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The North American Management Society (NAMS) invites and encourages **faculty, students, and practitioners** interested in **all fields of management** to submit Full Length Papers, Works or Research-in-Progress papers, Abstracts of Works, Case Studies, Panels and Symposia, and Practitioner and Student Forum works for review for possible presentation and publication at the March 23 to 25, 2011, meeting in Chicago, held in conjunction with the 47th Annual Meeting of the MBAA International. **The deadline for submissions is Friday, October 22, 2010.** Please see the CALL FOR PAPERS and the AWARDS information on the NAMS' website <http://nams.baker.edu>.

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An Investigation of the Innovation and Integration Capacity of U.S. Health Care Organizations*

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Abstract: Innovation in the U.S. healthcare system is often fragmented with various parts of the system producing unintended consequences for the system as a whole. Many U.S. health care organizations build strategies and innovate by focusing on the competition versus the needs of the customer, resulting in products or services that lack an improvement in cost, quality, or access. With changes and reforms expected and required in the U.S. health care system, health care organizations must be prepared to evolve or become obsolete. This study provides an assessment of how and to what degree health care organizations innovate and integrate to produce change in the U.S. health care system. Data were collected from more than 200 individual respondents representing 124 different health care related organizations through a mixed methods research, quantitative and qualitative. Results depicted significant relationships among the innovation and integration factors. Significant relationships also emerged among the innovation and innovation factors and the type of organizations assessed. Based on the synthesis of evidence and data from the research, a conceptual model for innovative and integrative change is defined. The findings and discussion provide guidance for C-Level Executives, Vice Presidents, Directors, and Managers of Product Strategy, Product Development, Marketing and Innovation functions and other health care organizations/service providers who are involved with the construction, implementation, and monitoring of health care.

INTRODUCTION

“Value results from a total effort rather than from one isolated step in the process.”
Toffler & Toffler, Creating a New Civilization

The health care industry in the United States is experiencing turbulent changes in an attempt to improve quality, increase access, and curb rising costs. As an interconnected, interdependent, dynamically interactive system, achieving customer value and superior results requires an approach that manages and integrates processes and components across the system. The U.S. health care system has many stakeholders, including the professional communities that provide services, consumers and their representatives, political leaders and regulatory bodies, product development and service delivery organizations, and a variety of funding sources that underwrite the cost of services, all of whom must coalesce for long-term, sustained system change to occur. Health care has undergone many changes; however, the challenges remain relatively constant with a focus on increasing value for larger numbers of consumers. There is not, and will not be one grand solution, yet each system component can contribute to the total effort to achieve greater value.

The current system often requires trade-offs among quality, access, and cost. A continued health care strategy that maintains high costs, uneven quality, frequent errors, and limited access to care is not sustainable. As Teisberg noted, “The most powerful innovation in the coming decade will be structural and organizational—new ways of working, new team approaches to delivering the full cycle of care” (Kielstra, 2009). Redefinition of the health care system must include a shift from the traditional delivery model that provides standardized diagnoses and treatments and a broad line of services to a model

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focused on the health outcome across the full care cycle or life event. This new business model must focus on customer needs versus products, and outcomes versus outputs. A move from transactional or incremental change and innovation to transformational will be required to effectively implement plans that drive sustained and significant increases in enterprise value. In health care, this value is measured as the health outcome per dollar of cost expended (Porter & Teisberg, 2006, pp. 4 – 5).

With such a large and complex system functioning at many levels, change and innovation are challenging at best. In the current health care environment, organizations and individual providers are focused on capturing additional revenue and profits, shifting costs, and even restricting services. Health care organizations often build strategies and innovate by focusing on the competition, which typically results in only incremental innovations. Additionally, innovations are focused on the design and launch of new products versus the needs of the customer. These new products or services often lack an improvement across the total system, sacrificing cost, quality, access, or all of the above. With changes and reforms expected and even required in the U.S. health care system, health care organizations must be prepared to evolve or become obsolete. The industry must become a system of increasing value and integration that subsequently improves quality and outcomes.

This study assessed how and to what degree health care organizations innovate and integrate to produce change in the U.S. health care system. The issue of most relevance for this study is the structure of the health care delivery system and how each system level and the players within each level interact and collaborate to deliver value to the most important customer in the value chain: the health care consumer and patient. Underpinning the issues within the health care delivery system is the seeming lack of innovation and integration activities to improve the overall quality of care, reduce costs, and improve access. The lack of integration of medical care delivery in the current health care system is most concerning, particularly for chronic diseases and disabilities that account for 80 percent of health care costs (Herzlinger, 2007, p. 7). Both the lack of innovation and integration has been attributed to the lack of choice at the consumer level, which perpetuates a void in competition within the industry (Herzlinger, 2007; Porter & Teisberg, 2006).

This study will expand research into the innovative and integrative capacities of health care organizations. The views of health care professionals influence the actions that are taken within health care organizations relative to innovation and integration strategies and initiatives. Innovation and integration requires the blending of many different factors within an organization and across the industry. Gathering the perspectives of these influencers will expand the literature on the capacity of health care organizations to innovate and integrate and affect to the systemic change needed.

The primary beneficiaries of this applied research study are health plans and other health care organizations and service providers. C-Level Executives, Vice Presidents, Directors, and Managers of Product Strategy, Product Development, Product Management, Marketing, and other Innovation functions from health care organizations will benefit by gaining a deeper understanding of the state of readiness of key organizations within the health care system to respond and even drive change and health care reforms.

Theoretical Framework

Innovation and integration have been studied in many industries, uncovering the specific challenges about how to innovate (Barczak et al., 2009; Li & Atuahene-Gima, 2001; Tushman & Anderson, 2004a) and manage linkages at all levels within a complex system (Cash, Earl, & Morison, 2008; Tushman & Smith, 2002/2004). Other research has determined and evaluated characteristics required for organizations to be successful innovators (Amidon, 1997; Christensen, 2000; Gatignon, Tushman, Smith, & Anderson, 2002; Paladino, 2008), including value innovators (Aiman-Smith, Goodrich, Roberts, &

