flying in the face of creativity clichés. *Creativity and Innovation Management*, 20(2), 77-89.
- Bohm, D. (1968). On creativity. *Leonardo*, 1(2), 137-149.
- Bradford, M., & Florin, J. (2003). Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems. *International Journal of Accounting Information Systems*, 4(3), 205-225.
- Chiu, C., & Kwan L. (2010). Culture and creativity: A process model. *Management and Organization Review*, 6(3), 447-461.
- Christensen, C.M. & Overdorf, M. (2000). Meeting the Challenge of Disruptive Change. *Harvard Business Review*, March-April.

- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555-590.
- Day, R. H. (1995). Rationality, entrepreneurship and institutional evolution. *Revue économique*, 46(6), 1473-1485.
- Dell'Era, C., & Verganti, R. (2010). Diffusion of product signs in industrial networks: the advantage of the trend-setter. *European Journal of Innovation Management*, 13(1), 81-99.
- Dougherty, D. (2001). Reimagining the differentiation and integration of work for sustained product innovation. *Organization Science*, 12(5), 612-631.
- Eisenberger, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. *Journal of Applied Psychology*, 75(1), 51.
- Egan, T. (2005). Factors influencing individual creativity in the workplace: An examination of quantitative empirical research. *Advances in Developing Human Resources*, 7(2), 160-181.
- Ettlie, J. E., Bridges, W. P., & O'keefe, R. D. (1984). Organization strategy and structural differences for radical versus incremental innovation. *Management Science*, 30(6), 682-695.
- Greenfield, S. M., & Strickon, A. (1981). A new paradigm for the study of entrepreneurship and social change. *Economic Development and Cultural Change*, 29(3), 467-499.
- Griffith, R., Huergo, E., Mairesse, J., & Peters, B. (2006). Innovation and productivity across four European countries. *Oxford Review of Economic Policy*, 22(4), 483-498.
- Gupta, A. K. & Govindarajan, V. (2002). Cultivating a global mindset. *Academy of Management Executive*, 16(1), 116-126
- Gupta, S., & Loulou, R. (1998). Process innovation, product differentiation, and channel structure: Strategic incentives in a duopoly. *Marketing Science*, 17(4), 301-316.
- Hull, C. E., & Rothenberg, S. (2008). Firm performance: the interactions of corporate social performance with innovation and industry differentiation. *Strategic Management Journal*, 29(7), 781-789.
- Hurley, R. F., & Hult, G. T. M. (1998). Innovation, market orientation, and organizational learning: an integration and empirical examination. *The Journal of Marketing*, 62, 42-54.
- Keskin, H. (2006). Market orientation, learning orientation, and innovation capabilities in SMEs: An extended model. *European Journal of Innovation Management*, 9(4), 396-417.
- Klein, K. J., & Knight, A. P. (2005). Innovation implementation overcoming the challenge. *Current Directions in Psychological Science*, 14(5), 243-246.
- Leifer, R., O'Connor, G. C., & Rice, M. (2001). Implementing radical innovation in mature firms: The role of hubs. *The Academy of Management Executive*, 15(3), 102-113.
- Leonard-Barton, D. (1995). *Wellsprings of knowledge: Building and sustaining the sources of innovation*. Harvard Business Press.
- Li, T., & Calantone, R. J. (1998). The impact of market knowledge competence on new product advantage: conceptualization and empirical examination. *The Journal of Marketing*, 62(4), 13-29.
- Ling, F. Y. Y. (2003). Managing the implementation of construction innovations. *Construction Management and Economics*, 21(6), 635-649.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *The Academy of Management Review*, 21(1), 135-172.
- Maddock, M. (2013). Invention: The Entrepreneurial Curse. *Forbes*, May 15.
- MacDonald, R.W. (2008). *Beat the System: 11 Secrets to Building an Entrepreneurial Culture in a Bureaucratic World*. John Wiley & Sons, Inc.
- McAdam, R., & Keogh, W. (2004). Transitioning towards creativity and innovation measurement in SMEs. *Creativity and Innovation Management*, 13(2), 126-139.
- Miller, D., & Friesen, P. H. (1982). Innovation in conservative and entrepreneurial firms: two models of strategic momentum. *Strategic Management Journal*, 3(1), 1-25.
- Napier, N. K., Bahnson, P. R., Glen, R., Maille, C. J., Smith, K., & White, H. (2009). When "Aha moments" make all the difference. *Journal of Management Inquiry*, 18(1), 64-76.
- Napier, N. K. & Nilsson, M. (2008). *The Creative Discipline: Mastering the art and science of innovation*. Westport, CT: Praeger.

