ABSTRACT

Fifty years of studies of innovation do not provide sufficient theoretical understanding of the relationships between critical organizational determinants and organizational innovation. Understanding the effects of innovations on organizational performance is still unclear. Based on a united theme of five streams of strategic management literature, this paper develops a multilevel, configurational, change-dependent theoretical framework of innovation management that might explain the relations between innovations and organizational performance. It is further proposed that the fields of learning management and capability management could be emerged for the content and construct validity of the framework.

Introduction

The need of innovation at the national, industrial, and organizational level for enhancing competitive advantage and performance has been widely recognized. The results of previous studies did not provide sufficient understanding of relations between critical organizational determinants and organizational innovation (Brown & Eisenhardt, 1995). The existing innovation theory has been changed little over the last thirty years and has been dominated by normative explanations of how to achieve a main outcome: increasing the number of innovations generated (Drazin & Schoonhoven, 1996). Furthermore, Meyer and Goes (1988) argue that the interactions among these determinants affecting on innovation adoption or generation are still rarely investigated (Wolfe, 1994).

The effects of innovation on organizational performance are still unclear (Damanpour, 1991) and a dynamic model of innovation management that embraces both internal and external settings of the organization has not been achieved even after forty years of research on this topic (Drazin & Schoonhoven, 1996). Damanpour (1991) suggests that the studies of innovation should focus on the groups of related innovations representing the primary work activity of an organization (internal settings) and this configurational approach could help link innovativeness to organizational effectiveness. The link is necessary for extending the scope of innovation research to include assessment of the consequences of innovation. Furthermore, Damanpour and Evan (1984) state that organizations adopt all types of innovation at an extent levels (product-process, radical-incremental) and organizational performance might depend more on congruency between different types of innovation than on each type alone.

Because of the complex, context-sensitive and dynamic nature of innovation, the understanding of organizational innovation can be extricated based on both multilevel
contexts innovation takes place and multidimensional attributes it appears (Wolfe, 1994). The critical external contexts that both Damanpour (1991) and Wolfe (1994) suggest are organization type (manufacturing or service), technological and environmental context, and industry. Damanpour (1991) suggests several internal organizational determinants including variables representing different categories: structure, technical knowledge resource, attitude toward change, and internal and external communication. For explanations of innovation as multidimensional constructs, they suggest attributes of innovation that are product and process, radical and incremental.

These suggestions reflect the need of dynamic and interactive model of innovation management framework that embraces both internal and external settings of the organization that has not been achieved over 40 years of the study of innovation. Two central themes of the studies observed are the contextual (resource based view and organizational economics) approach ("What multilevel organizational factors predict the generation or adoption of an innovation?") and the industrial dynamic (industrial organization) approach ("What are the population effects on the production of innovations?") (Drazin & Schoonhoven, 1996: 1074). Greve (1995: 446) also proposes "the challenge is to create theoretical and methodological bridges between two levels of analysis" (Drazin & Schoonhoven, 1996: 1075).

This research paper proposes a contingency model of the relationship between strategic choice, innovation, and performance, combining both industry effect (environmental changes) and internal settings of the organization regarding formulation (strategy) and implementation (structure and competency) and using multidimensional constructs of innovation (radical, major incremental, incremental). The research constructs proposed attempt to reflect that the strategic reality that firms choose competitive strategies that they believe fit their competitive context and their organizational structure, such that addressing slow/basic, moderate/recombinative, and dynamic/learning or acquisitive change contexts in both formulation or administrative (strategy-making and structural flexibility) and implementation or operative (competency-technology, knowledge, and skill) is necessary and contingent. The model advances the previous literature due to its integrated view of both internal (formulation and implementation) and external factors based on classical theories and models and contemporary theories founded upon dynamic and interactive view proposed by the dynamic strategy-structure-performance paradigm by Eisenhardt and Galunic (1994), dynamic capability by Eisenhardt and Martin (2000), strategic renewal by Floyd and Lane (2000) and dynamic resource based view by Helfat and Peteraf (2003).

**Proposed Research Model**

Explaining organizational performance is one of the primary purposes of strategic management theories. The strategy-structure-performance paradigm and SWOT model will be reviewed and critiqued for supporting the content validity of independent variables of the conceptual framework (organizational determinants proposed) for explaining organizational performance. Figure 1 below introduces the overall model developed in this study.
Figure 1: Proposed Model

Referred to as the theory that gave birth to the field of strategic management, the strategy-structure-performance paradigm (Chandler, 1962) was founded upon the adaptation of organizational structure of mega-companies as they directed their investments for completing the companies’ long-term goals and strategic directions. This paradigm is a pioneer work that provides a fundamental perspective of strategic management about fit between shifts of the strategic directions and a process of administrative changes within the organizations rather than adjustments for operational efficiency (Rumelt, Schendel, & Teece, 1994). While the original emphasis on the source of change was the internal decision for long-term investments (diversification) that occasionally occurred, it suggests that organizational performance results from both formulation determinant (strategy) and implementation determinant (structure) that fit with each other. However, from three decades of research on diversification strategy, the overall result is that related diversifications render higher performance or more success rate than the unrelated ones (Markides & Williamson, 1994; Palich, Cardinal & Miller, 2000); which indicates, in addition to the influence of fit between strategy and structure, the significant co-influence of corporate competencies on performance.