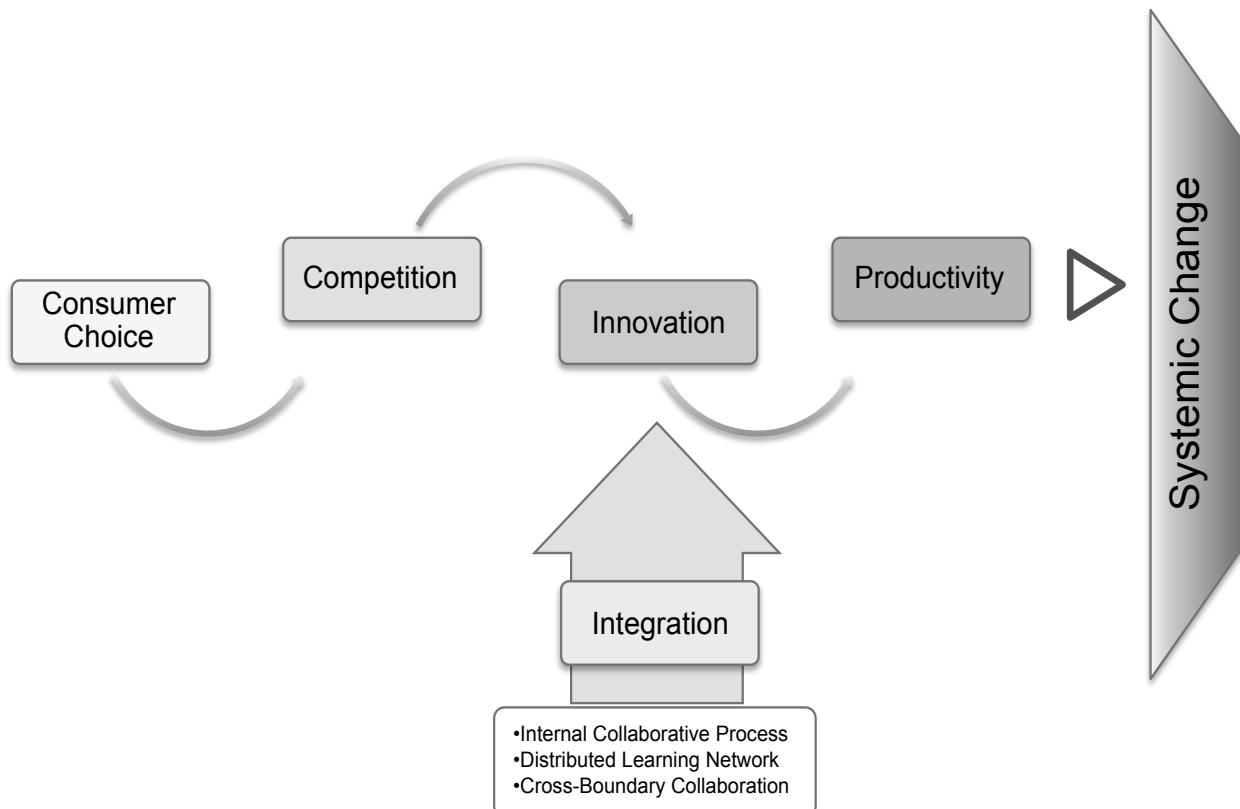
Scinta, 2005; Dillon, Lee, & Matheson, 2005). Extensive research has been conducted in change management theory and models (Cawsey & Deszca, 2007).

Similarly, much has been researched and written over the past ten years on the \$2 trillion U.S. health care system, its ailments and possible solutions for change (Christensen, Bohmer, and Kenagy, 2000; Institute of Medicine, 2001; Herzlinger, 2007; Porter and Teisberg, 2006; Kotler, Shalowitz, and Stevens, 2008). Through these efforts, it has been established that the health care system is at a critical state and change is eminent. There is a clear lack of competition, choice, innovation, and integration. Porter and Teisberg (2006) note that competition exists, but at the wrong levels and on the wrong things, creating a situation in which the gains of one system participant are at the expense of another, or zero-sum competition.

The aim of this study is to leverage prior research and the resulting theories to advance scientific management theory and contribute to the knowledge of the health care industry in a fundamental way. Identifying and understanding the integration determinants that drive innovation is the first step towards achieving system-wide integration, innovation, and change that expands choice, and improves quality and access at the consumer level. Once an understanding of these determinants is obtained, relationships between integration and innovation can be leveraged to drive change.

Figure 1 presents the theoretical framework for the study adapted from Herzlinger (2007). The model advocates that consumer choice facilitates competition, competition facilitates innovation, and innovation drives productivity and ultimately systemic change. The added components of integration can assist with systemic innovation through internal collaborative processes, distributed learning networks, and cross-boundary collaboration and the underlying activities associated with each (Amidon, 1997; Paladino, 2008).

FIGURE 1: THEORETICAL FRAMEWORK – INTEGRATION FACILITATES SYSTEMIC INNOVATION



Source: Adapted from Herzlinger, 2007.

Specific challenges in innovation and integration will be addressed as a way to contribute to theory development. The first challenge to overcome is the lack of competition, or competition at the wrong levels within the industry. The second is the continued pace of sustaining innovation that creates an opening for disruptive innovation and the third, is the fragmentation of linkages, specifically the coordination of care, within organizations and across the system.

Competition

Competition fosters innovation and improved products and services. A continual flow of innovations, both technological and managerial, is beneficial for industries. Economists term this productivity and it is represented by innovations that improve the quality and/or price of products and services purchased and provide choice. Surprisingly, and contrary to other industries, the U.S. health care industry offers little choice and consequently, minimal healthy competition. Competition currently takes place on discrete interventions versus across the full cycle of care or medical condition. Innovation and integration efforts also follow this pattern in health care by focusing on discrete interventions, services, and products. The importance of innovation focused on value for the patient across the full cycle of care is paramount with this type of industry dynamic.

According to Kim and Mauborgne (1999, p. 43), “value innovation makes the competition irrelevant by offering fundamentally new and superior buyer value in existing markets and by enabling a quantum leap in buyer value to create a new market.” Full care cycle innovation requires creating new value, but in collaboration with all the players in the value chain, including competitors, customers, substitutes, and new entrants. It involves creating a new understanding of how businesses in health care need to be defined. Innovative business models focused on customer needs versus products, and outcomes versus outputs, will be the catalysts for industry-wide change.

Competition focused on value can be achieved through the measurement of results, or outcomes. In health care, this requires that providers, health plans, and suppliers be rewarded and paid based on the good results achieved. Current efforts to improve health care delivery have focused on controlling supply of services and micromanaging provider practices, resulting in a focus on provider conformance versus provider performance (Herzlinger, 2007; Porter & Teisberg, 2006).

Much of the challenge in realizing this paradigm shift is predicated on the false assumption that good quality is more costly. A shift in focus from standardized care and evidence-based medicine towards competition on results can have an opposite effect. Good quality provides more accurate diagnoses, fewer treatment errors, lower complication rates, faster recovery, less invasive treatment, and minimization of the need for treatment. The net effect is lower cost. In all other industries, there is the natural effect of supply and demand and consumer choice that drives competition. This competition drives improvement and innovation but is not present in health care (Herzlinger, 2007; Porter & Teisberg, 2006).

