

Journal of Business & Leadership: Research, Practice, and Teaching (2005-2012)

Volume 1
Number 1 *Journal of Business & Leadership*

Article 18

1-1-2005

Exploring Linkages Between Business Strategy and Patent Strategy: A Proposed Typology

Steven Popejoy
Central Missouri State University

Follow this and additional works at: <https://scholars.fhsu.edu/jbl>



Part of the [Business Commons](#), and the [Education Commons](#)

Recommended Citation

Popejoy, Steven (2005) "Exploring Linkages Between Business Strategy and Patent Strategy: A Proposed Typology," *Journal of Business & Leadership: Research, Practice, and Teaching (2005-2012)*: Vol. 1: No. 1, Article 18.

DOI: 10.58809/ILYJ2548

Available at: <https://scholars.fhsu.edu/jbl/vol1/iss1/18>

This Article is brought to you for free and open access by the Peer-Reviewed Journals at FHSU Scholars Repository. It has been accepted for inclusion in *Journal of Business & Leadership: Research, Practice, and Teaching (2005-2012)* by an authorized editor of FHSU Scholars Repository. For more information, please contact ScholarsRepository@fhsu.edu.

EXPLORING LINKAGES BETWEEN BUSINESS STRATEGY AND PATENT STRATEGY: A PROPOSED TYPOLOGY

Steven Popejoy, Central Missouri State University

This paper is an attempt to develop a typology which would theoretically represent the relationship between a patent strategy and a business strategy in a given organization. Such a relationship follows from previous work in related fields which theorizes a linkage between business strategies and functional strategies that can have a positive impact on organizational performance. An underlying assumption is made that intellectual capital represents a functional area for today's high tech firm. In creating the proposed typology, use is made of the Miles and Snow typology of business strategies.

Introduction

As technology in business has advanced over the past decade, the basic concept of what is valuable to the production function of a business, as well as what drives it, has changed dramatically. Today, when information and law can have as much impact as bricks and mortar, intellectual capital has become the new currency of business (Gross, 2001). No longer do traditional resources used in business adequately reflect the true processes of a going concern (Leliaert, Candries, and Tilmans, 2003). Instead, intangible assets (including brands, patents, trademarks, copyrights and goodwill) have become an increasingly dominant part of the way an organization creates value. Indeed, in recent years it has been estimated that fifty percent of the economic growth in developed countries is due to technology (Boer, 1998).

The globalization of the world's economy in the past two decades has coincided with both developments in the utilization of strategic planning and with improvements in the implementation of intellectual capital. Curiously, research at the intersection of these two topics has been meager. The newfound importance of intellectual capital to the business process has not been fully recognized by strategic planners, leading to a sub-optimum degree of integration of IC with the strategic planning process. In some organizations where intellectual capital is a contributing variable in the production function, it is not viewed as a functional area of the organization, with the likes of accounting, marketing, and human resources. In order to fully recognize the strategic value of IC, it is proposed that intellectual capital represents a functional part of an organization, which necessitates development of strategies and tactics that can be aligned with the organization's corporate and business strategies.

For purposes of analysis, the focus herein is on patents, although the concepts discussed are applicable to most other forms of intangible assets as well. Defined

by Poltorok (2003:3) as a statutory right to exclude others from utilizing a legally-protected invention (or perhaps even more so, a government-sanctioned monopoly), patents make up a large portion of intellectual property in a technologically-oriented company. Intellectual property itself is estimated to comprise as much as sixty percent of the market valuation of an average industrial company, and as much as eighty percent in a high-tech company (Montembeau, 2003:5).

With a role which grows increasingly relevant, it is imperative that intellectual capital be included in the organizational strategic planning process, from the top down. Simply thinking and operating in strategic terms would not be sufficient; the strategies and tactics implemented by an organization must "fit" with the overall corporate and business strategies, as well as other functional strategies. This article looks at a proposed model that would facilitate the fit and thus create a linkage between the different levels of strategies, based on the popular notion of contingency theory.

Current Thoughts in Intellectual Capital

The study of intellectual capital, as a movement, has gained great acceptance over the past fifteen years (1) as organizational leaders recognized its value, (2) with knowledge management coming into vogue, and (3) with the view of organizations as knowledge-based entities gaining legitimacy. In order to advance to the next level, intellectual capital must be viewed not only as having strategic relevance to a firm, but also as being a full partner in the strategic planning process.

Looking at the current state of IC research in general terms, what has occurred in the past fifteen years is similar to what has occurred in any relatively new field of inquiry: Much of the early work introduced the notion of the value of intellectual capital to organizations and explored a few rudimentary classification models (Hall, 1989; Itami, 1991; Brooking, 1996; Roos, Roos,

Dragonetti and Edvinsson, 1997). Subsequent studies have added theory to an emerging paradigm, one in which ideas have seemed to align in three distinctive streams: accounting/measurement of intellectual capital, control/reporting of IC information, and use of IC information in the making of managerial decisions (Petty and Guthrie, 2000; Sanchez, Chaminade and Olea, 2000; Guthrie, Johnson, Bukh and Sanchez, 2003). This fits nicely with Garcia-Ayuso's (2003) view that recent research underscores the value of intellectual capital as a source of competitive advantage for businesses, necessitating utilization, measurement and control of IC.