The influence of competency is also found in the researches that investigated the paradigm at the strategic business unit. Galunic and Eisenhardt (1994) address three exemplars of researches in this level of analysis conducted by Miles and Snow (1978), Porter (1980), and Miller (1988). All researchers suggest close relationships between types of strategies (low cost, marketing differentiation, and product differentiation) and structures (formal/mechanistic, looser/organic, ad hoc/integrative mechanism/more liaisons and technocrats). However, all of the researchers’ structure constructs encompass organizational competency constructs that jointly influence organizational performance. Miles and Snow (1978) address flexibility and efficient of technology in all of their discussion of adaptive behaviors; Porter (1980) embraces amenities to attract a creative and highly skilled work force in his structure construct of differentiation strategy; Miller (1988) includes more liaisons and technocrats in his structure construct of innovation differentiation strategy (Galunic & Eisenhardt, 1994). From research conducted under the strategy-structure-performance paradigm, the influences of strategy, structure and competency on organization performance are addressed.

Another framework supporting the proposed contingency model is SWOT analysis. This management framework was established by the general management group at the Harvard Business School and was best explained by Andrews (1971). The framework concerns with environmental appraisals (opportunities and threats), internal competences, competition (relative position of the company’s competences to its rivals), strategy, and implementation. It provides a foundation for strategy formulation that concerns with both assessment of both internal and external settings and matching between internal strengths (distinctive
competencies) and external opportunities (and avoiding threats and weaknesses). Andrews (1971) states that the most important part in the framework is implementation of strategy that obviously involves with structure, competency and environment. SWOT analysis, referred to as a basic tool in strategic management theory, suggests an integrated view that engages strategy making processes, organizational competences, and environmental settings to explain the organizational performance.

Strategic choice analysis initiated by Child (1972) enunciates the dynamic process exerted when decision makers (termed as dominant coalition) decide on courses of strategic action (such action could be directed toward different targets) to achieve certain performance standards that concerns interactions between internal and external settings including organizational structure (Child, 1972), organizational routines and scale (Child, 1997). The process is described as follows: “This dynamic organizational process embraces two constituent cycles which amount to a double structuration between action and situation. The first cycle is one of ‘inner structuration’, and it extends to the domain of organizational design. Within this first cycle, organizational actors seek to work upon, and are simultaneously informed or constrained by, the existing structures and routines of the organization, including its technologies and scale. The second cycle is one of ‘outer structuration’, and it extends to the environment. Within this second cycle, organizational actors seek to influence or reach an accommodation with specific environmental groups and more general environmental conditions” (Child, 1997: 49). Thus, the model of strategic choice analysis would: “direct our attention towards those who possess the power to decide upon an organization's structural rationale, towards the limits upon that power imposed by the operational context, and towards the process of assessing constraints and opportunities against values in deciding organizational strategies” (Child, 1972: 13).

From the explanation stated above, both internal and external organizational environment and their effects are considered simultaneously for dynamic self-situation assessment of interactions among their inputs or resources (technology and scale), processes (such as creating strategy and structure), and the dynamic environment. The analysis provides a fundamental framework of the dynamic fit model of inputs (structure, technology, and scale), the dynamic selection-decision process, and the dynamic environment. Consequently, change-oriented (procedural) constructs are needed for the analysis to reflect interaction between these constructs. In sum, snapshot characteristics of strategy, structure, and competency cannot represent the interactive and integrative nature of the processes.

While strategic choice analysis emphasizes and provides a more integrated interactive and dynamic view, the analysis does not offer any major archetype or primary pattern guiding effective and practical analyses. It suggests only dynamic and interactive processes required to analyze real business situations and the organizational and environmental variables involved. In other words, the analysis does not provide operationalization of the acknowledge variables that confluence with the processes to cope with different levels of changes in particular dimensions for each construct and the main thread to consolidate them as a theme for explaining organizational performance.

**Strategy and Choice**

Utterback and Abernathy (1974) proposed a model that explains three patterns of the relationships between innovation, competitive strategy, technology (production process) and the industry’s stage of development (product life cycle): performance maximizing stage (fluid
pattern), sales maximizing stage (transition pattern) and cost minimizing stage (specific pattern). These stages are determined by using different types of innovation through the product life cycle as a major thread of the patterns. The model advanced the previous literature by not only indicating and emphasizing the need of improved output-innovation (rather than merely the internal input variable such as technology and procedural variables such as strategy and structure) but also providing patterns for effectively guiding practical analyses of the dynamic, interactive and integrative nature of innovation with dynamic business settings along the product life cycle. Moreover, the patterns imply that innovations are results of the interactive and cohesive themes (patterns) of organization determinants (strategy, structure, and technology).