In most industries, dominant players focus on innovation that provides incremental improvements, or sustaining innovation. These players continually improve and enhance products and services beyond the needs of the average consumer. Newcomers to the industry have great potential to introduce disruptive innovations that are cheaper, simpler, and more convenient, yet meet the needs of less-demanding customers (Christensen et al., 2000). Those delivering disruptive innovations ultimately overtake organizations that focus only on sustaining innovations.

Innovation

Innovation is the primary source of wealth creation and is key to achieving competitive advantage and long-term viability (Katz, 2003; Kim & Mauborgne, 1999; Schumpeter, 1942). It can involve new processes, new facilities, new organizational structures, new forms of collaboration, and new products, gadgets, and services. Schumpeter (1942) provided clarity on the definition of innovation through the comparison of innovation versus invention. Invention is the creation of something new while innovation is the launching or commercialization of that something new in the marketplace. Vaitheeswaran (2007) echoed this by defining innovation as a novel or useful idea that creates value.

Innovation often emerges from a complex ecosystem of relationships and interactions that supports discovery of new opportunities, creates economic value, and requires looking across boundaries. The most significant economic value results from innovations that directly impact customer value and provide exceptional value to the most important customer in the value chain (Dillon et al., 2005). Value innovation is focused on redefining a problem based on the view that market boundaries and industry structure can be reconstructed by industry, and even non-industry, players and occurs when a company positively affects the cost structure and the value proposition for customers (Kim & Mauborgne, 1999). The pursuit of differentiation is done simultaneously with reducing cost, creating features/elements that the industry has not offered, and eliminating those features/elements that are not as valued by the customer. Costs are further reduced over time as economies of scale are experienced from the increased sales due to superior value delivered (Kim & Mauborgne, 2005, p. 16 - 18).

Characteristic of value innovators is an open culture, value creation passion, external focus, organizational learning processes, robust decision-making practices, established incentives and reward system, and ability to address the full company value chain, articulate compelling business cases, implement in the face of risk and uncertainty, and catalyze breakthrough options (Dillon et al., 2005; Kim & Mauborgne, 1999; Teece, 1996). These characteristics serve as a guidepost for assessing value innovative capacity in the health care industry.

To ensure long-term business viability, organizations must also understand the nature of the technology cycle and how the competencies of the organization are being impacted (through competence-destroying or competence-enhancing innovations). The ability of the firm to sustain competitive advantage is based on the inherent ability to proactively drive multiple types of innovations, or streams of innovations. This requires an ability to balance between the short-term and long-term innovations pursued. Leaders must create “ambidextrous organizations” that consider streams of innovation that impact the current technological era versus individual new products or services (Tushman & Smith, 2002/2004, pp. 2 – 13).

Managing Linkages

The ability to manage linkages sets the stage for system-wide integration. Integration, as defined by Cash, Earl, and Morison (2008), as the ability of multiple units, functions, and organizations to work together to increase capacity, improve performance, lower cost structure, and discover opportunities that would not otherwise be realized without looking across boundaries. The consequences of change and innovation across boundaries are often not controllable or foreseeable. The ability to innovate and change under uncertain conditions can be strengthened through the development of trust and relationships (Hattori & Lapidus, 2004) and linkages at all levels within an ecosystem.

Improvement of health care delivery begins with elimination of the fragmentation within the industry. There is no single organizational design or approach to achieve integration. Many organizations focus on evolutionary versus revolutionary change, modifying existing systems through reorganizations, and

loosening boundary constraints among teams, business units, and partners. In these type of conditions, informal communication flow must be allowed to develop and a focus on coordination and liaison skills must be established as a functional skill. Further, characteristics of effective integrators include competence and knowledge versus positional authority (Millman, 2001).

Individuals, business units, and overall businesses specialize as the knowledge bases becomes too large for any single one to master (Tushman & Anderson, 2004b, pp. 361 – 362). Herzlinger (2006) identified several causes for this in health care: absence of economies of scale, highly diverse product lines, diverse market needs, and state and federal regulations. The transference of ideas and practices across the boundaries within a company or between companies facilitates innovation. Linkages between specialized health care areas requires and builds coordination and cooperation and challenges specialists to look beyond a singular area to see the bigger picture.

Organizations that can manage a variety of interactions inclusive of organizational learning and economic value propositions will be more likely to maintain the flexibility required to weather market changes (Amidon, 1997). Competing on results and driving innovation at the appropriate levels within the health care system requires a fundamental change in how the system works together. The management of linkages and achieving congruence within and between organizations can reduce the current fragmentation to enable full care cycle coordination of care with associated results.

Eisenhardt & Galunic (2000/2004) challenged the thinking on integration and collaboration with the notion of co-evolution. Co-evolution entails changing the collaborative links on a routine basis as the business and market requires. This may include changing information exchanges, shared services and assets, and even multi-business strategies. In essence, the patterns of connections are constantly moving to exploit new business opportunities. Some connections are long-term while others are short-term. Some of the links lead to planned synergies while others are unanticipated.

In the complexity of the health care industry, a dynamic and shifting web is necessary to meet the individual and unique needs of consumers. Herzlinger (2006) is an advocate and popularized consumer-driven health care. This is an example of a new health care solution that not only empowers individuals but also forces the system to be responsive to those individuals, the patient and consumer. Each individual is unique and will require and respond to care differently. The system and relationships must be unique and different as well. Coevolving, in which business managers choose their own links, creates this shifting web of collaborative relationships. Further, impacting change at a system-wide level requires collaborative relationships among all players, which is a precondition to achieving transformational innovations (Hattori & Lapidus, 2003).

Schumpeter (1942) provided a powerful insight into the dynamics of enterprise and economic performance claiming that the process of “creative destruction” and revolution surrounding economic structures operate as a system, an organic process. “A system—any system, economic or other—that at *every* given point of time fully utilizes its possibilities to the best advantage may yet in the long run be inferior to a system that does so at *no* given time, because the latter’s failure to do so may be a condition for the level or speed of long-run performance” (Schumpeter, 1942, pp. 83-84). Business strategy must be put into the context of its environment and background to fully understand the significance and impact of change and decision-making. Over 70 percent of all major change initiatives fail to fully meet internal objectives (Haines, Aller-Stead, and McKinlay, 2005, pp. 19 – 20; Hoogendoorn, Jonker, Schut, & Treur, 2007, p. 149). The dominant characteristic inherent in these failures is that the efforts were fragmented, addressing a systemic problem in a piecemeal fashion (Haines et al., 2005, pp. 19 – 20). Toffler and Toffler (1995, p. 61) reflect that the next generation of leaders will be conditioned to think systematically versus in isolated and fragmented steps.