The mention of "competitive advantage" suggests a merger between the fields of intellectual capital and strategic management, as evidenced by research falling within the third stream (see above) and discussed from various perspectives by Winter (1987), Nonaka (1991), Grant (1991), Spender and Grant (1996), Teece (2000), Andriessen and Tissen (2000) and Stewart (2001). Indeed, Marr, Gray and Neely (2003:443), in their very systematic literature review (based in part on scientific method), state that current IC research identifies five main reasons to measure intellectual capital:

1. to help organizations formulate strategy;
2. to assess the execution of strategy;
3. to assist in decisions for diversification and expansion;
4. to determine compensation; and
5. to communicate measures to external stakeholders.

Note that all five reasons contain strategic relevance of varying degrees, and are indicative of the fact that organizational decision-makers, when planning the long-term direction of their firm, are considering the impact that intellectual capital (and technology in general) will generate in the strategic planning process.

Argument has been made that intellectual capital is linked to corporate strategy (Roos, Roos, Dragonetti and Edvinsson, 1997) and works through the development and leverage of knowledge to create competitive advantage (Petty and Guthrie, 2000). Indeed, many see this as a new approach to strategic management theory (e.g. Allee, 2000; von Krogh, Nonaka and Nishiguchi (2002)). Sveiby (2001) takes a similar approach to strategy formulation. Building on a knowledge-based theory of the firm, he relies on the competence of people as a starting point. People are the true agents of business under this approach and are the source of all tangible products as well as all intangible relations. Human competence is used to create value, both internal (products, product design) and external (e.g., customer relationships). Value increases whenever knowledge

transfers from one person to another (i.e., it increases in the latter, but still remains with the former). When this knowledge can be leveraged to create value for the firm, there are strategic implications. As an example, a knowledge transfer from an individual to an external component (such as an employee giving a seminar to potential customers) is a tactic which can be leveraged to create a competitive advantage.

Knowledge management is also relevant in the view taken by Sanchez, Chaminade and Olea (2002), although it is discussed in the much broader context of management of intangibles. The authors contend that the primary purpose of the management of intangibles is to enhance the firm's value through the creation of competitive advantages. This is only accomplished by linking these intangibles to a firm's long-term strategy.

In short, the view that sustainable competitive advantage is a function of market share and segmentation has been overtaken by the more recent idea that such competitive advantage is a function of learning and knowledge (Porter, 1996; Evans and Wurster, 1997). Even in the literature of the strategic management field, contemporary studies on organizational capabilities and core competencies has focused on knowledge embedded within the organization's structure. The fact of a seeming convergence between strategy and IC certainly points to a need for a better understanding of the relationship between these two fields of study.

Current Thoughts in Strategic Management

The concept of strategy has defied clear explanation and has remained ambiguous over time. As a modern-day descendant from the lineage of scientific management and administrative theory, both contemporary fields of interest over eighty years ago, strategic management has been explored from a variety of perspectives. As a cousin of organizational theory (OT), early strategy research in the 1960's focused on contingency theory (e.g., Burns and Stalker, 1961; Woodward, 1965; Lawrence and Lorsch, 1967), which looked at the relationships between strategy, structure and performance (among other variables). Contingency theory developed as a response to classical theories which advocated "one best way" to manage, and proposed that strategy and structure would vary, depending on the circumstances which existed for a given organization (particularly the uncertainty and instability of the environment) (Tosi and Slocum, 1984).

Implicit in the concept of contingency theory is the idea of "fit." Used to explain the organizational dynamics of adaptation and effectiveness, fit referred to the belief that proper alignment of a given strategy with

Popejoy: Exploring Linkages Between Business Strategy and Patent Strategy:

a particular structure (or some other variable) would result in optimum performance. The fact that multiple choices of strategy would be available to a firm, depending on co-existing external variables, led to the configurational view of strategy (Miles and Snow, 1978): Various "patterns" of fitted variables could be found that optimize performance in a given situation. The configurational view was based on the concept of strategic equifinality, or the idea that in a given environment there is more than one way to optimize, but there are not an endless number of ways to optimize. Rather, there are a group of basic patterns from which a firm may select the pattern that it best fits.

The configurational view naturally led to the developments of various typologies and taxonomies in the 1980's which categorized strategic direction of choice based upon the category in which a firm found itself. Two of the more popular typologies of this period were those of Miles and Snow (1978) and Porter (1980). The Miles and Snow typology proposed strategy types (Defenders, Analyzers, Prospectors, and Reactors) based on product market opportunities and environments; Porter proposed a typology of three categories (the generic strategies of overall cost leadership, differentiation, and focus), based on product positioning and the level of competition in the firm's environment. Other typologies also appeared, although perhaps to a lesser degree of renown: Miller and Friesen (1978, 1984), Mintzberg (1988), Miller (1990), and Treacy and Wiersema (1995), to name just a few.

Underlying factors of most of this research, leading up to the 1990's, has been "fit" and "positioning." One can position a firm (or product) by placing it in the competitive position ascribed to it by the typological category into which it fits, based on its own set of internal and external variables.

