

Volume 5

ISSN 1544-1458

# ACADEMY OF STRATEGIC MANAGEMENT JOURNAL

The official Journal of the  
Academy of Strategic Management

William T. Jackson, Editor  
Dalton State College

Academy Information  
is published on the Allied Academies web page  
[www.alliedacademies.org](http://www.alliedacademies.org)

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*Whitney Press, Inc.*

*Printed by Whitney Press, Inc.  
PO Box 1064, Cullowhee, NC 28723  
[www.whitneypress.com](http://www.whitneypress.com)*

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## LETTER FROM THE EDITOR

The Academy of Strategic Management is an affiliate of the Allied Academies, Inc., a non-profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge. The editorial mission of the *Journal* is to advance the field of strategic management and the relationship this area has on the success of any organization. Thus, the journal publishes high quality, theoretical and empirical manuscripts pertaining to this field of knowledge. Not only is our intent to advance the discipline, but also to publish articles that have value to practitioners and scholars around the world.

The manuscripts contained in this volume have been double blind refereed. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies.

Our editorial review policy maintains that all reviewers will be supportive rather than destructive, helpful versus obtrusive, mentoring instead of discouraging. We welcome different points of view, and encourage authors to take risks with their research endeavors.

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Thank you for your interest in the organization. I look forward to hearing from you at any time.

William T. Jackson, Editor  
Dalton State College

# Manuscripts

# **Manuscripts**

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# TESTING RESOURCE-BASED AND INDUSTRY FACTORS IN A MULTI-LEVEL MODEL OF COMPETITIVE ADVANTAGE CREATION

Iain J. Clelland, Radford University

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## ABSTRACT

*This study examined an integrative, multi-level conceptual framework incorporating manufacturing facility practices and performance, factors influencing industry rivalry, and firm-level creation of economic value in order to partially explain the creation of competitive advantage. Additionally, this article supports work establishing environmental practices and performance as a strategic factor in manufacturing. Data from a cross-sectional sample of 250 corporations with 1762 manufacturing facilities in four industries are analyzed in a structural model. The study results indicate: (1) strategic environmental asset productivity within manufacturing facilities contributes to firm-level value creation; (2) complementary environmental assets within manufacturing facilities strengthen the relationship between asset productivity and firm-level value creation; (3) firm-level value creation mediates the relationship between manufacturing facility asset productivity and a competitive advantage; and (4) firms competing within industries with greater numbers of competitors experience a stronger relationship between firm-level value creation and a competitive advantage. This paper supports the role of the resource-based construct of value creation as a mediating factor between intra-firm productivity and inter-firm competitive advantage creation and the need to further develop a multi-level, resource-based model.*

## INTRODUCTION

The development of the resource-based view (RBV) of competitive advantage (Barney 1991) is seen by many management researchers as having the potential to become a theory-based successor to contingency/fit models of strategy if integrated with industry level frameworks (Conner 1991; Helfat & Lieberman, 2002; Levinthal & Myatt, 1994) and intrafirm models of strategy formulation and implementation (Govindarajan and Fisher, 1990; Ramanujam & Wiersema, 1986). However, as outlined by Priem and Butler (2001) and supplemented by Barney (2001), much work still needs to be done before the full theoretical contributions and limitations of the RBV are demonstrated. In particular, efforts to operationalize and test resource-based concepts have tended to draw direct

linkages between internal strategic assets and market outcomes (McGrath, MacMillan & Venkatraman 1995) and treated strategic industry factors as influences to be controlled rather than integrated into a multi-level model.

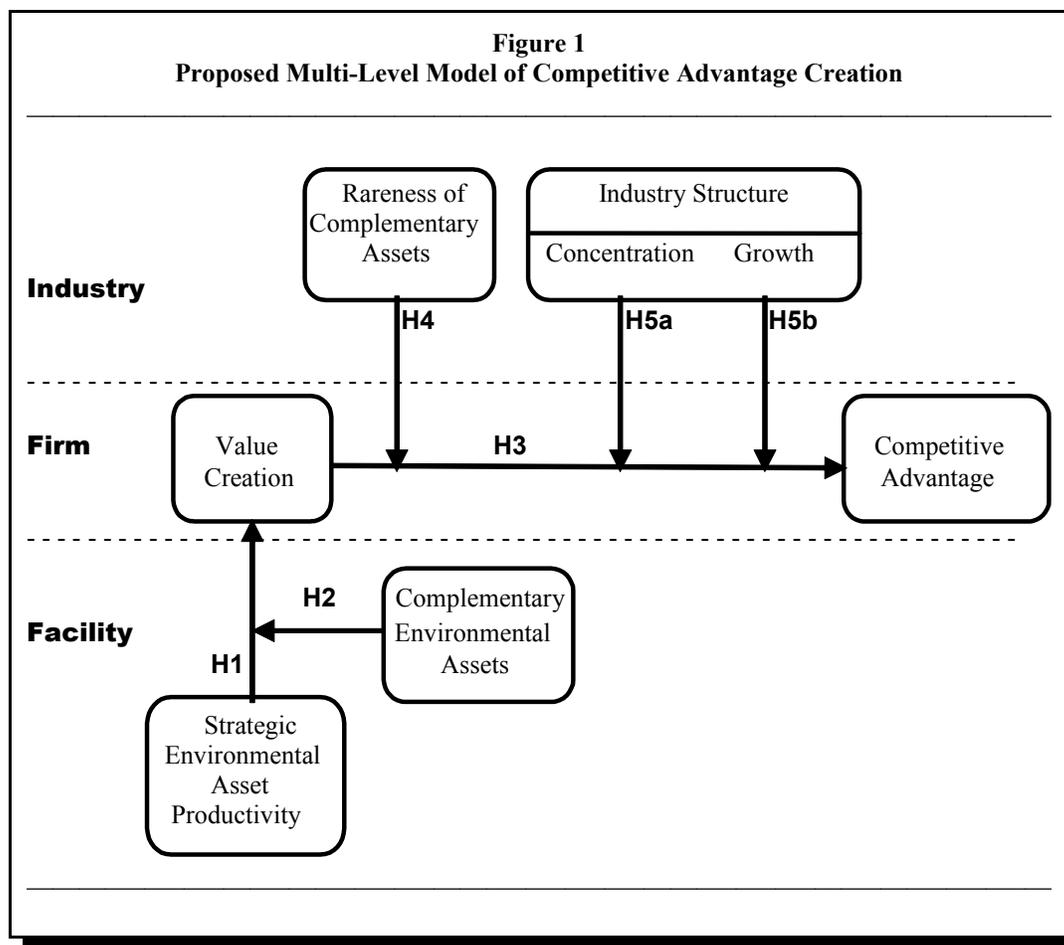
Following in the steps of management research attempting to employ *both* firm-based and industry-based factors (Hawawini, Subramanian, & Verdin, 2003), this study attempts to make four contributions to research related to broadening the RBV as a multi-level model of competitive advantage creation. The first is to add to the understanding of RBV relationships by testing the effect of value creation as a mediator between important strategic assets and a firm's financial performance relative to its competitors. The mediating role of value creation derived from strategic asset deployment or implementation should help to explain why control of strategic assets does not necessarily directly result in the creation of a competitive advantage (Collis, 1994). A second contribution is to test the moderating effect and importance of complementary assets on the relationship between strategic environmental assets and their value-creating efficacy (Vicente-Lorente, 2001). This should help explain the role of complementary assets that interact with existing strategic assets to produce value for the firm (Barney, 1991). The third contribution of this paper is the testing of the influence of complementary environmental asset rareness within our multi-level model. Few, if any, tests of asset rareness have been explored and this is a key industry-level element of the RBV (Priem and Butler, 2001). Finally, prior studies have demonstrated firm-level resource influence on environmental performance (e.g., pollution abatement investments) and competitive advantage (Sharma and Vredenburg, 1998) and industry-level factors on the contribution of a firm's environmental reputation to competitive advantage. The fourth contribution of the study extends recent work (Russo & Harrison, 2005) examining pollution performance—a factor not usually considered a source of competitive value—by integrating the effects of intrafirm environmental assets with external contingency factors into one testable model (Amit and Schoemaker, 1993).

### **SCOPE OF THE PROPOSED THEORETICAL MODEL**

The interaction of strategic and complementary assets and the creation of value are conceptual linchpins in the RBV's explanatory power and are needed to answer the "how" question about competitive advantage creation proposed by Priem and Butler (2001). These scholars have reiterated the need to better clarify the interaction of internal value creation and the competitive context within which it is deployed. Hence, it is appropriate to begin exploring the linkages between internal strategic assets as proposed by the RBV framework and external competitive conditions.

It should be noted that the scope of this model was limited to the multi-level *creation* of competitive advantage rather than factors influencing the *sustainability* of the competitive advantage. As noted by Priem and Butler (2001), "*... rarity and value are each necessary but not sufficient conditions for competitive advantage, whereas nonimitability, nonsubstitutability, and*

*nontransferability are each necessary but not sufficient conditions for sustainability of an existing competitive advantage” (p. 25).* Thus, this model includes the factors of value creation and rareness, but does not include testing the competitive sustainability factors of imitability, substitutability, or transferability. The following discussion explains where this multi-level (manufacturing facility, firm, industry) model of competitive advantage creation (see Figure 1) fits into the evolution of RBV research and the specific hypotheses associated with it.



## STRATEGIC ENVIRONMENTAL ASSET PRODUCTIVITY AND VALUE CREATION

*Strategic assets* have been defined as “*the set of difficult to trade and imitate, scarce, appropriable and specialized Resources and Capabilities that bestow the firm’s competitive advantage*” (Amit and Schoemaker, 1993, p. 36). In order to empirically evaluate our integrative model of competitive advantage, a specific context, including the relevant strategic and

complementary assets must be selected. Use of these assets to support the creation of either a differentiation or cost leadership strategy is fundamental to understanding competitive advantage (Grant, 1991). The strategic assets chosen in this research for the evaluation of this multi-level model are those manufacturing capabilities associated with pollution and waste reduction.

Environmental performance has previously been established as a strategic issue for many manufacturing firms since it is often advantageous for them to integrate it into their plans for economic performance (King and Lenox, 2000). Environmental management has been studied by a number of researchers within the lens of the RBV in recent years. For instance, Russo and Fouts (1997) found that ratings of environmental performance were positively related to economic performance in a sample of 243 firms across most industrial sectors. Christmann (2000) surveyed 88 chemical companies and established that complementary assets related to innovation need to be in place in order to realize cost savings when implementing pollution prevention “best practices”. These studies and others have established the strategic importance of identifying manufacturing facility level assets that address performance issues relating to the natural environment. Our multi-level model was tested, therefore, using the strategic assets in manufacturing that contribute to pollution reduction.

Another major element of the RBV that serves as a criterion for prioritizing resource and capability development is the firm-level concept of *value creation*. In order for a resource or capability to contribute to competitive advantage, it must specifically address the extant opportunities and/or threats within the organization’s environment (Barney, 1991). Hence, either through acquisition of external strategic assets or internal strategic asset implementation (Makadok, 2001) the value created for the firm could either result in a cost advantage or a differentiation advantage (Grant, 1991) relative to competitors.

Few empirical studies examining the RBV have taken the key element of value creation into consideration when testing the influence of resources or capabilities on economic rent generation (Dutta, Zbaracki, & Bergen, 2003; Miller and Shamsie, 1996). Indeed, the difficult measurement of “unobservable” (intra-firm) strategic assets makes investigation of this central element a challenge for researchers (Godfrey and Hill, 1995). Without including and testing firm-level value creation, however, it cannot be known if the failure to produce above-normal economic rents was due to the inability of the firm’s strategic assets to produce value or that the value produced in the form of process efficiency or product/service differentiation was insufficient relative to strategic industry factors (Priem and Butler, 2001). This may significantly limit contributions to an important aspect of practitioner interest.

In one of the few empirical studies to measure intra-firm strategic assets and their productivity, Henderson and Cockburn (1994) tested whether component or architectural capabilities contributed to internal drug discovery productivity within pharmaceutical companies. They found support for this relationship and this suggests that a strategic asset’s productivity will contribute to the determination of its core competence potential for the firm.

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Another study focused on value creation by looking at 120 development projects for assembled goods (Tatikonda & Montoya-Weiss, 2001). While their unit of analysis was the individual development project, they tested whether intra-firm process factors such as concurrent engineering practices strongly supported the value creation outcomes of product quality, unit cost, and time-to-market. In this manufacturing setting, these operational outcomes were evidence of the productivity of particular strategic product-development assets embedded in structure and practices. The question remains as to whether such product-level results would consistently aggregate to firm-level value creation superiority. Our study attempted to accomplish this with another form of strategic asset productivity—pollution reduction at the manufacturing facility level.

With respect to the natural environment, firms lacking the ability to deal effectively with pollution can incur higher costs. For example, Sharma and Vredenburg's (1998) examination of the Canadian oil and gas industry support both cost- and differentiation-based advantages by proactively addressing issues associated with the natural environment. As also noted by Christmann (2000) strategic assets related to environmental performance must reduce the costs of production in order to produce value with the potential for a cost advantage. Examples include recycling, lowered use of toxic inputs, and process redesign. Our study focused on pollution reduction and we limited our examination of the relationship between strategic assets and value creation to production efficiency. Hence, the more *productive* the strategic assets in lowering relative pollution levels of a manufacturing firm within an industry, the greater the expected value creation for the firm. Thus, the following hypothesis was developed.

Hypothesis 1: The productivity of a firm's strategic environmental assets is positively related to internal value creation.

### **MODERATING ROLE OF COMPLEMENTARY ENVIRONMENTAL ASSETS**

*Complementary assets* or capabilities “refer to a firm's capacity to deploy *resources*, usually in combination, using organizational processes, to affect a desired end” (Amit and Schoemaker, 1993, p. 35). The vast majority of these actions are based in the development of new operational routines across functional departments. As such they involve organizational coordinative capabilities, skill development by employees (Miller and Shamsie, 1996), solutions tailored to the unique problems posed by each firm's structure and culture, and product and process innovations (Hart 1995). These are the intangible or “invisible” assets that have been identified by Teece, Pisano & Shuen (1997) as having the greatest potential for assisting in the creation of difficult-to-imitate value.

One set of capabilities that has recently been noted as contributing to operational efficiency is the internal organizational activities supporting pollution prevention (Hart and Ahuja 1996). For example, the waste management function of a firm utilizes the knowledge and skills of individuals

and teams working at the facility level. Waste management activities focus on reduction of pollutants before and during the production process. These activities center on reducing waste in both current and newly installed manufacturing processes. Waste management spans many functional areas including research and development (e.g., product redesign; OTA 1992), inbound logistics (e.g., inventory control; Wu and Dunn, 1995), production (e.g., equipment modifications; Nehrt 1996), and outbound logistics (e.g., packaging modifications; Klassen and Whybark, 1999). While waste management activities also extend to issues of solid waste and energy conservation, they directly target toxic or hazardous materials used or created by the firm. They include substituting less toxic chemicals as feed stocks, leak or spill prevention of hazardous substances, in-process recycling of toxic production inputs, and more efficient methods of feedstock preparation and finished product handling (Office of Pollution Prevention & Toxics, 1995).

In keeping with the theory of complementary assets, waste management activities have limited ability to generate significant economic value creation by themselves. However, when aggregated across the organization and combined with a firm's other strategic manufacturing assets (Klassen & Whybark, 1999), these complimentary assets can enhance a firm's realization of its value creating potential (Dutta, Zbaracki, & Bergen, 2003). As complementary assets, waste management activities serve to strengthen the relationship between the effectiveness of strategic assets associated with lowering pollution levels and enhanced production efficiency potentially resulting in a cost advantage (Christmann 2000). Hence, in the RBV, complementary assets, such as waste management practices, have a moderating rather than a direct role in contributing to a firm's competitive value.

Hypothesis 2: Complementary assets will moderate the relationship between the productivity of a firm's strategic assets and value creation: this relationship will be stronger for firms with higher levels of complementary assets.

### **MEDIATING ROLE OF VALUE CREATION**

Barney has defined *competitive advantage* in terms of "implementing a value creating strategy not simultaneously being implemented by any current or potential competitors" (1991: 102), although a monopoly position with respect to strategic resources is not necessary to gain advantage from a value creating strategy. Black and Boal (1994) emphasized the role of asset-strategy "fit" in creating value is contingent upon the fit of the firm's strategy with the external environment. Thus, the ability of value creation to mediate the relationship between strategic environmental asset productivity and competitive advantage in the form of above-normal economic rents must be determined externally to the organization (Priem & Butler, 2001). For example, *ceteris paribus*, cost-driven value creation can result in superior economic rents only when a firm's strategic asset

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productivity can lower its cost structure *relative* to other competitors (Porter, 1985). Therefore, we assert that the cost-related value creation of strategic environmental assets will be related to competitive advantage and the following hypothesis is offered:

Hypothesis 3: A firm's value creation is positively related to a competitive advantage.

### **MODERATING ROLE OF ASSET RARENESS**

The scarcity of particular strategic assets across a population of competitors has been labeled *rareness* in the RBV (Barney 1991). Rareness implies that valuable resources and capabilities must be in limited supply within the industry or market area in order for an organization to realize competitive advantage. Barney also stated that "*as long as the number of firms that possess a particular valuable resource (or a bundle of valuable resources) is less than the number of firms needed to generate perfect competition dynamics in the industry, that resource has the potential of generating a competitive advantage*" (p. 107). The lack of preciseness concerning the degree of rareness necessary to generate rents suggests that the best way to empirically evaluate this concept is within each industry under study. There has been little distinction between the rareness of strategic assets generally and the subset of complementary assets. However, Powell and Dent-Micallef (1997) have argued that standardization (i.e., lack of rareness) of computer software reduced the rent appropriation power of complementary information technology capabilities for large retailers. Hence, an industry-level moderating influence of strategic asset rareness between firm value creation and competitive advantage was hypothesized.

Hypothesis 4: Rareness of a set of complementary assets in an industry will moderate the relationship between value creation and competitive advantage; this relationship will be stronger the lower the industry diffusion of complementary assets.

### **MODERATING ROLE OF INDUSTRY STRUCTURE**

Not only is the process of competitive advantage affected by asset rareness, but also by *industry structure*. Barney (1997) characterized industry structure as a critical element of "the question of value" that integrates the traditional internal analysis with analysis of external threats and opportunities. The ability of internal value creation to produce above-normal economic rents is influenced by a number of industry factors including the level of competition, product differentiation, barriers to entry, and cost structures (Barney, 1997). While the influence of industry structure has varied across research studies and is now seen as having less of an impact than

indicated in earlier research, it is clear that industry structure still significantly influences the performance of firms (Hansen and Wernerfelt, 1989; McGahan and Porter, 1997; Rumelt, 1991). Thus, external industry-level factors should also be considered in determining the degree to which superior value creation can be converted into superior financial performance.

In contrast to early economic views of long-term dissipation of above-normal economic rents through imitative conduct or entry, resource-based theory posits that above-normal returns can be obtained in the face of competitive forces in an industry (Barney, 2001). In particular, two studies of large, multi-unit organizations have indicated that the resource-based perspective may be most relevant in the context of intense industry competition. First, Cool, Dierickx & Jemison (1989) tested the influence of industry rivalry on the relative influence of firm attributes versus market share on the ability to generate above-normal returns with a sample of commercial banks. They found that market share generates above-normal returns in *less* rivalrous industry settings (e.g., oligopoly) whereas “differential efficiency” (Schmalensee, 1987) between firms based on firm attributes was more likely to generate such returns in *highly competitive* industry settings.

Echoing the findings of Cool, Dierickx & Jemison (1989), Barnett, Greve & Park (1994) also found that single-unit firms, in order to be profitable, were forced into historical, path-dependent “learning” to develop distinctive competencies when subjected to industry competition. Multi-unit firms, on the other hand, substitute positional advantage (e.g., market share) for competency “learning” and engage in mutual forbearance (Karnani & Wernerfelt, 1985) with competitors in order to be profitable. Both strategies can be successful in generating above-normal economic rents, but each is systematically influenced by the degree of industry rivalry. That is, it is anticipated that firm-level value creation based on internal strategic assets will more likely result in competitive advantage when implemented in the context of industry structural factors that increase industry rivalry.

Two of the most important aspects of industry structure that affect industry rivalry are the degree of industry concentration and the market demand by customers for an industry’s products/services (Scherer & Ross, 1990). Porter (1985) argued that the greater the number of competitors within an industry, the greater the diversity of strategies, capabilities, and market segmentation. This results in greater strategic uncertainty, higher mortality rates, and increased efficiency pressures for each firm (Barney, 1997). Therefore, this research suggests a moderating role of industry concentration on the relationship between competitive value and the ability to generate a competitive advantage, with the relationship being strongest in more rivalrous markets.

Hypothesis 5a:            Industry concentration will moderate the relationship between value creation and competitive advantage; this relationship will be stronger the lower the industry concentration.

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In addition to industry concentration, the growth rate of an industry influences internal rivalry. A higher level of competition will be found in an industry with a lower growth rate, reflecting an increasingly zero-sum game of mutual dependence. In such an environment, a firm must directly wrestle away customers and sales from rivals (Porter, 1985). Thus, the lower the growth rate the greater the intensity of rivalry between firms and the greater the influence on the relationship between value creation and its efficacy in producing a competitive advantage.

Hypothesis 5b: Industry growth will moderate the relationship between value creation and competitive advantage; this relationship will be stronger the lower the growth rate of an industry.

### **SAMPLE**

To allow for diversity in pollution performance across industries a sample of firms was selected from four manufacturing industries (2-digit SIC) with varying levels of pollution burden per production facility from 1991 to 1993. This time frame was chosen because US companies were required to begin reporting toxic emissions of over 300 chemicals beginning in 1988 (Office of Pollution Prevention & Toxics, 1995) to the Toxics Release Inventory (TRI) database managed by the federal Environmental Protection Agency (EPA). Sampling the companies reporting a few years after the introduction of TRI reporting allowed for considerable standardization of EPA reporting processes to help ensure reliability of the data. An additional benefit of this time frame was broader variability in pollution prevention practices before companies moved down the learning curve in later years towards a smaller set of pollution prevention activities (TRI Program Division, 2005).

Initially, twenty (2-digit SIC) manufacturing industries were rank ordered according to their average volume of toxic pollution per facility for 1992 (Office of Pollution Prevention & Toxics, 1995). After removing one extreme outlier (Chemicals), the industry with the highest average pollution per facility, Primary Metals (SIC 33), was assigned a rating of 100 and selected as the first of the sample industries. Ratings were calculated for the remaining eighteen industries by dividing their pollution per facility values by the value for Primary Metals and multiplying by 100. Three additional industries were selected to assure distinct differences in pollution levels as well as a wide range of technologies, locations, and competitive dynamics as well as a sufficient sample size. These were Paper and Allied Products (SIC 26) with a rating of 59, Electronic and Other Electric Equipment (SIC 36) with a rating of 28, and Industrial Machinery and Equipment (SIC 35) with a rating of 10.

All publicly-owned firms from these four industries that reported chemical releases to the air, water, or land in the 1992 TRI database, and for which no missing data was evident across all of the study variables, were included in the sample based on their primary 2-digit SIC. The final sample consisted of 250 corporations (80% of the total reporting) in four industries distributed as

follows: Forty-one in SIC 26 (95% of the total reporting), forty-three in SIC 33 (72% reporting), eighty in SIC 35 (71% reporting), and eighty-six in SIC 36 (90% reporting). Table 1 contains selected variables for 1992 with which to compare these four industries. As can be seen, there is considerable variability across the selected industries in terms of the average number of employees, manufacturing facilities per firm, and annual sales.

<b>Industry</b>	<b>Index of Pollution Releases</b>	<b>Number of Employees</b>	<b>Number of Facilities</b>	<b>Annual Sales in Millions</b>
Primary Metals	100	5668	8.0	1029.5
Paper and Allied Products	59	14758	11.5	2607.8
Electronic and Other Electric Equipment	28	17452	5.7	1979.2
Industrial Machinery and Equipment	10	19562	5.7	2928.9

<sup>a</sup> Statistics based on the 250 firms and 1762 manufacturing facilities in the sample

## MEASURES

Firms have developed a number of methods that help them deal with pollution abatement in their manufacturing processes. Two approaches are common and vary widely in use of strategic assets. The first, pollution prevention, is heavily dependent upon strategic assets and takes two complementary forms: The first form is comprised of ongoing manufacturing practices (e.g., recycling, reuse, toxic feedstock substitutions) which reduce pollution at the source (i.e., manufacturing facility), increase efficiency in the use of raw materials, energy, water, or other resources, or protect natural resources by conservation (Hart, 1995). The second form of pollution prevention is comprised of pollution-reducing investments in production technology (Nehrt, 1996) and is closely linked with a manufacturing firm's stock of strategic assets. Pollution-reducing production equipment replacement fits with the source-reduction paradigm (e.g., National Pollution Prevention Act of 1990), but tends to be more infrequent relative to manufacturing practices, particularly in capital-intensive industries (Nehrt, 1996).

A second abatement approach, pollution control, typically involves acquisition of end-of-pipe equipment, such as effluent treatment ponds, is capital intensive, and has often been mandated by regulators in the U.S. (Russo & Fouts, 1997). While pollution control makes the least use of strategic assets and is often characterized as a reactive form of environmental compliance by firms (Clelland, Dean & Douglas, 2000), it is often an important choice within the range of possible abatement solutions (Aragon-Correa, 1998). As a result, prevention and control approaches to pollution abatement have been referred to as comprising the "environmental technology portfolio" of large manufacturing firms (Klassen & Whybark, 1999).

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Since firms often jointly employ these two pollution abatement approaches this study adopted the proxy measure of pollution level to represent the *strategic environmental asset productivity* of their related manufacturing processes. Calculation of this measure began with aggregating the volume (lbs) of 1993 pollution reported by manufacturing facilities for corporations in the sample to the federal EPA's Toxic Release Inventory (TRI) database. Manufacturing facilities with more than 10 employees and using/producing greater than five tons of about 300 chemicals are required to report this pollution volume. This aggregate volume was then weighted by each chemical's human and environmental health hazard value (Davis et al, 1994) because, to a great extent, firms and regulatory agencies prioritize their pollution abatement actions based on the overall hazard potential posed by chemicals (Hart and Ahuja, 1996).

The final measure of strategic environmental asset productivity was then calculated by taking the ratio of the natural logarithms of this weighted pollution volume and the firm's annual sales volume. The reciprocal of this value was used to represent the relative productivity of the firm's strategic assets for lowering pollution levels, that is, organizations exhibiting higher values on this measure are producing a lower volume of hazardous pollutants.

*Complementary environmental assets* were measured by focusing on activities that are observable and which result in the development of additional organizational capabilities (Godfrey and Hill, 1995). This study measured the waste management activities undertaken by corporations at the manufacturing facility level. As Mauri and Michaels (1998) have suggested for empirical research in strategic management, it is beneficial to measure capabilities at low levels of aggregation in order to improve the prescriptive ability within the RBV.

Waste management activities that are associated with production processes are reported by manufacturing facilities in the TRI database. Forty-eight types of waste management activities such as improved maintenance scheduling and inventory control, revised leak prevention procedures, modified cleaning or production procedures, revised painting procedures or materials, and changed product specifications are reported. This study used the logarithm of the total number of waste management activities per facility aggregated for each parent firm for the years 1991 and 1992 to measure complementary environmental assets. This time period was used for two reasons. First, previous research examining waste management practices (Clelland, Dean & Douglas, 2000) demonstrated the need to allow time for such complementary assets to interact with other elements of the environmental technology portfolio in order to be able to influence pollution volume. For example, like most new manufacturing technologies, implementing different methods and equipment for using non-petroleum-based paint will take time and practice to achieve optimal results. Second, it was necessary to separate out the influence of waste management practices from the potential influence of such practices included in the proxy measure for strategic environmental asset productivity in 1993. Lagging the measure for complementary environmental assets enables this separation of effects.

Costs can be used as a “surrogate for value” when “there are no (*external*) markets for intermediate goods” (Hergert and Morris, 1989, p. 183). Thus, we adopted a proxy for firm-level *value creation* in the form of commonly measured manufacturing efficiency by using the total cost-of-goods-sold. In order to be an effective measure of value creation in terms of contributing to cost advantage, cost-of-goods-sold must be evaluated relative to a firm’s total sales dollars. This variable was calculated by taking the ratio of the natural logarithms of both cost-of-goods-sold and the firm’s annual sales volume. The reciprocal of this result was used in the analysis so that higher values of the variable represent relatively higher levels of value creation. These data were obtained for 1993 from the Compact Disclosure database produced by Disclosure Inc.

Firm-level financial performance adjusted for industry effects has been used as a proxy for the supranormal rents associated with resource-based *competitive advantage* (Powell, 1995). Return on Assets (ROA) was used to measure the ability of firms to realize superior economic rents through successfully leveraging the value they created in terms of manufacturing efficiency (Barney, 1997).

Since this analysis was conducted across multiple industries, it was necessary to standardize ROA within each of the 2-digit SICs. Industry effects on firm profitability have been identified in numerous studies (Robins & Wiersema, 1995) and must be accounted for when multiple industries are present. In this study, the z-score associated with a firm’s ROA value for 1993, within each of the industries, was used in the analysis. The means and standard deviations used were calculated using the data from the sampled firms. ROA data were obtained from the Compact Disclosure database.

Two industry structure measures were included in order to assess the external impact of the environment on the ability of the additional value created to generate competitive advantage. The first, *industry concentration*, has been viewed as a basic indicator of barriers to entry and internal rivalry in industrial-organization research (Robins & Wiersema, 1995). The four-firm concentration ratio of the primary 4-digit SIC associated with each firm as the measure of industry concentration was used (Russo & Fouts, 1997). These data were obtained from the 1992 Census of Manufacturers. The second industry structure measure, *industry growth*, was measured as the annual percentage increase in industry sales for the five year period between 1989 - 1993 for the primary 4-digit SIC associated with each firm. This measure was calculated by taking the regression coefficient of the trend in the natural logarithm of the industry value of shipments for each of the above years. These data were obtained from the 1993 Annual Survey of Manufacturers.

The moderator effects of industry concentration and growth were estimated using the multiplicative interaction terms of these variables individually combined with the firm-level competitive value variable. To alleviate any potential multicollinearity problems, each of the respective variables were centered on the variable mean prior to creating the interaction terms (Jaccard, Turrisi & Wan 1990).