Change Management Theory

Change and innovation are inextricably linked. To sustain a healthy business within a highly competitive business environment organizations must understand and exploit the enablers of change. Transforming an organization is often much more challenging and costly than the development and launch of a new product, technology, or process (Tushman & Anderson, 2004a, p. xi). Cawsey & Deszca (2007, p. 25) define organizational change as the “planned alteration of organizational components to improve the effectiveness of the organization”. Change that is a broad-reaching effort that touches individuals from multiple organizations is referred to as transformational change. This type of change results in an entirely new order with creation of new structures, management systems, and markets (Cawsey & Deszca, 2007; de Caluwe & Vermaak, 2003).

This study provides a view into whether organizations are prepared to affect change through innovation and integration, achieve organizational congruence (Tushman & O'Reilly, 2002/2004), and adopt a systems thinking approach to innovation (Haines et al., 2005). Modification of only one or two innovation or integration factors will not ensure long-term success or congruence across the organization or system (Falletta, 2005). Further, it is the intertwining of these variables or influencing factors that determine the degree of alignment within a firm and between systems. The alignment strengthens the system while misalignment weakens it (Jobber & Lucas, 2000; Tichy, 1983).

Change is complex to manage and understand. The organizational congruence model by Tushman and O'Reilly (1996/2004) serves as a framework for greater understanding of how major components within a system must be addressed and balanced to affect change. This model considers the inputs of the external environment, resources of the organization, and history. Strategy, tasks, formal and informal structure and systems, and people are also considerations in achieving congruence. Inconsistencies between these elements result in performance gaps and can be impediments to change.

This collective knowledge gathered from the literature underpins the framework for the research methodology to assess the capacity of U.S. health care organizations in the personal health care delivery system to innovate and integrate across the health care ecosystem and meet the challenge and requirement for transformational change.

RESEARCH QUESTIONS

This study explores the perspective of health care professionals on the capacity of health care organizations to value innovate and integrate across the full cycle of care and identifies the issues that health care professionals are facing when trying to innovate and affect system-wide change in the health care system. The study was designed to determine the gaps within health care organizations relative to characteristics required for value innovation and integration. An understanding of these gaps allows for analysis and determination of the readiness of the U.S. health care industry to meet the objective for transformational innovation and change in the future. The following three questions are considered:

Q1a: Is there a relationship between the type of health care organization and its capacity to value innovate?

H_0 : There is no relationship between the capacity to value-innovate and the type of health care organization.

H_1 : There is a relationship.

Q1b: Is there a relationship between the type of health care organization and its capacity to *integrate*?

H_0 : There is no relationship between the capacity to integrate and the type of health care organization.

H_1 : There is a relationship.

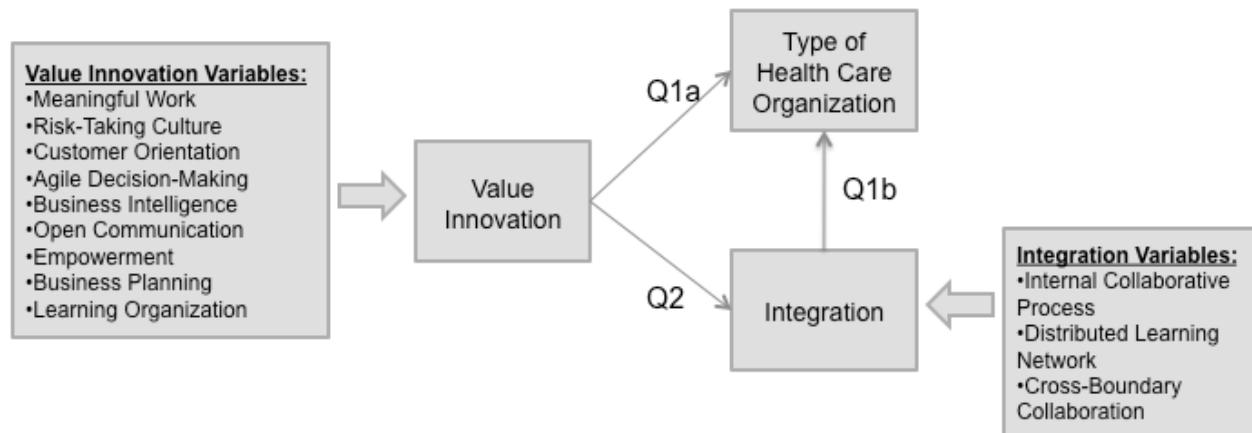
Q2: Is there a relationship between the capacity to value innovate and the capacity to integrate

H_0 : There is no relationship between the capacity to value-innovate and the ability and capacity to integrate.

H_1 : There is a relationship.

There are several sub-questions or analyses involved in Question 2 that focus on identifying and understanding the relationships among each of the innovation and integration factors. A significant number of factors have already been identified for assessing the capacity of organizations to value innovate. The intention of this study is to expand upon those factors through the addition of integration factors and to determine the relationships among the innovation and integration factors. Figure 2 depicts the relationships examined in this study.

FIGURE 2: HYPOTHESIZED RELATIONSHIPS



METHODS

Research Design

A cross-sectional relational study utilizing a mixed methods research approach allowed for both qualitative and quantitative advantages (Trochim, 2005, pp. 120 – 121). This provided a deeper understanding of the issues and development of detailed stories to describe the phenomenon of innovation and integration in health care. The design of the study was comprised of four distinct components:

1. Ethnographic Qualitative Participant Observation
2. Qualitative Structured Interviews
3. Pilot-Testing Quantitative/Qualitative Online Survey
4. Quantitative/Qualitative Online Survey

The unit of analysis for this study is the health care organization that provides health benefits in the personal care delivery system. The theoretical population includes all health care professionals and executives at health care related organizations that provide health benefits or administration within the personal care delivery system. The World Research Group (WRG) conference on New Product Innovation Design & Development for Health Plans and the Healthcare Intelligence Network (HIN), an organization that serves as an advisory service for executives requiring strategic information on the business of healthcare, provided access to a study population containing presidents/CEOs, CFOs, COOs, vice presidents, medical directors, analysts, business development executives, consultants/brokers, directors, executive directors, financial/business managers, marketing/product/innovation executives, principals, and strategic planning executives.

Each component of the study leveraged a purposive sampling approach (e.g. participant observation, pilot-testing survey, structured interviews) or included all respondents (e.g. final survey). The use of purposive expert sampling allowed the study to assemble a sample of persons with known or demonstrable experience and expertise in the health care industry (Trochim, 2005, pp. 41 – 43). Respondent-driven sampling (RDS) was also used, which has been shown to generate results comparable to probability sampling (Heckathorn, 1997, pp. 174 – 199).