First, in the need/market stimulated region (fluid pattern) has the predominant type of innovation based on major product changes stimulated by users’ needs; the competitive strategy emphasizes on unique product performance (better performance-product differentiation); and technology (production process) is flexible and inefficient. Second, in the technology stimulated region (transitional pattern), the predominant type of innovation is resulted of major process changes stimulated by internal technical capacity; the competitive strategy emphasizes on the product variation (better serve various markets-market differentiation); and technology (production process) tends to be more rigid. Third, in the cost stimulated region (specific pattern), the predominant type of innovation is incremental of product and process changes stimulated by reducing cost and improving quality; the competitive strategy emphasizes on cost reduction (cost leadership); and technology (production process) is rigid and efficient.

This model elucidates the common theme of (generic) strategy (competitive emphasis), structure (forms of organizational control), competency (technology) and innovation, all of which related to changes/situations along the product life cycle. In spite of the holistic approach of the model explicating the total relationships, which are classified as three main patterns, the model provides incomplete insight into causal relationships between key organizational attributes and does not reflect managerial practices for business managers.

The second model that affirms and elaborates the organization-innovation-environment theme proposed by Utterback and Abernathy (1974) is Miles and Snow’s typology. The typology was originated from a longitudinal study of how organizations adapt to changes in the market and technology with the initial expectation that every successful firm should be moving toward flexible organizational structure and processes.

Miles and Snow proposed ‘adaptive cycle’ that conceptualizes major organizational elements of adaptation and delineates their interrelationships comprising of entrepreneurial, engineering, and administrative phrase. The cycle implies that the effective adaptations rely on appropriateness of each element in all phrases and alignment among them and, frequently, adaptation occurs by moving sequentially through the entrepreneurial, engineering, and administrative phrases. However, they suggest that processes of adaptations can be triggered at any phrase. It is noteworthy that this process confluences with classic theories such as SWOT that could be initiated at a product-market choice already chosen by the entrepreneur (entrepreneurial domain) and subsequently, followed by assessment of their distinctive competences (engineering domain) and their environments and, eventually, the formulation of strategy and structure (administrative domain). Moreover, the adaptive cycle represents the dynamic and interactive nature of adaptations that involve with all parts of the organization, which confluences to strategic choice theory by Child (1972). Furthermore, classification of
the typology (prospector, analyzer, and defender) conforms to conditions of three stages of product life cycle in dynamic model of innovation by Utterback and Abernathy (1974).

From various adaptations enacted to numerous environments supported by appropriate decisions concerning the organization’s technologies, strategies, structures, processes, and its outputs’ attributions via the adaptive cycle, Miles and Snow deduced that the mainstreams of organizations’ adaptations toward the same industry environment could be classified into four generic categories of defender, prospector, analyzer, and reactor.

The typology provides three successful organizational archetypes or strategic policies representing the organizational position and pattern generated from their executives’ integrated and interactive perspectives (or “from dominant coalition's perceptions of environmental conditions and the decisions it makes concerning how the organization will cope with these conditions” (Child, 1997)). The last one, reactor, is treated as residual types of organizations that cannot effectively adapt to their environment caused by inappropriate decisions or/and conditions in each or more elements in the adaptive cycle.

Two attributes of the Miles and Snow’s typology are, firstly, the view of organizations as “integrated wholes in dynamic interaction with their environments”, which contrasts to others that are mostly based on static analysis of organizational snapshots and thus provide limited insights into associated organizational attributes such as Porter’s generic strategies, Henry Mintzberg’s or Danny Miller’s typology (Ghoshal, 2003), and, secondly, comprehensiveness of the relationships between organizational elements that characterize an organization as a complete system (Snow & Hrebiniak, 1980). To date, by its excellence to its correspondence with the actual dynamic environment and strategic behaviors of organizations, the typology has been widely applied to numerous researches across multiple industries and countries (Desarbo et al., 2005).

However, the typology merely defines the modes or features of technology and addresses important functional areas (dominant coalitions) in specified adaptations. The typology does not provide specific and appropriate (level of) competences in key functional areas such as manufacturing, marketing, and research and development in the specified adaptations, which differ in dimensions and require different sets of resources and skills (Porter, 1980). Furthermore, it does not propose a unified theme for classifying and measuring processes in administrative and engineering (including marketing and research and development) parts of the typology that confluence with the particular type of adaptations. The theme that can explain performance difference between the same or the mixed type of organizations, for example; “Why some defenders outperform others?” or “How some organizations are simultaneously defenders and analyzers or analyzers and prospectors?” will confer more abilities and accuracy in identifying problems and determining specific management practices required in the adaptation and can guide management to cope with problems or opportunities occurred in the preparation stage for the adaptations.