In order to assess the effect of *asset rareness* in the context of this study, it was necessary to determine the rareness of facilities developing complementary assets associated with waste

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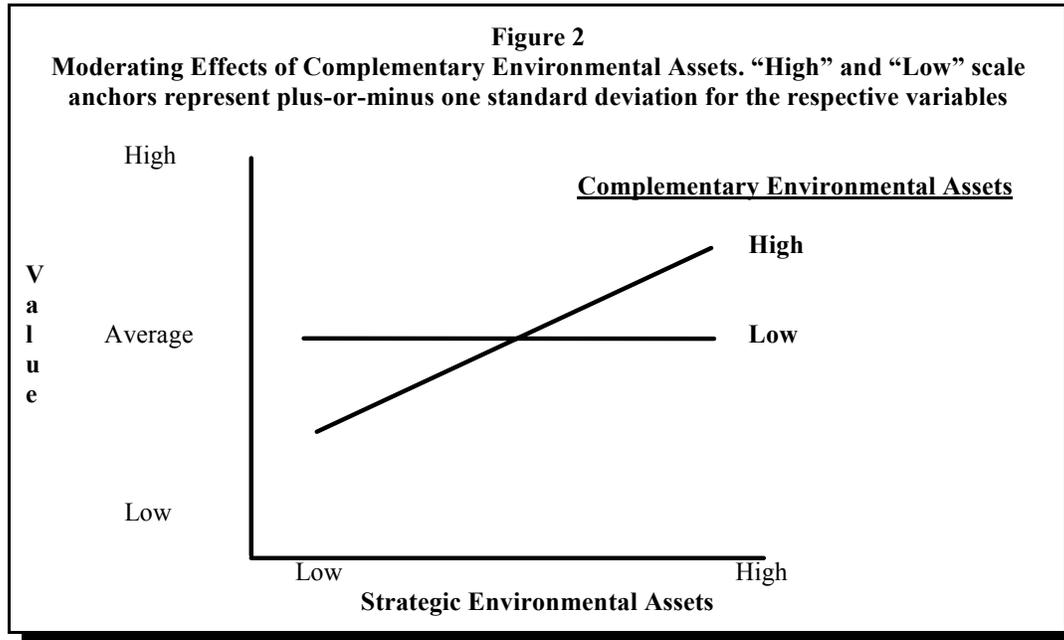
management activities within each of the primary 4-digit SICs for firms in the sample. This was accomplished for each of the industries for both 1991 and 1992 by dividing the number of TRI-reporting facilities in each 4-digit SIC that reported waste management activities for each year by the total number of facilities in the TRI data base for that year and multiplying the result by 100. The average of the percentages calculated for each of the two years represents a measure of the relative rareness of facilities using waste management activities within each of the 4-digit SIC industries for the time period 1991-1992. The moderator effects of this variable were calculated in the same manner as the industry structure variables.

Since this study is being conducted across four industries that were selected based on differing levels of toxic pollution releases, it is necessary to include control variables in the analysis to account for these industry differences. Therefore, industry dummies were created for three of the industries (2-digit SIC) for inclusion in the value creation and competitive advantage equations. In addition, firm size in the form of the natural logarithm of the number of employees was included in the study. The number of employees for each firm was obtained from the Compact Disclosure database for 1992.

## ANALYSIS AND RESULTS

LISREL 8 was the analytical procedure used to estimate this structural equation model. This technique combines path analysis with multiple regression analysis (Joreskog and Sorbom 1993) in a manner that matches the theoretical model displayed in Figure 1. Table 2 displays the means, standard deviations, and correlations for all of the variables in the study. All of the correlations between the variables are low or moderate (all less than 0.4) indicating that multicollinearity is not a problem (Covin, Slevin & Schultz, 1994).

Based on the LISREL 8 procedure, the overall results of the hypothesized model are displayed in Table 3. The Chi-square test associated with this model is  $\chi^2 = 65.34$ , with 13 degrees of freedom ( $p = .000$ ). The fit of the model was tested using the Comparative Fit Index (CFI) suggested by Bentler (1990). While many fit indices have been developed over the last 15 or so years, the CFI was recommended in a review and evaluation of such indices by Medsker, Williams & Holahan (1994). Values of the CFI should realistically range from 0 to 1, with the values closest to 1 representing the best fit (Marsh, Balla & McDonald, 1988). The value of the CFI calculated in this study was 0.91, suggesting that the model estimated fits the data sufficiently well. The structural model accounted for 23% of the variability in the value creation variable and 9% of the variance in the competitive advantage variable. It can also be observed in Table 3 that all of the component variables of the moderator variables had non-significant direct effects, further supporting the overall model.



**Table 2: Means, Standard Deviations, and Correlations of All Variables <sup>a</sup>**

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1. Competitive Advantage	0.00	1.04										
2. Value Creation <sup>b</sup>	1.02	.01	.13									
3. Strategic Env. Asset Productivity <sup>b</sup>	0.82	.16	-.08	.27								
4. Complementary Env. Assets <sup>b</sup>	0.87	.66	-.04	-.09	-.04							
5. Industry Concentration	38.17	14.88	-.03	-.02	.01	.19						
6. Industry Growth	0.02	.05	-.02	.18	.16	.01	-.02					
7. Compl. Env. Asset Rareness	41.25	12.40	.05	.17	.11	.13	.22	.38				
8. Firm Size <sup>b</sup>	8.35	1.54	.01	-.16	.12	.31	.31	-.07	.15			
9. SIC 26	0.17	.37	.00	-.15	-.09	.06	.02	-.15	-.04	.15		
10. SIC 33	0.17	.37	.02	-.31	-.24	.05	.05	-.38	-.29	-.05	-.20	
11. SIC 35	0.32	.47	-.01	.21	.22	-.11	-.09	.05	-.09	-.06	-.31	-.31

<sup>a</sup> N = 250; p < .05 for all r > .12; p < .01 for all r > .16.

<sup>b</sup> Natural logarithm

A significant relationship between strategic environmental asset productivity (pollution level) and value creation (manufacturing efficiency) was found in our data set. The standardized coefficient associated with the relationship between strategic environmental asset productivity and

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value creation is 0.21 and is significant at the .001 level. The sign and significance are as expected by the theory. The indications are that lower levels of toxic pollution lead to reductions in a firm's cost-of-goods-sold. Hypothesis 1 is, therefore, confirmed.

Hypothesis 2 is supported by the data. The relationship between strategic environmental asset productivity and value creation is conditioned by the level of complementary environmental assets (waste management practices) that exist in the organization. The standardized coefficient corresponding to the interaction of strategic environmental asset productivity and complementary environmental assets is 0.15 and is significant at the .01 level. This signifies that the greater the development of an organization's complementary environmental assets, the stronger the relationship between strategic environmental assets and firm-level value creation. Figure 2 depicts this conditional relationship.

Hypothesis 3 is also firmly supported by the data. A positive relationship was found between value creation and competitive advantage. The standardized coefficient corresponding to this path in the model was 0.19 and is significant at the .01 level.

Hypothesis 4 is not supported by the data. The moderating role expected by theory concerning the effect of the rareness of complementary environmental assets on the relationship between value creation and competitive advantage (relative profitability) was not found.

Two industry structure variables affecting the intensity of rivalry were hypothesized to moderate the relationship between firm-level competitive value and above-normal economic rents. The standardized coefficient associated with the interaction of industry concentration and firm-level competitive value on competitive advantage is -0.19 and is significant at the .01 level and confirms Hypothesis 5a. Although in the hypothesized direction, the standardized coefficient corresponding to the interaction of industry growth and value creation is not significant. Thus, Hypothesis 5b is not supported by the data.

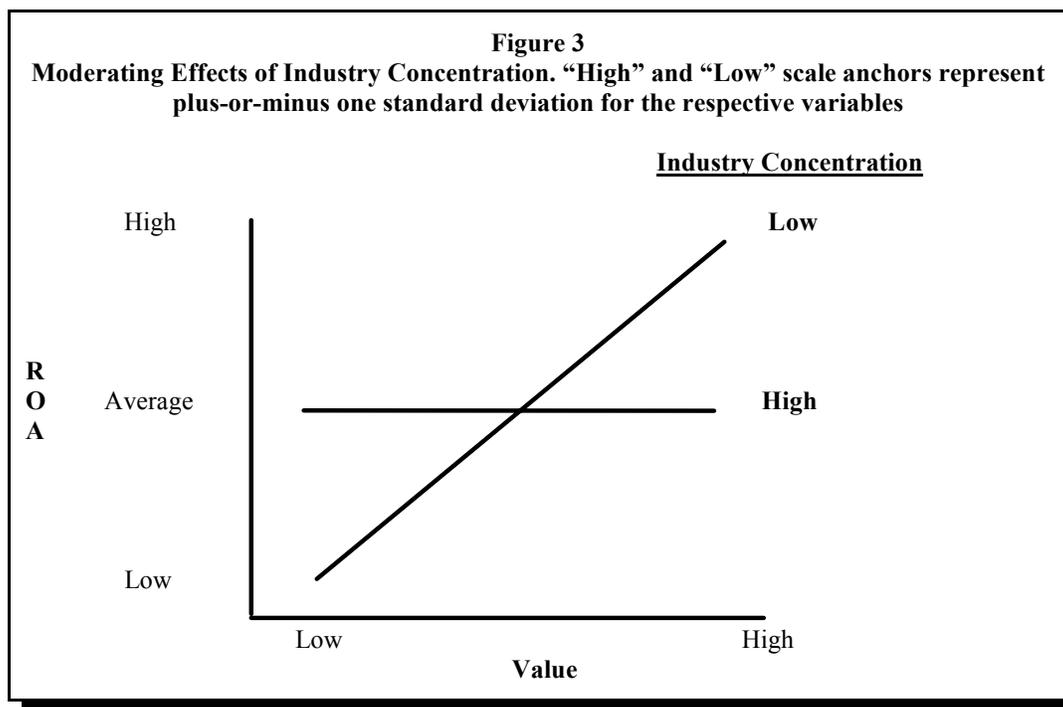
In light of the significant finding with respect to Hypothesis 5a, the main effect between value creation and competitive advantage was evaluated further (Jaccard et al, 1990). The graph associated with this conditional effect is displayed on Figure 3. In the presence of lower levels of industry concentration, higher values of value creation lead to significantly higher ROA values. For industries where firm concentration rates are high, the slope of the line relating unit value creation to ROA is not significantly different from zero within this data set, indicating that in such high concentration industries changes in relative value may not affect ROA significantly. This is congruent with our hypothesized logic regarding intensity of rivalry.

The standardized coefficient associated with the path from firm size to firm-level competitive value (-0.18,  $p < .01$ ) is significant, signifying that size helps explain the variation associated with this dependent variable. As expected, the paths from the two "dirtier" industries (see Index of Pollution Releases in Table 1), Primary Metal Industries (SIC 33) and Paper and Allied Products (SIC 26), exhibited negative and significant paths to value creation (-0.28,  $p < .001$  and -0.14,  $p < .05$ , respectively).

**Table 3: Sturctural Coefficients, Squared Multiple Correlations, and Goodness of Fit Indicators**

Parameters	Coefficient Estimates	Standardized Coefficients
Exogenous (or Endogenous) Variable/Endogenous Variable		
Strategic Env. Asset Productivity / Value Creation	.02***	.21***
Complementary Env. Assets / Value Creation	0	0
Strategic Env. Asset Prod. X Compl. Env. Assets /Value Creation	.02**	.15**
Firm Size / Value Creation	-.00**	-.18**
SIC 26 / Value Creation	-.01*	-.14*
SIC 33 / Value Creation	-.01***	-.28***
SIC 35 / Value Creation	0	0.01
Value Creation / Competitive Advantage	13.65**	.19**
Industry Concentration / Competitive Advantage	0	-0.02
Ind. Conc. X Value Creation / Competitive Advantage	-1.13**	-.19**
Industry Growth / Competitive Advantage	-1.76	-0.08
Ind. Grwth X Value Creation / Competitive Advantage	-156.66	-0.12
Compl. Env. Asset Rareness / Competitive Advantage	1	0.07
Compl. Env. Asset Rareness X Value Creation / Comp. Advantage	-0.05	-0.01
R <sup>2</sup>		
Competitive Advantage	0.09	
Value Creation	0.23	
Goodness-of-Fit Indicators		
$\chi^2$	65.34	
df	13	
p	0	
GFI	0.97	
AGFI	0.71	
CFI	0.91	

\* p < .05; \*\* p < .01, \*\*\* p < .001



## DISCUSSION AND CONCLUSIONS

The purpose of this study was to empirically examine key mediating and moderating relationships after explicitly separating, yet integrating, three levels of factors influencing the creation of competitive advantage to better understand their interaction within the resource-based perspective (Priem and Butler 2001). The results of this study support a direct relationship between strategic environmental asset productivity and value creation. Henderson and Cockburn (1994) found support for the antecedent path between R&D competencies and their productivity, but did not link such intra-firm productivity with firm-level value creation (e.g., quality differentiation). The present study found support for the additional relationship and this suggests that the value creation process is dependent upon successfully extracting asset productivity through superior process execution. Thus, a manager must be as concerned with superior process execution to create value which can be appropriated (Dutta, Zbaracki, & Bergen, 2003) as much as with the ongoing competitive advantage sustainability factors of resource imitability or embeddedness of unique competencies (Priem & Butler, 2001).

There may be industry settings (e.g., pharmaceuticals) where both strategic asset productivity (value creation) and uniqueness (sustainability of advantage) are extremely important, yet others where rapid, continual enhancement of strategic assets is the *only* advantage of note (Eisenhardt and

Martin 2000). Future resource-related research should examine the relative importance of strategic asset productivity and uniqueness on the value creation process.

This study also empirically supported value creation as the firm-level outcome of aggregated, manufacturing facility strategic assets that can lead to *potential* competitive advantage. As such, value creation represents the resource-based “market bet” made by a strategic business unit as the basis for its competitive advantage when it is not relying on positional strength (e.g., market share). These results suggest that future research needs to include value creation as a mediating variable in order to avoid spurious findings by directly linking intra-firm strategic assets with financial performance. For example, if no relationship were found between strategic assets and rent generation, would this indicate that the RBV is misspecified or that the particular resources tested did not directly or indirectly create competitively useful value (Powell, 2001). Without including value creation in future studies, little progress will be made in understanding the interaction of strategic assets and competitive advantage.

For a manager, the addition of this mediating factor could mean the difference between fostering further development of a capability through either reassessment or elimination. For pollution prevention capabilities aimed at improving operational efficiency and pollution burdens, such a reassessment may reveal poor implementation or procedural training rather than inherent inability to contribute to such objectives.

Empirical support regarding the moderating relationship of complementary environmental assets between strategic environmental asset productivity and value creation represents another contribution of our study. Research by Christmann (2000) indicated that the complementary capabilities of process innovation and implementation moderated the relationship between environmental practices and value creation in the form of lower manufacturing costs. Our study supplemented these findings in that pollution prevention practices moderated the relationship between intra-firm strategic asset productivity (environmental performance) and firm-level manufacturing costs. While these results support Makadok’s (2001) discussion concerning the complexity of resource and capability combinations in creating value, they also point out the multi-level nature of strategic assets. Our measurement of complementary environmental assets and strategic environmental asset productivity were aggregated from the manufacturing facility level to the firm-level in order to test their overall contribution to value creation. This effort was conducted to show that the oft-mentioned “unobserved variables” associated with resources and capabilities do have viable measures and explanatory power and should not be ignored by researchers despite the measurement challenges.

Relatedly, the complementary assets examined in this study—pollution prevention activities—extends research into an area not usually considered a primary source of competitive value. The waste management activities within the firm are generally located at the manufacturing facility level. They represent management’s resource focus on individual and team efforts to improve selected processes within a facility with pollution prevention and organizational efficiency

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as key measures. These activities are very similar to the ones identified by Sharma and Vredenburg (1998) as being associated with environmentally proactive companies. From a manager's perspective, the focus should then be on the synergistic, manufacturing productivity benefits of complementary environmental capabilities. The strategic asset criterion of complementarity will help to ensure mutual support of environmental and manufacturing performance as noted by Klassen & Whybark (1999).

It was also the intent of the paper to test the moderating influence of complementary asset *rareness* on the relationship between value creation and competitive advantage. As a snapshot of this process, the study did not find that the lower the proportion of competitors also having complementary environmental assets in an industry, the stronger the relationship between value creation (manufacturing efficiency) and competitive advantage (above-normal economic rents). This may have been due to a lack of recognition of the competitive value of pollution prevention activities on the part of our sample firms although it appears that first movers gain the most from environmental investments (Nehrt, 1996). In the sample, about 21% of the firms had implemented pollution prevention practices at the facility level and these may have had the most to gain from such efforts. Perhaps the remaining firms could not benefit financially to the same degree as these first movers and had made a conscious effort not to adopt these practices. Future research should examine the role of first-movers in understanding the concept of strategic asset rareness. Are first-movers the only firms that can obtain advantages from strategic asset rareness? Strategic asset rareness may have such an inherent temporal dimension.

Another contribution of our study pertains to the moderating influence of industry structure on the relationship between firm-level value creation and competitive advantage. As affirmed by Priem and Butler (2001, p. 64), "*Resources, representing what can be done by the firm, and the competitive environment, representing what must be done to compete effectively in satisfying customer needs, are both essential in the strategy-making process.*" However, other than control variables, linkages of strategic industry factors with intra-firm strategic asset elements have rarely been investigated. We explicitly attempted to integrate facility and firm-level resource-based constructs as well as industry-level factors to move towards a more integrative framework explaining the phenomenon of competitive advantage.

For the industry structure element of concentration, such a moderating influence was supported. Specifically, low concentration strengthened the positive relationship between value creation and above-normal economic rents. This provides further support for the contextual breadth of the RBV and reinforces the findings of Cool et al (1989). That is, the greater the intensity of competition, the greater the ability of the intra-firm produced value to create competitive advantage.

Surprisingly, the industry structure dimension of growth did not seem to substantially moderate the relationship between competitive value and superior economic rents. The *t*-value associated with this relationship's coefficient was 1.56, not statistically significant at conventional levels, but a possible indication that a weak relationship exists within this data set. Although the

industries represented in the sample should have provided sufficient variability in industry growth rates, perhaps the unrelated diversification of many sample firms mitigated the ability of industry growth to sufficiently influence rivalry. Future research might investigate the role of diversification and industry growth on the relationship between internally generated value creation and superior economic rents.

While our study accounted for a number of possible confounding effects, it did have some limitations that should be addressed in future research. Although it employed some lagged relationships and included multiple years, the study had a cross-sectional design that prevented it from testing an important RBV attribute; the dynamic interplay between factors influencing the *sustainability* of competitive advantage. This study can generalize to the creation of a competitive advantage, but not to the durability of competitive advantage over time. It has been suggested that like all strategic assets, environmental technologies and capabilities evolve over time as new public policy comes into effect and firms develop a greater understanding of how to reduce or eliminate their environmental burdens (Bansal, 2005). Thus, future research should continue to investigate the change dynamic between strategic industry factors and strategic asset development.

In conclusion, this study found support for a multi-level, resource-based model that had not been previously tested. Support was found for the influence of value creation and one dimension of industry structure on the process of competitive advantage. Furthermore, complementary environmental assets at the manufacturing facility level were also shown to influence value creation. This variable demonstrates the importance of including manufacturing facility assets that represent difficult-to-imitate organizational processes. Future research on the resource-based perspective needs to explore the “black box of strategic assets” of resources and capabilities across facilities, branches, or divisions of corporations in order to gain a better understanding of their interrelationship and their contribution to competitive value. The strategic environmental assets examined in this study also extended recent work in an area not usually considered a source of competitive value. The strength of “green” assets in creating competitive advantage appears to depend on their degree of embeddedness in a firm’s value-creating competencies (e.g., manufacturing facility efficiency). In the future, researchers applying the resource-based framework to developing ecologically sustainable models of firm performance need to incorporate this influence.

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# **RE-EXAMINING IMBEDDEDNESS: A CRITICAL ANALYSIS OF GLOBAL STRATEGIC MANAGEMENT**

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## **ABSTRACT**

*Studies of the international tendencies in organizational activities have led to the emergence of the sub-field of global strategic management. Theorists of global strategy have suggested that imbeddedness, both at the level of geography and culture, is an impediment to growth, and advocate an approach that is free of such constraints in the quest for above average profits.*

*In this paper, we suggest that global strategic theorists have viewed the process of internationalization from a narrow and western-oriented perspective. Drawing upon the more diverse views of internationalization from economics and political science, we identify the critical views of internationalization which do not find mention in this research. We critique existing frameworks of global strategy, and offer an alternate research agenda for international organizations as well as theorists, as an imperative against intellectual marginalization and as a possibility for a more inclusive approach to non-western subjects in the field of international business.*

## **INTRODUCTION**

In this paper, we attempt a critical examination of the assumptions that appear to have informed the literature on international corporatization in the field of Strategic Management, and therefore question the theory building processes that have arisen from the scholarship. In doing so, we seek to identify a few key research questions and directions which might invest the field with a greater degree of legitimacy, and address the various criticisms that have been leveled against it from diverse ideological positions.

In the past few years, the literature in Strategic Management has been increasingly captivated by the ideas of the globalization of management strategy (van Gelder, 2004; Harris 2002; Nohria & Ghoshal, 1994). While the issue of the internationalization of capital has had a long history in the field of business strategy, going right back to the works of Chandler (1962) and Perlmutter (1969), the current resurgence in the field may be interpreted as an attempt by the academy to

respond to the issues that have arisen following the exponential increase in the globalization of world economic activity (Dicken, 2003), in terms of global shifts in manufacturing and production operations internationalization of investment, and widening circuits of capital.

We review the literature in the field of Global Strategic Management (GSM), in an attempt to locate the various ideological assumptions that drive the field. Following from the economic assumptions that are articulated within the mainstream scholarship in GSM, we examine the influential microeconomic theories of the Multinational Enterprise (MNE) that inform the mainstreams of GSM, in particular the internalization theory (Hymer, 1976) and transaction cost theory (Williamson, 1985). We also discuss the critical treatment of the internalization theory as it unfolds in various other social sciences, mainly economics and political science, offering a thesis that while the mainstream views of internationalization accentuate the non-antagonistic differences between the corporation and the state, they actually understate how collusive arrangements between the transnational elites actually create conditions for ensuring the successful performance and economic domination of MNEs. In juxtaposing these points of view, we attempt to contextualize the unqualified acceptance of the superior performance (and beneficial impact) of MNEs by the field of GSM and suggest that alternate research agendas in the field need to achieve a more balanced understanding of the theme of globalization. We end with a suggestion that theories of GSM need to exhibit greater sensitivity to power imbalances, issues of national priorities and geo-political egalitarianism, and the larger socio-cultural impacts of globalization rather than operate in a purely economic and unidirectional perspective.

## **GLOBAL STRATEGIC MANAGEMENT - AN APPRAISAL OF THE LITERATURE**

At face value, the literature in the field of Strategic Management that deals with globalization appears to be marked by a great deal of diversity. For instance, Melin's (1992) review of three volumes of the *Journal of International Business Studies* found them representing seven different areas of internationalization, namely finance and banking, cross cultural aspects, international joint ventures, human resources, foreign direct investments, coordination/control and host government relationships. Such a broad spectrum of interest areas have led to a variety of research interests, which appear to pull the field in different directions.

While there have been many attempts at developing typologies of research themes in the field, two influential organizational frameworks for research in the field of Global Strategic Management (GSM) are noteworthy.

Ghoshal (1987) sees global strategies as being mediated by two key variables, strategic objectives and sources of competitive advantage. In an attempt to recast the "totality of a multidimensional and complex phenomenon" (p 438) into a two dimensional framework, Ghoshal identifies three strategic objectives, namely efficiency, risk management and innovation; and three sources of competitive advantage, namely national differences, economies of scale and economies

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of scope. From the network of this 3x3 matrix, Ghoshal identifies 9 strategies of globalization, designed to "help managers and academics in formulating various issues that arise in Global Strategic Management" (p 433).

It is interesting to note that of the six aforementioned factors that Ghoshal uses to form the perimeter of his taxonomy, only 'national differences' may be identified as being a non-economistic variable. However, upon closer examination, it is evident that Ghoshal's treatment of national differences also arises from economistic aspects such as "wage rates, interest rates of currency exchange rates" and second order effects like "economically inefficient environments," or "inter-organizational linkages, the educational system and managerial know-how" (p 433). Moreover, the only variable in this classification that may have been seen to have non-economistic connotations, the educational system, is sandwiched between two economic variables, almost as a guard against any ambivalence.

While Ghoshal's organizing framework can be critiqued as being too constricting and reductionist, the framework proposed by Melin (1992), is far more flexible. After an extensive review of the literature, Melin identifies three broad themes of internationalization in the mainstream literature. The first theme attempts to cast internationalization as a stage in the development of a corporation. It is here that we may place the influential 'eclectic theory' of Dunning (1980, 1988), which sees foreign involvement as a function of locational, integrational and ownership-specific advantages of the internationalizing firms. The second theme attempts to study the sequential and causal link between strategy and structure. A bulk of the empirical research in internationalization has centered around this theme (Martinez & Jarillo, 1989). Much of this research is concerned with identifying the direction of the causal arrow in the strategy- structure linkages. Chandler's (1962) famous assertion that structure follows strategy has been continually supported and refuted by a number of studies in the international context (Peters, 1984; Melin, 1989). The third theme that seems to have dominated the internationalization debates has been termed the "Process School" (Prahalad, 1990). Concentrating their research in the direction of the Diversified Multinational Corporation (DMNC), the researchers affiliated to the Process School eschew the "architectural" approach of to the MNE literature in favor of examining the constant balancing that MNEs have to perform between the 'economic imperative' of profit maximization, which suggests centralized controls, and the 'political imperative' of having to adjust to local demands, which necessitates the relinquishing of authority in favor of a decentralized autonomy (see Doz & Prahalad, 1991, for a conceptual framework).

In addition to Ghoshal's and Melin's articulation of the various directions from which this issue is being addressed, one could add the case of "the battle of the consultants." Emerging from the works of two of the most influential consultants in the field, Kenichi Ohmae and Michael Porter, the debate has tended to end in stalemate as both parties offer empirical evidence for apparently contrasting analyses of the internationalization debate.

Discussing the issue of power relations in an "interlinked economy," Ohmae (1990) concludes that the current economic bonds between the industrially developed nations constitute linkages which have been rendered "organic," and advises the developing (sic) economies to respond to inducements to participate in a "borderless world," where the free flow of individuals, capital and activities, and the "weave of economic interdependence of nations" would ensure the security and prosperity of all humankind. The rhetoric conceals a prescription for the development of "global strategic alliances" that would supersede and render obsolete the borders of the nation state.

Porter (1990) on the other hand, is more circumspect. In an inductive analysis of his experiences as an international consultant, Porter develops a theory which suggests that nations with particular combinations of circumstances have the potential to offer enormous strengths to the forms of particular industries operating there. In his view:

Competitive advantage is created and sustained through a highly localized process. Differences in national economic structures, values, cultures, institutions and histories contribute profoundly to competitive success. The role of the home nation seems to be as strong as or stronger than ever. While globalization of competition may appear to make the nation less important, instead it seems to make it more so. With fewer impediments to trade to shelter uncompetitive domestic firms and industries, the home nation takes on growing significance because it is the source of the skills and the technology that underpin competitive advantage. (Porter, 1990, p 19).

As we can see, the literature in GSM appears at face value to approach the issue from a multiplicity of perspectives, is characterized by debates and dissensions, and is driven by multiple research agendas. However, an attempt to recast the spectrum of research viewpoints into their basic ontological, epistemological, methodological and sociological assumptions (Burrell & Morgan, 1979) reveals a surprisingly high level of paradigmatic consensus.

In ontological terms, we see that the organization has constantly been reified as an entity being conceptualized by default in the personality of its Top Management Team. The epistemological positivism is constantly reiterated in the compulsion to cast the processes, strategies and themes of international research into framing rules, typologies and networks. While the process school has often condemned "static and purely economic views" (Ghoshal, 1987) of the internationalization process, it offers a surprisingly economic view of the human element in the discussion of the issues of human involvement. The literature often equates human involvement with little beyond issues of technological competence, wage rates and the assumption of labor as being yet another factor of production. It is equally interesting to note that none of the empirical studies identified by Martinez and Jarillo (1989) or Melin (1992) contained any ethnographic or interactional study, or any design aimed at addressing the processual aspects of strategy. All studies revolved around quantitative, measurement oriented designs, quite a few of which (e.g. Hall & Salas, 1980; Peters, 1984; Melin, 1989; Stopford & Wells, 1972; Franko, 1976) were engaged in determining issues of causality.

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One exception to the methodological rule however, has been Hamel's (1991) study of international strategic alliances, which sought to study how various national organizations used the strategic alliances they entered into as a basis for further learning and adding to their portfolio of core competencies. However, Hamel's study dealt exclusively with corporations where power imbalances were not a major factor, and where theory building issues were more in the area of the resource based view of firms rather than a study of the conditions of internationalization in the sense of the classic MNE. Hamel's study, while still in the same paradigmatic position as mainstream GSM, does offer interesting methodological possibilities for future research in the field.

While paradigmatic convergence of GSM theories is indeed striking, it is in the examination of the sociological assumptions that characterize the literature that one finds the greatest degree of consensus. The entire corpus of literature surveyed on the issue of internationalization was surprisingly devoid of any discussion on:

1. The nature of action choice that may be available to the 'subsidiary nation' in the multinational alliance;
2. The effect of the MNE on local/indigenous forms of industry in the subsidiary nation;
3. The issue of hazards, environmental and ecological concerns that accompany the setting up of an MNE;
4. The political impact of MNEs on the domestic economic policies of nations.

This is not to suggest that there has been no criticism of MNEs in the field or in other related social sciences. Indeed, the critique has been quite severe in a number of ways. What is observable however, is that none of this critique has been incorporated, or even addressed in the theory building processes in the field. Such a process has been accomplished by provincializing the discussion into a separate area of analysis, from where it exerts only a marginal influence on the mainstream.

It is indeed interesting to note that much of the critique leveled against the principles and policies of international management in general, and MNEs in particular, has suffered either of two consequences. Either it has been consigned to extreme (and often uninfluential) journals that sacrifice verifiability and rigor at the altar of trenchant critique, or it has been socialized into a cooperative and subservient discourse exemplified by a majority of the literature in the discipline of Business Ethics, which is replete with articles that, while apparently dealing with terms like "multinational corporate social responsibility" (Amba Rao, 1993) and "multinational ethical responsibility" (Pratt, 1991), continue to offer blanket praise to MNEs for their "beneficial effects, particularly in improved standard of living" (Amba Rao, 1993) and restrict their injunctions against MNEs to prescriptions about how they should improve their corporate communication to communicate their productive role in a better manner (Pratt, 1991). Some even go to the extent of absolving the MNE of any ethical responsibility on the grounds that they have "fiduciary

responsibilities that must override personal moral suasion" (Dobson, 1992). The whole aspect of "ethics" in such a localized and non-interactive relationship with other facets of the discipline is often seen as being cast in a mode of Kantian de-ontological imperatives, emphasizing individual actions that satisfy individual goals. Such ethics may often be at odds with non-Western value systems which emphasize ethnic group over self, a factor that needs to be taken into account when dealing with the issue of international management. Thus, the issues of ethics by the MNE as raised by forums such as those in the segregated discipline of Business Ethics are a matter of some concern, as by the nature of their provincialization and bounded-ness, they often end up serving the very interests that they set out to question.