The pilot-testing survey and the ethnographic qualitative participant observation had many characteristics of an action research approach. The key qualifier for action research is that the researcher engages with what is being researched in an effort to bring about positively valued change (Midgley, 2008). Action research differs from other research approaches due to the direct linkage between research and delivery of actions in response to recommendations made. Research and action occur in parallel versus actions occurring as a future response to the recommendations (Rowley, 2003). The qualitative participant observation was conducted at the WRG conference and required interaction and cooperation between the researcher and the health care professional attendees. A brief presentation to the conference attendees was given to provide an overview of the research study and to invite participation and input.

Through the WRG conference presentation and the subsequent data collection activities, data were collected from participants at the conference and through the pilot-testing survey, qualitative interviews, and the final survey. This information was subsequently provided in a report format and served as an intervention for the respondents that willingly provided their contact information to receive the data. Given their unique positions in the health care industry, these individuals are able to take action on the topics of innovation and integration. Based on other action research results, once participants are introduced to concepts, theory, or tools, they are apt to link the understanding to decision-making abilities (Zulauf, 2007).

Data Collection

Qualitative participant observation requires the researcher become a participant in the culture or context being observed and often requires years of work (Trochim, 2005, p. 125). The focus of this component of the study was to observe discussions on how the conference participants experience and drive innovation and integration within the current U.S. health care system. The qualitative data were collected through observation via two conference workshops and fifteen plenary sessions at the World Research Group (WRG) conference on New Product Innovation Design & Development for Health Plans. The ethnographic approach to qualitative research was followed and required immersion as a “complete participant” and “participant as an observer” (Merriam, 1998, pp. 100 – 104) to determine how participants experience and drive the health care organization innovation and integration efforts.

A semi-structured approach to the participant observation allowed for flexibility during the collection process while still providing a framework to observe the elements. Elements such as the physical setting,

activities and interactions, conversation content, subtle factors, and researcher behavior (observer comments) were identified, observed, and recorded. These elements provided the necessary structure and scope and have relevance to any setting (Merriam, 1998, p. 97 – 98).

A unique set of open-ended questions was designed for the qualitative structured interviews. These interviews were conducted telephonically for a period of thirty minutes. Data were collected and entered into a structured electronic worksheet during the interviews. During this phase of data collection, the phenomenon was observed, documented, classified, and cross-referenced to all evidence. Using the constant comparative method (Merriam, 1998, pp. 159 – 187), conceptual categories and properties were developed for the qualitative structured interviews. The qualitative interview questions and the interview ventilation questions are listed in Appendix A.

The pilot-testing survey was completed prior to and in preparation for the full release of the final survey to the target population and distribution list. A multiple item survey measure was initially administered to a pilot sample of 100 health care professionals via a health care distribution list from Linked In. Representatives from more than 26 health care companies responded and were asked to complete a pilot-testing survey assessing the capacity of their organization to innovate and integrate. Additional pilot-testing survey questions were added to verify the ease of responding, clarity of the question set, and administrative simplicity (Fink, 2003, p. 109 - 110).

The final quantitative data were collected through survey research methods via a distribution list through the Healthcare Intelligence Network (HIN). A multi-item survey measure was administered to 20,000 respondents at leading health care companies. Respondents were provided with the opportunity of receiving a report of the findings for participating in the survey as nonmonetary incentives of this type have been shown to increase response rates (Yu & Cooper, 1983). In addition to understanding the ability and capacity of health care organizations to value innovate and integrate based on the categories and factors identified, a richer understanding was gained relative to how innovation is understood and experienced by the respondents through unstructured response formats contained within the survey. Qualitative data were necessary to achieve a deeper understanding of how innovation currently works in health care organizations.

Question and Survey Design

The review of the literature found numerous innovation surveys, characteristics, and factors for assessing innovation, though only six survey instruments were directly relevant to the current study (Amidon, 1997; Aiman-Smith et al., 2005; Barczak et al., 2009; Dillon et al., 2005; Fruhling & Siau, 2007; Gatignon et al., 2002; Kumar, Subramanian, & Yauger, 1998; Mankin, 2007; Paladino, 2007; Paladino, 2008). Given that the study focused on evaluating capacity for innovation and integration, assessment tools for innovation, value innovation, and integration and synergy were included in the review. None of the surveys were wholly appropriate, however, several contained questions that were adapted or used in their entirety (Aiman-Smith et al., 2005; Amidon, 1997; Paladino, 2008). The questionnaire design and qualitative interview questions were based on guidelines from Aiman-Smith and Markham (2004), Fink (2003), Rogers (2009), and Trochim (2005). The compilation and adaptation of the question set resulted in the creation of the Health Value Innovation and Integration Assessment Tool (HVII Assessment Tool) containing variables for value innovation and integration. The questions designed for the pilot test and the final survey are in Appendix B & C.

Measures

The value innovation variables assessed the innovative capacity of health care organizations and were considered the primary variables in this study. Assessment tools in value innovation have determined key

factors that are contributory to the ability of an organization to value innovate (Aiman-Smith et al., 2005; Dillon et al, 2005; Matheson & Matheson, 1998). Additionally, Dillon et al. (2005, pp. 25 - 26) found that for companies to be successful in value innovation efforts, there must be a viable market for new ideas within the organization, systems thinking must be embedded in all planning, and a high level of trust, honesty, and candor must be present throughout the organization.

Furthering this work, Aiman-Smith et al. (2005), completed a full literature review to derive the following nine categories relevant for assessing capacity for value innovation: Meaningful Work, Risk-taking Culture, Customer Orientation, Agile Decision-Making, Business Intelligence, Open Communication, Empowerment, Business Planning, and Learning Organization. The HVII Assessment Tool leverages these nine categories and the associated question set to establish the initial level of innovative capacity for health care organizations. These variables were then correlated to variables for integrative capacity.

The evaluation of the integrative capacity (or ability to coordinate care across the system) was then added to the survey instrument as secondary variables. Clinical integration is defined as “the extent to which patient care services are coordinated across people, functions, activities, and sites over time so as to maximize the value of services delivered to patients” (Institute of Medicine, 2001, p. 133). Additionally, the Institute of Medicine (2001) identifies the challenges for coordination of care as the design, dissemination, implementation and modification of care processes. Each of these activities requires many of the same components and characteristics of an innovative organization.

The variables representative of health care integration are based on a literature review of assessment variables for synergy, dynamism, and collaboration (Amidon, 1997; Galunic & Rodan, 1998; Gatignon & Xuereb, 1997; Paladino, 2008, Weber, Lovrich, & Gaffney, 2007). The literature on assessment of integrative or collaborative capacity was limited. However, there were relevant components that were applied for the purpose of this study. The final integration categories were based on the work of Amidon (1997) and incorporated modified questions from Amidon (1997), Paladino (2008), and Gatignon and Xuereb (1997) and included: Internal Collaborative Process, Distributed Learning Network, and Cross-Boundary Collaboration. The final question set was designed within these categories and to assess critical elements such as systems thinking, flexibility, cross-boundary knowledge sharing and networks, and a market orientation, which facilitates creation of linkages at all levels within an ecosystem (Paladino, 2008).