To rectify the shortcomings of Miles and Snow’s typology which lacks a unified theme for classifying and measuring competencies (processes in administrative and engineering), which will lead to determination of appropriate types of competences of key business functions and strategy-making processes involved with innovation processes, three subprocesses of a strategic renewal theory is presented and organizational change (strategic renewal) literature is briefly reviewed.
Strategic Choice And Change

Much of the literature on organizational change/renewal focuses on the question of how to make organizations innovate more (Mezias & Glynn, 1993). However, previous studies do not provide adequate understanding of how to organize for product innovation and organizational renewal (Dougherty, 1992). From their review, Mezias and Glynn (1993) characterize organizational renewal by the characteristics of renewal outcomes in three themes: institution, evolution, and revolution. They conclude that the institutional approach leads to minor, incremental changes (refinement to existing systems and technologies); the evolitional approach leads to major incremental changes (due to changing customers’ needs); and the revolutionary one leads to radical changes. Several leading scholars (Barnett & Burgelman, 1996; Burgelman, 1983, Huff, Huff, & Thomas., 1992; Nelson & Winter, 1982) also proposed research models that focus on aligning organizational strategy with environmental changes. However, they do not provide the integrative solutions encompassing formulation and implementation variables for effectively employing their approaches.

Floyd and Lane (2000) broaden the meaning of strategic renewal as a way to enhance the firm’s competitive advantages by maneuvering strategy-making processes and competency management. They consider competencies as combinations of assets, knowledge, and skills underlying organizational abilities for transforming input factors into valued products and services, and distinguishing them from its rivals’ in the same product-market domain. They consider strategy as a way for determining and achieving most efficient position within product-market domain occupied by the firms based on attributes of their products and services relative to their rivals. From stated rational, Floyd and Lane (2000) define organizational renewal in a broader perspective as “an evolutionary process associated with promoting, accommodating, and utilizing new knowledge and innovative behavior in order to bring about change in an organization’s core competencies and/or a change in its product market domain.”

They propose three subprocesses of strategic renewal: competence deployment, competence modification, and competence definition. It is noteworthy that these subprocesses are employed with the purpose of aligning with different levels or types of environmental changes through organizational adaptations. The subprocesses can be differentiated by their outcomes and be linked to a sequence of stages of the product life cycle.

The first is competence deployment, which the necessary competencies are already learned and change is based on an established strategic principle and is guided by an accepted strategic ends and means, the managerial activities are adjusting structure, systems and people to fit the established strategy, which would lead to incremental innovations. The second is competence modification, which both competencies and strategies are questioned for adaptation and encouraged for change to fit the circumstances in the external environment, the managerial activities are assessing utility of competencies and desirability (appropriability) of strategies (and, of structure, systems and people); needs of changes are recognized by managers, which would lead to major incremental innovations. The third is competence definition, which both existing competencies and strategic positions (structure, systems and people) are contestable, the managerial activities are exploration for new skills and market opportunities, which would lead to radical innovations.

The model advances the previous theories in that it classifies and arranges renewal processes involving with organizational determinants into an integrated line of reasoning aligned with
particular levels of environmental changes. The model also implies the need of change-oriented (procedural) constructs of strategy and competency for reflecting realities in organizational renewal phenomena. Moreover, from their review of organizational renewal literature, Mezias and Glynn (1993) propose three themes of organizational renewal processes related to three types of organizational innovations.

Based on the confluences of strategy-making mode, competency, and scope of Floyd and Lane’s theory on strategic renewal and Miles and Snow’s typology, competencies of firms will be constructed based on three subprocesses of strategic renewal: competence deployment, competence modification, and competence definition, which align with major attributes of each organizational archetype; defender, analyzer, and prospector, respectively. Instead of emphasis on different dominant coalitions in original Miles and Snow’s typology, the multi-level competencies of dominant coalitions in prospector, analyzer and defender (except for finance) are constructed in three levels for clarifying how performance differences emerge between firms of the same and different archetypes through innovations.

Based on the strategic renewal theory (Floyd & Lane, 2000; Mezias & Glynn, 1993) and Miles and Snow’s typology (1974), each subprocess of organizational renewal and typology mainly utilizes particular level (type) of strategy, competency, and structure that constitute three major configurations fostering innovations in best fit level (type).

**Strategy and Firm Capabilities**

The literature discussed above provides only foundations for content validity of independent variables (strategy, structure, and competency) and the intervening variable (innovation) as initial schemes, but does not provide enough theoretical understandings for explaining value of and organizational performance caused by innovations. Additional theoretical foundations are needed for supporting the conceptual framework of this research.

Since resource based view makes direct references to how a firm allocates and manages its resources and capabilities, it is an ideal theory for representing dual nature of product and innovation as a tangible resource and a source of strategic advantage resulted from organizational capabilities. In this part, the Resource Based View (RBV) literature is reviewed. The rationale of RBV will be proposed as a theoretical foundation of this research’s conceptual framework.