As the globalized economy burst onto the scene in the 1990's, positioning as a strategy was said to be too static in the current market place, given the dynamics of high technology faced by firms. Rather than trying to align with a fast-moving, ever-changing environment, it was suggested that firms pay less attention to external factors and more attention to internal factors, where specialization in what a firm does best can be leveraged. In fact, being able to sustain a competitive advantage may be more related to learning and knowledge than to market share or segmentation (Porter, 1996; Evans and Wurster, 1997).

Bounfour (2003, 2000) points out that Porter's early work on competitive advantage was based on an analysis of competitive forces within market structures. This view is currently challenged by more modern approaches

to competition that involve intangible assets. Bounfour cites instances where competitive advantage may be more a function of intangible resources, competencies, and capabilities. These approaches include basic core competencies (Prahalad and Hamel, 1990), core intellectual and service competencies (Quinn, 1992), resource-based views (Barney, 1991; Dierickx and Cool, 1989; Grant, 1991, 1996; Itami, 1989; Penrose, 1959; Peterof, 1993; Wernerfelt, 1984, 1989), knowledge creation dynamics (Nonaka, 1994; Nonaka and Takeuchi, 1995), and competencies as organizational routines (Nelson and Winter, 1982).

As a result, the focus of much of today's strategic research has shifted toward more abstract topics. The resource-based approach analyzes a firm's distinctive core competencies (Prahalad and Hamel, 1990), and builds upon those competencies, leveraging them to optimize performance (Mahoney and Pandian, 1992). By achieving a sustainable comparative advantage in this manner, a firm can earn superior profits by owning or controlling tangible as well as intangible assets (Riah-Belkaoui, 2003).

Knowledge management, as mentioned earlier, has made a large impact in the literature of strategic management in recent years, where the concept of sustainable comparative advantage has been attributed to the learning capabilities of an organization and the transfer of knowledge within it. The fact that knowledge is inherently a foundation of intellectual capital, and also is a basis for much IC research, leads one to a conclusion that at the nexus of the fields of strategic management and intellectual capital lies a potentially fertile area for research.

Foundations of Strategic Planning

The concept of strategic planning has long been recognized as hierarchical in nature (Hofer and Schendel, 1978), differentiated at the corporate, business, and functional levels. Corporate strategy is concerned with the question "In what markets do we compete?" and involves the selection of markets (or businesses) in which the company should concentrate its resources in a developed portfolio form. Such planning also includes development of the overall objectives of the corporation, and addresses the big picture of how those goals will be accomplished.

Business strategy asks the question "How do we compete in each market?" and is implemented by a division, product line, or some other form of profit center that may act independently of other business units of the firm. At this level, emphasis is placed on creating and sustaining the proverbial competitive advantage

rather than the coordination emphasis (i.e., portfolio management) found in corporate strategizing. Business strategy typically deals with issues related to the positioning of products and services, analysis of demand, promotion/advertising, integration, and governmental lobbying. In developing a given competitive advantage as part of the business strategy, a firm will attempt to maximize several key factors:

1. the uniqueness of the competitive advantage,
2. the sustainability of the advantage,
3. the economic value created by the strategy, and
4. the flexibility of the strategy

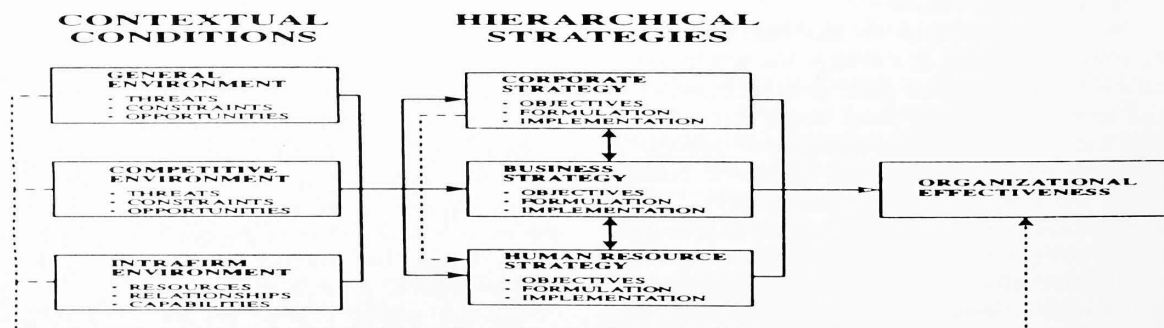
Functional strategy is found at the level of the firm's operating divisions and departments. Here, strategic issues are related to business processes, including finance, marketing, operations, human resources, and R&D; particularly, how organizational resources can be developed and coordinated in a manner which will allow business strategies to be executed efficiently and effectively, and result in the accomplishment of business-level objectives. As an example, the human resource department would seek to operate in a manner to support the business strategy of a firm (or a particular market) by developing functional strategies in the areas of recruiting, selection, compensation, performance evaluation, and training/development.

A key aspect of the strategic planning process is that functional units of an organization contribute to business and corporate strategies (as does the business level contribute to corporate strategy) by providing input on resources and capabilities on which the higher level strategies can be based. Once a higher-level strategy has

been formulated, functional units will develop tactical (action) plans that each department must accomplish for all levels of strategy to be successful.