Description of Measures

Based on the review of the literature, measures were incorporated into the HVII Assessment Tool. The innovation measures were comprised of nine categories with a minimum of three items or questions for each of those categories. The integration measures contained three categories, each containing three or more items or questions. Each of these measures is described in Table 1.

Analysis

The mixed methods research design required unique treatment of the data for the four components: participant observation, qualitative structured interviews, pilot-testing survey, and final survey. The process of data analysis for the participant observation included a review of the field notes scribed during the event as well as artifacts collected from the World Research Group conference. The data were compressed into a narrative to convey the meaning derived from the observations. All data and field notes for the qualitative structured interviews were entered into Microsoft Excel and developed into a descriptive account based on the levels of analysis defined by Merriam (1998). Categories, or themes,

were constructed through a continuous comparison of the respondents' remarks and examples documented.

An in-depth analysis of the raw data from the pilot-testing and final surveys was performed using PASW® Statistics GradPack 17.0 (formerly SPSS Statistics GradPack). The initial review of the data incorporated simple analyses of the discrete variables to establish an understanding for the sample population. The data were then evaluated for any patterns relative to the value innovation factors. Each of the factors contained three or more statements each. These were averaged together for a measure of each categorical concept (Aiman-Smith et al., 2005). The same approach was applied to the integration factors. The results of these factors were then evaluated relative to the types of organizations to determine differences.

The next review of data included analyses of the direct relationship among the innovation variables and the integration variables. Descriptive statistics for the different types of health care organizations were generated to determine if any net difference existed for each variable (Q_1). Further testing was conducted to determine the contingency coefficient and relationships of the averages of the factors by each type of health care organization. To determine if relationships existed among the innovation and integration variables (Q_2), tests using $\alpha = .01$ (99% confidence level) of a two-tailed test were conducted using a Spearman's Rho analysis. This required assessing the relationship between the average for each innovation factor and each integration factor.

$$H_0: \mu_1 - \mu_2 = 0$$

$$H_A: \mu_1 - \mu_2 \neq 0$$

Multiple sources of evidence are recommended for enhanced validity (Eisenhardt, 1989; Miles & Huberman, 1984; Yin, 1989). The mixed methods approached used for this study successfully addressed concerns of translation-content validity and mono-method bias (Trochim, 2005, pp. 51 – 58). Internal Consistency Reliability was verified through computation of the correlations between items. This provided the statistical significance to show that the differences between the data were statistically meaningful and not due to chance (Fink, 2003). Further, non-response bias was addressed through comparisons of the early versus late responders to the quantitative surveys through the use of a pilot and final survey as well as two waves of respondents within the final survey administration.

Self-assessment measures were used for each innovation and integration category and variable. These types of measures can raise concerns relative to reliability. However, Gatignon, Tushman, Smith, and Anderson (2002) found that in comparison, even accounting measures and sources presumed to be more objective, can also be biased. Additionally, perceptual measures have been shown to be reliable (Gatignon et al., 2002).

The qualitative raw data were examined using numerous techniques including placing information into arrays, categorizing the data into matrices, developing flow charts, and tabulations of event frequency. Research that sorts the data in multiple ways to identify or create new insights or search for opposing data to disconfirm the analysis overcome the issue of confirmation bias. Confirmation bias is always a threat in qualitative research given the tendency to prove the original arguments or hypotheses (Rogers, 2007, pp. 2 – 9).