In sum, the theories of GSM as represented in the mainstreams of the scholarship in Strategic Management, while portraying multiplicity and diversity of interests and agendas, may be seen as being driven by a tight set of basic assumptions that speak more of a consensus of a paradigmatic location in a "functionalist" camp (Burrell & Morgan, 1976).

### **LESSONS FROM OTHER SOCIAL SCIENCES**

Irrespective of the nature of one's ideological affiliations, it would be difficult to deny the reality that economic and political structures have begun to be increasingly linked on an international basis. As the capitalist economy continues to be further globalized, the debate is not on the extent of internationalization, but on the way it needs to be analyzed. While the mainstream social scientists believe that the internationalization of capital has rendered the nation state and economic class obsolete as units of analysis (Williamson, 1985), scholars with critical affiliations are circumspect that these distinctions have disappeared altogether (Ruccio, Resnick & Wolf, 1991).

While the issue of the transnational enterprise (and its relationship with the nation state) has not been subjected to any major dissenting views in the field of management, it has been the subject of many contentious debates in some of the other social sciences, especially the fields of economics and political science. In this section, we briefly attempt to examine some aspects of the debates in this field, in an attempt to use the experiences to inform mainstream management theory.

The mainstream approach to the MNE can best be exemplified by the transaction cost approach. Derived from the classical microeconomic theoretical approach of using the market as the starting point of analysis, the transaction cost approach attempts to explain both the firm and the state as a safeguard against 'market failures' such as monopolistic and oligopolistic markets which may deter the optimal allocation of resources. The market, on its own, would not be able to sustain optimum allocation except through paying a high price in terms of transaction costs. The state then is conceptualized as an institutional device with a monopoly over coercion and a task of ensuring a market that does not degenerate into a situation of failure. The firm on the other hand, resorts to a variety of activities such as vertical and horizontal integration and contracts mediated by the state to replicate the perfect market conditions (Hennart, 1991).

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In the application of this theory to the multinational corporation, the arguments of Buckley and Casson (1976) and of Williamson (1975; 1981; 1985) may be seen as an influential continuum. These theorists develop their argument from the contention that intangible assets such as know-how, technology and brand presence are rendered especially vulnerable in an international licensing arrangement, and the M-form structure of the MNE is the only effective way of a 'fair' return on investment across national boundaries. Indeed, it is interesting to see how much the transaction cost theory has influenced the international trade commissions such as GATT in their argument for an international protection for Intellectual Property Rights (Scherer & Ross, 1990). The assumption here is that the subsidiary nations in the transnational agreement may not be willing to or able to enforce the contractually determined criteria of appropriability. This thesis draws substantially from the economic theories developed by the so-named Chicago School in Economic Theory, represented among others by influential theorists like Stigler (1988) and Green (1987), who argue that economic institutions need to be freed from the influence of governments to function effectively. Thus, the economic theories informing the mainstream school of international management put forward an argument that is rooted in the imperatives of economic efficiency and industrial mobility, to suggest that MNEs are the most efficient industrial structures within the paradigm of industrial capitalism.

The critical (predominantly Marxian) perspective of microeconomic theory shares the mainstream belief that the state's role lies in its ability to ensure the reproduction of the capitalist mode of production, with the important exception that the state is also vested with the ownership of a large portion of the enterprise and the power to distribute the surplus value in an 'equitable' manner among the society (Pitelis, 1991).

The critical perspective of the MNE can be understood by juxtaposing Marglin's (1974) research on the role of the technology of production in the increasing span of capitalist control of enterprise with Hymer's (1979) work on the similar role played by firm size and structure in increasing the control mechanisms as the firm moved from a Marshallian (owner controlled firm) paradigm through the national corporations (public limited concerns) to the M-form organization (characterized by a separation of strategic and operational decisions). According to the critical theorists, both the aspects of totalizing technology and the totalizing span of control find expression in the MNE, which represents the cutting edge of the controlling, profit seeking and exploitative processes that characterize private enterprise in a capitalist economy.

The mainstream view of the MNE in Political Science may be seen represented in the works of Walter Weyl (1917), George Ball (1967) or even, with some qualification, Adolf Berle (1954). This view, which is still the prevalent view as articulated by Drucker (1986), Ohmae (1990) and other gurus of globalization, saw the MNE as a response to the growing dispersion of the economic base of industrial activity, and predicted that the nation state, which was "rooted in concepts unsympathetic to the needs of the complex world" (Ball, 1967), would only be able to deal with this dispersion by the emergence of the MNE.

The critical view on the other hand, sharply dissents against this default definition of the MNE as a part of a global marketplace, existing as a realm of freedom apart from the coercive domain of nation states. Instead, it contends that the proponents for this unproblematic view of the MNE are guilty of a gross generalization, whereby they seek to apply the logic of the corporate restructuring of American society to multinational relations and the world market (Bowman, 1993).

### **RESEARCH AGENDAS FOR A PLURALITY OF APPROACH**

The debates mentioned above have tended to be severe in their intensity, but are surprisingly never reflected in the theoretical discussions in the field of GSM. Consequently, it is not surprising to see very little research that has emerged addressing critical perspectives, even for purposes of refutation. Indeed, in incorporating interdisciplinary wisdom from the other social sciences with regard to the internationalization of business activity, traditional management theory has been informed almost exclusively by the mainstream theories of the MNE. The application of alternate perspectives in the treatment of this subject points to the following research agendas:

1. What is the impact of technological 'innovation' brought about by the MNE on the socio economic processes of the subsidiary nations?
2. What were the specific circumstances that led to the MNE possessing the shape, structure and economic values that it currently seems to possess?
3. Did the international corporations evolve into the entities they are from 'natural' or inevitable laws of technology and organization? If not, what processes of policy making, legislating or even fighting mediated the production of such a reality?

### **IMPLICATIONS FOR RESEARCH IN GLOBAL STRATEGIC MANAGEMENT**

A fourth research question that could be asked from the perspective of the previous section could be - What exactly is the relationship between the MNE and the nation state, and what are the possible implications of such a relationship on the scholarship in strategic management? This question arises primarily out of the empirical observation that not only has the MNE been in a situation of advantage in its expansion into newer international markets due to its superiority in technology and size, but it often seems to have benefited either from fundamental changes in the economic policies of the subsidiary nation or in its political environment.

Mainstream economic theory has tended to explain this phenomenon in terms of the "efficient structure hypothesis" (Stigler, 1968), whereby economic institutions, in the absence of coercive supervision, tend to gravitate toward a situation of stability. This view is also echoed in mainstream political science, where there is general agreement that cooperation, rather than conflict,

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is the basis of international relations (Keohane, 1984). Not surprisingly, strategic management has also tended to assume this view, arguing that multinational enterprises operate in "contestable" markets (Baumol, 1977), where until a firm achieves a certain threshold market share, cooperation is ruled out as a strategy (Graham, 1991) and that successful internationalization is an indication of greater innovation and better learning experiences in domestic markets (Porter, 1990).

The moot point raised by critical theorists, as to whether these theories adequately portray existing power imbalances and the role of international economic regimes in reinforcing these inequities continues to be unengaged with. For instance, it has been contended that international economic regimes such as the erstwhile Bretton Woods Agreement on exchange rates, the IMF, GATT and OECD, which have a history of dominance by a few select countries in selection of leadership, staffing and finance, are nascent representatives of materialized relations of social production, which is subjected to shadow control by a few nation states, thus implying that the nature of control by nation states of international processes is being transformed rather than being diminished. Critical economic and political theories contest the representation of national interests in terms of the interests of specific dominant classes. They see the state as a condensation of class relations (Poulantzas, 1978), acting as the organizer of the disparate interests of specific social strata, where the powers encapsulated by the state are functions of the extent to which the elite classes gain control over surplus value. The process by which transnational elites and local elites engage in commerce has been theorized in critical economic analysis by making distinctions between fundamental class processes, which exist at the site of production and subsumed class processes, which exist in transnational value flows such as intellectual property rights and international debt service repayments (Resnick & Wolf, 1987).

This then is the central theme of this paper: while mainstream management theory has borrowed consistently from a particular viewpoint prevalent in the social sciences, it has neglected to engage with, even for the purpose of refutation, the critical treatment of internationalization in these fields. In doing so, much of the research and theory building in mainstream GSM has been contingent upon the reification of the industrialized elite classes as being the sole objects of national interest. It suits such an approach to view MNEs as divorced from all local context, as disimbedded postmodern entities devoid of any roots either in communities or in nations, which of course absolves them of all fiduciary responsibilities to any constituency.

For instance, the Process School may be seen as a study of how the transnational elite, represented by the controlling forces of the DMNC, and the controlling elites of nation states engage in the dynamics of cooperation and competition. As long as the discourse is able to equate the interests of this controlling elite with 'local' interests, the Process School remains a model of rational processual inquiry. Likewise, as long as theories of entry and diversification retain their economic focus and stay out of the realms of cultural environmental or political introspection, their models of causality and interpretation will continue to remain valid.

Such a unilinear and view of a process as complex as internationalization is quite perplexing. While this view of the organization offers a consistency of argument, it is in danger of imminent marginalization because of the speciousness of the assumptions that drive this consistency. The reality of the process of international expansion is that firms entering newer markets are encountering a high level of uncertainty, heterogeneity and multiplicity. Also, in their interaction with local and indigenous forms of society and industry, they are causing very fundamental impacts, which need to be assessed, challenged and transformed in an attempt to mediate the harmonious process of international economic exchange. With its superficial (and often ethnocentric) treatment of these issues, research in strategic management may in fact be contributing to its own marginalization. Its current focus is inadequate to explain the existing reality and certainly in no shape to offer projections and prescriptions for future courses of action.

### CONCLUSION

In this paper, we have tried to historicize the field of global strategic management, and contrast its approach against those that can be found in a variety of different social sciences. We have been forced to conclude that despite having access to a lively diversity of perspectives on MNEs from these traditions, management theorists have remained very unilinear in their focus. One of their conclusions, which needs to be unpacked in future studies, is that it is not necessary for an MNE to be imbedded in any local context, and that such disimbeddedness is actually possible and feasible (Bartlett & Ghoshal, 1991). Such an approach, we argue, is ideological in character, and leads to a highly unilinear focus, which can be counterproductive in the long run. GSM theorists need to re-examine and re-evaluate the issue of imbeddedness, and recognize its pervasiveness (Poole, 1991) as well as its positive attributes.

It however needs to be qualified that research in GSM has been very useful in that often provided the most meticulous and innovative analytical methods and tools. It has led the way in informing various facets of the Resource based view of the firm, through an examination of the core competency theories (Hamel, 1991), internal differentiation processes (Ghoshal & Nohria, 1989), inter-organizational networking (Ghoshal & Bartlett, 1990), the role of subsidiaries in structural and processual frameworks (Jarillo & Martinez, 1990), schematics of knowledge flows (Gupta & Govindarajan, 1991) and various other aspects of the firm.

However, unless it continues to subject its basic assumptions to rigorous scrutiny, and attempts to address areas of criticism that arise from other social sciences and ideological positions, it will not be able to extricate itself from the allegations that it is little more than a polemical and inward looking branch of the study of organizations.

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# THE EFFECT OF TQM FACTORS ON FINANCIAL AND STRATEGIC PERFORMANCE: AN EMPIRICAL TEST USING MANUFACTURING FIRMS

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## ABSTRACT

*Although interest in implementing the total quality management (TQM) philosophy as part of competitive and operational strategies has been around for approximately 25 years, there has been little empirical evidence to suggest that it has a positive effect on an organization's financial and strategic performance. Part of the problem is that a testable framework of TQM constructs has been slow to emerge. This research provides a test instrument and an empirically reliable framework to evaluate an organization's TQM implementation. This study of 257 manufacturing firms provides definitive evidence that TQM implementation is a significant predictor of customer satisfaction and a weak but significant predictor that TQM is associated with the improvement of several financial variables. Lastly, the findings suggest that the impact of the TQM variables on performance is highly correlated with duration but is not significantly correlated with either organizational size or industrial specialty. This suggests the robustness of the TQM philosophy as part of any competitive or operational strategy. Lastly, the findings clearly suggest that organizations using the TQM constructs will continue to improve over time.*

## INTRODUCTION

Total Quality Management (TQM) provides a paradigm shift in management philosophy for improving organization effectiveness (Byrne, 1992; Gagne, 1983; Lowe and Masseo, 1986; Tenner and DeToro, 1992; Waldman, 1994). TQM managers focus efforts of all members to continuously improve all organizational processes and increase value to customers, while relying upon a clear vision of the organization's purpose. This depends on the use of improvement tools (e.g., SPC, benchmarking, process/product improvement teams) and the removal of barriers both within the organization and between the organization and its various stakeholders. TQM has been embraced by thousands of organizations (Lawler and Mohrmon, 1992) as an important management component of operational strategies. However, despite its theoretical promise and enthusiastic response, anecdotal evidence suggests that attempts to implement it and/or achieve financial benefits are often unsuccessful (Erickson, 1992; Fuchsberg, 1992; Kendrick, 1993). Wyatt, a human resources consulting company, surveyed 531 companies that had undergone restructuring in 1992.

Only 41% of the 361 companies that started TQM programs as a part of restructuring considered them to have been effective (Fuchsberg, 1993). Similarly, a study by McKinsey & Co. revealed that, of TQM programs in place for more than two years, as many as two-thirds were considered failures by the employees (Doyle, 1992).

Anecdotal studies have most commonly attributed the failures of TQM implementation and financial improvement to deficiencies of: (1) shared vision, (2) application planning, (3) organizational commitment, (4) training, (5) reward systems, (6) empowerment, or (7) cross-functional integration (Brown et al., 1994; Danjin and Cutcher-Gershenfeld, 1992; Doyle, 1992; Emery and Summers, 1992; Gilbert, 1993). Unfortunately, few empirical studies have been initiated to examine relationships between TQM components and the success/failures of implementation. Part of the problem is that an agreed upon framework of TQM constructs has been slow to emerge. Further, few studies have examined performance in relation to the time since the organization began implementation of TQM. Most researchers are in agreement that it takes time to fully adopt most of the TQM initiatives. As such, time must play an important role in the success of a Total Quality Program. For example, the GAO (1991) study found that improving quality is a long-term process and that it took an average of 2½ years for the companies in their study to realize performance improvements (the range was from 1 to 5 years). Lastly, few researchers have attempted to empirically test TQM organizations for financial benefits and those that have, focused on only one or two variables or constructs. The purpose of this study is first, to develop an aggregated TQM framework from previous studies and second, to use this framework to test the relationship between various constructs/variables (including time since implementation) and financial/strategic performance.

### **TOTAL QUALITY MANAGEMENT RESEARCH**

During the 1990's there were several key studies that attempted to demonstrate a relationship between TQM and organizational performance. Although these studies advanced our qualitative understanding of TQM, they were often flawed by inadequate sample size, failure to fully define constructs, lack of control variables, and for confusing quality management practices with measures of quality performance. For example, The GAO (1991) study suggested that some relationship might exist between TQM practices and improved financial performance, but lacked an adequate number of firms to obtain statistically significant results or any control methodology. The total study included only 20 of the highest scoring Baldrige candidates from 1988 and 1989, and only 15 of these firms were willing to provide financial data. Little distinction was made between quality practices and quality results and only two areas of the Baldrige Award (employee relations and operating procedures) were used to measure the impact of selected portions of TQM on financial performance. In addition to the inadequate sample size, there were no control firms or other control variables present to provide any measure of statistical rigor.

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Wisner & Eakins (1994) published a descriptive study of TQM performance using a sample of 17 Baldrige Award winners. Although many non-financial performance measures were reported to have improved for the individual companies, the study was again too small to be statistically valid, and performance measures were not held constant across firms. Financial information was available for only four of the firms that were publicly held. (The others were either privately held or subsidiaries or divisions of other firms.) An attempt was made to show the performance of these four firms against industry averages. However results were mixed. Therefore, due to insufficient data and lack of controls, no statistically valid conclusions could be made.

Madu, Kuei & Lin (1995) selected three quality constructs (customer satisfaction, employee satisfaction and employee service quality) in their attempt to link selected quality practices with improved organizational performance in the United States and Taiwan. Included in their definition of organizational performance were selected financial measures, such as cost performance, profitability and earnings growth. However, it should be noted that all construct and performance indicators were self-reported by survey respondents, and survey respondents can have a tendency to report better than actual results (Bergquist, 1996). The sample sizes were statistically adequate for analysis: 69 U.S. managers, 77 Taiwanese managers, but results differed between the two countries. Managers in Taiwan felt that overall customer satisfaction was the key factor driving improvement in organizational performance, while managers in the U.S. felt that employee satisfaction contributed more to organizational success. No conclusions were presented regarding a relationship between the selected quality practices and improved financial performance.

Easton & Jarrell (1998) were able to show some significant results for firms that had implemented TQM for between 3-5 years. However, it could be argued that the firms included in the sample were those that were just good examples of extremely well-managed firms that used not only TQM, but also JIT, ABC, and re-engineering. There was no objective measurement of specific TQM constructs and inclusion in the sample was solely at the discretion of the interviewer. Financial performance was measured by comparing actual results to analysts' forecasts taken at one point in time for years 1, 2 and 3-5. While analysts' predictions have been used in research when actual information has not been known or has been unavailable, prior research has found that analysts generally have difficulty in forecasting earnings (Jacquillat & Grandin, 1994), that analysts forecasts tend to be overstated (Hunton & McEwen, 1997), and that "some of the most widely followed and recommended stocks have become victims of long-term trends that were widely ignored....including accounting 'irregularities' that were generally unnoticed by analysts" (Regan, 1993). Therefore, the use of actual audited accounting data to establish a change in financial performance provides a more objective basis for observing significant results. Of course many factors not being tested in this study can cause changes in financial performance, including general economic conditions. Attempting to predict what the performance of firms would have been without a total quality program is a difficult, if not impossible, feat. It is very possible that analysts could be biased in their expectations as to anticipated effects of TQM or other micro- or macroeconomic

conditions (Hunton & McEwen, 1997) It is not an uncommon occurrence for analysts to miss the mark when quarterly/annual accounting results are released to the financial press. Control portfolios were used to provide a benchmark for non-TQM firms. While attempts were made to find similar firms to those included in the study, it should be noted that the non-TQM control firms were significantly smaller than the sample TQM firms (mean size was less than half that of the TQM firms). Using firms matched by various attributes, since as industry and size, is a common research technique. However each firm is unique and it is extremely difficult to match enough important attributes to be assured that that firms are enough alike to lead to statistically reliable results. Therefore it is questionable as to whether the control firms were appropriately matched to the TQM firms. Using separate variables to control for size and other confounding conditions in a regression would have provided better assurance that an adequate level of control had been established.

Grandzol and Gershon (1997) focused on trying to identify significant relationships between measures of selected TQM practices and indicators of quality achievement, which included financial quality. However, there was no attempt to make an association between TQM (defined as a cohesive set of quality management practices) and improved financial or logistic performance. Therefore the primary research question of interest differed from the current study. One hypothesis specifically tested whether financial quality was a function of three quality practice constructs: continuous improvement, process management and customer focus. However, no statistically significant results could be found between these quality practices and improved financial performance. There was no test of whether all constructs included in their definition of TQM were positively related to improved financial performance. It should also be noted that the financial quality measures (ROI, market share and capital investment ratio) were self-reported and therefore lacked objective evidence. The sample consisted of 275 senior executives from the aerospace, tooling, and engineering industries, which was sufficient to use structural equation modeling (*LISREL*) to test the hypotheses.

Dixon (1996) used the quality constructs proposed by SB&S (1989) in an attempt to predict levels of financial performance based on the amount of infusion and diffusion of TQM within a firm. Unfortunately, the stated hypotheses were not supported. This may have been because the SB&S (1989) study was one of the first empirical studies to attempt to develop and validate a set of TQM practices (constructs). Subsequent studies have noted that not including a construct related to customer focus or acknowledging the importance of customer satisfaction is a serious shortcoming (Anderson, et al., 1995; Ahire, et al., 1996; Black & Porter, 1996.) An examination of the Baldrige award criteria also shows that practices related to customer focus represent a large percentage of the total points awarded. Therefore, an instrument designed to measure the implementation of TQM practices should include a construct measuring customer focus and involvement in total quality efforts. Additionally, the dependent measures used to test the hypotheses were levels of selected weighted-average financial performance variables rather than changes in these variables. Using a levels variable as a dependent measure does not control for prior performance and is difficult to

interpret. The weighting scheme involved using a weight of 4 for the current year, 3 for the previous year, 2 for the second previous year, and 1 for the third previous year. However, no rationale for using this weighting was presented. While Dixon attempted to find a relationship between levels of TQM implementation and financial performance measures, it seems that a more interesting question is whether there is a relationship between TQM implementation and improvement in financial performance. This would involve using changes in financial performance as dependent measures over a specified time period.

Also, during the 1990's there were several key theoretical and empirical studies that proposed similar TQM constructs (Saraph, Benson & Schroeder, 1989; Flynn, Schroeder & Sakakibara, 1994; Anderson, Rungtusanatham & Schroeder, 1994; Flynn, Schroeder & Sakakibara, 1995; Ahire, et al., 1996; Black & Porter, 1996). The following framework of TQM constructs are presented as an amalgamation of these studies along with those practices identified and measured by the Malcolm Baldrige Award criteria (Baldrige, 2005) (see Tables 1 and 2). Additionally, care has been made to include only quality management practices and not performance measures found in some of the studies (Anderson, et al., 1995; Ahire, et al., 1996).

### **Top Management Commitment**

Top management commitment is a necessary and essential element for achieving successful implementation of a total quality program (Deming, 1982; Garvin, 1987; Leonard & Sasser, 1982; Saraph, Benson & Schroeder, 1989; Ahire, et al., 1996). Top management is responsible for setting quality goals and strategies and providing resources to enable implementation of a total quality program. It is the second most heavily weighted item of the Malcolm Baldrige Award criteria (Baldrige, 2005).

- ◆ *Relative importance given by top management to quality as a strategic issue.*
- ◆ *Extent to which top management views quality as more important than costs or schedules.*
- ◆ *Extent to which top management allocates resources toward efforts to improve quality.*
- ◆ *Extent to which top management accepts responsibility for quality performance.*
- ◆ *Extent to which top management is evaluated for quality performance.*
- ◆ *Extent to which top management has established clear quality goals.*

### **Customer focus**

Recent empirical studies agree that TQM cannot exist without a strong customer focus. There must be systems and processes devoted to learning more about customer requirements and improving customer satisfaction (GAO, 1991; Dean & Bowen, 1994; Anderson, et al., 1995; Black & Porter, 1996; Ahire, et al., 1996; Madu, et al., 1995;). A main component of Deming's Chain Reaction (1982) was that improving quality through the firm resulted in better quality products at

a lower price that would so satisfy customers that market share would be increased, the company would stay in business and more and more jobs would be provided. Many firms now use customer satisfaction as the final judge of quality (Xerox, Motorola) and offer a 100% satisfaction guarantee. Therefore customer focus should be included when measuring implementation of total quality within a firm. It should also be noted that the 1996 Baldrige Award Criteria gave this construct more weight than any other quality practice. This has since changed, customer and market focus is weighted behind the business results, leadership, and measurement/analysis of information criteria and the same as the other criteria (Baldrige, 2005).

- ◆ *Extent to which customers are considered the final judge of quality.*
- ◆ *Extent to which customers are encouraged to complete satisfaction surveys.*
- ◆ *Extent to which customer satisfaction survey feedback is made available to managers.*
- ◆ *Extent to which customer input is used to improve product quality.*
- ◆ *Extent to which customer complaints are resolved.*
- ◆ *Extent to which customers are invited to participate in product improvement efforts.*

### **Supplier relationships**

Deming (1982) was the first to advocate limiting the number of suppliers and establishing long-term relationships based on quality. By selecting and monitoring suppliers based on non-price selection criteria, research has found an improvement in financial and operational performance (Ittner, Larcker, Nagar & Rajan, 1997). Assuring a reliable source of high-quality parts reduces costs related to inspection of in-coming materials and down time due to defective materials. Effective partnering between manufacturers and suppliers allows the manufacturer to reduce ordering and inventory costs, which are important components of total logistics costs.

- ◆ *Extent to which suppliers are selected on the basis of quality –vs- price.*
- ◆ *Emphasis on long-term supplier relationships.*
- ◆ *Extent to which suppliers are required to be ISO-9000 certified.*
- ◆ *Extent to which suppliers are limited based on quality.*
- ◆ *Extent to which suppliers are evaluated based on delivery performance.*
- ◆ *Extent to which suppliers are involved in strategic quality planning.*

### **Employee training**

Total quality management involves combining concepts and practices drawn from various disciplines (e.g. management, marketing, psychology, engineering, etc.) and is so comprehensive that it requires that all employees receive formal training in total quality concepts and tools to be effective (Ishikawa, 1976; Crosby, 1979; Juran, 1980; Deming, 1982; Ahire, et al., 1996). In addition to training in quality concepts, overall performance and employee satisfaction is enhanced

when employees also receive technical and vocational work-skill training which develops additional skills and creates value for both employer and employee (Leonard & Sasser, 1982).

- ◆ *Extent to which all employees receive quality training.*
- ◆ *Extent to which sufficient resources are available for quality training.*
- ◆ *Extent to which employees receive technical and vocational work-skill training.*
- ◆ *Extent to which employees receive training in statistical process techniques.*
- ◆ *Extent to which employees receive training in problem-solving techniques.*
- ◆ *Extent to which employees receive training to work in teams.*

### **Employee empowerment**

One definition of empowerment is “giving workers the training and authority they need to manage their own jobs” (Raiborn, Barfield & Kinney, 1996, p. 49). Ahire et al. (1996) state that “employee empowerment is essential to improve in-process quality control” (p. 31). Empowering employees encourages them to take responsibility for their own work and to be more proactive in finding solutions for problems as they arise. Costs of quality can be reduced by detecting and correcting errors during in-process production rather than after production. Empowered employees are encouraged to prevent and/or detect errors early in the production process rather than relying on final inspections. Therefore, empowerment can lead to significant savings by reducing defects and the need for rework.

- ◆ *Extent to which employees are responsible for inspecting their own work.*
- ◆ *Extent to which employees are encouraged to find and fix problems.*
- ◆ *Extent to which employees are provided resources to fix problems.*
- ◆ *Extent to which employees are provided technical assistance for solving problems.*
- ◆ *Extent to which employees are rewarded for their ability to solve problems.*

### **Continuous improvement tools**

Specific tools are available to provide objective ways of measuring and controlling variation in the production process. These are primarily statistical process control (SPC) methods first advocated by Shewhart (1931) and Deming (1982). Since then many researchers have concurred that SPC is an effective way to improve quality on a continuous basis, particularly for firms just adopting quality initiatives (Garvin, 1986; Flynn, Schroeder & Sakakibara, 1995; Ahire, et al., 1996; Grandzol & Gershon, 1997). Benchmarking should also be included as a continuous improvement tool since it seeks out best practices and products from within the firm or among competitors. The objective data which continuous improvement tools provide should be analyzed and used to keep manufacturing processes under control and determine how the firm can make improvements to its products or processes, thereby always striving for continuous improvement.

- ◆ *Extent of use of SPC in manufacturing processes.*
- ◆ *Extent to which SPC is considered important in achieving quality goals.*
- ◆ *Extent of use of benchmarking other companies' business practices.*
- ◆ *Extent of use of internal benchmarking.*
- ◆ *Extent to which goals are set based on our benchmarking studies.*
- ◆ *Extent to which error/defect/failure rates are readily available.*
- ◆ *Extent to which progress toward quality-related goals is displayed.*

### **Design and process improvement**

The construct of design and process improvement includes tools and practices which manage and control design and production systems to maintain and improve quality throughout the organization. Design and process improvement includes design and control of setup procedures, maintenance and repair (Adam, Herschauer, and Ruch, 1981), zero-defect planning (Crosby, 1979), process improvement through problem analysis (Ishikawa, 1976) and design process control (Grandzol & Gershon, 1997). The Ernst & Young Best Practices Report (1993) found that all process improvement practices proved beneficial to firms at all levels of performance.