This process is known as linking the strategies, and refers to the alignment of the corporate-business-functional strategies (see table 1) (Hofer and Schendel, 1978; Hambrick, 1983; McDaniel & Kolari, 1987). Beginning with early contingency theory studies (Chandler, 1962; Rumelt, 1974), the effect of alignment between organizational variables such as environment, structure, technology, and strategy has been the subject of a substantial body of research. It can certainly be shown that these variables may be influenced by one another (Lawrence & Lorsch, 1969; Bower, 1970; Lorsch and Allen, 1973; Drazin and Van de Ven, 1985), and that alignment may positively impact performance (White, 1986; Nath and Sudharshan, 1994). By extension, this thinking may be applied to the linkage of (or fit between) strategies. This concept has been studied at various functional levels of management (see, e.g., Day (1984) and Utterbach and Abernathy (1975) relating to marketing; Bathke and Lorek (1984) relating to accounting and information systems; and Christiansen (1983) relating to industrial relations). Such studies have theorized, and in some instances offered empirical evidence, that linking an organization's functional strategy to its business strategy leads to optimal performance (Keats and Hitt, 1988; Lewis and Thomas, 1990). The interaction between strategies at the business level and those at the functional (departmental) level serves to align objectives and resources toward a common direction, create organizational coordination, and improve organizational performance.

Table 1



The concept of strategic linkage has been addressed previously in the intellectual capital literature, including the alignment of IC strategy with business strategy/core capabilities (Hall, 1993; Petty and Guthrie, 2000; Smith

<https://scholars.fhsu.edu/jbl/vol1/iss1/18>

DOI: 10.58809/ILYJ2548

and Hansen, 2002; Popejoy, 2004). Other examples tangential in nature include Lev, 2001 (identification of linkages between the performance of intangibles and stock returns); Hurwitz, Lines, Montgomery and

Popejoy: Exploring Linkages Between Business Strategy and Patent Strategy:

Schmidt, 2002 (identification of certain management practices as drivers of intangibles performance); Ernst and Soll, 2003 (testing of a practical application in the chemical industry to determine that linkage of marketing and R&D strategies could increase the rate of return from investment in new technologies); and Chen, 2003 (use of options theory and game theory to value intellectual property and link to business strategy).

Still, while research on the business/functional strategy link in the field of intellectual capital has been meager, the concept has been addressed on a frequent basis. Holger (2003: 233) suggests that patent data can be used for the purpose of strategic planning: By institutionalizing such data to ensure its systematic use in decision-making processes and by making it available to senior management and shareholders, it can be useful for competitor monitoring, technology assessment, external generation of technological knowledge, and human resource management. Lev (2000: 10) points out that successful IP management requires integrating primary sources of knowledge (e.g. innovation, employees, customers) and linking this knowledge to the organization's overall strategy. Patel (2000: 1) notes that patent strategy must be customized to fit with the firm's long and short term goals. Finally, Nielsen states that portfolio management should support whatever strategy a business chooses (in Weinberger 2003: 1).

It is clear that in regards to the field of intellectual capital, progress needs to be made in the study of the strategic linkage between IC strategy and business strategy, both theoretical and empirical. Additionally, there is a need for evidence on how the strategizing of intellectual property can affect the performance of an organization. This will be critical if IC and knowledge management are to be an important determinant of the strategic planning process.

Proposed Model of Strategic Linkage

Advancing the standing of the field of intellectual capital in terms of relative importance to the strategic planning process requires continuing inquiry into the various areas of strategic management, including strategy formulation, implementation and strategic decision-making. As a late-blooming field, IC lags behind other fields of study in doing so.

In this paper, the author views the relationship between IC strategy and the concept of business strategy, proposing that a relationship exists, one that has been similarly proposed in other areas of business (see, e.g., Jackson, Schuler and Rivero, 1989, and Lengnick-Hall and Lengnick-Hall, 1988, both regarding the functional area of human resource management). In

order to make this proposition, an underlying assumption is made that intellectual capital is a functional area of an organization, and is on the same relative level of importance with functional areas such as finance, marketing, and operations. It is quite easy to see intellectual capital as a supporting field, not unlike human resources, research & development, public relations, and computer services. While more likely to be found in high tech organizations, these organizations represent a category that has shown rapid growth in the past two decades. During this period many firms have given credence to intellectual capital as a functional area by making IC (generally in the form of intellectual property) a specific departmental area, either as part of a legal/compliance department or separately as its own department, with titles such as "Intellectual Property Department" and "Patent Department." Patent departments will have budgets, with funding typically distributed among line items such as invention disclosure, evaluation, file prosecution, and patent maintenance (Putnam, 1999). Some will utilize project-portfolio management to treat information-technology projects as financial assets (Weinberger, 2003). Yet others will make systematic efforts to align departmental activities, policies and procedures (such as criteria for patent adoption) with business strategies. (As an example of the latter, technological giant HP now has an intellectual property department, supervised by a director of intellectual property, which will run a potential patent through a system of checklists and guidelines to determine if it aligns with current business strategies, before making a decision to apply for the patent (Mackey, 2002).)