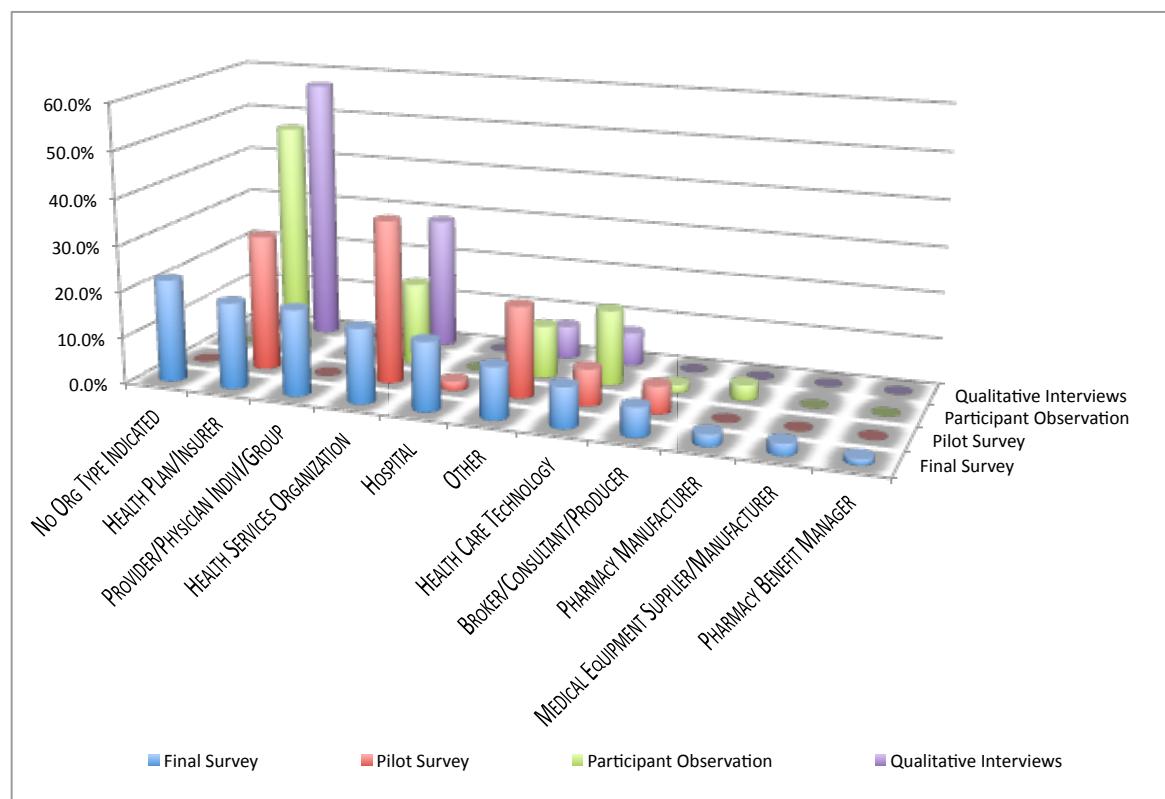
TABLE 1: DESCRIPTION OF MEASURES

Variable	Definition
Pilot-Testing	Pilot-Testing questions aid in monitoring the ease of completion, administration, and scoring of the survey. Adopted from Fink (2003, pp. 108 – 112).
Demographics	The demographic category includes questions that will be used for sorting and data analysis. Including functional area alignment, type of health care organization, and role in health care organization.
Value Innovation Variables	
Meaningful Work	Refers to the work that each individual performs and that is known to have an impact in the organization and for customers. Adopted from Aiman-Smith et al. (2005).
Risk-Taking Culture	Refers to an organizational culture that promotes some risk as an opportunity that will potentially yield higher returns. Adopted from Aiman-Smith et al. (2005).
Customer Orientation	This refers to the ability to identify the needs and wants of existing and potential/new markets and determining if the organization evaluates how value is offered to customers. Adopted from Aiman-Smith et al. (2005).
Agile Decision-making	Being agile in decision-making requires an understanding of the depth and breadth of the ideas and analysis used, who the decision-makers are, and the ability of the organization to quickly make decisions. Using multiple levels of information and diverse perspectives leads to better decision-making. Adopted from Aiman-Smith et al., (2005).
Business Intelligence	This reflects the ability to conduct an environmental analysis that considers market and competitive trends. The organization must be aware of impacts and affects on customers and competitors. Adopted from Aiman-Smith et al. (2005).
Open Communication	Communication must be accepted and delivered at all levels within the organization. Employees must have a comfort level with challenging practices as well as communicating support for change. Adopted from Aiman-Smith et al. (2005).
Empowerment	Organizations that empower and impart ownership and accountability onto skilled people will have a higher likelihood of innovative people. Adopted from Aiman-Smith et al. (2005).
Business Planning	This evaluates the presence of processes and techniques that are necessary to develop plans for developing value for customers. Adopted from Aiman-Smith et al. (2005).
Organizational Learning	Organizational learning refers to the generation and application of knowledge that are able to influence behaviors. The sharing of knowledge regarding the business, market, competitors, and most importantly, customers, creates a deeper understanding and more solid approach to value innovation, which allows the organization to change and grow in response to its environment. Adopted from Aiman-Smith et al. (2005).
Integration Variables	
Internal Collaborative Process	Refers to the extent to which an organization engages in behaviors promoting linkages within the organization. Adopted from Amidon (1997) and Paladino (2008).
Distributed Learning Network	This integration variable builds on the Organizational Learning innovation variable and refers to the extent an organization generates and applies knowledge across boundaries and via networks. Adopted from Amidon (1997) and Paladino (2008).
Cross-Boundary Collaboration	The notion of collaboration is more powerful than cooperation or competition. Managing complex relationships requires a skill set in leveraging relationships that are beneficial for all parties involved (Amidon, 1997). This variable refers to the extent that organizations develop the competencies for external cross-boundary linkages. Adopted from Amidon (1997) and Paladino (2008).

RESULTS

The study gathered data from a total of 234 individual respondents representing 124 different health care related organizations. The participants/respondents represented organizations from across the U.S. health care system with the highest representation from Health Plan/Insurers, Health Services Organizations, and Health Care Technology organizations. Due to the homogeneity of the respondents and the minimal changes in the survey design between the pilot study and the final study, the data were combined to increase the final sample size and reduce standard error (Trochim, 2005, p. 33). Figure 3 shows the distribution of respondents for each of the research methods.

FIGURE 3: STUDY SAMPLE PROFILE



This research has generated several significant findings and considerable depth of understanding of the innovation and integration capacity across organization types within the U.S. health care industry. The results of the study answered the research questions and confirmed the alternative hypotheses. There is a difference in the capacity of the various organization types to innovate and to integrate. There were also significant relationships among a number of the innovation and integration variables and an overall significant relationship between innovation and integration. Further, due to the use of a mixed methods approach, the qualitative data provided further context and validation of the results found through the pilot and final surveys.

Research Question: Capacity by Organization Type

Questions 1a and 1b and the supportive hypotheses were developed to identify to what degree different organization types innovate and integrate to produce change in the U.S. health care system. The **dependent** variable in each H1 hypothesis was the “type of health care organization” while the

independent variable was the resultant capacity to innovate (H1a) and integrate (H1b) on the value innovation and integration variables.

Q1a: Is there a relationship between the type of health care organization and its capacity to value innovate?

H_0 : There is no relationship between the capacity to value-innovate and the type of health care organization.

H_1 : There is a relationship.

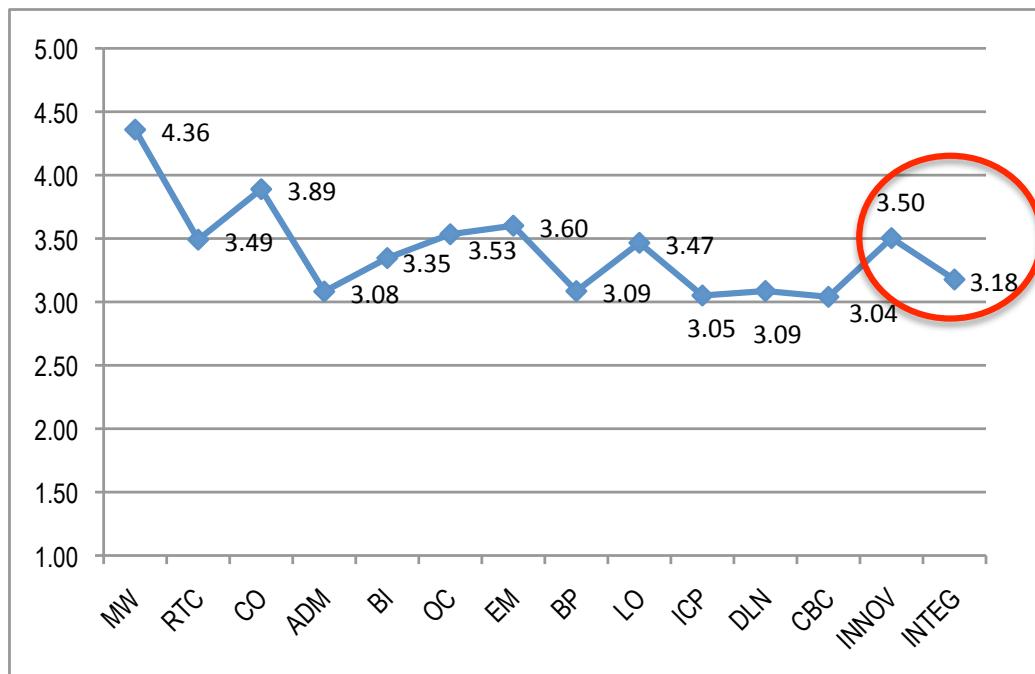
Q1b: Is there a relationship between the type of health care organization and its capacity to integrate?