- ◆ *Extent of focus on error or defect prevention rather than inspection.*
- ◆ *Extent of efforts to eliminate non-value-added activities.*
- ◆ *Extent of efforts to simplify the production process.*
- ◆ *Extent of efforts to reduce process cycle time.*
- ◆ *Extent of attention and resources provided for preventative maintenance and repair.*
- ◆ *Extent to which inspection, review or checking of work is automated.*
- ◆ *Extent of final inspection, review or checking.*
- ◆ *Extent to which the design process considers ease of implementation and manufacturability.*
- ◆ *Extent to which product designs are thoroughly reviewed and tested before products are produced.*
- ◆ *Extent to which process design is "fool-proofed" and seeks to minimize the possibility of human errors.*

### **Internal cooperation and open organization**

A total quality culture emphasizes cooperative behavior between organizational members (Bushe, 1988; Bossink, Gieskes & Pas, 1993), and encourages sharing information and assisting coworkers to accomplish tasks and solve problems (Waldman, 1994). Leonard & Sasser (1982) observed that the most effective quality programs exhibited open and fluid participation that "cut across traditional organizational boundaries" (p. 168). The following topic areas can be used to measure the extent of internal cooperation and open organization:

- ◆ *Extent to which everyone works well together.*
- ◆ *Extent to which teamwork is used to solve problems.*
- ◆ *Extent to which interdisciplinary teams are used effectively.*

- ◆ *Extent to which problems are usually solved by managers.*
- ◆ *Extent to which departments seem to be in constant conflict.*
- ◆ *Extent to which hourly employees feel free to communicate with management.*
- ◆ *Extent to which management works well together on all important decisions.*

A. Saraph et al. (1989)	B. Flynn et al. (1994)	C. Anderson et al. (1995)
1. Role of top management	1. Top management support	1. Visionary leadership
2. Role of quality department	2. Quality information	2. Internal & external cooperation
3. Training	3. Process management	3. Learning
4. Product/service design	4. Product design	4. Process management
5. Supplier quality management	5. Workforce management	5. Continuous improvement
6. Process management	6. Supplier involvement	6. Employee fulfillment
7. Quality data and reporting	7. Customer involvement	7. Customer satisfaction
8. Employee relations		

D. Black and Porter (1996)	E. Ahire et al. (1996)	F. Baldrige Award Criteria (Baldrige National Quality Program, 2005)	Points
1. Corporate quality culture	1. Top management commitment	1. Leadership	120
2. Strategic quality management	2. Customer focus	2. Strategic planning	85
3. Quality improvement measurement systems	3. Supplier quality management	3. Customer and market focus	85
4. People and customer management	4. Design quality management	4. Measurement, Analysis, and Knowledge Management	90
5. Operational quality planning	5. Benchmarking	5. Human Resource Focus	85
6. External interfacemanagement	6. SPC usage	6. Process Management	85
7. Supplier partnerships	7. Internal quality information usage	7. Business results	<u>450</u> <u>1,000</u>
8. Teamwork structure	8. Employee empowerment		
9. Customer satisfaction orientation	9. Employee involvement		
10. Communication of improvement info	10. Employee training		
	11. Product quality		
	12. Supplier performance		

TQM Constructs - Current Study	TQM Constructs - Prior Research and Baldrige Award Criteria (Refer to Table 1 and Key below)
1. Top Management Commitment	A(1) B(1) C(1) D(1,2) E(1) F(1,3)
2. Customer Focus	B(7) C(7) D(9) E(2) F(6)
3. Supplier Relationships	A(5) B(6) C(2) D(7) E(3,12) F(5,7)
4. Employee Training	A(3) B(5) C(3) E(10) F(4)
5. Employee Empowerment	A(8) B(5) C(6) E(8) F(4)
6. Continuous Improvement Tools	A(7) B(2) D(3,10) E(5,6,7) F(2)
7. Design and Process Improvement	A(4,6) B(3,4) C(4,5) D(5) E(4) F(5)
8. Internal Cooperation & Open Organization	A(8) B(5) C(2) D(4,6,8) E(9) F(4)

## HYPOTHESES

After developing the aggregated TQM framework, the primary purpose of this study is to test the framework and implementation time against several key financial and strategic variables. While previous studies have focused on the more traditional financial measures of ROA and ROE, it can be argued that it is very difficult to examine the preciseness of the relationship between TQM and performance (e.g., increased efficiency) using those aggregate measures. Also, a limitation of the use of a ratio-based dependent variable such as ROA is that TQM often involves improving efficiencies or restructuring, which reduce a firm's asset base. This could cause ROA to grow even though cash flows and a firm's value may actually decline over the same period. To alleviate concerns over bias and provide a more pinpoint analysis of TQM correlations, this study focuses on the change in net income and what caused those changes (e.g., change in sales, change in gross profit margin, or change in operating expenses). Additionally, the secondary purpose of the study was to examine the relationships between the number of years of TQM implementation and several financial and strategic variables. It has been previously suggested that the financial and strategic variables should be positively correlated with the length of time that a TQM philosophy has been in place. As such, the following hypotheses are offered for testing.

*H1: The aggregate TQM variable will be positively correlated with a change in net income.*

*H2: The aggregate TQM variable will be negatively correlated with a change in operating expenses as a percentage of sales.*

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- H3: The aggregate TQM variable will be positively correlated with a change in gross profit margin.*
- H4: The aggregate TQM variable will be positively correlated with a change in sales.*
- H5: The aggregate TQM variable will be positively correlated with a change in customer satisfaction.*
- H6: The number of years of TQM implementation will be positively correlated with change in net income.*
- H7: The number of years of TQM implementation will be positively correlated with a change in operating expenses.*
- H8: The number of years of TQM implementation will be positively correlated with a change in gross profit margin.*
- H9: The number of years of TQM implementation will be positively correlated with a change in sales.*
- H10: The number of years of TQM implementation will be positively correlated with a change in Customer Satisfaction.*
- H11: The number of years of TQM implementation will be positively correlated with a change in the aggregate TQM score.*

## METHOD

### Sample Selection and Survey Instrument

This study focuses on U.S. manufacturing firms. In order to employ statistically rigorous research methods, a large-scale mail study was used to obtain a sufficient amount of data. This is an acceptable and feasible method of obtaining data from a large number of firms dispersed over a wide geographic area (Sproull 1995). Many businesses, however, are reluctant to provide financial accounting data (GAO 1991; Wisner and Eakins 1994; Kaynak 1996). As such, the target population chosen from manufacturing firms listed on the *Compustat* database (SIC 2000 – 3999 or NAICS 30000-33999). Targeted respondents were high-ranking executives, holding titles such as Vice President of Manufacturing, Vice President of Operations, President, etc. According to Phillips (1981) and Miller and Roth (1994) higher-ranking informants are more reliable sources of information than their lower level counterparts. A listing of 3,640 *Compustat* firms were cross-referenced against the *Dun & Bradstreet Million Dollar Directory* (1998) to verify addresses, SIC codes, and to obtain specific names and titles of respondents so that surveys could be sent to a named respondent. Not all corporations were listed in the *D & B Million Dollar Directory* (1998), which reduced the number of firms to 2,263. The potential pool of respondent firms was further reduced to 1,962 because five years of *Compustat* data was not available for a number of firms.

## **Development of Survey Instrument**

The survey instrument was developed based on the eight TQM constructs synthesized from previous studies (Table 2). Questions were developed after a thorough review of quality management survey questions found in prior research (Saraph 1989; Flynn et al. 1994; Black and Porter 1996; Ahire et al. 1996). They were also cross-referenced with total quality attributes found in the theoretical literature (Shewhart 1931; Crosby 1979; Juran and Gryna 1980; Deming 1982; Ishikawa 1985; Walton 1986; Feigenbaum 1991). Questions were reviewed, critiqued by other quality researchers and accounting faculty at several universities and went through several rounds of revisions. Careful attention was given to making sure that the wording of each question was clear, concise and described only one construct. Examples of topic areas are included after each construct in the previous section. There were a total of 55 questions relating to quality practices used at each firm. The order of the survey questions was scrambled and some questions were reverse coded to minimize common method variance (Babbie 1990). The survey instrument is available upon request to the senior author.

## **Confirmatory Factor Analysis**

Since this study is based on TQM constructs synthesized from prior empirical research, confirmatory factor analysis was used to validate the constructs. The following tests were performed to assure validity of the constructs and reliability of the survey instrument.

A test of unidimensionality was conducted by examining the survey question correlations. Each question was found to load on the expected construct indicating that all of the constructs are unidimensional. The goodness of fit index (GFI) for each construct ranges from .98 to 1.00, the adjusted goodness of fit index (AGFI) ranges from .94 to .99, and the Bentler-Bonett (1980) normed fit index (NFI) ranges from .94 to .99, all of which indicate that the models fit extremely well and convergent validity is strong. All of the factor loadings representing the observed variables (survey questions) were significant, except for one question relating to supplier relationship and one question relating to internal cooperation and open organizations. These two questions were dropped, which improved the significance of the remaining questions. The theta-deltas, which relate to the error terms of the observed variables, are all significant.

Discriminant validity testing was performed to establish that the constructs are distinctly different from each other. The first step was to examine the correlations between the constructs. These were all quite low, with an average correlation of .21. Next all possible combinations of two constructs are run using two models. In the first model the correlations between the two constructs was allowed to be free. In the second model the correlations between the constructs are fixed at 1.0. If the difference between the Chi-Square statistics was significantly better by allowing the correlations to be free, then there is evidence of strong discriminant validity. In all of the

combinations, the Chi-Square statistic significantly deteriorates when the two constructs are forced into one. This shows that each construct is significantly and distinctly different from the other constructs and that discriminant validity has been achieved.

A test of reliability was performed. Cronbach alpha coefficients for this study ranged from 0.89 (continuous improvement tools) to 0.59 (customer focus). Alpha scores that are close to 0.70 or above are considered sufficient for research purposes (Nunnally 1978). The alpha score for the customer focus construct was lower than recommended. This low alpha score may be the result of using only five questions to measure this construct, since adding questions to measure a construct usually raises the alpha score. However, in this study, a strong effort was made to keep the survey as short as possible to increase the response rate. Since this construct is strongly supported in theory and prior research, the customer focus construct is retained. However, including it increases the amount of noise in the TQM variable, and decreases the chances of finding significant results.

A test for non-response bias was accomplished by comparing the mean responses for all the survey questions using the responses received from the 1<sup>st</sup> mailing as Group 1 (n=117) and the responses received from the 2<sup>nd</sup> mailing as Group 2 (n=140). Approximately five percent of the questions should be significantly different by chance. Parametric t-tests reveal that only two questions medians are significantly different at the five percent level and four questions are significantly different at the 10 percent level. Non-parametric Wilcoxon scores show two question means were significantly different at the five percent level and five questions were significantly different at the ten percent level. These results are well within the expected levels and indicate that non-response bias is not a problem in this study.

A test of reliability was performed. Reliability refers to the *consistency* of a measure (Gronlund, 1993). If an instrument is reliable, then it is expected that the scores are an accurate reflection of the respondent's true beliefs. Therefore, if a reliable instrument is administered a second time to the same subjects, their answers should not change from the first administration. There are several theories of reliability and estimates of reliability will differ, to a greater or lesser extent, depending on the specific sources of error being addressed" (Pedhazur & Schmelkin, 1991, p. 88). The most commonly used research method to estimate internal-consistency reliability is the alpha coefficient, alpha often referred to as Cronbach's alpha. (Pedhazur & Schmelkin, 1991). It estimates the reliability of an instrument by measuring the homogeneity of the items in a particular scale. Cronbach alpha coefficients were computed for each construct. The construct alpha scores were similar to those in the Anderson, *et al.* (1995) study, where alpha coefficients ranged from .60 to .86. The alpha coefficients for this study are as follows:

<i>Continuous improvement tools</i>	$\alpha = .89$	(11 questions)
<i>Employee training</i>	$\alpha = .81$	( 6 questions)
<i>Top management commitment</i>	$\alpha = .79$	( 6 questions)

<i>Employee empowerment</i>	$\alpha = .72$	( 5 questions)
<i>Design &amp; process improvement</i>	$\alpha = .69$	( 5 questions)
<i>Internal cooperation</i>	$\alpha = .68$	(11 questions)
<i>Supplier relationship</i>	$\alpha = .66$	( 6 questions)
<i>Customer focus</i>	$\alpha = .59$	( 5 questions)

Alpha scores which are close to .70 or above are considered sufficient for research purposes (Nunnally, 1978). However, it is obvious that one of the constructs, customer focus, has a lower than desirable alpha score (.59). This indicates that the questions addressing customer focus are not reliably measuring the construct. Only five questions were used to measure customer focus, which is the minimum number of questions needed to perform confirmatory factor analysis. If this were an exploratory study that construct would probably be dropped from the definition of TQM. However since these constructs, or components, are derived from both theory and research, the customer focus component of the TQM variable is included in the total definition of TQM. Adding more customer focus questions would very likely have increased the reliability score, but a strong effort was made to keep the survey as short as possible to increase the response rate. Including customer focus is believed to be an essential element of the complete definition of TQM (GAO, 1991; Dean & Bowen, 1994; Anderson, *et al.*, 1995; Madu, *et al.*, 1995; Ahire, *et al.*, 1996; Black & Porter, 1996) and this study is concerned with including all recognized and relevant aspects of TQM. However, including this component with a marginal alpha increases the amount of noise in the TQM variable and therefore decreases the chances of finding significant results. A factor that can have a major impact on the reliability scores are the number of questions which measure a construct. As the number of questions increases the random measurement errors tend to cancel each other out, thus increasing reliability (Brown, 1976). Future studies should try to increase the number of questions measuring each construct to achieve a more reliable measure.

### **Survey Procedure and Results**

The first survey mailing included 1,962 firms. A personalized letter accompanied each survey and the respondents were assured that confidentiality would be maintained. As an incentive to respondents, they were invited to request a *Benchmarking Report* that provided aggregate information from the study as to their firm, their industry, and all responding manufacturing firms. Reminder postcards were mailed out approximately three weeks after the first mailing. Another letter and copy of the survey were mailed to non-respondents six weeks later. A final reminder postcard was mailed two weeks following the second survey mailing. The number of possible respondents was reduced to 1,810 due to reasons such as surveys returned by the post office as undeliverable, inactive or bankrupt companies, or companies incorrectly identified as

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manufacturers by *Compustat*. The number of usable responses received was 257, a response rate of 14.2 percent.

## RESULTS

Surprisingly, a large percentage (33%) of the manufacturing firms reported that they had not committed to a formal total quality program. Of the 173 firms that report formal TQM programs, 69% percent (120) report that their program has existed for five or more years. A primary purpose of this study was to develop a framework of TQM constructs and test the framework against two financial and one strategic variable. Hypothesis 1 suggested that the aggregate TQM variable would be positively correlated with change in net income. This hypothesis is supported. The aggregate TQM variable is positively correlated with a change in net income ( $r=.19 @ p<.01$ ). Regression analysis of the TQM variable indicates that it explains 2.4 percent of the variance in a change in net income at  $p<.01$ . Hypothesis 2 suggested that the aggregate TQM variable would be negatively correlated with operating expenses. This hypothesis is supported. The aggregate TQM variable is negatively correlated with operating expenses ( $r=-.44 @ p<.05$ ). Regression analysis of the TQM variable indicates that it explains 21 percent of the variance in operating expenses at  $p<.05$ . Hypothesis 3 suggested that the aggregate TQM variable would be positively correlated with a change in gross profit margin. This hypothesis is not supported. The relationship between the TQM variable and change in gross profit margin is non-significant, i.e.  $p>.05$ . Hypothesis 4 suggested that the aggregate TQM variable would be positively correlated with a change in sales. This hypothesis is supported. The aggregate TQM variable is positively correlated with a change in sales ( $r=.16 @ p<.01$ ). Regression analysis of the TQM variable indicates that it explains 2 percent of the variance in the change of sales at  $p<.05$ . Hypothesis 5 suggested that the aggregate TQM variable would be positively correlated to Customer Satisfaction. This hypothesis is supported. The aggregate TQM variable is positively correlated with Customer Satisfaction ( $r=.39 @ p<.01$ ). Regression analysis of the TQM variable indicates that it explains 15.3 percent of the variance in Customer Satisfaction at  $p<.01$ .

A second purpose of this study was to examine the relationship between the number of years of TQM implementation and several financial and strategic variables. Hypothesis 6 suggested that the number of years of TQM (tqmyrs) implementation would be positively correlated with a change in net income. This hypothesis is supported. The TQM years variable is positively correlated with net income ( $r=.21 @ p<.01$ ). Hypothesis 7 suggested that the number of years of TQM (tqmyrs) implementation would be negatively correlated with operating expenses. This hypothesis is supported. The TQM years variable is negatively correlated with operating expenses ( $r=-.50 @ p<.01$ ). Hypothesis 8 suggested that the number of years of TQM (tqmyrs) implementation would be positively correlated with a change in gross profit margin. This hypothesis is supported. The number of TQM years is positively correlated with a change in gross profit margin ( $r=.04 @$

$p < .01$ ). Hypothesis 9 suggested that the number of years of TQM (tqmyrs) implementation would be positively correlated with a change in sales. This hypothesis is supported. The number of years of TQM is positively correlated with a change in sales ( $r = .18 @ p < .01$ ). Hypothesis 10 suggested that the number of years of TQM (tqmyrs) will be positively correlated to Customer Satisfaction. This hypothesis is supported. The TQM years variable is positively correlated with Customer Satisfaction ( $r = .42 @ p < .01$ ). Hypothesis 11 suggested that the number of years of TQM implementation would be positively correlated with a change in the TQM aggregate score. This hypothesis is supported. The relationship between the number of years of TQM and the change in the TQM aggregate score is positively correlated ( $r = .42 @ p < .01$ ).

The third purpose of the study was to examine which of the TQM constructs captured most of the variation of the two financial and one strategic variable. The results of the stepwise regression analysis indicated that “continuous improvement tool” is the best predictor of a change in net income (adjusted  $R^2 = .022$ ,  $F = 6.659 @ p < .01$ ). The stepwise regression analysis indicated that internal cooperation and open organization, top management, and customer focus are the best predictors of operating expenses ( $R^2 = .068$ ,  $F = 11.417 @ p < .01$ ). The stepwise regression analysis indicated that top management commitment and product improvement are the best predictors of customer satisfaction (adjusted  $R^2 = .205$ ,  $F = 34.071 @ p < .01$ ). Each hypothesis was compared by size and by industries within the SIC and the results indicated no significant difference in between industries and size.

**Table 3: Correlation of TQM factors with Financial and Strategic Objectives**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Mgt support														
2 Customer focus	.37**													
3 Supplier	.44**	.49**												
4 Training	.50**	.49**	.67**											
5 Empowerment	.41**	.59**	.53**	.62**										
6 Ci tools	.46**	.54**	.59**	.72**	.53**									
7 Product improve	.49**	.49**	.47**	.59**	.56**	.61**								
8 Cooperation	.52**	.47**	.54**	.64**	.54**	.62**	.57**							
9 Cust Sat	.27**	.21**	.25**	.22**	.20**	.36**	.24**	.25**						
10 Net Income	.05	.08	.15*	.13*	.12	.16**	.14*	.14*	.16**					
11 Ops Expense	-.16**	-.08	-.10	-.11	-.08	-.20**	-.16*	-.23**	-.16**	-.42**				
12 GPM	-.02	-.03	-.04	-.01	-.08	-.05	-.05	-.14	.00	.01	.05			
13 Sales	.10	.08	.16**	.09	.13*	.15**	.12*	.14*	.09	.89**	.66**	.00		
14 Years of TQM	.25**	.22**	.35**	.38**	.26**	.45**	.30**	.36**	.42**	.21**	-.50**	.04**	.18**	
15 TQM aggregate	.70**	.70**	.75**	.85**	.76**	.83**	.78**	.79**	.39**	.19**	-.44*	.19	.16**	.42**

\*\* correlation is significant at  $< .01$  (2-tailed)

\* correlation is significant at  $< .05$  (2-tailed)

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## DISCUSSION

The primary purpose of this study was to develop and test an unweighted framework of aggregated TQM constructs against several key financial and strategic variables. The hope was that the aggregated TQM variable would be positively correlated with a change in net income. If that was the case, the task was to determine the possible cause of such a change, i.e. a change in sales, a change in gross profit margin, or a change in operating expenses as a percentage of sales. The results indicated that the firms who implemented TQM had a significant increase in net income as a percent of sales. As such, an examination was conducted on the variables that influence net income. As expected there was a positive correlation between a change in sales and the implementation of TQM. However, the regression analysis indicated that TQM was a small predictor ( $R^2=.035$  @  $p<.05$ ) of the overall variance in sales. Also, the results indicated that there wasn't a significant correlation between the implementation of TQM and a change in gross profit margin (as a percentage of net sales). For the most part, this suggests that while sales were increasing, the cost of goods sold were increasing or decreasing on an inconsistent basis. The most important finding, however, was that operating expenses as a percentage of sales had decreased with the implementation of TQM. And, that the implementation of TQM appeared to be associated with a large part of the variance in operating expenses ( $R^2=.21$ ). This finding is significant and suggests that the implementation of the TQM constructs is associated with a more efficient operation. Also, importantly, the findings indicate a significant relationship between both the TQM aggregate and number of TQM implementation years constructs with customer satisfaction. Additionally, as hoped, both the TQM aggregate and number of TQM implementation years constructs correlate significantly with increased sales.

## CONCLUSIONS

This research provides a test instrument and an empirically reliable framework to evaluate an organization's TQM implementation. The research findings provide definitive evidence that TQM implementation is a significant predictor of customer satisfaction and a weak but significant predictor that TQM is associated with the improvement of several financial variables. Further, the regression analysis revealed that "continuous improvement tools" is the best predictor of a change in net income and that "internal cooperation and open organization," "support of top management," and "customer focus" are the best predictors of operating expenses. Also, stepwise regression analysis indicated that "top management support" and "product improvement" are the best predictors of customer satisfaction. Additionally, this research confirms the proposition that the duration of TQM is positively correlated with both financial and strategic variables. Further, the TQM aggregate score (combined factors) gets stronger with age or continued emphasis. Said another way, companies embracing the TQM philosophy should get better and better with

continued emphasis on improving the eight component factors. Also, the correlation findings indicate that those companies implementing TQM programs are in fact implementing each of the eight component constructs. This suggests that organizations understand the importance and interrelationship of these constructs. (Note: inter-correlations in Table 3.) Lastly, the findings suggest that the impact of the TQM variables on performance is not significantly different across organizational size and industrial specialty. This is particularly exciting and suggests the robustness of the TQM philosophy.

There are, of course, limitations of this study. It focused entirely on 257 public manufacturing firms within the 2000-3999 SIC and as such, the results cannot be generalized to all firms. Also, while the financial data was collected from the COMPUSTAT data base, the rest of the data was self reported by top management. Future research should use the instrument across a broader base of employees within each organization and attempt to better quantify progress on various strategic variables (e.g., customer satisfaction). Additionally, this study tested the TQM variable with all its component variables weighted equally. Future studies should attempt to use different weighting schemes to test the ability of the TQM variable as a predictor of financial and strategic variables. For example, one could weight the variables similar to those found in the Malcolm Baldrige Award criteria. Also, future studies should consider examining the effectiveness of other strategic initiatives (e.g., reengineering, ISO 9000, Just-in-Time, activity-based costing) in concert with TQM in an effort to explain more of the variance in performance variables. Other considerations might be to create a TQM cultural survey and measure it against performance variables and to examine performance measures five years after the initial performance measurements.

Although interest in implementing the total quality management philosophy as part of an operational strategy has been around for approximately 25 years, it is not any less important today. Regardless of today's competitive strategies, the production cost of goods and services is a key success factor in most industries. Additionally, some measure of customer satisfaction is often a key success factor. As such, a management philosophy such as TQM that reduces operating costs as a percentage of sales and improves customer satisfaction should clearly be part of implementing and maintaining successful functional and operational strategies. The findings of this study clearly indicate that the implementation of TQM can provide improved business performance.

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# LEADERSHIP IN THE 21<sup>ST</sup> CENTURY: THE EFFECT OF EMOTIONAL INTELLIGENCE

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## ABSTRACT

*We developed a model in which transformational leadership mediated between emotional intelligence and workplace performance. This paper states the effect of emotional intelligence on transformational leadership style in the 21st century. It is proposed that the emotional intelligence concepts of self-awareness, self-management, social awareness, and relationship management contribute to enhance a leader's sense of self and others in order to accomplish organization's goals. Transformational leadership characteristics are also reviewed to understand how leaders can aim their efforts towards specific objectives. Moreover, a leaders and managers' overview in the current millennium is also included in this paper to obtain links between transformational leadership and emotional intelligence. A discussion of research issues and future direction is also reviewed for new analyses, as well as conclusions.*

## INTRODUCTION

The purpose of this paper is to propose relationships between emotional intelligence and transformational leadership. In the current millennium, companies need leaders who are able to operate in multicultural environments, are aware of global marketing issues, and recognize the need for diversity because these will allow organizations to remain competitive and survive in multicultural environments (Pool & Cotton, 2004). Leaders around the world need to consider personal, social, business, and cultural aspects of global literacy (Rosen & Digh, 2001) as well as social literacy issues such as, trust, listening, constructive impatience, connective teaching, and collaborative individualism (Pool & Cotton, 2004). In addition, Rosen and Digh (2001) state that business literacy must include, among other skills, the ability to create leaders, manage difficult situations, and be a real link between leaders and followers. In short, global literacy and social literacy relate to emotional intelligence through motivation, adeptness in relationships, and self regulation of emotions.

Burns (1978) first proposed that transformational leaders demonstrate high levels of moral conduct, ethical conduct, self-sacrifice, determination, and far-sightedness. Transformational

leadership behaviors consist of four dimensions: idealized influence (TLii), individualized consideration (TLic), inspirational motivation (TLim), and intellectual stimulation (TLis). Transformational leaders give individualized consideration through developing and mentoring followers (Bass & Avolio, 1994). They provide inspirational motivation (TLim) by giving meaning to work, encouraging pro-social behavior, and emphasizing social goals instead of individual goals. They also promote intellectual stimulation (TLis) by encouraging innovation and creativity in approaching old situations in new ways. Transformational leadership is based on the perception of subordinates, therefore the more that subordinates feel that the leader is a transformational type, the more that the leader's vision is ingrained in followers. Emotional intelligence plays a crucial role here. Leaders with high EI help organizations create and maintain competitive advantage through increased performance, enhanced innovation, effective use of time and resources, restored trust, teamwork, and motivation (Goleman, 2000). Transformational leadership theory provides a model where leaders can develop their skills to coach, mentor, and facilitate in the workplace in addition to the traditional leadership functions of planning, directing, organizing, and controlling.

Emotional intelligence (EI) is defined as one's ability to manage and monitor one's own emotions; recognize different types of emotions in others; distinguish the difference between one's emotions and those of others; and possess the ability to direct information towards one's decision making actions (Mayer & Salovey, 1993). In fact, EI has been identified as a real measure for distinguishing superior leadership skills and abilities (Pool & Cotton, 2004), and in recent years has become an important topic in social and organizational science (Fineman, 1993; Mayer & Salovey, 1997). Moreover, the influence of emotional intelligence on popular culture and the academic community has been rapidly growing (Emmerling & Goleman, 2003). Therefore, the study of EI has stimulated a great number of research initiatives under a wide range of psychological patterns that have created a gap between what we know and what we need to know (Emmerling & Goleman, 2003). In the same way, emotional intelligence has caught the attention of business leaders and scholars (Goleman, Boyatzis, and McKee, 2002); and its concepts are within an area of interest for executive development consultants (Connor & Mackenzie-Smith, 2003). While technical skills and core competencies are essential for sustainable competitive advantage, the ability to outperform other organizations largely depends on how employees manage their relationships with others. In other words, emotional intelligence helps an organization commit to a basic strategy, build relationships inside and outside that offer competitive advantage, promote innovation and risk taking, provide a platform to shared learning, maintain balance between the human and financial side of the company's agenda, and develop open communication and trust-building among employees and leaders. Research suggests that leaders possessing EI create a work climate that further develops EI at the subordinate level (Yammarino & Atwater, 1997). Although some researchers point out that EI helps in building a successful organization, to date very little has been done to explain the mechanism through which EI increases work-place effectiveness. More

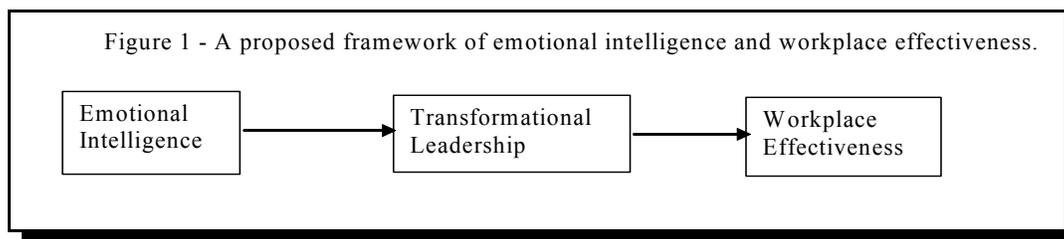
precisely, EI is proposed as an antecedent of transformational leadership behaviors. EI enhances workplace performance by enhancing a leader's transformational leadership behaviors.

The aim of this paper is to provide a theoretical model that enables us to understand how EI relates to leadership. We first present a short background of EI and a definition of EI. Second, we discuss social information processing theory and goal setting theories in their relevance to EI and workplace effectiveness. The implications for future research are discussed in the final section.

### LEADERS AND MANAGERS IN THE CURRENT MILLENNIUM

Leaders and managers are aware that the current interest in emotional intelligence is its potential utility in forecasting a range of criterion among different populations (Emmerling & Goleman, 2003). In the same way, many authors have debated the legitimacy of the emotional intelligence construct. Lanser (2000) refers in his article to EI as how people who use its principles find a different way of being smart, allowing leaders to cooperate with followers within circles of influence. Moreover, the predictive validity of emotional intelligence will likely depend on the context, criterion of interest, and specific theory used. For instance, traditional measures of intelligence have not been able to perform in accurate ways for a large portion of the variance in work performance and career success (Emmerling & Goleman, 2003).

Despite the importance of EI, psychological issues related with EI have led to a great deal of controversy and debate among people who research and practice principles associated with emotional intelligence. As goes with any emerging topic, such debate is an inherent part of any process of theory development and scientific discovery (Emmerling & Goleman, 2003). Researchers have begun to acknowledge the importance of EI in organizational behavior and human relations research; however, there has been very little empirical work in analyzing EI and its effects on workplace issues such as performance, job satisfaction and leadership issues (Rozell, Pettijohn, & Parker, 2002). Thus, researchers have paid little attention to how EI of leaders enhance work place effectiveness. Figure 1 presents a proposed framework of EI and work place effectiveness.



## TRANSFORMATIONAL LEADERSHIP CHARACTERISTICS

From a general point of view, leadership is defined as the art, act, or function of going before or showing the way. In fact, the concept of guiding and stimulating direction is associated with leadership (Stanley, 2004). Therefore, leaders must understand the current reality. "Leaders size up the current situation as it really is, not as it used to be or as they would like it to be" (Tichy & Cohen, 1997). However, effective leadership requires us to know how well we are doing, thereby, determining a vision for the future constitutes a strategic thinking to develop the ability to focus on external factors and the people served (Stanley, 2004). In the same way, building a strong team will also constitute a crucial part in any organization. Strong leaders and managers know how to encourage strong candidates to apply for specific positions in the firm (Stanley, 2004). Moreover, Crane (2001) states that *coaching skills* are also a prerequisite for success and defines transformational coaching as "the art of assisting people to enhance their effectiveness, in a way they feel helped." Therefore, one of the most important skills required for successful coaching is an accurate use of language and word choices. In the same way, Boverie and Kroth (2001) suggest that there are three keys to creating passion in the workplace and thereby, stimulating transformational leadership. These are love of work, meaningful work, and a nurturing workplace.

### **Love of work**

If employees and team members enjoy their jobs, they will become most productive. Teammates should be enthusiastic in creating a positive atmosphere towards work. Moreover, it is widely known that people do well when they are placed in jobs for which they are well-suited.

### **Meaningful work**

Employees and team members are aware about the internal communication's importance because potential supporters need to hear about all ups and downs institutions do. It just helps to remind employees why they work so hard. Boverie and Kroth (2001) propose that a *nurturing workplace* is a key to creating a caring, understanding, and flexible environment; a concern for the work, caring for and being considerate of coworkers, respecting employees' ideas, treating employees and colleagues as a viable force, and having compassion for human beings. Furthermore, communicating the organization's vision must be a very important issue for leaders and managers because employees must know what the organization's objectives are to become part in the process to accomplish the company's goals (Stanley, 2004). Therefore, resource development professionals and transformational leaders work to understand their employees' strengths and weaknesses to improve communication ways. In the same way, *inspiring others to work together to create the new vision* constitutes the framework to recruit and retain strong performers (Stanley, 2004). For

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instance, new workers will always tend to imitate former workers who perform the work in better ways and have better salaries and benefits; not only because it means a secure job, but also because they get inspiration from those outstanding workers and have already understood the company's vision.