If intellectual capital is viewed as a functional area capable of developing a functional strategy, how can it be determined whether "fit" with a particular business strategy exists? For purposes of this exploratory analysis, an existing typology of business strategies will be compared to a contemporary grouping of functional patent strategies.

Most fields of intellectual study will generally evidence a degree of maturity when theory advances to the level of typologies, or identifiable frameworks. Such frameworks aid in theoretical understanding by grouping concepts based on selected criteria, which in turn provide a convenient platform for empirical testing. Identification and measurement of business strategy (the "how to compete" question) accelerated in the late 1970s and early 1980s with the proposal of the Miles and Snow (1978) and Porter (1980) typologies. Such frameworks prescribed particular strategic approaches, given certain definable conditions (e.g. Porter's model made

household words of differentiation, overall cost leadership, and focus). Likewise, strategic research at the functional level evolved in the late 1980s and early 1990s, with typologies developed in a number of functional areas.

Research in the area of intellectual capital accelerated in the 1990's, along with the progressing "information age" society, but still is in a relatively early stage. As a result, no one typological framework currently exists that has been accepted by scholars in the field, although a number of strategic approaches have been advanced in the literature (see, e.g., Smith and Hansen, 2002).

This proposed study of fit utilizes the Miles and Snow (1978) typology of business strategy, classifies its components according to specified criteria, and then develops a comparable typology of functional patent strategy. Patent strategies are then matched to their counterparts in the Miles and Snow model, suggesting that a degree of fit may exist between the two types of strategies, based on similarity of criteria.

The Miles and Snow typology was selected for its use of broad, descriptive criteria in establishing strategic archetypes, and because it exemplifies the connection between technology and strategy, along with the varying impact of technology on success (Dvir, Segev and Shenhar, 1993). The model has been heavily utilized by other researchers who have used strategy variables in their research, and even today is the basis of a number of ongoing research projects in the field of strategic management.

The model, developed by post-hoc identification of patterns in the product market strategies of college textbook publishing firms (which were subsequently correlated with similar results found in firms in the electronics, food-processing, and hospital industries), identified four general strategic categories: Defenders (Type 1), Prospectors (Type 2), Analyzers (Type 3), and Reactors (Type 4). The model does not purport to represent every conceivable strategic behavior due to the

complexity of organizations themselves, but has nonetheless enjoyed empirical support (Snow and Hrebiniak, 1980). The individual categories are described as follows:

- Defender (Type 1) – Maintenance of a secure niche in a relatively stable product market; limited range of products; effort toward higher quality, superior service, lower prices; not at industry forefront; close monitoring of technology; creation of barriers to entry.
- Prospector (Type 2) – Broad product market domain; emphasis on being "first-in;" quick response to opportunity; not strong in all markets; reputation as innovator is valued.
- Analyzer (Type 3) – Stable, limited line of products/services; quick to follow new developments, never "first-in"; always "second-in" with greater cost efficiency; minimizes risk.
- Reactor (Type 4) – No consistent product market orientation; not aggressive in maintaining products/services; risk adverse; response only to environmental pressures.

Following analysis of the above characteristics, a second assumption is made: Two key parameters that underlie all four strategy types are innovation and cost. Not surprisingly, those are also two key criteria in any discussion of managing intellectual property. The interrelationship is no coincidence: Miles and Snow, in formulating the model, suggested a linkage between strategy and technology. In short, technology plays a major role in the formulation of strategy (Dvir, Segev and Shenhar (1993)).

Using the two criteria of innovation and cost in dichotomous fashion (See table 2), each strategy type is analyzed as being either high cost or low cost in nature (regarding abilities to maintain cost efficiencies), and either high innovation or low innovation (based on qualities such as creativity, entrepreneurial tendency, etc).

Table 2

Strategy Type	Cost/Innovation Dichotomy
Defender (Type 1)	Low Cost/Low Innovation
Prospector (Type 2)	High Cost/High Innovation
Analyzer (Type 3)	Low Cost/High Innovation
Reactor (Type 4)	High Cost/Low Innovation

The next step in developing the proposed typology is to specify a group of functional patent strategies that in essence will be used to implement one of the above business strategies. Patent strategies may actually incorporate input from a variety of functions, including marketing, information technology, sales, engineering,

human resources, manufacturing, and legal, but the final decisions should be coordinated from one area of the firm (ideally, an intellectual property department), where issues include whether or not a patent should be filed, how many patents should be filed, how to defend patents, patent licensing strategy, stance on foreign

Popejoy: Exploring Linkages Between Business Strategy and Patent Strategy:

patents, competitive positioning, financial objectives, and budget limitations. All represent patent tactics which will culminate in an overall patent strategy. A popular and accepted categorization of patent strategies is that developed by Gibbs and DeMatteis (2003) and includes the following: Castle and Moat (strategy 1), patent the tree/cut the forest (strategy 2), shotgun approach (strategy 3), and patent as you go (strategy 4). The separate strategies are described as follows:

Castle and Moat Theory (Strategy 1) – Build a castle of technology, protected by a moat of patents.