The traditional resource based view (RBV) concerns with the characteristics of critical resources that must be difficult to imitate, and not be possessed by all competing firms for gaining competitive advantage (Barney, 1991). “Basic idea underlying RBV is that marshalling a set of complementary and specialized resources and capabilities (profile) which are valuable, rare, not easily to trade, difficult to imitate (property) by others may enable the firm to earn economic rent” (Amit & Schoemaker, 1993: 37). In short, the differences of organizational resources and specialized competencies those are unique and valuable lead to superior performance.

However, differences in resource profiles and properties among firms as well as their isolating mechanisms (for example, some competencies that competitors can not clearly understand how they work) leading to organizational asymmetries (co-specialization oriented) is a major precondition of generating rent only in stable or slow changing environments. In fast changing environments, applications of complementary or co-
specialized resources for attaining first mover advantage (dynamic complementarities oriented); for example, having agility to firstly apply and upgrade their competencies according to changing market needs, is the main condition of performance difference and this approach is the focus of dynamic resource based view (DRBV) (Rugman & Verbeke, 2002).

DRBV focuses on dynamic processes for new organizational resource combinations. It focuses on the dynamic combination of complementary resources with changing environments rather than resource co-specializations or isolating mechanisms that generate competitive advantages in static environments. Rather, it concerns dynamic equilibriums between new resources’ combinations and changing environments (adaptation of the existing or/and learning new competencies). It implied two basic assumptions: Firstly, firms already have the basic resources as finance, human, and other organizational resources such as operative capabilities; and, secondly, their survival or success mainly depends on their abilities to engender new effective resource combinations and generate organizational rent.

Concerning the fit of the complementary (co-specialized) asset and the changing environment, DRBV focuses on dynamic capabilities to manage combinations of bundles of resources that generate superior rent in the fast changing environments. The value of a firm’s products and innovations depends on the attributes of the firm’s combinations of resources (regular products attributes based on operative capabilities within slow/stable environments for traditional RBV and attributes of innovations based on dynamic capabilities within the changing environments for DRBV) and the paths (strategies) that the firm is following (Black & Boal, 1994). Rumelt addresses in Mahoney and Pandian (1993) that “strategy formulation concerns with searching for effective ways for redeploying firm’s unique resources in changing circumstances.” The value of resources relies on fit of the strategy and resource combined with the fit of the strategy and the external environment (Black & Boal, 1994). Thus, measuring fit of resources and strategies (causing fit of innovation) and fit of strategies and environmental changes (causing fit of strategy) simultaneously as a cluster could reflect value of new combinations of resources (innovations) against changing environments.

From the rationale discussed above, the ability to generate rent relies on the ability to deliver more value to customers than competitors and it does not hinge directly on dynamic capabilities but on resource configurations that they create (Eisenhardt & Martin, 2000). In other words, without product or innovation, organizational capabilities (strategies and competencies) cannot deliver value to customers and influence organizational performance. However, in contrast, without organizational capabilities, innovation cannot win the competition and generate rent. Put directly, the dynamic capabilities are employed to enhance existing resource configurations for maintaining existing competitive advantages and are used to engender new ones for achieving temporary advantages in fast changing environments (Eisenhardt & Martin, 2000). Hence, innovations, in terms of new effective combinations of resources, resulted from superior organizational strategy and capability, are a significance source of superior return (Penrose, 1959 in Mahoney & Pandian, 1993; Barney, 1991 in Schroeder, Bates, & Junttila, 2002; Eisenhardt & Martin, 2000).

The stated theoretical explication of the value of new resource configurations (innovations) is a theoretical verification of the conceptual framework of this research that comprises of strategy, structure, and competency (independent variables) and innovation as an intervening variable, which altogether leading to organizational performance (dependent variable).
Based on strategic renewal theory, Miles and Snow’s typology, RBV, DRBV, and strategy-structure-performance paradigm, each subprocess of organization renewal (change) or typology requires a set of specific level (type) of strategy, competency and structure that fit to each other for fostering innovations in best fit level (type).

RBV indicates that the value of a firm’s resources depends on the attributes of the firm’s combinations of resources (innovation attributes are varied by organizational competencies) and the searching approach for effective ways of deploying firm’s resources configurations (strategies) (Black & Boal, 1994).

Eisenhardt and Martin (2000) address that the sources of competitive advantage rely on both gaining better dynamic capabilities and utilizing dynamic capabilities sooner, more wisely or fortuitously than competition (better strategy and structure formulation and skill formation) creating resource configurations that engender higher performance than competitors’. Put simply, the higher relative advantage of competency structuring, and strategy making would lead to superior product flows and higher organizational performance. Thus, it can be hypothesize that,

**RESEARCH PROPOSITIONS**

**Strategy and Innovation**

Galunic and Eisenhardt (1994) proposed more realistic concepts of fit between strategy and structure as multiple contingencies and equifinality. They argue that the critical problem of traditional paradigm is limited understanding about the causality in the processes by which strategy, structure, and performance align and interact with each other and how the alignment subsists in changing environments.