In addition, *evaluating and monitoring progress* helps to measure the level of work and level of goal accomplished (Stanley, 2004). But there are limits to evaluation tools. "No form can accurately capture the warmth experienced when dealing with another person. However, the outcome of such encounters can be measured. People who are kind and gracious in their dealings with their constituents garner more support for their organization than those who never learned how to relate well with other people" (Weinstein, 2002, pp. 319-320). Finally, *celebrating victory* means that all of the company's objectives were accomplished and after all the hard work, nothing can compare to the exuberance and joy of victory (Stanley, 2004). Therefore, transformational leaders not only have to maintain the winner teamwork's success, but also to encourage new goals in order to create a competitive environment within the organization (Weinstein, 2002). Some research is directed at associating the transformational / charismatic leadership style of a CEO with some aspects of emotional intelligence. For instance, research by Sosik and Megerian (1999) suggests that some aspects of emotional intelligence (self-awareness) moderated the relationship between transformational leadership style and managerial performance. The impact of an emotionally intelligent CEO is expected to cascade down to the lower rungs through the CEO's charisma

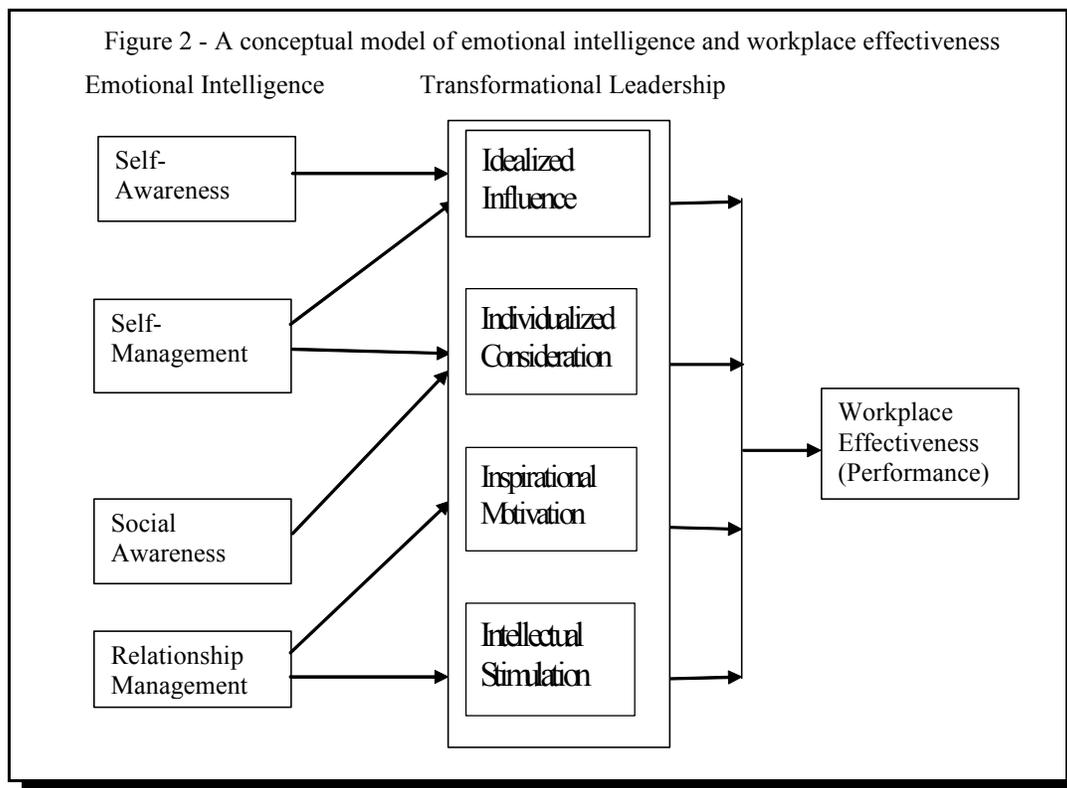
The proposed model identifies the factors that build emotional intelligence and highlights the ways that transformational leadership behaviors promote organizations to become more open to change and to be more emotionally intelligent.

## **TRANSFORMATIONAL LEADERSHIP AND EMOTIONAL INTELLIGENCE**

Transformational leaders have been described as individuals who increase interest among followers to generate increased confidence, creating an adequate environment in order to accomplish goals (Gardner & Stough, 2002). In fact, transformational leaders are looking for new opportunities all the time because effectiveness must be common language among their followers. Transformational leadership is comprised of the following dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1985). Moreover, these leaders are willing to demonstrate listening skills to understand people's demands related to the work environment, and to propose real solutions to both parties (Rosen & Digh, 2001).

Moreover, Barling et al. (2000) conducted research with 49 managers to evaluate the relationship between leaders likely to use transformational behaviors and who were high in emotional intelligence. As a conclusion, researchers found out that transformational leaders were directly related with followers' concerns, thereby, better able to understand personal issues. In the

same way, using the Swinburne University Emotional Intelligence Test (SUEIT), Gardner and Stough (2002) tested 110 senior level managers. The results supported a strong relationship between EI and the transformational leadership style. On the other hand, a negative relationship was found between EI and both laissez-faire leaders and transactional leaders because these leaders were found to be less willing to understand their own personalities and those of others who work in the same place (Gardner & Stough, 2002).



## EMOTIONAL INTELLIGENCE

Emotional Intelligence is a multifaceted construct (Goleman, 2002; Thorndike, 1920) consisting of self-awareness, self-management, social awareness and relationship management (Goleman et al, 2002). Therefore, possessing high levels of EI permits individuals have a closer understanding of people and their surroundings (Pool & Cotton, 2004).

Wong and Law (2002) seem to agree that emotional labor will always constitute the level of interest of people to achieve their personal goals. For instance, higher EI is required in circumstances where emotional labor is more intense (Wong & Law, 2002), such as with advanced

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counseling training and development (Barchard, 2003). However, some authors separate abilities related to cognitive intelligence from abilities related to traits, thereby, competencies related to emotional intelligence remains a complex one; all definitions of EI seem to represent a combination of cognitive and emotional abilities (Cherniss, 2001). Mayer and Salovey (1997) state that to qualify as an actual intelligence several criteria must be met. First, any intelligence must reflect actual mental performance rather than preferred behavior patterns, self-esteem, or other specific traits. Second, the level of intelligence under study should describe a set of related abilities able to show a different pattern of intelligence; and third, intelligence should develop with age.

### **Self-Awareness**

Self-awareness is the ability to understand what one is feeling and how to direct those feelings (Gardner & Stough, 2002). Self-awareness also includes being aware of one's strengths and limitations in determined circumstances, consequently, self awareness is a main point and central competency of emotional intelligence (Goleman et al, 2002). In fact, being aware of one's strengths and limitations creates a real backbone for controlling emotions, and becoming a better motivator in any area (Pool & Cotton, 2004). The self-awareness component of EI is important in that it may have a profound impact on behavioral self-management and on desirable outcomes. Self-awareness is comprised of three elements: emotional awareness, accurate self-assessment, and self-confidence. Emotional self-awareness is the ability to recognize one's emotions and their effects. People who are high in this construct understand which emotions they are feeling and why; realize the links between their feelings and what they think, do, and say; recognize how their feelings affect their performance; and have a guiding awareness of values and goals (Goleman, 1995). Accurate self-assessment is necessary for an individual to have knowledge of his/her own strengths and limitations. Self-assessment requires openness to candid feedback, new perspectives, continuous learning, and self-development. People with a high degree of emotional self-awareness exhibit a sense of humor and perspective about themselves. Self-awareness also includes self-confidence, which speaks about self-worth and capabilities. Individuals with high self-confidence can express their feelings, opinions, and viewpoints openly and unhesitatingly. Further, research has demonstrated that self-confident people are more decisive, and are able to make sound decisions (Phillips & Gully, 1997).

Self-awareness enables a leader to look at what the ideal situation may be without becoming concerned with their ego's and fantasizes. A leader with strong self-awareness feels fulfilled in his/her own right and is not intimidated by others successes. Followers are allowed, encouraged even, to take credit and reap the honors of success. Therefore, the leader invokes a strong emotional bond from the followers that enhances the leader's charisma (Conger & Kanungo, 1998). Charisma is a major contributor to a transformational leader's idealized influence (Bass, 1985). Based on the above, the following is proposed:

*Proposition 1: Self-awareness is positively related to the idealized influence dimension of transformational leadership behaviors (Tlii).*

## **Self-Management**

Self-management is the ability to use knowledge of self to manage and influence one's own emotions (Goleman, et al, 2002). Gaining a greater ability to manage self will increase self-control, trustworthiness, conscientiousness, motivation, adaptability, and innovation (Rozell, Pettijohn, & Parker, 2001). Moreover, people with high self-management will make more informed decisions because they will not be controlled by their emotions, but rather control their emotions (Goleman et al, 2002). Transformational leadership literature amply demonstrates that self-confidence is one of the personality characteristics of transformational leaders who strive for changing the status quo (Howell & Higgins, 1990; Wofford, Goodwin, & Whittington, 1998). Maintaining self-control in tense situations shows followers that the leader can be trusted to make rational decisions to benefit the organization and its members. In turn, trust builds affective commitment from followers to the organization and the leader (Nyhan & Marlowe, 1997).

Another important ingredient of emotional intelligence is self-motivation. Self-motivation primarily consists of achievement drive, commitment, initiative, and optimism. The *achievement drive* of individuals is visible in their striving to improve or meet higher standards of excellence. Individuals with high achievement drive are result-oriented; as such, they set challenging goals, take calculated risks, pursue information to reduce uncertainty and find ways to do better, and learn how to improve their performance (Campion & McClelland, 1991). Transformational leaders actively seek out opportunities to promote the organizations agenda (Bass, 1985).

Employee *commitment* is another component of self-motivation. Transformational leaders help members to find a sense of purpose in the organization's mission. Highly committed individuals seek out opportunities to fulfill organizational goals, and indoctrinate the group's core values in decision making (Levinson, 2003). Thus, commitment is concerned with the aligning individual goals with group and organizational goals. The *initiative* of individuals is represented by their readiness to act on available opportunities. Employees with high initiative seize opportunities and pursue goals beyond what is required or expected of them. Often, they cut through bureaucratic red tape and become flexible in bending rules to get the job done. Finally, *optimism* is concerned with persistence in pursuing goals despite setbacks and obstacles. Persistence is a motivational mechanism for pursuing goals (Locke et al., 1981). Optimistic individuals operate from the "hope of success" rather than the "fear of failure," and perceive setbacks as manageable circumstances rather than personal flaws. In summary, self-management emphasizes the "discovery of appropriate task strategies" (Locke & Latham, 1991: 234), and facilitates acquisition and maintenance of complex skills for enhancing interpersonal communication (Gist, Stevens & Bavetta, 1990). As a leader is goal directed, self-motivation is important in achieving goals. Based on the above, the following are proposed:

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*Proposition 2a: Self-management is positively related to the idealized influence dimension of transformational leadership behaviors (T<sub>ii</sub>).*

*Proposition 2b: Self-management is positively related to the individualized consideration dimension of transformational leadership behaviors (T<sub>ic</sub>).*

## **Social-Awareness**

The social-awareness dimension of EI states that a heightened state of awareness in leaders is needed to understand both the situation and the followers' level of comprehension (Hersey, Blanchard, & Johnson, 1996). Once the leader understands his/her own vision and values for the organization, they need to convey the vision and values to the other members (Goleman et al, 2002). At the heart of social awareness is empathy. A major component of transformational leadership behaviors is the ability to emphasize with followers (Bass, 1995). Empathetic leaders can sense when the organizational vision and personal values are being received by other individuals. By understanding how individuals are receiving and responding to the leaders' messages, the leaders can change their behaviors to encourage and support followers' positive behaviors. The leader can put forth an understanding and supportive front to the follower to mitigate the follower's actions. For example, the leader will be able to approach the follower in order to assure them that everything is all right; therefore, there is no need to get too excited or overwrought about some situation. Alternatively, a leader that lacks empathy may be perceived as uncaring or uninterested to the needs of the follower.

The socially aware leader can also relate to diverse cultures in the workplace. Individuals of different cultural, ethnic, political, and religious orientations may not be able to communicate their needs and desires verbally. The socially aware leader can recognize the needs of others and respond accordingly. When the others are customers or suppliers, the leader exhibits a greater service or customer orientation. Within the organization, the leader with greater empathy can recognize and respond to networks that can be used to enhance corporate goals and values. The empathetic leader also recognizes the tacit relationships of members and can respond accordingly (Goleman et al, 2002). A socially aware leader will exhibit more empathy towards followers, therefore we propose that:

*Proposition 3: Social awareness is positively related to the individualized consideration dimension of transformational leadership behaviors (T<sub>ic</sub>).*

## **Relationship Management**

Another important component of EI is relationship management. Relationship-management includes interpersonal and social skills, such as providing inspiration, having influence, possessing the abilities to develop others, acting as a catalyst for change, managing conflict, and encouraging

teamwork and collaboration (Rozell et al, 2001). Just as self-awareness is related to the intrapersonal intelligence of an individual, empathy and handling relationships are related to interpersonal intelligence. As pointed out previously, intra-personal and inter-personal intelligence are essentially two dimensions of social intelligence. Relationship management deals with handling or managing emotions in others, and therefore requires social competence and social skills on the part of individuals (Goleman et al. 2002). Transformational leaders are highly skilled in relationship management and strive to develop others while creating synergy in workgroups. Sometimes relationship management calls for using 'influence', i.e. wielding effective tactics for persuasion. For example, leaders may use complex strategies such as indirect influence to build consensus and support, or orchestrate dramatic events to make a point effectively (Goleman, 1995). Followers that perceive that they are being developed to be more involved with the organization may develop a felt obligation to the organization and be motivated to perform at higher levels than they were before being included in the organization structures. Relationship management, when applied to leadership studies, promotes positive affect in followers, resulting in broader levels of thinking and enhanced capacity for self-learning (Bass, 1998; Greenspan, 1989).

Often leaders use relationship management to negotiate and resolve disagreements and to orchestrate win-win solutions. They register emotional cues in attuning their message, seek mutual understanding, welcome information sharing, and deal with difficult issues tactfully. One outstanding feature of good relationship managers is that they are receptive to both bad and good news. Because they are effective in sending clear and convincing messages, they provide goal clarity and clear communication. Goal clarity and clear communication change an individual's attitude toward work. This is especially important to creating an intellectually stimulated atmosphere in the workplace. For example, a transformational leader encourages creativity and innovative solutions from followers. Innovative and creative solutions that challenge the status quo are inherently unstable. Followers may not feel comfortable in trying new procedures or processes, therefore having a leader that seems to understand their dilemma and addresses the possible outcomes with them gives them confidence in their abilities. Research has demonstrated that the individual's predisposition towards effectively handling interpersonal relationships makes him/her use emotionally expressive language and non-verbal cues associated with transformational leadership (Salovey & Sluyter, 1997). Social intelligence theory is based on the concept that individuals have an ability to be creative and imaginative (BarOn & Parker, 2000). The transformational leader stimulates followers to be creative and innovative in finding solutions to everyday problems (Bass, 1985)

The transformational leader seeks to inspire followers through creating collaborative networks and developing followers to be creative and innovative. The leader encourages followers to challenge the old conventional ways of doing business and take up creative and innovative ideas (Conger & Kanungo, 1998). Based on the above arguments, the following are proposed:

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*Proposition 4a: Relationship management is positively related to the inspirational motivation dimension of transformational leadership behaviors (T<sub>im</sub>).*

*Proposition 4b: Relationship management is positively related to the intellectual stimulation dimension of transformational leadership behaviors (T<sub>is</sub>).*

## **DISCUSSION OF RESEARCH ISSUES AND FUTURE DIRECTION**

This paper presents a conceptual model of emotional intelligence, explaining how a set of skills hypothesized to contribute to the accurate appraisal and expression of emotion in oneself and in others, would increase the workplace effectiveness of an employee through its effect on emotional stress and personal attitudes towards work. Although traditionally job satisfaction and commitment were considered as attitudes of employees at work, in the present model we tried to show the change in attitudes as a result of goal clarity and interpersonal communication. Thirdly, there could be some moderating variables influencing the impact of emotional intelligence. The type of organizational unit, age, gender differences, educational background, leader member exchange quality, work-family conflicts, and organizational support programs influencing the goal clarity and interpersonal communication could all influence both stress and the personal attitudes of employees at work. Finally, the present model has some practical implications for organizations. Recognizing the importance of emotional intelligence, many organizations are providing training programs referred to as emotional competence training. Goleman (1995) has explicitly provided some useful guidelines for effective social and emotional learning in a phase-wise analysis (running from preparation phase, training phase, transfer and maintenance phase, and evaluation phase) based on the assumption that it is possible to help people of any age to become more emotionally intelligent at work. Just as there is some skepticism that emotional competencies are the result of habits learned early in life (DeBono & Snyder, 1995) there is controversy about whether emotional competence can be taught or learned through training. Goleman (1995) argues that one must unlearn old habits and then develop new ones. This may sound like a bitter pill to swallow, but emotional learning inevitably involves ways of thinking and acting that are central to an individual's identity.

## **CONCLUSIONS**

There have been several theories associated with the emotional intelligence's knowledge, each theory represents a unique set of constructs that represents the theoretical orientation and context in which authors have developed their theory, all have a common desire to understand and measure the skills related to recognizing and regulating emotions in ourselves and others (Goleman, 2001). Ciarrochi, Chan, and Caputi (2000) state that although definitions may vary within the field

of emotional intelligence, they will become complementary rather than contradictory. They also agree that all these theories related within the field of EI seek to understand how human beings perceive, comprehend, and work with emotions in order to achieve goals.

Furthermore, emotional intelligence is gaining legitimacy due to studies that support its theories as a valid construct. In fact, in the current millennium there will exist a very competitive environment not only within boundaries but also in a global market. Investigators are eager to obtain answers to how leaders can be more successful in an ever changing business environment. Moreover, leaders who want to improve their knowledge of EI must begin with an accurate analysis of one's self awareness because it constitutes the main basis that supports EI theories. Therefore, executive coaches have found success in those organizations that have seen in EI the back bone in total organization (Sohmer, 2000).

In short, organizations that choose EI as a real framework to achieve goals will get returns on their investment. The more comprehensive skill sets a leader uses, the better environment to work will be created, thereby, benefits will also appear as a real consequence. Employees not only will be happy to share their own emotions, but also to contribute their best effort to accomplish the company's objectives. The interest in emotional intelligence has been escalating since 1990. We have attempted to provide a conceptual model linking the ingredients of emotional intelligence, social information processing, and goal setting theories in influencing the work place effectiveness outcomes. Providing such linkages is essential if the field is to integrate knowledge across topical areas of organizational behavior and human relations.

Moreover, we strongly believe that this effort can only succeed if theorists and researchers are willing to test notions that include constructs of emotional intelligence at the individual, group, and organizational level. We urge the researchers not to discard the concept of emotional intelligence as a management fashion or fad (Abrahamson, 1996). Since the empirical work in the field of emotional intelligence is in the embryonic stage, many gray areas must be explored before additional models are proposed or present models are extended. The present paper is a modest move in the direction of initiating a conceptual platform for studying the process of how emotional intelligence affects organizations. The model also contrasts methods of promoting emotional intelligence in organizations, i.e. the development of emotional intelligence through training programs versus the selection of very emotionally intelligent organizational leaders who model emotional competence and continue to implement a similar selection process vertically downwards.

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# STRATEGIC HUMAN RESOURCES AS A STRATEGIC WEAPON FOR ENHANCING LABOR PRODUCTIVITY: EMPIRICAL EVIDENCE

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## ABSTRACT

*This pioneer study investigates strategic human resource management practices (employment security, selective hiring, self-managed teams and decentralization, comparatively high compensation contingent on organizational performance, extensive training and development programs, reduction of status differences, and sharing information) that treat a firm's human resources as valuable assets. Subsequently, this study investigates the relationship between these human resources management practices and a firm's labor productivity. The results of this study revealed a positive and significant relationship between five strategic human resources management practices (job security, selective hiring, self-managed teams and decentralization, extensive training and development programs, and comparatively high compensation contingent on organizational performance) and the company's labor productivity. While reduction of status differences has positive and insignificant relationship with the company's labor productivity, sharing information has a positive and marginal relationship with the company's labor productivity.*

## INTRODUCTION

Over the past decade, several studies (e.g., Cascio, 1991; Arthur, 1994; Huselid, 1995; Delery & Doty, 1996; Pfeffer, 1998; Hagen, Udeh, & Hassan, 2001; Bahattacharya & Doty, 2005) conducted within and across many industries demonstrate that enormous economic returns were obtained through the implementation of high commitment management practices. Furthermore, much of this research serves to validate earlier writing on participative management and employee involvement. Despite these research results, trends in actual management practice are, in many instances, moving in a direction opposite to what this growing body of evidence prescribes. Moreover, this disjuncture between knowledge and management practice is occurring at the same time that organizations, confronted with a very competitive environment, are looking for some

magic solutions that will provide sustained success, at least over some reasonable period of time (Pfeffer, 1998; Lepak & Snell, 2000; Koyes, 2001; Zollo & Winter, 2002).

Rather than putting their human resources first (Miller & Lee, 2001), many organizations have sought means to competitive challenges in places that have not been very productive. Such organizations treat their businesses as portfolios of assets to be bought and sold in an effort to find the right competitive niche, downsizing and outsourcing in a risky attempt to shrink or transact their way to profit, and doing other things that weaken or destroy their organizational culture in order to minimize labor costs (Pfeffer & Veiga, 1999). This pioneer study claims that the way an organization manages its human resources is a real and enduring source of competitive advantage. To support this claim, this study examines the relationship between the suggested strategic human resource management practices and labor productivity.

### **CORROBORATIVE EVIDENCE**

CEOs frequently say, "Don't just give me anecdotes specifically selected to make some point; show me the evidence!" Fortunately, there is a substantial and rapidly expanding body of evidence that speaks to the strong connection between how firms manage their human resources and the economic results achieved. This evidence is drawn from studies of 5-year survival rates of initial public offerings; studies of profitability and stock price in large samples of companies from multiple industries; and detailed research on the automobile, apparel, semiconductor, steel manufacturing, oil refining, and service industries. It shows that substantial gains can be obtained by implementing high performance management practices (Pfeffer, 1998; Ellinger et al., 2002).

According to an award-winning study of high performance work practices of 968 firms representing all major industries, a one standard deviation increase in the use of such practices is associated with a 7.05 percent decrease in turnover and, on a per employee basis, \$27,044 more in sales and \$18,641 and \$3,814 more in market value and profits, respectively (Huselid, 1995). That is an \$18,000 increase in stock market value per employee. A subsequent study conducted on 702 firms in 1996 found even larger economic benefits: A one standard deviation improvement in the human resources system was associated with an increase in shareholder wealth of \$41,000 per employee, about a 14 percent market value premium (Huselid & Becker, 1997). These results are not unique to firms operating in the United States. Similar results were obtained in a study of more than one hundred German companies operating in ten industrial sectors. The study found a strong link between investing in employees and stock market performance. Companies place workers at the core of their strategies produce higher long-term returns to shareholders than their peers (Bilmes, Wetzker, & Xhonneux, 1997).

One of the clearest demonstrations of the causal effect of management practices on performance comes from a study of five-year survival rate of 136 non-financial companies that initiated their public offering in the U.S. stock market in 1988. By 1993, only 60 percent of these

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companies were still in existence. The empirical analysis demonstrated that with other factors such as the company's size, industry, and even profits statistically controlled, both the value that a company placed on human resources (such as whether the company cited employees as a source of competitive advantage) and how the company rewarded people (such as stock options for all employees and profit sharing) were significantly related to the probability of survival. Moreover, the results were substantively important. The difference in survival probability for firms is one standard deviation above and one standard deviation below the mean (in the upper 16 percent and the lower 16 percent of all firms in the sample) on valuing human resource was almost 20 percent. The difference in survival, depending on where the firm scored on rewards, was even more dramatic, with a difference in five-year survival probability of 42 percent between firms in the upper and lower tails of the distribution (Welbourne & Andrews, 1996).

Scholars from different disciplines have suggested various conceptual frameworks as explanations for the links between human resources practices and organizational outcomes. For example, Pfeffer (1998) claimed that employee participation and empowerment job design (team-based production system, extensive employee training, performance-contingent incentive compensation, and others) are widely believed to improve the performances of organizations. Similarly, Huselid (1995) concluded that certain human resources management practices affect turnover, productivity, and financial performance of organizations. According to Delery and Doty (1996), strategic human resources practices have the most significant effects on organizational outcomes such as productivity, turnover, and firm's financial performance.

How can such substantial benefits in profit, quality, and productivity occur? Essentially, these tremendous gains come about because high performance management practices provide a number of important sources that enhance organizational performance. In fact, people work harder because of their increased involvement and commitment that comes from having more control on their work; people work smarter because they are encouraged to build skills and competence; and people work more responsibly because more responsibility is placed in the hands of employees farther down the organizational hierarchy (Pfeffer & Veiga, 1999; Gibson & Birkinshaw, 2004).

### **SUGGESTED HUMAN RESOURCES MANAGEMENT PRACTICES**

Some researchers (Hagen, Hassan, and Maghrabi, 2002; Neal, West, & Patterson, 2005) concluded that not all human resources practices have the same effect on organizational outcomes. The authors attested that while some practices have a significant effect, others have a marginal effect. Based on related literature, personal observation, and experience, Pfeffer and Veiga (1999) developed a set of seven dimensions that seem to characterize most, if not all, of the systems producing profits through human resources. We call these dimensions "strategic human resources management (SHRM) practices. Each one of these practices is briefly summarized below.

**First: Employment Security**

Most researchers have emphasized employment security as an important dimension among human resources management practices (Dessler, 1999). In his cross-national review, Locke (1995) proposes that innovations in work practices or productivity improvement are not likely to be sustained over time when employees fear that by increasing productivity they will work themselves out of their jobs. On the other hand, Pfeffer and Veiga (1999) suggest that the idea of providing employment security in today's competitive world seems impossible task

However, assurance of job security has various benefits. One advantage to firms is the workers' free contribution of knowledge and efforts to enhance productivity. A second advantage is the decreased possibility of laying off employees during downturns. The benefit from the second advantage to firms is that in the absence of a commitment to retain the work force (either through pledges about employment security or through employment obligations contractually negotiated with a union), firms may lay off employees too quickly and too readily at the first sign of financial difficulty. But such action constitutes a cost for firms that have done a good job of selecting, training, and developing their workforce because layoffs put important strategic assets on the street for competitors to employ (Pfeffer & Veiga, 1999).

However, employment security is a fundamental issue to the implementation of most other high performance management practices. For example, when General Motors wanted to implement new work arrangements in its innovative Saturn plant in the 1990s, it guaranteed its people job security, except in the most extreme circumstances. When New United Motor Company was formed to operate the Fremont automobile assembly plant, it also offered its employees job security (Kelleher, 1997). One of Southwest Airlines' most important tools for building employee partnership is job security which kept its labor force smaller and more productive than those of its competitors (Southwest Airlines, 1999).

**Second: Selective Hiring**

Companies that are serious about obtaining profits through employees will expend the effort required to ensure that they recruit the right employees in the first place. Selective hiring requires several things (Pfeffer & Veiga, 1999). First, the organization needs to have a large applicant pool from which to select. A good example is Southwest Airlines. In 1993, the company received about 98,000 job applications, interviewed 16,000 people, and hired 2,700. In 1994, applications increased to more than 125,000 for 4,000 hires. While some organizations see processing this many job inquiries as an unnecessary expense, Southwest sees it as a necessary first step (Southwest Airlines, 1999). Second, the organization needs to be clear about what are the most critical skills and attributes needed in its applicant pool. At Southwest, applicants for flight attendant positions

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are evaluated on the basis of initiative, judgment, adaptability, and ability to learn fast (O'Reilly, 1996).

Third, the skills and abilities sought need to be carefully considered and consistent with the particular job requirements and the organization's approach to its market. For example, Enterprise Rent-A-Car is today's largest car rental company in the United States, and has expanded at a rate between 25 and 30 percent a year for the past 11 years. It has grown by pursuing a high customer service strategy and emphasizing sales of rental car services to repair garage customers (O'Reilly, 1996). Fourth, organizations should screen primarily on important attributes that are difficult to change through training and should emphasize qualities that actually differentiate among those in the applicant pool. For example, interviewers at PeopleSoft (a producer of human resource management software) ask very little about personal or academic background, except about learning experiences from school and work. Rather, the interviews focused mostly on whether the applicant sees himself or herself as team-oriented or as an individual achiever (O'Reilly, Chatman, & Caldwell, 1991; Chatman, 1991).

### **Third: Self-Managed Teams and Decentralization**

Systematic studies (Hagen, Udeh, & Hassan, 2001; Farren, 1999; Gregory, 1999) attest to the effectiveness of teams as a principle of organizational design. Team-based organizations also are largely successful in having all employees in the firm feel accountable and responsible for the operation and success of the enterprise, not just a few people in senior management positions. This increased sense of responsibility stimulates more initiative and effort of everyone involved. In addition, teams permit removal of layers of hierarchy and absorption of administrative tasks previously performed by specialists, avoiding the enormous costs of having people whose sole job is to watch people who watch other people do the work.

For example, the implementation of teams in Honeywell's defense avionics plant led to improve delivery time, from 59 percent in the late 1980s to 99 percent in the first quarter of 1996 (The Wall Street Journal, 1996). Whole Foods Market (a natural foods grocery store chain) also attributes much of its success to its team-based organization. Between 1991 and 1996, the company achieved sales growth of 864 percent and net income growth of 438 percent. The stores are organized into self-managing work teams that are responsible and accountable for their own performance (Whole Foods Market Inc., 1995 Annual Report). Teams at Saturn and at Chrysler Corporation provide a framework in which workers help one another and share their production knowledge (Shaiken, Lopez, & Mankita, 1997).

Fourth: Comparatively High Compensation Contingent on Organizational Performance  
It is often argued that high compensation is a consequence of organizational success, and that high compensation (compared with the average) is possible only in certain industries that either face less competition or have particularly highly educated employees. In fact, neither of these statements is

correct. Frequently, successful firms can afford to pay more, but high pay can also produce economic success (Lewis, Goodman, & Fandt, 2001).

Pathmark, a large grocery store chain in the eastern United States, is a good example. In 1972, the company had about 90 days to live, and was in desperate financial situation. The new manager, who assumed leadership in 1972, discovered that 120 store managers in the chain were paid less than the butchers, who were unionized. He decided that the store managers were vital to the chain's success and its ability to accomplish a turnaround. Consequently, he gave the store managers a substantial raise, about 40 to 50 percent. Subsequent success of the chain was attributed to improving performance instead of complaining about their pay (Pfeffer & Veiga, 1999).