- Very costly approach
- Patent every aspect of a new opportunity
- Focus is on control

Patent the Tree/Cut the Forest (Strategy 2) – Patent your core invention, then publicly disclose every other related concept so that no similar technology could ever be patented.

- Not costly, relative to other approaches
- Offers solid protection of an industry leader
- Requires creative defensive efforts

Shotgun Approach (Strategy 3) – Patent everything in hopes of a big reward.

- Very expensive
- Requires flexibility, innovation, engineering
- Requires intelligent workforce

Patent As-You-Go (Strategy 4) – File patents as opportunities arise.

- Allows control of costs
- Primarily for small and medium-sized firms

A similar analysis of cost and innovation to that performed with business strategy can be implemented with patent strategy (see table 3), allowing theory-building at the functional level.

Table 3

Strategy Type	Cost/Innovation Dichotomy
Castle and Moat Theory (Strategy 1)	High Cost/Low Innovation
Patent the Tree/Cut the Forest (Strategy 2)	Low Cost/High Innovation
Shotgun Approach (Strategy 3)	High Cost/High Innovation
Patent As You Go (Strategy 4)	Low Cost/Low Innovation

Based on a side-by-side comparison of first-level models, table 4 indicates the proposal of a new typology that relates the strategies.

Table 4

Business Strategy	Functional Strategy
Defender	Patent As You Go
Prospector	Shotgun Approach
Analyzer	Patent the Tree/Cut the Forest
Reactor	Castle and Moat Theory

That is to say (as an example), based on underlying theory regarding cost and innovation, it would logically follow that a defender business strategy would best be implemented (i.e. best opportunity for goal accomplishment) where an intellectual property department follows a patent as you go functional strategy.

Naturally, as an untested proposition at this point, empirical testing is necessary for any validation of conclusions. As an example of the aforementioned “fertile area” of research, this represents an opportunity for further advancing the quality and quantity of knowledge in IC.

Conclusion

A relationship based on fit between a firm’s business strategy and its intellectual capital strategy underlies the

proposed approach to the strategic management of IC. By taking a stance that management of intellectual capital is a fully functional activity of an organization, a case is made that those responsible for decision-making in this area should also have a seat at the business strategy table. This is a call for further research to verify the beliefs that linkage can strategically exist between business and functional strategies, and that such linkages can result in more optimal organizational performance by uniting the strategic vision and operation of the firm. Hopefully this paper creates a means of categorization that allows further empirical research to be possible.

REFERENCES

- Allee, V. 2000. The value evolution. **Journal of Intellectual Capital**, 1: 7-32.
- Andriessen, D., & Tissen, R. 2000. **Weightless wealth:**

- Find your real value in a future of intangible assets.** London: F-T Prentice Hall.
- Barney, J. 1991. Firm's resources and sustained competitive advantage. **Journal of Management**, 17: 99-120.
- Bathke, A., & Lorek, K. 1984. The relationship between time-series models and the security market's expectation of quarterly earnings. **Accounting Review**, 59: 163-176.
- Boer, F. 1998. Traps, pitfalls and snares in the valuation of technology. **Research Technology Management**, 41: 45-54.
- Bounfour, A. 2003. The IC-dVAL approach. **Journal of Intellectual Capital**, 4: 396-412.
- Bounfour, A. 2000. **Competitiveness and intangible resources: Towards a dynamic view of corporate performance.** In Biugues, P., Jacquemin, A. and Marchipant, J. (eds). Competitiveness and the value of intangibles. Paris: Edward Elgar Publishing Ltd.
- Bower, J. 1970. **Managing the resource allocation process.** Homewood IL: R. D. Irwin.
- Brooking, A. 1996. **Intellectual capital: Core assets for the third millennium enterprise.** London: Thompson Business Press.
- Burns, T., & Stalker, G. 1961. **The management of innovation.** London: Tavistock.
- Chandler, A. 1962. **Strategy and structure: Chapters in the history of the American industrial enterprise.** Cambridge MA: MIT Press.
- Chen, S. 2003. **Valuing intellectual capital using game theory.** *Journal of Intellectual Capital*, 4: 191-201.
- Christiansen, E. 1983. Strategy, structure, and labor relations performance. **Human Resource Management**, 22: 155-168.
- Day, G. 1984. **Strategic market planning: The pursuit of competitive advantage.** St. Paul MN: West.
- Dierickx, I., & Cool, K. 1989. Asset stock accumulation and sustainability of competitive advantage. **Management Science**, 35: 1504-1513.
- Drazin, R., & Van de Ven, A. 1985. Alternative forms of fit in contingency theory. **Administrative Science Quarterly**, 30: 514-539.
- Dvir, D., Segev, E., & Shenhar, A. 1993. Technology's varying impact on the success of strategic business units within the Miles and Snow technology. **Strategic Management Journal**, 14: 155-162.
- Ernst, H., & Soll, J. 2003. An integrated portfolio approach to support market-oriented R&D planning. **International Journal of Technology Management**, 26: 540-560.
- Evans, P., & Wurstar, T. 1997. Strategy and the new economics of information. **Harvard Business Review**, 75: 71-82.
- Garcia-Ayuso, M. 2003. Intangibles: Lessons from the past and a look into the future. **Journal of Intellectual Capital**, 4: 597-604.
- Gibbs, A., & DeMatteis, B. 2003. **Essentials of patents.** Hoboken NJ: John Wiley & Sons.
- Grant, R. 1996. Toward a knowledge-based theory of the firm. **Strategic Management Journal**, 14: 607-618.
- Grant, R. 1991. The resource-based theory of competitive advantage: Implications for strategy formulation. **California Management Review**, Spring: 114-135.
- Gross, N. 2001. Valuing intangibles: A tough job, but it has to be done. **Business Week**, August 6: 54-55.
- Guthrie, J., Johanson, U., Bukh, P., & Sanchez, P. 2003. Intangibles and the transparent enterprise. **Journal of Intellectual Capital**, 4: 429-440.
- Hall, R. 1993. A framework linking intangible resources and capabilities to sustainable competitive advantage. **Strategic Management Journal**, 14: 607-618.
- Hall, R. 1989. The management of intellectual assets: A new corporate perspective. **Journal of General Management**, 14: 53-68.
- Hambrick, D. 1983. Some tests of the effectiveness and functional attributes of Miles and Snow's strategic types. **Academy of Management Journal**, 26: 5-26.
- Hofer, C., & Schendel, D. 1978. **Strategy formulation: Analytical concepts.** New York: West.
- Holger, E. 2003. Patent information for strategic technology management. **World Patent Information**, 25: 233-242.
- Hurwitz, J., Lines, S., Montgomery, B., & Schmidt, J. 2002. The linkage between management practices, intangibles performance and stock returns. **Journal of Intellectual Capital**, 3: 51-61.
- Itami, H. 1991. **Mobilizing invisible assets.** Cambridge MA: Harvard University Press.
- Jackson, S., Schuler, R., & Rivero, J. 1989. Organizational characteristics as predictors of personnel policy. **Personnel Psychology**, 42: 727-786.