Their renewal of the strategy-structure-performance paradigm reflects contemporary strategies combining innovation, low cost, and variety simultaneously, which was conventionally considered as tradeoff between each other, including speed, flexibility, technology and manufacturing issues. The renewal encompasses new structures which dynamically combine functional and M-form to be interdependent, more or less formalized/centralized over time; and which are shaped along the lines of fundamental organizational processes such as new product development and order fulfillment (mass customization).

Finally, they suggest organizational change models to explain organizational transitions. By categorizing changes into incremental and punctuating (disruptive) changes, peripheral aspects of strategy and structures would be amendable to incremental processes but alteration of their core attributes would occur through punctuate processes.

Reflecting three types of environmental change in the dynamic capability literature: stable, moderate, and high velocity, three strategy-making modes are employed as constructs of strategy (3 levels, indicating the following proposition:

P1: Choice of innovation dimension will be associated with the dynamic competitive strategy of a firm.
The Moderating Influence of Competitive Context

As addressed in the section for strategic choice analysis and strategic renewal theory, the measurements of independent variables should be based on context of processes that fit each other to generate fit between them. The fit considered by the confluent of processes creating the organizational determinants will be more practical than that of only the end results (organizational determinants: strategy, structure, and competency) because of their cross sectional natures that are valid only in specific contexts at the given point of time. Moreover, this procedural approach will offer the dynamic nature of fit between strategy, competency, innovation and the dynamic environment.

Recent studies (Teece et al., 1997; Eisenhardt & Martin, 2000; Winter, 2003) attempted to explicate the nature of capabilities to reconfigure resources into new-value creating strategies, named dynamic capabilities, and how they create value corresponding to the attributes of changes they encounter. Whereas traditional RBV focuses on heterogeneity of firms’ resources, which the resources’ value is influenced by the system (firm) and environment they are embedded for generating rent (Peteraf, 1993), at the beginning of RBV development, Penrose (1959), a pioneer and preeminent scholar in RBV, addressed that “A firm may achieve rents not only because it has better resources, but rather the firm’s distinctive competence involves making better use of its resources.” Thus, in the prevalent fast changing environment of current knowledge-based economy, capabilities to manipulate resources and capabilities are imperative for the firm to sustain its competitive advantages (rather than directly rely on resources and capabilities) (Grant, 1996; Kogut, 1996; & Eisenhardt & Martin, 2000). In other words, the focus of modern RBV has shifted from static equilibrium of strategy, structure, competency, innovation, and environment to the dynamic equilibrium among them, as represented by its name Dynamic Resource Based View (DRBV).

In the DRBV approach, capabilities are categorized as operational capability (suitable for stable/slow environment) and dynamic capability (appropriate for fast changing environment). Winter (2000) in Helfat & Peteraf (2003) defines operational capability as “a collection of routines (repetitive patterns of activities (Nelson & Winter, 1982: 97)) that, together with its implementing input flows, confers upon an organization’s management a set of decision options for producing significant outputs of a particular type.” “An operational capability generally involves performing an activity such as manufacturing a particular product, using a collection of routines to execute and coordinate the variety of tasks required to perform the activity” (Helfat & Peteraf, 2003).

Based on Teece et al. (1997) in Eisenhardt & Martin (2000) and Helfat & Peteraf, (2003), dynamic capability is the ability to build, integrate or reconfigure operational capabilities (both internal and external competences) to match or create market changes. Dynamic capabilities are classified in two types according to attributes of environmental change that organizations encounter: dynamic capabilities in a moderate dynamic and those in very dynamic (high velocity) environment. The former is about variation involving with analytic, planned, and linear steps that relying extensively on existing knowledge (learning before doing mode). The latter is about selection involving with experimentation, multiple alternatives, prototyping, and real time information for feedback that relies much less on existing knowledge and much more on rapidly engendering situation-specific new knowledge (learning by doing mode) (Eisenhardt & Martin, 2000).
To fit with the three subprocesses of strategic renewal theory, DRBV explains three types of organizational capabilities that confluent with three levels/types of environmental change. To create appropriate constructs for the static and dynamic concepts that can be applied across industries, the next part will review organizational capability and strategy-making literature, the dynamic strategy-structure-performance paradigm to exhibit generalizable constructs deduced from each literature, suggest the following proposition:

**P2:** The fit between a firm’s choice of strategy and its choice of innovation will be moderated by the firm’s competitive environment.

**Innovation and Performance**

From the presented literature, classic theories (The strategy-structure- performance paradigm and SWOT) affirm the requirement of organizational determinants in both formulation and implementation parts (strategy, structure, and competency) for explaining performance. Strategic choice analysis, which emphasizes interactions, both internal, between the organizational determinants, and external, between the determinants and external environments, addresses the need of procedural (change-oriented) constructs reflecting the interactions between organizational determinants and environments. More recent theories and models such as Utterback and Abernathy’s dynamic model of innovation and Miles and Snow’s typologies provide integrative patterns or strategic archetypes encompassing three types of innovations associated with three sets of the organizational determinants (strategy, structure, technology). Organizational capability, strategic renewal, DRBV, strategy making, and dynamic strategy-structure-performance paradigm provide a central theme of the conceptual framework that configures the internal organizational determinants and innovation into three echelons (layers) directly involve with three types of environmental change (from dynamic capability literature).