Contingent compensation also dominates in most high performance work systems. Such compensation can take a number of different forms, including gain sharing, profit sharing, stock ownership, pay for skill, or various forms of individual or team incentives (Lewis, Goodman, & Fandt, 2001). Wal-Mart, AES Corporation, Southwest Airlines, Whole Foods Markets, Microsoft, and many other successful organizations encourage share ownership. When employees are owners, they act and think like owners. However, merely putting in ownership schemes without providing training, information sharing, and delegation of responsibility will have little effect on performance (Pfeffer & Veiga, 1999).

### **Fifth: Extensive Training and Development Programs**

Studies (e.g., Grossman & Mangus, 1989; Lawler, Mohrman, & Ledford, 1992; Wright & Boswell, 2002; Yeo & Neal, 2004; Rogg et al., 2004) on training in the United States consistently provide evidence of inadequate levels. In many American companies, training is something to be reduced to make profit aims in times of economic hardship. Even when there is training, it focuses on special skills rather than generalist competence and organizational culture. Although knowledge and skill are critical for organizational success, few organizations act on this insight. Training is an essential component of high performance work systems because these systems rely on frontline employee skill and initiative to identify and resolve problems, to initiate changes in work methods, and to take responsibility for quality. All of this requires a skilled and motivated work force that has the capability to perform the required tasks.

Men's Wearhouse (an off-price specialty retailer of men's tailored business attire and accessories) discovered that training can be a source of competitive advantage if it is wisely used. Its 1995 annual report revealed that Men's Warehouse had achieved growth rates in revenues of 32 percent, and net earnings of 41 percent, and the value of its stock had increased by approximately 400 percent. The company attributes its success to how it treats its employees and particularly to the emphasis it has placed on training. The company built a 35,000 square foot training center in Fremont, California, its headquarters. During the winter, experienced store personnel come back

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to headquarters in groups of about 30 for a three or four-day retraining program (Men's Wearhouse Annual report, 2001).

### **Sixth: Reduction of Status Differences**

The fundamental premise of high performance management systems is that organizations perform at a higher level when they are able to tap the ideas, skills, and efforts of all of their people. In order to help make all organization members feel important and committed, most high commitment management systems attempt to reduce the status differences that separate individuals and groups and cause some to feel less valued. This notion can be accomplished through the use of language and labels, physical space, dress, and substantively, in the reduction of the organization's degree of wage inequality, particularly across levels (Dessler, 1999).

At the New United Motor Manufacturing firm, everyone wears the same colored smock; executive dining rooms and reserved parking don't exist. At Kingston Technology, a private firm manufacturing add-on memory modules for personal computers, the two cofounders sit in open cubicles and do not have private secretaries. Status differences are also reduced, and a sense of common fate developed, by limiting the difference in compensation between senior management and other employees (Pfeffer & Veiga, 1999). When Southwest Airlines negotiated a five-year wage freeze with its pilots in exchange for stock options and occasional profitability bonuses, the CEO of Southwest, Herb Kelleher, agreed to freeze his annual base salary at \$395,000 for four years from \$500,000 per year, including base and bonus. Sam Walton, the founder and chairman of Wal-Mart, was one of the most underpaid CEOs in the United States (The Economist, 1995).

### **Seventh: Sharing Information**

Information sharing is a basic and essential component of high performance work systems. The sharing of information on such things as financial performance, strategy, and operational measures conveys to the organization's people that they are trusted Shen & Cannella, 2002. The CEO of Whole Foods Markets demonstrated that the firm is trying to create a high-trust organization in which employees are all-for-one and one-for-all, such a firm can't have secrets. For example. The firm shares detailed financial and performance information with every employee, including individual salary information. Every Whole Foods store has a book that lists the previous year's salary and bonus of all 6,500 employees (Fisherman, 1996).

Dessler (1999) claimed that motivated and trained people couldn't contribute to enhancing organizational performance if they don't have information on important dimensions of performance and training on how to use and interpret that information. The famous case of Springfield Re-Manufacturing Corporation (SRC) is a good example that illustrates this assertion. On February 1, 1983, SRC was created when plant's management and employees purchased an old International

Harvester plant in a financial transaction that consisted of about \$100,000 in equity and \$8.9 million in debt, which makes it one of the most leveraged of all buyouts. The plant manager at that time knew that if the plant was to succeed, all employees had to do their best, and had to share all their wisdom and ideas for enhancing the plant's performance. That manager came up with a system called "open-book management," that has become so popular that SRC now makes money by running seminars on this system (Pfeffer & Veiga, 1999).

### **LABOR PRODUCTIVITY**

At a general level, labor productivity is defined as total output divided by labor inputs (Samuelson & Nordhause, 1989). The focus on labor productivity in this study is considered for a number of reasons. First, labor productivity is a crucial organizational outcome; it indicates the extent to which a firm's labor force is efficiently creating output. Second, labor productivity is relatively directly related to the firm's labor force. The face validity of this measure of a firm's success is also relatively high (Dyer & Reeves, 1995). Third, theorists of strategic human resource management have identified labor productivity as the crucial indicator of workforce performance (Delery & Shaw, 2001; Hit, Bierman, Shimizu, & Kochhar, 2001). Fourth, productivity has been the most frequently used outcome variable in a large body of work in the strategic human resource management literature (Boselie & Dietz, 2003).

However, this measure has two limitations. First, it does not control for potential increases in costs (e.g., labor costs) that may accompany increased revenue generation. Second, not all elements of this outcome measure are directly controllable by employees (e.g., market, demand, and product price). Datta, Guthrie, and Wright (2005) attested that these limitations are not serious issues. Therefore, this measure of productivity is a key indicator of the efficiency with which firms produce revenue, and it allows comparability across industries and previous studies.

### **PURPOSE AND RESEARCH HYPOTHESES**

The purpose of this study is to explore and examine the relationship between the seven strategic management practices and the firm's labor productivity. Based on this objective, the following hypotheses have been formulated:

- H1: There is a significant and positive relationship between "employment security" and the firm's labor productivity.*
- H2: There is a significant and positive relationship between "selective hiring" and the firm's labor productivity.*
- H3: There is a significant and positive relationship between "self-managed teams and decentralization" and the firm's labor productivity.*

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- H4: There is a significant and positive relationship between "comparatively high compensation contingent on organizational performance" and the firm's labor productivity.*
- H5: There is a significant and positive relationship between "extensive training programs and development" and the firm's labor productivity.*
- H6: There is a significant and positive relationship between "reduction of status differences" and the firm's labor productivity.*
- H7: There is a significant and positive relationship between "sharing information" and the firm's labor productivity.*

## RESEARCH METHODS

Research methods used in this study included survey questionnaire, sample and data collection, measurement of variables, and statistical analysis. In addition, inter-rater reliability and biased responses were tested. Finally, the responding sample was investigated to determine whether it represented its target population.

### Survey Questionnaire

To test the formulated hypotheses, a combination of primary and secondary data was utilized. Primary data concerning the seven SHRM practices were obtained through a mail survey questionnaire. The survey questionnaire was developed by the researchers of this study and included seven management practices. The items and statements utilized in this survey were adapted from Pfeffer and Veiga's (1999) study. Statements were categorized under seven management practices as follows: employee security (4 items), selective hiring (5 items), self management teams and decentralization (5 items), comparatively high compensation contingent on organizational performance (4 items), extensive training programs and development (6 items), reduction of status differences (2 items), and sharing information (3 items). Each statement had a five-point Likert response format ranging from strongly disagree (1) to strongly agree (5). This survey questionnaire elicited opinions from the participating HRMs. The surveyed HRMs were requested to assign the degree of their agreement or disagreement with each of the twenty-nine statements categorized under the seven SHRM practices.

The validity and reliability of the questionnaire was tested. Confirmatory factor analysis (CFA) was conducted in order to test the construct validity of the survey questionnaire items. To evaluate the fit of CFA, several goodness-of-fit indicators were used including  $\chi^2$ , goodness-of-fit index, and the root mean square residual (Merrilees & Miller, 2001). These constructs were analyzed individually to determine their unidimensionality. A common approach to measuring reliability is Cronbach coefficient alpha. Cronbach alpha obtained for the overall scale scores

measuring the seven human resources management practices ranged between 72 and 86 percent. According to Kassim (2001), a reliability coefficient of around 90 percent can be considered excellent, values around 80 percent are very good, and values of around 70 percent are adequate depending on the questionnaire items. Data analysis suggests that the survey questionnaire is valid and reliable. Due to the limited space, the CFAs are not reported in this study. However, the CFA is available upon request from authors.

### **Sample and Data Collection**

The research sample consisted of 500 HRMs randomly selected from American medium-size public companies throughout the United States from the COMPUSTAT. HRMs of the participating companies were mailed a cover letter requesting their participation, the survey questionnaire, a stamped return envelope, and a brief summary for the five strategies suggested in this study. Of the 500 mailed questionnaires, 131 (26.3%) were completed and returned. Secondary data concerning labor productivity, firm's age, firm's size, sales growth, technological opportunities, and capital intensity were obtained from COMPUSTAT.

### **Measurements of Variables**

Measurements included the seven SHRM practices (independent variables), the firm's labor productivity (the dependent variable), and three control variables (firm's size, sales growth, and capital intensity). a. SHRM practices. As mentioned, the seven SHRM practices were measured by the survey questionnaire developed by the researchers of this study based on the work of Pfeffer and Veiga (1999). b. Labor Productivity. Drawing on prior research (e.g., Guthrie, 2001; Huselid, 1995; Koch & McGrath, 1996), labor productivity was measured by the logarithm of the ratio of a firm's sales to its number of employees. c. Control Variables. Control variables that have potential impact on a firm's labor productivity are the firm's size, sales growth, and firm's capital intensity (Datta, Guthrie & Wright, 2005). The company's size is controlled because it may be associated with the use of more sophisticated human resource practices as well as with higher productivity (Guthrie, 2001). Firm's size is measured by the natural logarithm of a company's number of employees (e.g., Huselid, 1995; Koch & McGrath, 1996). Company's sales growth is controlled because of its potential implications for a company's productivity (Huselid, 1995). Company's sales growth is measured by the average of growth in a company's sales over a three-year period (1999-2001). Finally, the company's capital intensity is controlled because of its potential relationship with the use of high performance work systems and company's productivity (Huselid, 1995; Koch & McGrath, 1996). Company's relative capital intensity is computed as the mean of company's capital intensity (fixed assets/sales) divided by the capital intensity for the particular company's industry (Datta, Guthrie & Wright, 2005).

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## Statistical Analysis

Statistical analysis in this study utilized the Statistical Package for Social Science (SPSS-X) to compute frequencies and percentages. The AMOS package was utilized to conduct confirmatory factor analysis (CFA) to test the construct validity of the survey questionnaire. That is, to determine whether the scales of the twenty items measured distinct constructs.

## DATA ANALYSIS

To determine the reliability of the survey-based measures, the procedure of Kumar, Stern, and Anderson (1993) was applied. Fifty assistant HRMs were randomly selected from the responding companies and were also surveyed. A similar number was randomly selected from the responding HRMs. Responses for the two groups of HRMs and assistant HRMs were then correlated to establish the inter-rater reliability. Inter-rater agreement ( $\kappa = 0.86$ ,  $P < .001$ ) on the survey measures concerning the seven SHRM practices was significant and consistent with the literature (e.g., Zahra, Neubaum, & Huse, 2000; Hagen, Hassan & Wilkie, 2003; Hagen & Lodha, 2004).

Following the work of Osterman (1994), the logistic regression was utilized to detect potential biased responses. The dependent variable is defined as a dummy variable coded 1 if the HRM of the company responded and 0 if he or she did not. The independent variables included the company's size, and the relative capital intensity of both responding and non-responding companies were correlated. The outcome of the logistic regression indicated that response bias was not a significant problem for CEOs' responses.

Utilizing the work of Zahra, Neubaum, and Huse (2000), both samples of this study were investigated to determine whether the sample represented their target populations. The company's number of full-time employees, sales growth, and the relative capital of the responding and non-responding firms were compared. The t-tests and the X<sup>2</sup> tests did not reveal significant differences between the two groups. Thus, each sample represented its target population. Subsequently, the factor structure of the scales was investigated by incorporating all scales of the seven human resources management practices into a separate confirmatory factor analysis (CFA). The CFA conducted on the data collected from the responding human resources managers revealed that the measures were distinguishable from one another.

To ensure that the regression model has not been undermined by any potential problem, certain statistical tests have been used to check the existence of any problem. Multicollinearity is not a problem because all variance inflation factors (VIFs) are low. Autocorrelation does not exist because the Durbin-Watson statistic is significant ( $D.W. = 2.4$ ). The plot of the residuals shows that there is no evidence of heteroskedasticity. Neither the Studentized Deleted Residuals test identified influential outliers for the dependent variable, nor Diffits and the Cook's Test detected influential

outliers for the independent variables. The plotted histogram of data depicted normal distribution of the data. The plot of the dependent variable against each of the independent variables showed a linear relationship between these perspective variables.

### FINDINGS OF THIS STUDY

The matrix correlation presented in Table 1 shows moderate correlations among SHRM practices. Self-managed teams and decentralization is marginally correlated with selective hiring ( $R = .18$ ;  $P < .10$ ). Comparatively high compensation contingent on the company's performance is marginally correlated with employment security ( $R = .15$ ;  $P < .10$ ) and moderately correlated with self-managed teams and decentralization ( $R = .22$ ;  $P < .05$ ). Extensive training and development programs are significantly correlated with selective hiring ( $R = .28$ ;  $P < .01$ ) and moderately correlated with comparatively high compensation contingent on the company's performance ( $R = .21$ ;  $P < .05$ ), but marginally with Self-managed teams and decentralization ( $R = .14$ ;  $P < .10$ ). Reduction of status differences is marginally correlated with selective hiring ( $R = .18$ ;  $P < .10$ ). While sharing information is marginally correlated with self-managed teams and decentralization ( $R = .14$ ;  $P < .10$ ), it is moderately correlated with extensive training and development programs ( $R = .19$ ;  $P < .05$ ). However, these correlations indicate that the seven SHRM practices that treat human resources as the most valuable asset in the company are not completely independent. These correlations are expected because the items measuring and the firm's SHRM practices are interrelated. However, such moderate correlations should not be considered a serious problem in previous research (Delery & Doty, 1996; Hagen, Hagen, Hassan & Maghrabi, 2002).

Labor productivity is correlated with five SHRM practices. It is correlated with employment security ( $R = .19$ ,  $P < .05$ ), selective hiring ( $R = .22$ ;  $P < .05$ ), self-managed teams and decentralization ( $R = .20$ ;  $P < .05$ ), comparatively high compensation contingent on the company's performance ( $R = .24$ ;  $P < .05$ ), and extensive training and development programs ( $R = .27$ ;  $P < .01$ ). On the other hand, labor productivity has not a significant correlation with reduction of status differences ( $R = .09$ ;  $P > .10$ ), but it has a marginal correlation with sharing information ( $R = .15$ ;  $P < .10$ ). This notion refers to a potential relationship between the suggested SHRM practices the company's labor productivity.

With respect to control variables, the company's size has marginal correlation with extensive training and development programs ( $R = .14$ ;  $P < .10$ ) and slightly less than a moderate correlation with labor productivity ( $R = .17$ ;  $P < .10$ ). Sales growth has marginal correlations with employment security ( $R = .16$ ;  $P < .10$ ), selective hiring ( $R = .18$ ;  $P < .10$ ), self-managed teams and decentralization ( $R = .14$ ;  $P < .10$ ), but it has a moderate correlation with extensive training and development programs ( $R = .19$ ;  $P < .05$ ). This SHRM practice has slightly high correlations with comparatively high compensation contingent on the company's performance ( $R = .25$ ;  $P < .01$ ) and

labor productivity  $R = .34$ ;  $P < .01$ ). The relative capital intensity is not correlated with any of the seven SHRM practices or any of the control variables.

SHRM Practices and Control Variables	1	2	3	4	5	6	7	8	9	10	11
1. Employment security	1.0										
2. Selective hiring	.12	1.0									
3. Self-management teams & decentralization	.04	.18	1.0								
4. Comparatively high compensation contingent on company's performance	.15	.12	.22	1.0							
5. Extensive training programs and development	.11	.28	.14	.21	1.0						
6. Reduction of status differences	.08	.18	.11	.06	.09	1.0					
7. Sharing information	.08	.09	.14	.08	.19	.12	1.0				
8. Labor productivity	.19	.22	.20	.24	.27	.09	.12	1.0			
9. Size	.09	.07	.10	.12	.14	.06	.07	.17	1.0		
10. Sales growth	.16	.18	.14	.25	.19	.10	.10	.34	.09	1.0	
11. Relative capital intensity	.10	.09	.07	.05	.11	.07	.03	-.06	.15	.14	1.0

Correlations greater than .14 and less than .18 are significant at  $P < .10$ ; correlations greater than .18 and less than .24 are significant at  $P < .05$ ; correlations greater than .24 are significant at .01; all two-tailed tests.

Data analysis in Table 2 reveals five positive and significant relationships between the first five SHRM practices and labor productivity. It also shows a positive and marginal relationship between the seventh SHRM practice and labor productivity. Finally, data analysis shows a positive and insignificant relationship between the sixth SHRM practice and labor productivity. There is a positive and significant relationship between "employment security" and the firm's labor productivity ( $P < .05$ ). This finding supports the *first hypothesis*, which proposed a significant and positive relationship between employment security and the company's labor productivity. Although the idea of providing employment security in the 21st century seems impossible, this finding reveals that HRMs still believe that employment security is a fundamental element for employees who expect to stay in their organizations as long as they wish. It is also possible that the responding HRMs have reaped the benefits of this SHRM practice. However, job security in most organizations is normally not guaranteed, particularly when organizations face economic problems.

A second positive and significant relationship exists between "selective hiring" and labor productivity. This finding supports the *second hypothesis*, which proposed a significant and positive relationship between selective and the company's labor productivity ( $P < .01$ ). In order to enhance labor productivity, the company is required to focus on hiring the right person for the right job. T

achieve selective hiring, the company must have a large applicant pool from which to select, to be clear about the most critical skills, to match these skills with the required job and market, and to emphasize qualities that really differentiate among those in the applicant pool.

**Table 2: Regression Analysis of Variance for the Seven SHRM Practices and the Company's Labor Productivity**

Independent Variables	Dependent Variable: Firm's Labor Productivity		
	Beta	T-value	P
SHRM Practices			
Employment security	.1783	3.23	.05
Selective hiring	.2824	8.15	.01
Self-managed teams and decentralization	.1869	2.87	.05
Comparatively high compensation contingent on organizational performance	.1547	2.74	.05
Extensive training and development programs	.2763	6.64	.01
Reduction of status differences	.0148	0.86	.56
Sharing information	.1139	1.68	.10
Firm's size	.2243	2.72	.05
Sales growth	.2513	5.31	.01
Relative capital intensity	.0168	.72	.52
R <sup>2</sup> = .48; Adjusted R <sup>2</sup> = .38; F-value 14.79, P < .001			

A third positive and significant relationship can be seen between "self-management teams and decentralization" and labor productivity ( $P < .05$ ). This finding supports *third hypothesis*, which proposed a significant and positive relationship between employment self-managed teams and decentralization and the company's labor productivity. This SHRM practice enhances labor productivity because work teams permit removal of layers of hierarchy, absorbs a portion of administrative tasks previously performed by specialists, and save costs of having people whose sole job is to watch other people do the work. Work teams also permit employees to pool their ideas to come up with better and more creative solutions to problems, allow them help each other, and more freely share their production knowledge.

A fourth positive and significant relationship appears between "comparatively high compensation contingent on the company's performance and labor productivity. This finding supports the supports the *fourth hypothesis*, which proposed a significant and positive relationship between comparatively high compensation contingent on the company's performance and labor productivity. If a company has high labor productivity, it can afford to pay more because high pay reflects the company's financial success. Compensation has a number of different forms such as

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profit sharing, stock ownership, pay for skill, or various forms of individual or team incentives. When employees are owners, they act and think like owners. However, just utilizing ownership approaches without providing training, information sharing, and delegation of responsibility will have a marginal influence on performance. Even if employees are more motivated by their shared ownership, they do not necessarily have the skills, information, or power to do anything with that motivation.

"Extensive training and development programs" also have a positive and significant relationship Extensive training and development programs and its labor productivity ( $P < .05$ ). This finding supports the supports the *fifth hypothesis*, which proposed a significant and positive relationship between comparatively high compensation contingent on the company's performance and labor productivity. If a company wants to increase its labor productivity, such company has to focus on extensive training and development programs because they are a source of competitive advantage and an essential component of high performance work systems in their organization. Such training should be provided for employees in the job every few years or as needed. Thus, organizations should provide funded education, workshops, and conventions to develop required employees' skills.

In contrast, "reduction of status differences among employees" has not a significant relationship with the company's labor productivity. This finding does not support the *sixth hypothesis*, which proposed a significant and positive relationship between "reduction of status differences" and labor productivity. Although this SHRM practice make all employees feel important, but it doesn't have impact on productivity.

Finally, "sharing information" has a positive and marginal relationship with labor productivity. This finding provides a partial support the *seventh hypothesis*, which proposed a significant and positive relationship between "sharing information" and labor productivity. Although sharing of information about financial performance, strategy, and operational measures conveys to the company's employees that they are trusted, yet this SHRM practice has a marginal effect on labor productivity.

## IMPLICATIONS

Observing results from implementing the aforementioned SHRM practices takes time. For example, it takes time to train and upgrade workers' skills and even more time to see the economic benefits of this training in reduced turnover and enhanced performance. It takes time to share operating and financial information with people, and to be sure that they understand and know how to use it. Even more time is needed before suggestions and insights can improve business results.

However, the key to managing people in ways that lead to profits, productivity, innovation, and real organizational learning ultimately lies in the manager's perspective. With the right perspective, anything is possible. With the wrong one, change efforts and new programs become gimmicks, and no number of consultants, seminars, and slogans will help.

## CONCLUSIONS

The economy will continue to be complex, challenging and filled with competitive opportunities and threats. Effective management practices can help firms compete successfully in this globalization era. Suggested management practices are the ways of how organizations should treat employees as their most valuable asset. There should be barriers and potential challenges encounter CEOs of organizations during the implementation of these management practices. To achieve global competitiveness, firms have to adopt the suggested competitive strategies. They must also be prepared to overcome any obstacles that arise during the implementation of these strategies.

## RECOMMENDATIONS FOR FUTURE RESEARCH

Future research should expand this study to include potential barriers to these management practices. Future research should also include employees' perceptions to these SHRM practices. Are there similarities and/or differences in the perceptions of the three groups to these management practices and their impact on labor productivity?

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<b>Appendix A-Confirmatory Factor Analysis (CFA)</b>			
<b>Properties of the Strategic Human Resource Management Practices</b>			
<b>Construct and its Indicator Variables</b>	<b>Factor Loadings</b>	<b>Cronbach alpha</b>	<b>Composite reliability</b>
<b>I. Employee Security</b>		0.7331	0.7463
* Employees in their jobs can expect to stay in our organization as long as they wish.	.7258		
* It is very difficult to dismiss an employee from his or her job from our organization.	.8251		
* Job security in our organization is almost guaranteed to our employees in their jobs.	.6725		
* If our organization faces economic problems, employees would be the last to get cut.	.6625		
<b>2. Selective Hiring</b>		0.8634	0.8835
* Recruitment processes in our firm ensures that we recruit the right people in the first place.			
* Our organization selects its employees from a large applicant pool.	.8473		
* Our organization realizes what are the most critical skills and attributes needed in its applicant pool.	.7942		
* Our organization seeks the skills and abilities, which are consistent with the particular job requirements and our approach to our market.	.8164		
* Our organization emphasizes qualities that are actually differentiated among those in the applicant pool.	.7829		
<b>3. Self-Managed Teams and Decentralization</b>		.7248	.7411
* Our organization attests to the effectiveness of self-management teams as a principle of our organization design.	.7263		
* One of the significant payoffs of teams in our organization is that our teams substitute peer-based control for hierarchical control of work.	.7164		
* Self-management teams in our organization allow our employees to pool their ideas to come up with better and more creative solutions to problems.	.7282		
* Self-management teams in our organization allow the removal of layers of hierarchy and absorption of administrative tasks.	.7425		

<b>Appendix A-Confirmatory Factor Analysis (CFA)</b>			
<b>Properties of the Strategic Human Resource Management Practices</b>			
<b>Construct and its Indicator Variables</b>	<b>Factor Loadings</b>	<b>Cronbach alpha</b>	<b>Composite reliability</b>
* Self-management teams help our organization avoid enormous costs of having an individual whose sole job is to watch other people do the work.	.7581		
<b>4. Comparatively High Compensation Contingent on Organizational Performance</b>		.7126	.7154
* Contingent compensation in our organization takes a form of gain sharing.	.6685		
* Contingent compensation in our organization takes a form of profit sharing.	.6685		
* Contingent compensation in our organization takes a form of stock ownership.	.6685		
* Contingent compensation in our organization takes a form of pay for skill.	.6685		
<b>5. Extensive Training and Development Programs</b>		.8126	.8727
* Extensive training programs are a source of competitive advantage for our organization.			
* Extensive training programs are an essential component of high performance worksystems in our organization.	.8022		
* Extensive training programs are provided for employees in the job in our organization.	.7858		
* Our employees normally go through training programs every few years, or as needed.			
* Our formal training programs to teach new hires the skills they need to perform their jobs.	.7534		
* Our organization provides funded education, workshops, and conventions to develop required employees' skills.	.7281		
<b>6. Reduction of Status Differences</b>		.6833	.7218
* Management systems of our organization attempt to reduce the status distinctions that separate individuals.	.6538		
* Management systems of our organization attempt to reduce the status distinctions that cause some individuals to feel less valued.	.6647		

<b>Appendix A-Confirmatory Factor Analysis (CFA)</b> <b>Properties of the Strategic Human Resource Management Practices</b>			
<b>Construct and its Indicator Variables</b>	<b>Factor Loadings</b>	<b>Cronbach alpha</b>	<b>Composite reliability</b>
<b>7. Sharing Information</b>		.7648	.7743
* Sharing information is a basic and an essential component of high performance work systems in our organization.	.7412		
* Sharing information on financial performance, strategy, and operational measures is practiced in our organization to convey to employees that they are trusted.	.7321		
* Motivated and trained employees cannot contribute to enhancing our organizational performance unless they have information and how and interpret that information on important dimensions of performance.	.6742		

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# THE ROLE OF SITUATION IN THE LEADERSHIP PROCESS: A REVIEW AND APPLICATION

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## ABSTRACT

*Though the dynamic concept of leadership has been under review for many years, its complexity has been soaring with the changing demands of the situation influenced by various variables such as leader's characteristics, followers' attributes, behavior, leader-follower relationship, and others.*

*In simple terms, leadership is an interaction between two or more members of a group that often involves a structuring or restructuring of the situation and the perceptions and expectations of the members. The situation in part defines the leadership process; it influences the leader and interacts with the leader's attempts to influence his or her followers. According to Murphy (1941), situations in which people find themselves create needs, and it is the nature of these needs that defines the type of leadership that best serves the group.*

*Hence, the purpose of this paper is to review the role of situation in the leadership process supported by some of the prominent situational leadership models including the path-goal theory, situational leadership model, and contingency model. Additionally, a critical factor that has a significant influence on the situation is discussed - power as an ability to exercise influence on people and its role in influencing leadership situations.*

*The final section of this research includes analysis of few real business world situations and its subsequent influence on leaders' behaviors, followers' reactions, and leader effectiveness. Interestingly, it was found that leaders adopted different leadership styles variant upon the needs of the concerned situation which affected their leadership effectiveness.*

## INTRODUCTION

Leadership has been a fascinating and elusive concept of research for many years. Scholars and researchers have offered many definitions in the past; however, this organizational behavior is still understood as an emerging principle with more complexity. In 1974 Stogdill concluded that "there are almost as many definitions of leadership as there are persons who have attempted to define the concept" (cited in Shani & Lau, 2000, p.44). In the most basic terms, leadership involves influence, it occurs among people, those people intentionally desire significant changes, and the changes reflect purposes shared by leaders and followers (Daft & Noe, 2001).

## LITERATURE REVIEW

Many past studies have attempted to comprehend leadership from a variety of perspectives, and over the years, it has witnessed transformational changes in its context. Initially, leadership was based on the "Great Person Theory of Leadership," whereby 'great leaders' were born with some personal qualities to lead (Pierce & Newstrom, 2003, p.6).

In the next phase, the focus shifted to identify the personality attributes that endows an individual with the potential to emerge as a successful leader and differ from a non-leader in his or her effectiveness. Hence, with this began the era in which leadership was perceived as a psychological phenomenon. In his 1948 study, Stogdill identified certain personal factors that are associated with leadership such as intelligence, dependability, persistence, self-confidence, adaptability, among many others. Based on the review conducted by Mann (1959), it was observed that there is a "strong relationship between personality and leadership perceptions (who is the leader)" (Pierce & Newstrom, 2003, p.61).

Thereby, the focus turned towards a variety of other themes such as influence of behavior on performance and satisfaction of the followers'. As defined by Bowers & Seashore (1966), leadership is "organizational useful behavior by one member of an organization family toward another member or members of that same organizational family" (Pierce & Newstrom, 2003, p.161). Following which based on several studies, some key broad categories of effective behaviors came into prominence such as consideration (behavior reflecting friendship, warmth, trust), and initiation of structure (behavior defining roles and responsibilities of followers, providing directions, instructions) (Bowers & Seashore, 1966). This was discovered by a study done by Ohio State University in 1945 which basically summarized the two dimensions of behavior into "concern for people" and "concern for task completion" (Shani & Lau, 2000, p. 49).

Another important study done by University of Michigan also came into prominence. The essence of this study was that leaders are production oriented (as they concentrated on planning, scheduling, coordinating) and relationship oriented (showing respect, trust, confidence, understating followers' needs). These two aspects eventually could be related to the Ohio State University study (Shani & Lau, 2000).

### ROLE OF SITUATION IN LEADERSHIP PROCESS

Further to the behavioral approach to understanding the concept of leadership, a new evolution took place in this field, and this was studying the influence of situation in the leadership process. The relevance of situation as an influencing factor on the leadership process was brought to attention by many intellect studies. Contrary to the previous understanding of leadership as a psychological phenomenon, Murphy (1941) described it as sociological in nature. According to him, situation is an influencing variable that defines creates the need of defining what combination

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of traits and behavior is required by the leader to be successful in that particular situation. Hence, he defined as leadership "to be a function of the whole situation and not something that resides in a person" (Pierce & Newstrom, 2003, p.4)

Similarly, Smircich and Gareth presented a view on leaders based on Murphy's theory that leaders are individuals who are capable of interpreting ambiguous situations, passing the same understanding to the followers, and deciding the course of action for achieving the goal. Thus, leadership process came to be characterized as an interplay between leader, follower, and the context or situation (Pierce & Newstrom, 2003), and this process emerges as a result of the actions of both leader and led (Smircich & Morgan, 1982).