Popejoy: Exploring Linkages Between Business Strategy and Patent Strategy:

- Keats, B., & Hitt, M. 1988. A causal model of linkages among environmental dimensions, macro-organizational characteristics and performance. **Academy of Management Journal**, 31: 570-598.
- Lawrence, P., & Lorsch, J. 1967. **Organization and environment: Managing differentiation and integration**. Homewood IL: Irwin.
- Leliaert, P., Candries, W., & Tilmans, R. 2003. Identifying and managing IC: A new classification. **Journal of Intellectual Capital**, 4: 202-214.
- Lengnick-Hall, C., & Lengrick-Hall, M. 1988. Strategic human resources management: A review of the literature and proposed typology. **Academy of Management Review**, 13: 454-470.
- Lev, B. 2001. **Intangible assets: Measurement, drivers, usefulness**. Advances in the Measurement of Intangible (Intellectual) Capital Conference. New York University, NY, May 17.
- Lev, B. 2000. Knowledge management: Fad or need? **Research Technology Management**, 43: 9-10.
- Lewis, P., & Thomas, H. 1990. The linkage between strategy, strategic groups, and performance in the U.K. retail grocery industry. **Strategic Management Journal**, 11: 385-397.
- Lorsch, J., & Allen, S. 1973. **Managing diversity and independence**. Boston: Harvard University Press.
- Mackey, H. 2002. **HP patent strategy pays off**. www.hp.com/hpinfo/newsroom/feature_stories/2002/patents02.html.
- Mahoney, J., & Pandian, J. 1992. The resource-based view within the conversation of strategic management. **Strategic Management Journal**, 13: 363-380.
- Marr, B., Gray, D., & Neely, A. 2003. Why do firms measure their intellectual capital? **Journal of Intellectual Capital**, 4:441-464.
- McDaniel, S., & Kolari, J. 1987. Marketing strategy implications of the Miles and Snow strategic typology. **Journal of Marketing**, 51: 19-30.
- Miles, R., & Snow, C. 1978. **Organizational strategy, structure, and process**. New York: McGraw-Hill.
- Miller, D. 1990. **The Icarus paradox: How exceptional companies bring about their own downfall**. New York: Harper Business.
- Miller, D., & Friesen, P. 1984. **Organizations: A quantum view**. Englewood Cliffs, NJ: Prentice Hall.
- Miller, D., & Friesen, P. 1978. Archetypes of strategy formulations. **Management Science**, 24: 921-933.
- Mintzberg, H. 1988. Generic strategies: Toward a comprehensive framework. **Advances in Strategic Management**, 5: 1-67.
- Montembeau, M. 2003. In pursuit of patents. **Connecticut Law Tribune**, December 22.
- Nath, D., & Sudharshan, D. 1994. Measuring strategy coherence through patterns of strategic choices. **Strategic Management Journal**, 15: 43-61.
- Nelson, R., & Winter, S. 1982. **An evolutionary theory of economic change**. Boston: Belknap Press.
- Nonaka, I. 1994. Dynamic theory of organizational knowledge creation. **Organization Science**, 5: 14-37.
- Nonaka, I. 1991. The knowledge-creating company. **Harvard Business Review**, 69: 96-104.
- Nonaka I., & Takeuchi, H. 1995. **The knowledge-creating company**. London: Oxford University Press.
- Patel, R. 2000. Patent portfolio: New year is a good time to assess intellectual property. **San Francisco Daily Journal**, December 15.
- Penrose, E. 1959. **The theory of the growth of the firm**. New York: John Wiley & Sons.
- Peterof, M. 1993. The corner-stones of competitive advantage: A resource-based view. **Strategic Management Journal**, 14: 179-192.
- Petty, R., & Guthrie, J. 2000. Intellectual capital literature review: Measurement, reporting and management. **Journal of Intellectual Capital**, 1: 155-176.
- Poltorak, A. 2003. Valuing patents as market monopolies. **Patent Strategy and Management**, 4.
- Popejoy, S., 2004. **Recent developments in intellectual capital**. Working paper developed for the Institute for Entrepreneurial Studies and Development, Central Missouri State University.
- Porter, M. 1996. What is strategy? **Harvard Business Review**, 74: 61-78.
- Porter, M. 1980. **Competitive strategy**. New York: The Free Press.
- Prahalad, C., & Hamel, G. 1990. The core competence of the corporation. **Harvard Business Review**, May-June: 79-81.
- Putnam, J. 1999. **The economics of patent portfolio valuation**. Patent Café Magazine. www.cafezine.com/