All of multi-level constructs of organizational competencies are developed based on the three levels capability addressed in organizational capability literature and in new product performance literature. The constructs of strategy making and structure are developed base on strategy-making literature and research on strategy-structure-performance relationships under strategy-structure-performance paradigm. Innovations are also categorized into three levels (types) base on organizational renewal literature (incremental/institutional, major incremental/evolution and radical/revolution) conforming to the central theme stated.

Based on the dynamic model of innovation by Utterback and Abernathy, Miles and Snow typology, RBV, and DRBV, innovation is designated as an intervening variable. Three major types of innovations, incremental, major incremental, and radical, are proposed. Strategic renewal theory and strategic choice analysis elucidate the requirement of procedural (change-oriented) constructs for all independent variables. The dynamic strategy-structure-performance paradigm makes clear that structure is needed as a procedural variable (structuring) to create a wide spectrum of fit with strategy (strategy-making) and it helps shaping competency to align with the strategy.

Moreover, based on strategic renewal theory and dynamic capability, all of procedural (change-oriented) constructs are arranged in three layers as three echelons of organizational arrangements. Three levels (basic, intermediate, and advance) of organizational determinants (strategy, structure, and competency) and three types of innovations (incremental, major
incremental, radical) are clustered with three types of environmental changes (stable/slow, moderated dynamic, and fast velocity/dynamic).

The independent variables are constructed based on context of processes that parallel to types of environmental change. These change-oriented constructs reflect the dynamic nature of innovation management processes existing over a period of time that cannot be explained and understood by measuring snapshot variables such as three generic strategies and core competencies.

The main contribution of the research model is to propose an effective innovation management framework that encompasses both formulation and implementation parts and environmental settings based on rigorous theoretical foundations. The underlying principle of the framework is that innovation are categorized in three primary levels, each requiring for a fit with organizational capabilities, which also have three levels in both formulation and implementation parts to fit with particular level of environmental changes. Based on the distinctive competence concept by Selznick (1957), distinctiveness of both non-dynamic and dynamic capabilities in both administrative and operation sides within each level lead to the difference of organization performance through innovation at each level.

The contents of the model are similar to the central contents of the Miles and Snow typology. However, they are more concise than those of Miles and Snow typology in that it does not include incentive, performance appraisal system in the model for rigorous theorizing. However, the model offers more details by categorizing organizational competencies of three major business functions into three levels fit to the level of environmental change leading to more elucidate academic understanding and practical management solutions.

The model is built upon the confluences of three levels/types of strategy-making, structure, and competency based on the strategy-structure-performance paradigm, strategy-making literature, organizational capability literature and dynamic capability literature. Their sub-contents fit each stage of Utterback and Abernathy model, each type of Miles and Snow typology, and three subprocesses of Floyd and Lane’s theory of strategic renewal (that clusters organizational determinants in the same level together), indicating that:

P3: A firm’s performance will be associated with its choice of innovation dimension.

The Moderating Influence of Firm Capabilities/Structure

Although organizational capabilities have infinite variety of mutually exclusive typology, Collis (1994) reviews the organizational capability literature and classifies organizational capabilities in three categories. All capabilities are the abilities of firms to perform an activity in a static, dynamic, or creative mode. The capabilities involve with competency, strategy and organization development at certain extent.

These three categories that will be referred to as basic, intermediate, and advance level are described as follows. First, the basic level refers to ability to perform the basic functional activities of the firm such as plant lay out, distribution logistics, and marketing campaigns more efficiently than competitors. In cases of strategy development, it can be referred to as ability to design a strategy by formal procedures and analyses within a static or slow environment. Second, the intermediate level refers to ability to reconfigure or reintegrate business functions such as “ability to generate repeated process and product innovations,
manufacturing flexibility, responsiveness to market trends, and short development cycle” (Amit & Schoemaker, 1993). In cases of strategy development, it can be referred to as “ability to switch gears from, rapid product development to low cost relatively quickly and with minimal resources” (Hayes & Pisano, 1994). And, for organizational development, it can be referred to as “the ability to learn, adapt, change, and renew over time” (Teece et al., 1994). Third, the advance level refers to ability to recognize the intrinsic value of other resources or to develop novel strategies before competitors (Collis, 1994). Barney (1992) refers to this capability as “an ability that enables an organization to conceive, choose and implement strategies.” This capability reminds the Schumpeterian entrepreneurial function (Schumpeter, 1934 in Collis, 1994). This ability can be defined as; second-order competence, the competence to acquire new first-order competences (Daneel, 2002); the abilities to deploy and develop new ones (Henderson & Cockburn, 1994 in Collis, 1994); and “The production of new production functions” (Lipmann & Rumelt, 1982 in Collis, 1994).