Not just this, some more interesting studies have highlighted the importance of situation. Stogdill provided insight to the leadership process as a work relationship between the leader and the follower associated with the attainment of the common objectives. According to him, having personality traits alone is not enough to emerge as a leader. In fact, the patterns of traits possessed must fit in the situation including the characteristics of the followers and goals (Stogdill, 1948). With that view, he suggested that an individual who is a leader in one situation may not be in another.

In light of the relevance of situation in the leadership process, further advancement in this context suggests that there are many factors that influence the leader's effectiveness in a given situation are time urgency, nature of work, degree of autonomy etc. (Pierce & Newstrom, 2003).

## **SITUATIONAL APPROACH TO LEADERSHIP**

Stating the above theories in more simple terms, as conditions change, the leadership needs, combination of traits and behaviors that will prove effective also change. Many scholars and researchers have conducted research in this field and developed leadership theories identifying how situations and associated factors influence the leadership process. The focus of this section of the paper is to describe some of the most prominent theories of the past that attempt to describe what are the various components that contribute to a situation and how these different conditions interact with leadership style to produce what we may call as effective leadership.

### **PATH GOAL THEORY**

Leadership style may be defined "as a pattern of philosophy, beliefs, attitudes, feelings, and assumptions about leadership that affect the individual's behavior" (Shani & Lau, 2000, p. 47). This along with leader's position and appropriate behavior for dealing with followers has a major impact on the leadership style. While leadership style has an impact on teams, to get the best result, there is no one single leadership style to rely on (Goleman, 2000).

The path-goal leadership model was developed by Robert J. House in 1971 and later revised by Robert House and Terence R. Mitchell in 1974. The foundation of the path-goal theory is the

expectancy motivation theory which states that "an individual's attitudes or behavior can be predicted from the extent to which the job or behavior is seen as leading to various outcomes and the evaluation of these outcomes" (House & Mitchell, 2003, p. 195).

### **Early Theories**

The initial theory of 1971 asserted that "the motivational function of the leader consists of increasing personal payoffs to subordinates for work-goal attainment and making the path to these payoffs easier to travel by clarifying it, reducing roadblocks and pitfalls, and increasing the opportunities for personal satisfaction en route" (House, 1997). The 1974 version of path-goal theory led to the development of a complex theory that involved four specific leader behaviors (directive, supportive, participative and achievement-oriented) and three follower attitudes (job satisfaction, acceptance of leader and expectations about rewards linked to effort and performance). A directive leader provides followers with directions and instructions when the task is unstructured and complex and this contributes to increasing employee motivation and satisfaction. A supportive leader shows consideration towards followers and treats them as equals when the task is unambiguous, stressful or boring and hence removes the blocks to employee satisfaction. A participative leader helps followers by clarifying the task, consults the followers and considers their suggestions and opinions before making a decision. Finally, an achievement oriented leader sets challenging goals for followers and expects them to perform at their highest levels thereby increasing their self-confidence and satisfaction (Nahavandi, 2000).

The two propositions advanced in this updated theory are: (1) leader behavior is effective and acceptable by subordinates to the extent that they perceive such a behavior as a source of immediate satisfaction or important in leading to future satisfaction and (2) leader behavior is motivational to the extent that it makes satisfaction of subordinates' needs contingent on effective performance and such behavior complements the environment of subordinates by providing coaching, guidance, support and rewards necessary for effective performance. Two contingency variables that are considered in the theory are: personal characteristics of subordinates and environmental pressures and demands. The two personal characteristics that are discussed include subordinates perception of their ability and their locus of control. Environmental factors include the tasks, the formal authority system of the organization and the work group (Gibson, Ivancevich, Donnelly & Konopaske, 2003).

### **Critique of the Theory**

Although there have been several supportive research studies (Schriesheim and Kerr 1974), the empirical support for path-goal theory has been mixed (Downey, Sheridan and Slocum 1975; Szilagyi and Sims 1974). Recent reviews (eg. Evans 1996, Podsakoff et al. 1995; Wofford and

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Liska 1993) have also found inconsistent support for the theory. A study by Johns in 1978 showed that consideration leads to higher employee satisfaction regardless of the task. Contrary to the path-goal theory, a study by Bass et al. in 1975 showed that leaders used structuring behavior in structured situations successfully (Nahavandi, 2000). An early study that tested the two propositions of the path-goal theory was by Greene in 1979. His study was generally supportive of the path-goal theory with two exceptions: (1) the insignificant results concerning the relationship between supportive leader behavior and role clarity and (2) strong indications that subordinate performance caused variance in leader behavior, almost regardless of the task structure.

### **Revision of the Path Goal Theory**

The highlighted shortfalls of the path-goal theory were that firstly it was not adequately tested and secondly, the boundary conditions of the theory were not adequately specified. In 1996, Robert House presented a reformulated path-goal theory. The reformulated theory is a theory of work unit leadership. "It specifies leader behaviors that increase subordinate empowerment and satisfaction and work unit and subordinate effectiveness. It also addresses the effects of leaders on the motivation and abilities of immediate subordinates and the effects of leaders on work unit performance.

This theory includes 8 classes of leader behavior, individual differences of subordinates, and contingency moderator variables which are related to each other in 26 propositions. The revised leader behaviors include path-goal clarifying, achievement-oriented, work facilitation, supportive, interaction facilitation, group-oriented decision process, representation and networking, value based and finally, shared leadership behavior.

## **SITUATIONAL LEADERSHIP**

### **Past theory**

The 'Situational Leadership' model developed by Hersey and Blanchard developed in 1969 has wide application even in today's business environment. This model owes its origins to the Ohio State studies and uses concepts similar to initiating structure (task behavior) and consideration (relationship behavior) (Shani & Lau, 2000).

Situational leadership theory (SLT) asserts that there is no one best style of leadership or way to influence people. The leader needs to respond to the situation with appropriate task and relationship behavior based on followers' readiness and this (defined as ability and willingness) interaction determines the leader's effectiveness (Hersey, 1988). In other words, as the level of followers' readiness changes, the amount of leader task and relation behavior should also change

to match that level. According to Blank, this in turn will determine the leader's effectiveness on followers' satisfaction and performance" (Cairns, Hollenback, Preziosi, & Snow, 1998).

Hersey identified four main leadership styles which are high task and low relationship (telling), high task and high relationship (selling), low task and high relationship (participating), and low task and low relationship (delegating). The basic concept behind this model is that as the level of follower readiness increases, effective leader behavior will involve less structure and less relationship support.

### **Revision of Situational Leadership**

Since its inception in 1969, the model went through a number of changes which changes which Blanchard, Zigarmi, and Nelson (1993) refer to as "revisions that have since improved the model" (cited in Claude, 1997). Eventually, Blanchard and his colleagues revised the old theory and developed 'Situational leadership II' in 1985. Some of the changes noticed were that the maturity level of followers was renamed as "development level," and "the two components of maturity / development were renamed as commitment and competence in place of the original labels of willingness and ability" (Claude, 1997). Another interesting difference was in the labeling of the four quadrants of leadership style. The old styles of telling, selling, participating, and delegating were relabeled as directing, coaching, supporting and delegating.

Moreover, the two behaviors which were earlier defined as task behavior and relationship behavior were now known as directive and supportive. Although the changes in this model were made to improve the concept, Claude argued that "Hersey and Blanchard made the theoretical explanation for the relationships among key variables in the model more ambiguous" (Claude, 1997).

Critiquing the theory, Claude further suggested that "while Blanchard and his coauthors offered no explanation for renaming the variable in the model, Randolph and Blackburn (1989) indicate that the changes in the terms depicting categories of leader behavior (directive and supportive) and the four leadership styles (directing, coaching, supporting, and delegating) reflect the choice of expressions that are, as they say, 'less evaluative.' Randolph and Blackburn seem to be speculating that Blanchard and his associates have opted for more emotionally neutral, descriptive terms" (Claude, 1997).

### **Critique of Situational Leadership**

This model was originally conceived in 1966 and since then several studies have been done to find support for it. Hence, it is imperative to consider its applicability in today's business environment as well. Based on a study conducted by Cairns, Hollenback, Preziosi, & Snow in 1998 among 151 executives within service and manufacturing businesses of large Fortune 100 company,

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the results showed very little support for the SLT. However, the study produced only moderate support for the SLT variables recommending further research in the area., SLT supported that at lower levels of followers' readiness, leader directed behavior had a positive influence on employee satisfaction and performance. The findings of the Cairns, Hollenback, Preziosi, & Snow suggested moderate support for this.

Moreover, SLT observed that at higher follower readiness, the leadership is more follower directed as they have the capacity to perform the functions required resulting in higher satisfaction and performance. This received no support from the 1998 study which stated that SLT "appears to be unable to predict for high-maturity employee" and suggested that "leadership still matters for individuals at this high degree of follower readiness" (cited in Cairns, Hollenback, Preziosi, & Snow, 1998, p. 114).

Yet another study conducted in 2004 provided support to Cairns, Hollenback, Preziosi, & Snow study of 1998. The results of this research by Chen and Silverthorne also didn't support SLT predictions, thereby suggesting that the job performance is not impacted by the degree of match between leadership style and followers' readiness. However, it partially supported SLT that the higher the leader's leadership score, the more effective is the leader's influence, but this didn't predict job performance. In other words, whether the leadership style and employee readiness matched or not, it had no impact on employee satisfaction and job performance. However, the higher the leader's leadership score, the higher the employee willingness to perform a task and higher the satisfaction. Also, higher the willingness, the higher was the job satisfaction and performance (Chen and Silverthorne, 2004).

Additionally, some other researches such as by Hambleton and Gumpert (1982) highly supported the SLT, and Vechio (1987) have been supportive of the SLT to the extent that the theory holds only for certain types of task structures. Hence, the response to SLT has been quite mixed (Chen and Silverthorne, 2004).

## **CONTINGENCY MODEL**

Another theory supporting the notion that a leader effective in one situation may not be in another is the contingency model developed by Fiedler. This model holds that the effectiveness of group performance is contingent upon two factors - the leader's motivational pattern and the degree to which the situation gives a leader power and influence (Fiedler, 1972).

According to this theory, motivational pattern is defined as if a person is more task motivated (driving satisfaction from task accomplishment) or relationship motivated (seeking satisfaction in the support and admiration of co-workers) measured on a 'least-preferred co-worker' scale (Miller, Butler, & Cosentino, 2003). A high score on this scale indicates the person is more relationship oriented and low score refers to more task orientation.

The second aspect of the contingency model refers to the situation favorability which determines the degree to which situation allows the leader to have power, and this situational control has three components namely, leader-member relation, task structure, and leader power. Hence, to summarize this theory, task oriented leaders perform more effectively in very favorable or very unfavorable situations reserving moderately favorable situations for relationship oriented leaders (Fiedler, 1972). The contingency model assumes that it is easier to change work situations than to change the leader's behavior and personality characteristics (Shani & Lau, 2000).

### **Extension of the Contingency Model**

Interestingly, based on this study, Miller, Butler, & Cosentino (2003) extended the contingency model to the prediction of follower effectiveness - the degree to which knowledge of followers' motivational patterns and situational favorability could be used to predict follower effectiveness. Since the sample used consisted of junior personnel serving in US Army, none of the participants had leadership position, and that is why Fiedler's position power in this study has been replaced with years of experience as a measure of their ability to influence the leader.

Also, since the sample included personnel in a battalion, task structure for them was relatively high. Therefore, based on the results of this model, it was predicted that relations-oriented subordinates performed better than task-oriented subordinates in moderately favorable situations. Consistent with Fiedler's model, this extension model also found that in highly unfavorable conditions, task-oriented subordinates performed better (Miller, Butler, & Cosentino, 2003).

However, the one exception was that in highly favorable situations, contrary to the findings with regards to leader, relationship oriented followers performed better. The plausible reason attributed to this by the researchers was that in simple routine tasks, the task-oriented followers may find very less scope to perform well. With respect to this, it was argued that relation-oriented followers may be more inclined to maintain good relationships with co-workers (Miller, Butler, & Cosentino, 2003).

Hence, the research supported the notion that leadership style should be adjusted to match the employees' orientation. In other words, by matching followers' characteristics with the situation and modifying leadership style accordingly will enhance the followers' effectiveness (Miller, Butler, & Cosentino, 2003).

### **SITUATIONAL POWER**

Power can be defined as the ability of one individual, function, or division, to influence another individual, function or division to do something that it would not otherwise have done (Dahl, 1957). Power can be differentiated from authority and authority is a subset of power. Authority is the formal power that a person has because of the position in the organization (Gibson,

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Ivancevich, Donnelly & Konopaske, 2003). In 1968, French and Raven proposed five sources of interpersonal power. These included: (1) legitimate power that is a person's ability to influence because of position), (2) reward power is derived from a person's ability to reward compliance. It is often used to back up the use of legitimate power, (3) coercive power is the power to punish, (4) expert power is the power to influence others based on special expertise and, (5) referent power is power based charisma due to personality, style or behavior.

In 1975, McClelland proposed that concept of 'need for power'. He defined this "as the desire to have an impact on others" (cited in Gibson, Ivancevich, Donnelly & Konopaske, 2003, p. 280). This action is shown in three ways: (1) by strong action, by giving help or advice, by controlling someone, (2) by actions that produce emotions in others, and (3) by concerns for reputation. Power is prescribed by the structure of organizations. Organizational structure creates formal power and authority by specifying certain individuals to perform specific jobs and make certain decisions. Power is shared in organizations as no one controls all the desired activities in the organization. As power derives from activities rather than individuals, an individual's power is never absolute and derives from the context of the situation. The amount of power a person holds at a certain time depends on what activities are desired and considered critical for the organization (Salancik & Pfeffer, 2003, p. 129).

The concept of strategic contingencies suggests that individuals, teams or departments gain power based on their ability to address issues that are instrumental to reaching organizational goals. The four strategic contingencies that form the basis of organizational power for individuals or teams are: (1) the ability to help others cope with uncertainty, (2) the centrality of the individual or team to the production or delivery service, (3) the extent to which an individual's or team's expertise is needed by others and (4) the extent to which the tasks performed are unique and non-replaceable in the organization (Nahavandi, 2000).

### **SITUATIONS FACED BY LEADERS**

Moving from the time the above discussed leadership models were developed, the world is now changing. "Old ways of doing things are being replaced, improved...the way we make things is being revolutionized. The world is changing and leadership is no exception" (White, Hodgson & Crainer, 1996, p.1). As Warren Bennis said that in view of the constantly changing environment and challenges facing business leaders, the key to making right choice lies in embodying the leadership qualities necessary to succeed in a global economy. Continuing on his opinion, Bennis stated that "to survive in the 21st century, we'll need a new generation of leaders, not managers" (Shelton, 1997).

Some of the major driving forces of change are realized to be globalization, consequences of increased competition, complexity of changes, and decrease in hierarchical organization structure (Shelton, 1997). In a climate of such fierce changes, leadership is perhaps an imperative for the

future. As Peter Drucker stated that there is no substitute for leadership and defined leadership simply as "getting things accomplished by acting through others" (Shelton, 1997, p.41).

According to Nahavandi (2000), although employees respond to the same basic principles of leadership, they still have different needs. For example, some employees require more structure and direction; whereas, others demand autonomy. He further suggested that in today's dynamic business world, leaders must remain flexible and open to new experiences. "Leaders in the twenty-first century must be willing to experiment, push the limits of their assumptions, and consider the inconceivable" (Nahavandi, 2000, p.237).

In fact, leaders with the best results do not on only one style of leadership; different styles are used depending on the situation and they exquisitely sensitive to the impact imposed on others. Hence, results will payoff by using the right style at the right time and in the right measure (Goleman, 2000). Keeping in mind the above perspective that the current business world is prone to challenge of re-defining themselves to continue to provide the direction, guidance, and nurturing that all followers need (Nahavandi, 2000), this section of the report attempts to present the situational adaptability by some of the business leaders and their approach to be effective in the challenges faced.

### **Richard Nicolosi at Procter & Gamble**

Richard Nicolosi became the associate general manager of Procter & Gamble's paper product division in 1984 when the division's market position had become very weak compared to its standing in the mid 1970s. New competitive pressures had hurt P&G's position badly and it was estimated that the company' market share of disposable diapers fell from 75% in the mid 1970s to 52% in 1984. He found the organization to be bureaucratic and centralized in addition to being preoccupied with internal functional goals and projects. All available customer related information was quantitative in nature and the focus was on cost savings and volume and market share expansion.

In his research, Ellloy (2004) hypothesized that groups where procedures, control, and formality are emphasized, the opportunities available to employees for demonstrating competence was limited leading to low levels of organization based self-esteem. Contrary to this, he further added, with opportunities to show experience, and exercise self-control and self-direction, individuals derived higher self-esteem.

Based on the situation, the first thing that Nicolosi stressed on was the need for the division to become more creative and market driven rather than just a low cost producer. The new strategy that Nicolosi developed was more focused on using groups to manage the division and its products and later he termed his team as the "paper division board" with whom he initially held monthly meetings and then moved on to weekly meetings. This was followed by Nicolosi establishing

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"category teams" and also "new brand business teams". And he only selectively involved himself in more detail in certain activities.

Supported by Nahavandi's (2000) view on the concept of self-managed teams, it states that "self-managed teams are responsible continuous improvement and implementation of their own product...and are encouraged to make their own decision" (p165).

He later went on to describe his vision of an organization where "each of us is a leader". All the above changes brought in by Nicolosi contributed in creating an entrepreneurial environment where a large number of people were motivated and focused on the new vision and many of the innovative ideas came from the employees themselves. This resulted in revenues of the paper products division increasing by 40% over a four year period and profits were up by 68% despite the fact that competition was still on the rise.

This situational adaptability has been explained by Nahavandi (2000) as the role of leader in a team environment where leaders are caretakers of the teams helping the followers in goal achievement by providing them encouragement when needed, and resources. He further defined the role of a leader to keep the team focuses on its specific task, facilitate decision making, and interfere when needed.

This situation saw Nicolosi emerging as a leader who motivated his team not by pushing them in the right direction but by satisfying their basic human needs during a downturn in the organization. He successfully articulated the vision of the organization in a way that stressed the values of the employees, involved them in deciding on ways to achieve the vision and gave them a sense of control (Kotter, 2001).

"In fact, Procter & Gamble once claimed its self-managed teams were one of the company's trade secrets" (Nahavandi, 2000, p.164). The results achieved by Nicolosi's team approach shows consistency with Elloy's research study on leader's influence in a self-managed team. This 2004 study suggested that work teams have been central to the effectiveness of organizations as this contributed to employee quality of work and outcomes such as increased employee satisfaction and motivation (Elloy, 2004).

Therefore, Manz and Sims (2001) noted that in the 21st century, superleadership is an appropriate style of leadership for self-managed teams where the team monitors their own performance and exercise increased levels of autonomy (Elloy, 2004). Following the same theme, J. Oliver Crom said that "today's business slogan should be 'every employee is a leader" (Shelton, 1997, p.131).

### **Rich Teerlink at Harley Davidson**

When Teerlink became the President of Harley Davidson in 1987, the company had just come out of a seven year crisis phase and he was faced with the task of creating an environment when all employees took responsibility for the company's present and future. He understood that

in a company that had a culture of top-down leadership, it would require trust on the part of the employees and discipline on the part of the leader to put behind the traditional expectations in a leader-follower relation and to create a company where decisions were made by all.

Due to the prolonged crisis period in the company, the employees were used to working under conditions of crisis management surrounded by a lot of uncertainty and this contributed to Teerlink facing a lot of resistance (from employees) in trying to create an environment in which the employees would care about the company on a personal level. He faced his initial resistance when he tried to create a joint vision for the company along with a group of 70 union and management leaders for the Wisconsin operations of the company.

While presenting the joint vision to the rest of the employees, he realized that he had behaved like a traditional manager by not involving all the employees in the vision setting process. He faced his second resistance from the senior management at Harley who were not willing to implement the shared vision and late, also part of the union opted out of it. Even though Teerlink was not successful in his initial attempt, throughout his tenure with Harley, he kept striving to change the focus employee motivation and as a long term goal, to make the employees work for the company, rather than for themselves (Teerlink, 2000).

Similar to the situation theory based on the path goal model by House & Mitchell (1974), one of the impacts of subordinate participation was that they selected goals they valued highly and also increase the correspondence between organization and subordinate goals. Further argued by the theory was that when tasks were ambiguous, subordinates had greater need to reduce the ambiguity, which seems parallel to the resistance faced by Teerlink.

Yet another study by Ladd and Marshall (2004) indicated that employee participative decision making decreases role ambiguity and increases knowledge of results which thereby reduces uncertainty and as a resultant provides motivational benefits that improve performance. This research further highlighted that increased participation led to job satisfaction, and job satisfied were more likely to accept organizational goals and put in greater efforts to positively influence outcomes.

Hence, Teerlink saw himself committed to an inclusive leadership style with an aim of transforming the culture at Harley. Even though he was not completely successful at bringing about this change, he did succeed in initiating the change and when he retired in 1999 - he knew that he left behind only a few people who did not have their complete selves and mind involved in work (Teerlink, 2000).

The result achieved by Teerlink seems consistent with Nahavandi's (2000) opinion that by using team to make important decisions, leaders built their commitment to the success of the new operation. Not only this, some researchers claim that employee involvement has motivational effects of increased employee job satisfaction and organizational commitment (Ladd & Marshall, 2004). Therefore, in Teerlink's situation, he faced the challenge of inducing more participative leadership to share ideas, vision, goals, and facilitate decision making.

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### **Leonard D. Schaeffer, at Wellpoint Health Networks**

Schaeffer joined Blue Cross of California as CEO in 1986 when the company operated losses of & 165 million. Under his leadership, the company transformed from a loss making, weak company to a strong publicly held company called Wellpoint Health Networks, one of the largest health insurance organizations in the United States. As the company changed, Schaeffer himself went through three different styles of management and transformed as a CEO (Schaeffer, 2002).

Initially, during the turn-around phase of the company, he adopted a more top-down, autocratic style of leadership. Within 18 months, he laid off nearly half of the company's 6000 employees. Even though it was not easy for him to let go of employees who were not responsible to the company's mismanagement, he realized that the company was almost financially dead and needed a change as soon as possible. He described autocracy as one of the "least enjoyable styles of management" and went further to define an autocratic leader "not as someone who bullies others endlessly but as a managerial equivalent of an emergency room surgeon, forced to do whatever it takes to save a patient's life". This was in line with the Normative Decision Model by Vroom and Jago in 1988 that identified autocratic behaviors as one of the four decision methods available to leaders when the situation did not allow for follower involvement in the decision making process (Nahavandi, 2000).

Once the company was stabilized, Schaeffer shifted his focus from autocratic leadership towards participative leadership. He wanted the company to achieve an industry leader position by participating in, rather than actually making, day-to-day decisions. At WellPoint, he implemented this leadership style by setting four or five clear goals for the company and highlighting the specific strategies for achieving those goals. Each manager was then supposed to take some responsibility for meeting those goals. An example that he used to describe this was that if the goal were "Use innovation and service to increase our value to our customers", each division president would be required to develop innovative products provide novel ways to provide quality service to the company's stakeholders.

The difference according to Schaeffer was that even though implementation of the strategies was a must, there were few restrictions on how managers carried them out. This led to WellPoint managers discovering new business opportunities that the senior management were unaware of. According to Schaeffer, being a participative leader was not easy especially if it were a shift from an autocratic leadership style as it required letting and trusting the employees to make sound business decisions.

Participative leadership behavior was identified as one of the four important leader behaviors in a study by House and Mitchell in 1974. This theory highlighted the fact that participation would lead to greater clarity of the paths to the goals, more autonomy for the employees to carry out tasks and would lead to increased employee motivation (House & Mitchell, 1974).

After WellPoint's ability to live up to its promises to stakeholders became more predictable, Schaeffer shifted his focus towards a reformer style of leadership. He demonstrated this leadership style when he undertook the task of making certain drugs that were sold only through prescription now available over the counter. He believed that doing so would save patients and insurers a great deal of money as the medicines had minimal side effects associated with them and therefore did not require a prescription. As a reformer, Schaeffer spent 30% of his time meeting representatives from the government and the industry and discussing certain policies and health care practices. He did assert that in each phase of his leadership cycle, he had specific goals to focus on and continuously fought for corporate survival and success (Schaeffer, 2002).

Schaeffer followed well the theme "different strokes for the same folks at different points in time" (Pierce & Newstrom, 2003, p. 190). As the situations that he faced changed over time, he varied his leadership behaviors accordingly to be able to fulfill the needs his followers. To support this point further, in 1974, Kerr, Schreisheim, Murphy and Stogdill collected evidence that leader behavior was not always associated with those who behave in a highly considerate and structuring manner. Some of the situational factors that influence leader behavior are time urgency, amount of physical danger, external stress, degree of autonomy, job scope and meaningfulness of work.

### **Chuck Trowbridge and Bob Crandall at Eastman Kodak**

Eastman Kodak entered the copier business in 1970. Even though the company grew business to nearly \$1 billion in revenues in a decade's time, the costs were high and profits were shrinking. In 1984, Kodak had to write off \$40 million in inventory and there were many problems associated with the business. In the same year, a new copy products group was established and Chuck Trowbridge was appointed as general manager of the group.

Soon after joining, Trowbridge met with every key person associated with the copier business including Bob Crandall who headed the engineering and manufacturing organization. Together, their vision for engineering and manufacturing was "to become a world-class manufacturing operation and to create a less bureaucratic and more decentralized organization".

As defined by Daft & Noe, decentralization is believed to reduce the burden of management, and make greater use of employees' skills and abilities. Contrary to the hierarchical structure, employees generally feel a greater sense of involvement and commitment when they have a chance to be involved in decision making (2001).

However, they faced difficulties in conveying this vision to the rest of the organization as it was completely different from previous communication related to Kodak as a whole. In order to align employees towards this new vision, Crandall adopted a variety of approaches. These included: weekly meetings with direct reports, group discussions on new projects and latest improvements, quarterly "State of the Department" meetings where managers met with all employees in their own

departments, monthly meetings with 80 to 100 people from some area of his organization who could discuss anything they wanted and meetings with top management once a week.

Behind all this, Crandall's only goal was to get all of his 1,500 employees involved in at least one of these focused business meetings every year. The most powerful and visible written communication used were charts that were hung in the main hallways and they reported the quality, cost and delivery results of each product measured against difficult targets.

This intensive alignment process showed results within six months of its inception. These continued successes added more credibility to the message and helped in getting more people aligned to the same goal. Between 1984 and 1988, quality on one of the main product lines increased nearly 100-fold, costs decreased by nearly 24% over a three year period and employee productivity measured in units per manufacturing employee more than doubled between 1985 and 1988.

Interdependence is a central feature of modern organizations where most of the employees are tied to one another by their work, technology, management systems and hierarchy. "When an organization heads towards a change, these links represent a challenge because unless most individuals line up and move together in the same direction, people will tend to fall over one another" (Kotter, 2001, p.90). Aligning people is different from organizing and staffing people because aligning involves talking to more people than organizing does. Aligning also leads to empowerment that helps overcome problems associated with adjusting to rapid changes (Kotter, 2001).

The concept of empowerment involves sharing power with employees and its goal is to increase power and autonomy of all employees in the organization (Nahavandi, 2000). Research on the distribution of power (Tannenbaum and Cooke 1974) together with observations of many leaders (Bennis and Nanus 1985; Block 1987) strongly suggests that equal power sharing contributes to an organization's effectiveness. Empowerment of employees is also a powerful motivational tool by providing them with both control and a sense of accomplishment.

## CONCLUSION

By viewing leadership as a relationship between traits, behaviors, and the situations in which they are found, involving the exchange of power and influence, leadership has emerged as a dynamic social process. Although there has been phenomenal amount of diversity even in the definition of leadership, there is agreement that "leadership is a group phenomenon - there are no leaders without followers - and that a leader influences and guides other to achieve goals" (Nahavandi, 2000, p.231). And leadership effectiveness depends not only on internal factors but also on external adaptability.

Although traditionally it was considered that leaders with certain traits like strategic thinking, industry knowledge, and persuasiveness, among many others were more likely to emerge

as leaders, the approach was revolutionized by several subsequent theories. With the changing business external and internal environment, it has become essential for successful leaders to adapt their leadership style to the needs of the situation.

The various prominent theories or models that were conceived in the past have undergone continuous revisions. On one side Hersey and Blanchard Situational Leadership model suggested that leadership style should be matched with the maturity level of the followers; on the other side, Fiedler's Contingency model provided that "leadership style is considered relatively fixed and the solution may be to change leaders or aspects of the work situation" (Shani & Lau, 2000, p.53). Nevertheless, the application of these models was observed even in today's business scenario based on the case analysis; hence, re-emphasizing that different leadership style was contingent on the conditions

In light of the above viewpoints, the leader's behavior depends on the requirements of the situation. Situation may include a number of variables such as followers' attributes, leader-follower relationship, external factors such as time pressure, nature of task and these together effect the leader's effectiveness in a given scenario. There are several approaches to leadership, and in view of the various influencing situational factors probably there is no best way to define when a leader is effective. Hence, effective leadership is a match between the leader and the leader situation.

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## PROCESS LEVEL SCENARIO PLANNING

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### ABSTRACT

*Building on previous work that differentiated between vision and decision-driven scenario planning, this article provides the argument for including a distinction among levels of the organization when considering scenario application. With an aim of describing more effective scenario planning practice, scenarios are described as potential tools for process level interventions and knowledge sharing in processes executed by knowledge intensive teams. Examples are provided that document the utility of scenarios used in this domain, and the implications for managers are explored. Conclusions and further research suggestions are outlined that would provide an agenda for evaluating the use of scenarios at the process level of performance.*

### INTRODUCTION

Scenario planning has traditionally focused on long-term strategic issues. Several companies have had considerable success using scenario planning to explore and investigate plausible future environments. These companies, however, have typically had their successes using scenarios at a macro level. That is, scenario planning has been traditionally thought of as a tool that provides a means for considering multiple futures in relation to social, technological, economic, and political changes. It has been suggested that several cases of scenario planning failure have involved issues and situations in which the core problems were more specific and involved a shorter time frame (Courtney, 2003).

This article explores vision-driven and decision-driven scenarios drawing from Courtney's (2003) work, and expands upon it by introducing the three levels of performance advocated by Rummler and Brache (1995). The argument is made that vision-driven scenarios are most appropriately applied to issues concerning the organization level, and that decision-driven scenarios may find their best use in process level issues and decisions. Scenario planning literature provides only a few examples of process level interventions, thus, the few available case studies are used to support the argument, and a call for further investigation is provided along with research suggestions that may verify or refute the use of scenarios for process level issues and interventions.