- pintable_template.asp?deptid=19&articleid=16.
-
- Quinn, J. 1992.
- Intelligent enterprise**
- . New York: The Free Press.
-
- Riah-Belkaoui, A. 2003. Intellectual capital and firm performance of U.S. multinational firms: A study of resource-based and stakeholder views.
- Journal of Intellectual Capital**
- , 4: 215-216
-
- Roos, J., Roos, G., Dragonetti, N., & Edvinsson, L. 1997.
- Intellectual capital: Navigating in the new business landscape**
- . London: Macmillan Business.
-
- Rumelt, R. 1974.
- Strategy, structure, and economic performance**
- . Cambridge MA: Harvard Business School.
-
- Sanchez, P., Chaminade, C., & Olea, M. 2000. Management of intangibles: An attempt to build a theory.
- Journal of Intellectual Capital**
- , 1: 312-327.
-
- Smith, M., & Hansen, F. 2002. Managing intellectual property: A strategic point of view.
- Journal of Intellectual Capital**
- , 3: 366-374.
-
- Snow, C., & Hrebiniak, L. 1980. Strategy, distinctive competence, and organizational performance.
- Administrative Science Quarterly**
- , 25: 317-336.
-
- Spender, J., & Grant, R. 1996. Knowledge and the firm: Overview.
- Strategic Management Journal**
- , 17: 5-9.
-
- Stewart, T. 2001.
- The wealth of knowledge – intellectual capital and the twenty-first century organization**
- . London: Nicholas Brealey Publishing.
-
- Sveiby, K. 2001. A knowledge-based theory of the firm to guide in strategy formulation.
- Journal of Intellectual Capital**
- , 2: 344-358.
-
- Teece, D. 2000. Strategies for managing knowledge assets: The role of firm structure and industrial context.
- Long Range Planning**
- , 33: 35-54.
-
- Treacy, M., & Wiersema, F. 1995.
- The discipline of market leaders: Choose your customers, narrow your focus, dominate your market**
- . Reading MA: Addison-Wesley.
-
- Tosi, H., & Slocum, J. 1984. Contingency theory: Some suggested directions.
- Journal of Management**
- , 10: 9-26.
-
- Utterbach, J., & Abernathy, W. 1975. A dynamic model of process and product innovation.
- Omega**
- , 3: 639-656.
-
- Von Krogh, G., Nonaka, I., & Nishiguchi, T. 2002.
- Knowledge creation: A source of value**
- . Basingstoke: Palgrave.
-
- Weinberger, J. 2003. Which projects are worth your time?
- eWeek.com**
- , Oct. 1, 2003.
-
- Wernerfelt, B. 1989. From critical resources to corporate strategy.
- Journal of General Management**
- , 14: 4-12.
-
- Wernerfelt, B. 1984. A resource-based view of the firm.
- Strategic Management Journal**
- , 5: 171-180.
-
- White, R. 1986. Generic business strategies, organizational context and performance: An empirical investigation.
- Strategic Management Journal**
- , 7: 217-231.
-
- Winter, S. 1987.
- Knowledge and competence as a strategic agent**
- . In Teece, D. (ed.),
- The competitive challenge*
- . Cambridge MA: Ballinger.
-
- Woodward, J. 1965.
- Industrial organization: Theory and practice**
- . London: Oxford University Press.

Steven Popejoy is assistant professor of business law at Central Missouri State University. He received his J.D. from University of Missouri-Kansas City. Prior to his current position at CMSU, he served on the faculties at the University of Iowa and Benedictine College, in KS, and has served in managerial/consulting positions with Southwestern Bell/AT&T, Price Waterhouse, and RSM McGladrey. He has previously published in *Urban Lawyer* law journal and *McCap Journal*, and several presentations at national meeting of the Labor and Employment Relations Association.