- Napier, N. K., Dang, L. N. V., & Vuong, Q. H. (2012). It takes two to tango: Entrepreneurship and creativity in troubled times – Vietnam 2012. *Sociology Study*, 2(9).
- Napier, N. K. & Vuong, Q. H. (2013). Serendipity as a strategic advantage, in Wilkinson, T. (ed.) *Strategic Management in the 21st Century*. Vol. 1 (pp. 175-199). Westport, CT: Praeger.
- Nguyen, L. (2013, October 21). Tang trung binh quan 2011-2013 thap nhat trong 13 nam [Average growth on the 2011-2013 lowest in 13 years]. *Thoi bao kinh te Viet Nam*. <<http://vneconomy.vn/2013102112441730P0C9920/tang-truong-binh-quan-20112013-thap-nhat-trong-13-nam.htm>>; accessed April 25, 2014.
- Nonaka, I. (1991). The knowledge-creating company. *Harvard Business Review*, 69(6), 96-104.
- Peters, B. (2009). Persistence of innovation: stylised facts and panel data evidence. *The Journal of Technology Transfer*, 34(2), 226-243.
- Pressman, S. (1998). On financial frauds and their cause. *American Journal of Economics and Sociology*, 57,405–421.
- Rahaman, A., & Muhamad, M. R. (2004, October). The winning new product strategy: market or technology driven? in *Engineering Management Conference*, 2004. Proceedings. 2004 IEEE International (Vol. 3, pp. 1052-1055). IEEE.
- Rombach, D., & Achatz, R. (2007, May). Research collaborations between academia and industry, in *2007 Future of Software Engineering* (pp. 29-36), IEEE Computer Society.
- Rothaermel, F. T., & Hess, A. M. (2007). Building dynamic capabilities: Innovation driven by individual-, firm-, and network-level effects. *Organization Science*, 18(6), 898-921.
- Runco, M. A. & Richards, R. (1997). *Eminent Creativity, Everyday Creativity, and Health*. Greenwich, CT: Praeger.
- Schroeder, R. G., Scudder, G. D., & Elm, D. R. (1989). Innovation in manufacturing. *Journal of Operations Management*, 8(1), 1-15.
- Schumpeter, J. A. (1994[1942]). *Capitalism, Socialism and Democracy*. NY: Psychology Press.
- Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal*, 37(3), 580-607.
- Shane, S. (1993). Cultural influences on national rates of innovation. *Journal of Business Venturing*, 8(1), 59-73.
- Tidd, J., & Bessant, J. (2011). *Managing innovation: integrating technological, market and organizational change*. West Sussex, England: John Wiley & Sons.
- Udwadia, F.E. (1990). Creativity and innovation in organizations: Two models and managerial implications. *Technological Forecasting and Social Change*, 38, 65-80.
- Ulijn, J.M., Nagel, A.P., & Tan, W.L (2001). The impact of national, corporate, and professional cultures on innovation: German and Dutch firms compared. *Journal of Enterprising Culture*, special issue on Innovation in an International Context (edited by Nagel, A., Ulijn, J., and Tan, W.L), 9(1), 21-52.
- Unsworth, K., & Clegg, C. (2010). Why do employees undertake creative actions? *Journal of Occupational and Organizational Psychology*, 83(1), 77-99.
- Vuong, Q. H. (2012, August 21). Vietnam's economic challenges. *Stratfor Global Intelligence*. <http://www.stratfor.com/the-hub/vietnams-economic-challenges>
- Vuong, Q.H., Dam, V.N., Van Houtte D. & Tran T.D. (2011). The entrepreneurial facets as precursor to Vietnam's economic renovation in 1986. *The IUP Journal of Entrepreneurship Development*, VIII(4), 6-47.
- Vuong, Q. H., & Napier, N. K. (2014). Resource curse or destructive creation in transition: Evidence from Vietnam's corporate sector. *Management Research Review*, 37(7).
- Vuong, Q.H. & Napier, N.K. (2012). The value of multiple filters in the creative process. *Working Papers CEB* 12-036, ULB -- Universite Libre de Bruxelles.
- Vuong, Q.H., Napier, N.K., & Samson, D. E. (2014). Relationships between innovations, capital expenditures and post-M&A performance: Evidence from Vietnam, 2005-2012. *IUP Journal of Business Strategy*, XI(1), 34-41.
- Vuong, Q.H. & Napier, N.K. (2013). Acculturation and global mindsponge. *Working Papers CEB* 13-053, ULB -- Universite Libre de Bruxelles.

- Vuong, Q. H., Napier, N. K., & Tran, T. D. (2013). A categorical data analysis on relationships between culture, creativity and business stage: The case of Vietnam. *International Journal of Transitions and Innovation Systems*, 3(1), 4-24.
- Vuong, Q. H., Napier, N. K., Tran, T. D., & Nguyen, H. K. T. (2013). A categorical data analysis on financial failures in Vietnam, 2007-2013. *International Journal of Business and Management*, 8(18), 87-94.
- Vuong, Q. H., Tran, T. D. & Nguyen, T. C. H. (2010). Mergers and acquisitions market in Vietnam's transition economy. *Journal of Economic Policy and Research*, 5(1), 1-54.
- Vuong, Q.H. & Tran, T.D. (2009). The cultural dimensions of the Vietnamese private entrepreneurship. *The IUP Journal of Entrepreneurship Development*, VI(3/4), 54-78.
- Weerawardena, J. (2003). The role of marketing capability in innovation-based competitive strategy. *Journal of Strategic Marketing*, 11(1), 15-35.
- West, M. A. (2002). Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups. *Applied Psychology: An International Review*, 51(3), 355-424.