## SCENARIOS AND SCENARIO PLANNING

Some definitions and background are offered to clarify the intent and focus of scenario planning interventions. Scenarios and scenario planning have been defined in several ways:

*"A scenario is an internally consistent view of what the future might turn out to be - not a forecast, but one possible future outcome" (Porter, 1985, p. 63).*

*"A scenario is a tool for ordering one's perceptions about alternative future environments in which one's decisions might be played out" (Schwartz, 1991, p. 45).*

*"Scenario planning is that part of strategic planning which relates to the tools and technologies for managing the uncertainties of the future" (Ringland, 1998, p. 83).*

*"Scenario planning is a disciplined methodology for imagining possible futures in which organizational decisions may be played out" (Schoemaker, 1995, p. 13).*

*"Scenario planning is a process of positing several informed, plausible and imagined alternative future environments in which decisions about the future may be played out, for the purpose of changing current thinking, improving decision making, enhancing human and organization learning and improving performance" (Chermack 2005, p. 61).*

The key outputs of scenario planning embedded in Chermack's (2005) definition are plausible alternative stories about the future, dialogue within the organization, learning, altered mental models, better decisions, and improved performance. These outcomes are a synthesis of multiple different definitions of scenario planning. For further discussion, see [Author information removed].

Another important point of clarification is the distinction between scenario planning and scenario building. For the purposes of this article, scenario planning is taken to indicate the overarching process of positing plausible alternative future environments and using these environments for strategy development. Scenario building is taken to mean the process of constructing the stories themselves, as a component of the larger scenario planning process. As this article focuses on two key types of scenarios, the bulk of the content offered relates to the process of scenario building, as it is argued that different types of scenarios should be used for specific situations and circumstances.

### **Vision Driven Scenarios**

Vision driven scenarios are aimed at identifying assumptions at a macro level. This means that considerable time is spent exploring trends and forces in the environment. The STEEP (Social, Technological, Environmental, Economic, and Political) forces are commonly considered as well

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as those items coming from in-depth interviews with executives, managers and other organization members. Courtney (2003) differentiated between vision-driven and decision-driven scenarios, arguing that scenario planning is often used at a macro level in cases where innovative thinking about unpredictable forces is called for. He stated: "Vision-driven scenarios help management teams think 'outside the box' and question their assumptions about the future" (Courtney, 2003, 14).

### **Decision Driven Scenarios**

Vision driven scenarios, however, "are not usually tied to any near-term strategic decisions. Decision-driven scenarios, on the other hand, are used to inform a well-specified strategic choice -- a choice where the 'best' option is unclear due to uncertainty over the impact of that choice" (2003, p. 15). Decision driven scenarios are used to address more specific issues such as new product launches, or choices such as whether or not to build new plants (Courtney, 2003). Courtney (2003) argued that the broad ranging vision drive scenarios are not appropriate tools when facing slightly more near-term decisions, suggesting that using the wrong type of scenarios often leads to failure in the process. These two general forms of scenarios are presented in Table 1 with further elaboration upon the nature of the processes and how the scenarios can be explicitly used.

While the field of futures studies has not developed to a point of having a well-defined lexicon of terms and their precise meanings in the context of futures work, an opportunity presents itself in the presentation of Courtney's (2003) ideas. In the spirit of working toward a more established lexicon of terms, it makes more sense in the context of futures work to substitute the terms "Macro" and "Micro" for the terms "Vision" and "Decision". These adjustments should be noted as a modification to Courtney's work in Table 1.

The reasoning behind this substitution is simple: decisions should be an implication of ANY scenario work, and visioning work can be a part of scenario work no matter the context. For example, the Mont Fleur scenarios, which would be categorized as "vision-driven" by Courtney, inherently involved explicit decisions that had implications for the future of South Africa. Thus, it seems misleading to differentiate scenarios with these terminologies. The terms macro and micro seem to capture the notion that types of scenarios can be formulated along a continuum, rather than to suggest that they are discretely different types.

The basis of Courtney's (2003) differentiation between these two kinds of scenarios is rooted in the failure of some scenario planning projects in which the scope of the project and the problem for which it was intended to provide a potential solution were mismatched. It is therefore clearly important for executives and managers using scenarios to first consider the time frame in which they are working and the nature of the problem that needs to be solved. If executives and managers are dealing with near-term strategic decisions, the scenario planning process should take a different path than those managers seeking a more general view of the future as Courtney has pointed out.

<b>Table 1: Vision-driven vs. decision-driven scenarios</b>		
	Macro scenarios	Micro scenarios
Nature of scenarios	<ul style="list-style-type: none"> <li>• Emphasis on broad, macroeconomic and global drivers of change</li> <li>• Longer term (5-10-20+ years)</li> </ul>	<ul style="list-style-type: none"> <li>• Focused on specific uncertainties that drive decision</li> <li>• Generally shorter term (driven by time necessary to evaluate pay-off decision)</li> </ul>
Nature of the development process	<ul style="list-style-type: none"> <li>• Emphasis on divergent thinking and broad perspectives</li> <li>• Heavy reliance on experts, consultants and facilitators</li> </ul>	<ul style="list-style-type: none"> <li>• Data-driven and analytical when possible</li> <li>• Heavy reliance on internal expertise and industry experts (unless major confidentiality concerns)</li> </ul>
How scenarios are used	<ul style="list-style-type: none"> <li>• Generate new strategic ideas</li> <li>• Develop shared sense of possible futures and need for change</li> <li>• Launch follow-on projects and analyses to further develop implications of the scenarios</li> </ul>	<ul style="list-style-type: none"> <li>• Test options for a specific decision against the range of potential outcomes and develop implications for which option to choose</li> </ul>

(Based on Courtney, 2003).

### Information Stickiness

A further important point can be made in the logical argument for decision-driven scenarios. Organizations are increasingly relying on knowledge intensive processes managed and operated by interdisciplinary teams (Ford & Sterman, 1998). Stickiness refers to the difficulty in information transfer between or among people. Von Hippel (1998) defined "stickiness" as "the incremental expenditure required to transfer that unit of information to a specified locus in a form useable by a given information seeker. When this cost is low, information stickiness is low; when it is high, stickiness is high" (Von Hippel, 1998, p. 629). Discussions of stickiness have included the simple recognition that there is a cost associated with the transfer of information, and second, in differentiating stickiness and friction (Ford & Sterman, 1998). That information becomes "sticky" is important in decision-making because often expertise or knowledge of a specific domain is required for decisions. For example, McKinsey consultants who are on call will fly anywhere in the world to make their expertise available are a result of the fact that knowledge becomes incredibly sticky and an example that the costs associated with transferring the information or knowledge can become quite high.

Stickiness is the core characteristic of specialized, personal, tacit knowledge that inhibits easy transfer (Szulanski, 1996; von Hippel, 1998; 1994). Stickiness refers to the general difficulty

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in transferring tacit knowledge and has been defined as "the incremental expenditure required to transfer that unit of information to a specified locus in a form useable by a given information seeker. When this cost is low, information stickiness is low; when it is high, stickiness is high" (von Hippel, 1998, p. 629).

### **Research on knowledge stickiness.**

In an examination of knowledge stickiness, Szulanski (1996) identified several important characteristics that affect the knowledge transfer process:

- ◆ *Characteristics of knowledge transferred*
- ◆ *Characteristics of the source of knowledge*
- ◆ *Characteristics of the recipient of knowledge*
- ◆ *Characteristics of the context*

Szulanski (1996) then conducted research to test which of these characteristics were most important in inhibiting knowledge transfer. The findings were that "the three most important origins of stickiness are the lack of absorptive capacity of the recipient, causal ambiguity, and an arduous relationship between the source and the recipient" (Szulanski, 1996, p. 36).

### **Lack of absorptive capacity of the recipient.**

Cohen and Levinthal (1990) suggested that recipients might simply lack the ability to absorb new knowledge based on their preexisting knowledge. That is, individuals absorb, assimilate, and apply new knowledge based on their previous experiences and knowledge base.

### **Causal ambiguity.**

Lippman and Rumlet (1982) argued that difficulty in transferring tacit knowledge is likely a result of ambiguity about the elements of the process or task to be understood and how they interact. Additionally, it has been argued that causal ambiguity is a result of a failure to view the process or task from a systems perspective (Sweeney & Sterman, 2000).

### **An arduous relationship between source and recipient.**

Nonaka (1994) suggested that knowledge transfer requires several interactions between the expert and novice and that the success of the exchange of knowledge rests heavily on the nature of the relationship between the source unit and the recipient unit.

### **Addressing the Origins of Stickiness**

Scenarios and scenario planning are posited as tools that can solve these three origins of stickiness by: 1) sharing and reconstructing mental models, leading to increased recipient capacity and 2) utilizing a process that demands close and frequent interaction between the novice and the expert. Each of these will be reviewed in further detail.

#### **Sharing and Reconstructing Mental Models.**

Allee (1997) stated that: "another powerful collaborative learning and knowledge-creation process is scenario building. Scenario building can help companies rethink much more than long-term strategy. It can help a company reframe their identity, their operating assumptions, their values, and their vision for the future" (p. 179). Senge (1994) identified three stages of an effective organizational learning process: 1) mapping mental models, 2) challenging mental models, and 3) improving mental models. Scenario planning has been shown to meet all three of these stages (Georgantzis & Acar, 1995). The planners at Royal Dutch/Shell Oil had several insights as they pioneered the scenario planning technique. After becoming masters at designing technically magnificent scenarios they realized that by focusing on the scenarios themselves, they were overlooking the core purpose of their work -- to alter the mental models of the management teams for whom they were developing plans (Senge, 1994). Thus, it can be argued that scenario projects that fail, often fail because client organizations do not have the mental model that allows them to comprehend uncertainty, or a serious threat to their organization. Therefore a core aim of the scenario planning process is to alter the mental models of managers.

#### **Close and frequent interaction between novice and expert.**

By reducing the cost of information transfer, in theory, decisions can be made more effectively and efficiently. Scenarios and scenario planning seem to address information stickiness by providing a forum for multiple individuals to develop similar expertise about the potentials of the organization. The strategic conversation (van der Heijden, 1997) is one example of how developing a shared mental model, and thus a shared language, can reduce the stickiness of information within the organization. The process of creating a shared mental model facilitates the process of information transfer. A scenario planning project can last anywhere from a one-week workshop to a multi-year process. While this time frame will naturally fall closer to one-week in decision-driven scenario situations, the nature of the process itself requires dialogue and intense interaction among the participants relevant to the decision under examination. By requiring such frequent and intense interaction, scenario planning reduces the cost of information transfer, making information less sticky.

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## LEVELS OF UNCERTAINTY

Courtney (2003) also devised a simple classification system for assessing uncertainty in relation to scenario planning. Level 1 uncertainties are almost irrelevant. That is, these uncertainties are important to consider, but the impact of either potential polar event may not, in fact, drastically affect the outcome of the decision. "McDonald's, for example, generally faces level 1 uncertainty when it makes its US restaurant location decisions... dominant strategy choices can be identified" (Courtney, 2003, p. 16). Level 2 uncertainties occur when multiple futures can be identified, one of which will occur. "For example, investors in the US stock market faces level 2 uncertainty in trying to determine the identity of the next President of the USA throughout the fall of 2000" (Courtney, 2003, p. 16). Level 3 uncertainties introduce a range of possible futures into the equation. In level 3 uncertainty situations, one can identify a range of possible future outcomes, say, for example "consumer demand for new products and services" (Courtney, 2003, p. 19), but can only estimate that the consumer demand increase could be from 5 to 40 percent. Level 4 uncertainties introduce true ambiguity into the decision making dilemma. These uncertainties are "both unknown and unknowable" (Courtney, 2003, p. 20). That is, a range of possible future outcomes cannot be identified for these kinds of uncertainties. Examples of level 4 uncertainties include the events of September 11, 2001. "In the immediate aftermath of the horrific terrorist attacks that occurred on 11 September, even the most prescient security experts could not confidently bound the range of future terrorist activity" (Courtney, 2003, p. 20).

Courtney has neatly divided varying levels of uncertainty into these four levels. Some insightful reviews of this work have suggested that a better term that would more accurately describe varying uncertainty would be the term "degree". Building on Courtney's idea, we suggest that to speak of uncertainty in terms of the degree of uncertainty more accurately captures the nature of the environments in which futurists work, and the scenarios that they build. It is also important to consider that it is possible to have different degrees of uncertainty in different contexts and time scales. For example, one might encounter a short time frame with a uncertainty at the fourth degree (as in a war zone, or natural disaster), and one can encounter long-term decisions with uncertainty at a second or third degree (as in many of the Royal Dutch / Shell examples among many others). These adjustments to Courtney's work are also reflected in Table 2.

These degrees of uncertainty help to frame the appropriate choice of vision or decision driven scenarios. While Courtney (2003) stated that micro (or decision-driven) scenarios could appropriately address any of the four levels of uncertainty, the argument presented in this article suggests that micro scenarios might most effectively be used in situations facing uncertainties at degrees of one or two. Further, macro scenarios might most effectively be used to address uncertainties at degrees three or four.

Degree of Uncertainty	Description	Example Sources of Uncertainty
1	A clear enough future: can define point forecasts that are "close enough" for the decision at hand	<ul style="list-style-type: none"> <li>Returns on "common" investments in mature, stable markets</li> <li>Customer and competitor reactions to strategies that reposition well-established brands</li> </ul>
2	Alternate futures: can define a limited set of possible future outcomes, one of which will occur (scenarios capture a range of alternatives -- argument against forecasts)	<ul style="list-style-type: none"> <li>Potential regulatory, legislative or judicial changes</li> <li>Unpredictable competitor moves</li> <li>All-or-nothing industry standards competition</li> </ul>
3	A range of futures: can define a range of possible future outcomes (scenarios capture a range of alternatives -- argument against forecasts)	<ul style="list-style-type: none"> <li>Demand for new products or services</li> <li>New technology performance and adoption rates</li> <li>Unstable macroeconomic conditions</li> </ul>
4	True ambiguity: cannot even define a range of possible future outcomes	<ul style="list-style-type: none"> <li>The outcomes of major technological, economic or social discontinuities</li> <li>Market evolution in markets that are just beginning to form</li> </ul>

(Based on Courtney, 2003).

Thus, another interpretation of the use of specific forms of scenarios for addressing specific degrees of uncertainties is found in Table 3.

Degree of Uncertainty	Type of Scenario	Rationale
1	Micro	<ul style="list-style-type: none"> <li>If scenarios are used at all, they must be focused, short-term, and must be developed quickly at a low cost.</li> </ul>
2	Micro	<ul style="list-style-type: none"> <li>Significant risk is present, but a precise number of outcomes can be projected. The most effective application of decision-driven scenarios.</li> </ul>
3	Macro / Micro	<ul style="list-style-type: none"> <li>Both scenarios types are appropriate, but outcomes outside of an assumed range must be considered.</li> </ul>
4	Macro	<ul style="list-style-type: none"> <li>Genuine ambiguity is prevalent and scenarios must illuminate an unknown range of possible outcomes. Plausibility is the key to stretching organizational assumptions.</li> </ul>

### **Addressing First Degree Uncertainties**

Addressing first degree uncertainties often may not even require the use of scenarios. Risks are generally very low in level one situations and forecasting is an appropriate approach to considering multiple plausible alternative future outcomes. However, depending upon the issue, micro scenarios may provide useful insight if they can be developed quickly and at a low cost.

### **Addressing Second Degree Uncertainties**

Second degree uncertainties are prime for the use of micro scenarios. These uncertainties are considerable enough to introduce significant risk into the decision-making process, but a limited number of future outcomes can be defined. These situations also allow for a fair determination that one of a small number of outcomes will actually occur. Thus, a set number of possibilities allows planners and decision-makers to know the range in which the actual outcome will fall.

### **Addressing Third Degree Uncertainties**

Third degree uncertainties introduce a greater level of risk. While the range of possibilities can be generally assumed, planners working with level three uncertainties must at least begin thinking about the possibilities of outcomes falling completely outside of the assumed range. Macro and micro scenario types are both appropriate when considering third degree uncertainties because there is usually a more focused issued with which to deal, but the number of potential outcomes is still relatively manageable.

### **Addressing Fourth Degree Uncertainties**

Macro scenario planning is really the only appropriate scenario method for facing degree four uncertainties. These uncertainties introduce genuine ambiguity into the planning equation, and a range of possible future outcomes cannot be defined. Thus, planners are left to the ultimate test of their creative devices -- to provide scenarios that cover the widest range of possibilities, while providing plausibility and a challenge to organization decision-makers and managers. Often there are considerable problems encountered even with the use of scenarios in situations involving fourth degree uncertainty.

### **Summary**

To briefly summarize, micro scenarios seem to be best suited to assess first and second degrees of uncertainties, while macro scenarios seem best suited to address uncertainties at the third

and fourth degrees. A further concern about appropriate scenario use is introduced in the consideration that there are multiple levels within the organization.

### **LEVELS OF PERFORMANCE**

Rummler & Brache provided three levels of performance that must be considered when working to improve performance in organizations. Regarding the link between performance and strategy, Rummler & Brache stated: "The most powerful strategy implementation tools we have found are those that help us effectively design and manage performance at the organization, process and job/performer levels" (1995, p. 84). A clear strategy for evaluating the outcomes of the scenario planning processes is to evaluate changes in performance at these three levels. But these three levels are also useful to categorize varying types of scenarios and assess their uses.

#### **The Organization Level**

Rummler and Brache (1995) defined performance at the organizational level in terms of three core variables, namely, 1) organization goals 2) organization design and 3) organization management. Organization goals frequently include a focus on productivity, cycle time, cost, and profit improvement efforts. Performance focused analysts "design an organization that enables the goals to be met" (Rummler & Brache, 1995, p. 37), thus a focus on the input-output relationships within the organization allow a design that accommodates and supports the organization goals. Goals, performance, resources and interfaces between functions are all areas requiring frequent assessment "help identify what needs to get done (goals), the relationships necessary to get it done (design), and the practices that remove the impediments to getting it done (management) (Rummler & Brache, 1995, p. 43). The organization level of performance provides the foundation for understanding, analyzing and managing performance at the process and individual levels.

#### **The Process Level**

Commonly viewed as how work is accomplished, processes can be more specifically defined as value chains in which each step adds value to the previous step. Based on a view that effective processes produce effective organizations, Rummler & Brache (1995) asserted that process goals, design, and management are the key variables to address for improving process performance. Process goals are considered sub-goals of organization goals, and should be designed to efficiently convert process inputs to process outputs. Managing, analyzing and adjusting processes goals, performance, resources and interfaces ensure the maintenance of high levels of process performance (Rummler & Brache, 1995). Targeted as the level with the greatest

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opportunity to contribute to performance improvement, the process level is largely ignored, and often misunderstood.

### **The Job/Performer Level**

Jobs must be designed to support process steps, enabling the achievement of process goals, and in turn, organization goals. Job goals must be aligned with process goals and jobs must be designed and structured such that the performer can achieve those job goals (Rummler & Brache, 1995). Job management is considered a function of 1) performance specifications 2) task support 3) consequences 4) feedback 5) skills and knowledge and 6) individual capacity. These components of job management, if effectively addressed, help job performers achieve process goals, leading to the fulfillment of organization goals.

Most applications of scenario planning clearly emphasize the organization level. The classic and often cited examples of Royal Dutch / Shell and Daimler-Chrysler are clear examples of scenario planning at the organization level. It could also be argued that these are both examples of scenario planning at the individual level since these reports often center on specific reactions to the scenario planning process and the insights it produces.

## **SCENARIO PLANNING AT THE PROCESS LEVEL**

Relatively unmentioned in the scenario planning literature, the process level has been the target of praise and criticism over the last two decades. From specific consulting strategies like TQM and Six Sigma to the general phase of business process reengineering, the process level has been established as a key area for improving efficiency in organizations. While this level might not immediately come to mind at the mention of scenario planning, there are a few case studies of note that demonstrate the application of scenario planning techniques in process level issues and problems.

A case study by Burt & van der Heijden (in Ringland, 2002) contained as one of its primary aims the reconfiguration of supply chain processes. The case study examined the use of scenarios in the paper industry with a general aim of redefining how the organization perceived its business environment. Three emergent themes included 1) the reconfiguration of the supply chain, 2) the development of electronic media and forms of paperless publication, and 3) the impact of customer empowerment. Ultimately, the participants were "able to connect process insight with existing knowledge to 'stretch' their thinking and understanding. Suddenly, concern about closer working relationships had an underlying rationale. The participants recognized that they had a lack of interface at the point of sale that prevented the development of customer knowledge" (Burt & van der Heijden, in Ringland, 2002, p. 231).

While it is logical that scenario thinking might be used to develop alternative processes and explore more efficient means of delivering products and services, scenarios have rarely been applied in this context. However, some scenario projects such as the IT company International Computers Ltd. (Ringland, 2002) have incorporated systems diagrams to map information markets in process formats, or as in the case of Diamler-Benz Aerospace (Tessum, 1997) systems diagrams were used to map early warning systems as processes of contingency planning.

Another example of scenario diagram use for a process level issue is in the case of Telekurs-Payserv, a Swiss company that carries out Automatic Teller Maching (ATM) PIN verification and recording of transactions for the banking industry in Switzerland. Telekurs-Payserv worked with Janus Global Consulting (2003) to develop a strategic plan based on its payment processing needs. Janus Global Consulting conducted a scenario planning workshop, using the results to map the company's payment process strategy (2003). van der Heijden et al., (2002) suggested that such organizational change is effectively brought about through process change, although "process gain requires persistence and consistency over an extended period" (p. 84).

By considering degrees of uncertainty surrounding its budgeting process, Global Processing Company (GloPro) began the reconstruction of their budgeting process by first exploring possible future surprises after twice missing their budget forecasts (Spetzer & Lall, 2004). A strategy consulting firm led GloPro through the process of scenario planning, focusing on their corporate risk factor. The high degrees of uncertainty surrounding the ability to devise a successful budget plan led to GloPro's information seeking behavior (Spetzer & Lall, 2004). Information seeking can be one of key indicators of appropriateness of implementing scenario planning as a method of reengineering business processes.

World Wide Business Solutions (2003), a firm that has employed scenario planning as a means to draw on past best practices as a way to generate future scenarios, utilizes operational reviews. By developing a practical vision of the future for this a leading food manufacturer and distributor of prepared food with \$635 million in revenue, it was determined that business process reengineering (BPR) was the most advantageous route for its client. Subsequent to creating future scenarios, the consultants launched the BPR strategy by implementing Activity Based Costing (ABC). This activity ascertained which areas of the business were unprofitable and which business processes were under-performing based on the future scenarios. As a result of its engagement in the scenario-driven planning process, World Wide Business Solutions was able to provide feedback to the senior management team of its client on the projected benefits.

Scenario work is clearly expanding to domains beyond business and industry. Scenarios have been used as knowledge management and communication tools in government and education domains as well. For example, Barbanente, Khakee, and Puglisi (2002) detailed a case study of scenarios used in metropolitan Tunis to explore the creative potential and possibilities for the city. This case study involved macro scenarios to explore what might be in the external environment and

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micro scenarios to explore how individual behavior might change in light of the macro scenarios. Scenario use seems to be constantly evolving, thus the utility in exploring and documenting varying ways of using them is increasing.

Some preliminary conceptual arguments for using scenarios in the process context have also included the use of scenarios as cognitive objects in which scenarios are vehicles for process management and knowledge transfer. For example, in an experiment testing consumer preferences, Stanford MBA students were asked to assess the persuasiveness of an advertisement from a California Winery (Martin, 1982). Given a choice among numerical data from the winery's sales division, a policy statement about the winery's strict quality standards and a story about the founder of the winery and his procedures for delivering a quality product, results showed an overwhelming preference for the story precisely because it contained the same, or very similar data in a form that was easy to remember. While the use of stories in this context varies slightly from the use of scenarios in a planning context, some parallels can be drawn. For example, this research demonstrates that an event made more available from memory will be more easily acted upon. In this sense, events made more available from memory through inclusion in a scenario can reduce the time required for managers or individuals to react to signals in the environment. That is, scenarios appear to be one way of transferring large amounts of information in a format that it is easy to recall.

The process level is a key area for further investigation that might use scenarios to explore alternative processes for improved efficiency and storage spaces for descriptions of knowledge work. Research studies that document the effects of scenarios applied to processes would provide much value by potentially providing an additional application area for scenarios and as Rummler and Brache stated "the process level has been the least understood level of performance" (1995, p. 44) and as such, the process level provides the most potential for improving performance.

## **Synthesis**

A model that synthesizes the core argument of this article describes the approach to scenario planning according degree of uncertainty (see Figure 1). This model also suggests a simplistic hierarchy of scenario planning from the individual level to the organizational / global level. This model is intended as a means for integrating the degree of uncertainty, the level of the organization, and a general description of how scenario planning can be described and characterized at each level.

## **CONCLUSIONS AND RECOMMENDATIONS**

The utility of classifying types of scenario planning according to degrees of uncertainty and organization levels is in the ability to help organization leaders choose the appropriate tools for the situations and problems they are facing. Too often, consultants prescribe a specific tool or

intervention in completely different situations (Micklethwait & Wooldrige, 1995). This kind of activity is often the result of a lack of knowledge on the part of the consultant and is characteristic of management fads. Thus, the intent of a classification system is to provide more information to organization decision-makers in a manner that is clear and concise, and does not require those individuals to conduct their own research or read through every detail that has been published regarding scenario planning.

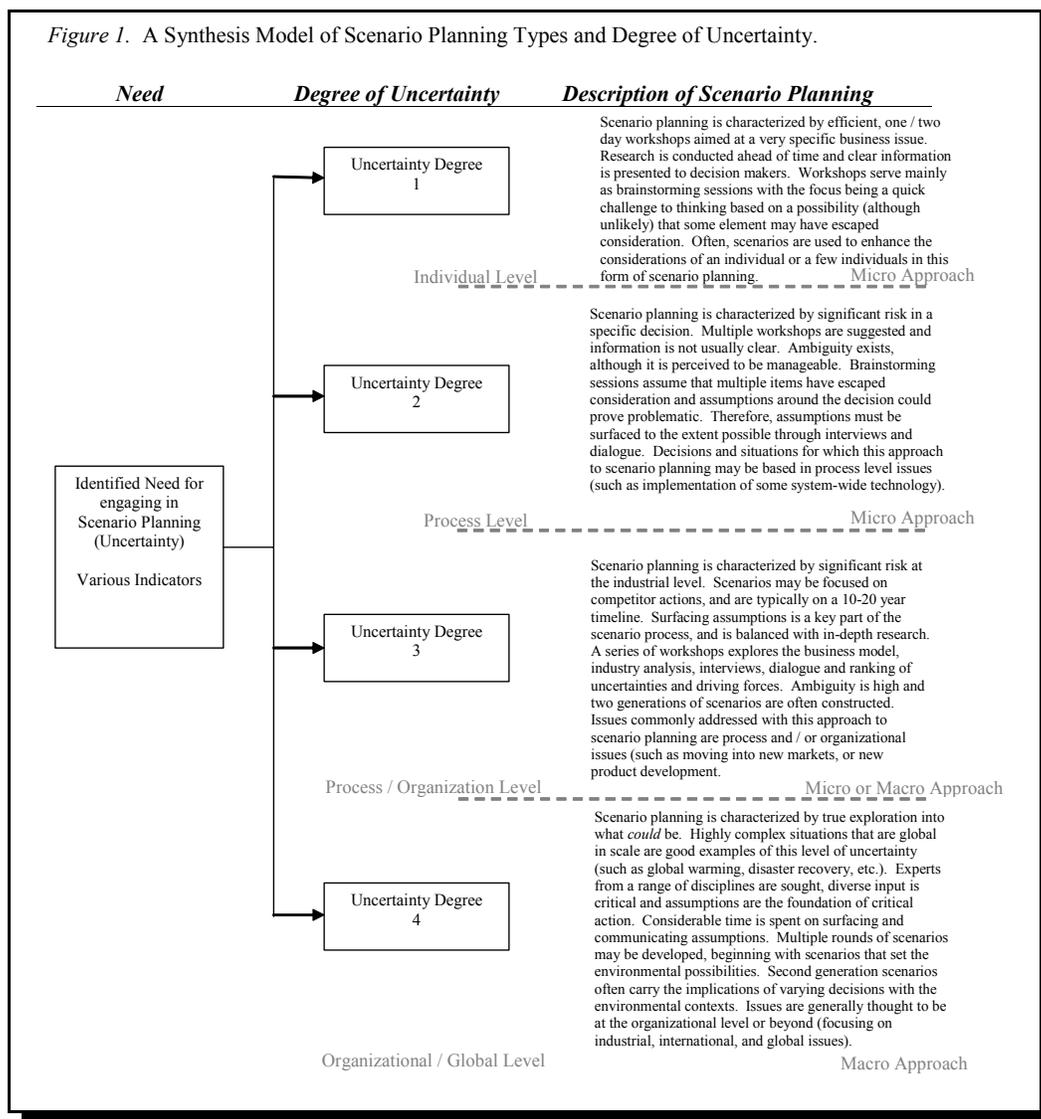
This article offers a means for quickly classifying strategic problems in terms of type of uncertainty and organization level, and then suggests a general approach to scenario planning based on those items. While this article does not prescribe the conditions of organizational readiness to engage in scenario or strategic processes (and this is an area in need of further exploration and documentation), the goal has been to offer a fresh look at varied approaches to scenario planning with an eye on the process level.

From this point, one conclusion is that micro scenarios seem to be an effective means for coping with short-term strategic decisions, although this conclusion is only supported by theory and logic. In order to support this conclusion and move toward establishing the most effective process for using scenarios in this domain, a series of case studies would be an important starting point. It also appears that scenarios may be effective in addressing process level issues. Again, a key limitation is recognized in the logical and theoretical assessment of this connection, rather than one based on empirical investigation and careful study.

The contribution of this article to new knowledge in Management is mainly as a portion of the larger argument that managers should be embracing scenario planning technologies. Scenario planning has been shown to be an effective organization development intervention (Phelps, Chan & Kapsalis, 2001) and it appears that scenario planning may be effective at the other organization levels discussed by Rummler and Brache (1995). It has been suggested that managers might use gained expertise in scenario planning to leverage itself into strategic conversations of organizations (Provo, Ruona, Lynham, & Miller, 1998). Further, the documented neglect of sound research and thus cumulative knowledge about the function of the scenario planning process provides a clear research agenda with practical benefits.

Management has long claimed to work at the three levels of performance advocated by Rummler and Brache (1995). More tools at the process level (which has been described as the least well understood and that with the greatest potential for benefit) would hopefully increase the options for the management professional, however, a theoretical, and then empirical understanding are first required. This article has provided the basis on which further investigations, empirical or case study, might be conducted to further assess the utility of this application domain.

Figure 1. A Synthesis Model of Scenario Planning Types and Degree of Uncertainty.



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