Strategies can also be classified in three levels, which confluent with strategy-making literature that will be articulated later in this chapter. First, the basic (rational) mode in a static environment which concerns on reasoning of situations; second, sequential (transactive) mode which continually adapts the strategic portfolio to fit the changing setting; and third, (re) generative mode which designs new strategies to fit the disruptive changes which typically require new unique combinations of the organization’s resources and competencies.

The match attributes between formulation (strategy) and operation (competency) determinants of three levels of capabilities and strategy-making and competency in three subprocesses of strategic renewal theory of Floyd and Lane (2000) indicates the convergence of overall patterns of both organizational renewal and organizational capability literature. This discussion leads to the following research proposition:

P4: The association between the choice of innovation dimension and performance will be moderated by the capability of the firm to execute the appropriate innovation.

**DISCUSSION**

That relative advantages of strategy making, structuring, and competence formation of firms make innovations, which generate rent could be claimed as a tautological statement; but that fits between strategy making, structuring, and competence formation as three configurations (that confer relative organizational relative advantages) and particular firms’ changing environments associate with innovations, which generate rent couldn’t be.

The content validity based on review of strategic renewal literature (Floyd & Lane, 2000) and organizational change literature (Mezias & Glynn, 1993), Miles & Snow’s typology (1978), Utterback & Abernathy’s dynamic model of product and process innovations (1974), and strategy-structure-performance paradigm(1962); and the construct validities base on review of strategy making literature (Hart & Banbury, 1994) and Miller, 1987 for strategy making, dynamic strategy-structure-performance paradigm (Galunic & Eisenhardt, 1994) for structuring, review of organizational capability (Collis, 1994) for competence formation, review of organizational change literature (Mezias & Glynn, 1993) for types of innovation, review on dynamic capability literature (Eisenhardt & Martin, 2000) for levels of environmental changes. This theoretical framework might be able to generalized across industries. It is proposed innovations should be categorized in three types rather than two (radical and incremental) as is generally held. As several leading scholars (Afuah, 1998;
Cohen & Levinthal, 1990; Damanpour, 1991; Helfat & Raubitschek, 2000) interpret innovations as conversions of new (better) knowledge that can change rules of business competitions and competitive landscapes, it is proposed that knowledge for managing innovations should be categorized by three types as well. Firms need better ways to manage knowledge in multilevel approach, not single one for gaining relative strategic advantages of the three configurations. This proposal follows practical rules of knowledge put forth by Kant (1785), which lay down “what ought to be done” compared to theoretical knowledge, which lay down “what is.” Kant addressed that the practical are of three kinds: skill, prudence (intelligence), morality (wisdom) elaborated as follows:

- **skill** - the knowledge with arbitrary end by prescribed means. (Parallel to process or incremental innovation and stable or predictable change);
- **prudence (intelligence)** – the knowledge of readiness in the use of means to the end and of preparedness to determine adequately both the end and the means. (Parallel to product or major incremental innovation and moderate dynamic changes);
- **morality (wisdom)** – the knowledge that is the end of what it may and has an immediate inner worth of free choice (Parallel to (value) proposition innovation or radical innovation and very dynamic changes)

For all innovations and their innate knowledge have only relative value contingent to their contexts as competitors’ products and innovations and environments’ dynamics and potentials; hence, in management context, wisdom is relative as intelligence and skill. Wisdom is also defined as accumulated refined knowledge that clarifies and indicates the inner qualities and essential relationships (Webster, 1788) for creating value beyond or parallel to others’ (opponents’) knowledge (skill, intelligence, and wisdom). In other words, (relative) wisdom emanates from accumulations and refinements of knowledge both former and later discovered or fabricated, which dimensionalizes and defines new (better) value (frame of knowledge at the time) of following intelligence(s) and skill(s) and could be upgraded by later intelligence(s) and skill(s) for engendering more refined tangible value as product and process innovations.

Multilevel categorization of strategy making, structuring, and competence formation and knowledge sharpen understandings of concepts as strategic fit and flexibility, value innovation, (multi) ambidextrous organization; and could help solving problems in classic dilemma of balancing explorative and exploitative learning in organizational learning literature that depends on relative advantages of firms’ knowledge of each level to major competitors’ and industrial environments and the transformativve or integrative (the moderate type of) learning (paralleled to absorptive capacity (Cohen & Levinthal, 1990) and combinative capacity (Kogut & Zander, 1993) that support classifying learning in three types as that of Lichtenthaler (2011) and Crossan et al (1999)) that arrange structure, stock, and flow of firms’ knowledge (especially between explorative and exploitative knowledge) and also effects relative advantages of the intermediate configuration and major incremental innovation performance.

Furthermore, the categorization could enhance our power of explanation and prediction on dynamic natures of organizations’ capability, knowledge, and learning; so we can have academic fields as capability (competence) management and learning management as that of knowledge management. However, more researches are required to gain sufficient comprehension of natures and interrelationships of and between the levels of capability,

REFERENCES