H_0 : There is no relationship between the capacity to integrate and the type of health care organization.

H_1 : There is a relationship.

There were three or more items used to measure each of the nine innovation categories and the three integration categories. These items were averaged for each of the twelve categories to obtain a measure of each category. The initial review of the data and the averages for all organization types by innovation and integration categories revealed a number of strengths and weaknesses for the organizations surveyed (Figure 4).

FIGURE 4: AVERAGE RESPONDENT SCORES – ALL ORGANIZATION TYPES



Meaningful Work (MW) and Customer Orientation (CO) received the highest average scores from the respondents, indicating that health care organizations have a greater capacity in these two areas. Five categories ranked lower than the rest including: Agile Decision-Making (ADM), Business Planning (BP), Internal Collaborative Process (ICP), Distributed Learning Network (DLN), and Cross-Boundary Collaboration (CBC). Each of these barely averaged over 3.0 on a scale of 1 to 5 and consequently

impacted the summary scores for innovation and integration overall. Most noteworthy is the difference among the compiled averages for all of the innovation and integration categories. The compiled integration factors averaged 3.18 and were lower than the compiled innovation factors at an average of 3.5 (see circle in Figure 4).

The averages were then compared among the organization types and each of the categories. Relationships among the categories and the type of organization were all found to be at least moderate, with some relationships being very good to excellent. Table 2 outlines each of the categories, the contingency coefficients and the relationships found or not found.

TABLE 2: CONTINGENCY COEFFICIENTS – ORGANIZATION TYPE

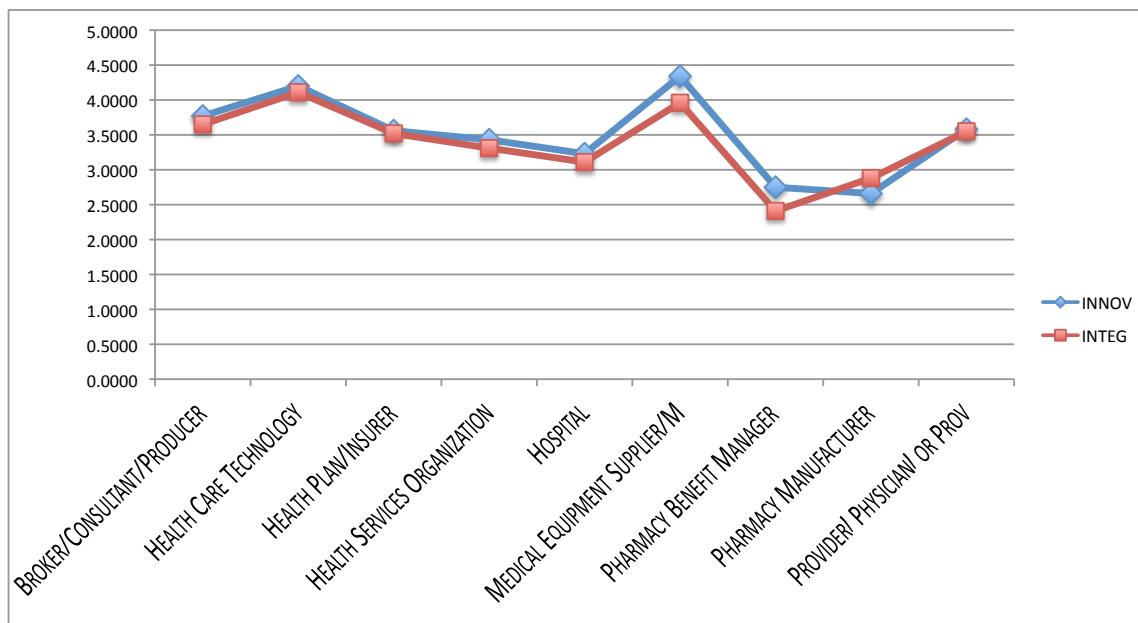
Variable	Contingency Coefficient	Relationship
INNOVATION		
Meaningful Work	.606	Moderate relationship
Risk-Taking Culture	.801	Very good to excellent relationship
Customer Orientation	.676	Moderate to good relationship
Agile Decision-Making	.728	Good relationship
Business Intelligence	.616	Moderate relationship
Open Communication	.683	Moderate to good relationship
Empowerment	.658	Moderate to good relationship
Business Planning	.733	Good relationship
Learning Organization	.691	Moderate to good relationship
INTEGRATION		
Internal Collaborative Process	.722	Good relationship
Distributed Learning Network	.743	Good relationship
Cross-Boundary Collaboration	.774	Very good to excellent relationship

Those with very good to excellent relationships are in bold italicized print. Based on these results, there is evidence that there is a relationship and the null hypothesis should be rejected. Figure 5 provides a visual representation of the averages for the innovation and integration category by organization type. Health Care Technology organizations and Medical Equipment Supplier/Manufacturers are the clear leaders for innovative capacity.

Based on the assessment of the respondents, there are some differences among the types of health care organizations and innovative capacity. Those organizations that have a greater capacity to innovate are the Medical Equipment Supplier/Manufacturer and the Health Care Technology organizations. Those with a larger range between the category results and with a lesser innovation capacity include the Pharmacy Manufacturer and Pharmacy Benefit Manager organization types. The remaining organization types hover with results between 3 and 4.5.

The integration categories exhibited similar results as the innovation categories. The Medical Equipment Supplier/Manufacturer and the Health Care Technology organization types have a greater innovative capacity based on the integration variables assessed. The lower integrative capacity organizations were the Pharmacy Manufacturer and Pharmacy Benefit Manager organization types. The remaining organizations showed capacity between three and four.

FIGURE 5: AVERAGE INNOVATIVE AND INTEGRATIVE CAPACITY BY ORGANIZATION TYPE



The qualitative data collection methods (e.g. participant observation and qualitative structured interviews) provided additional data regarding the capacity of organizations to innovate and integrate and that supported the alternative hypotheses. According to the respondents, the culture of the organization must welcome new ideas, embrace new technology, tolerate risk, reward staff for innovation, and include cross-functional teams. Unfortunately, respondents continually struggle to obtain the resources required for innovation and integration initiatives and to prioritize those resources that are available. Underlying this resource issue is the ongoing challenge to achieve the balance among cost, quality, and access. This creates tremendous organizational stress and ambiguity for how to innovate while concurrently maintaining the existing business platform.

There were a number of key issues identified specifically through the structured interviews that were preventing organizations from innovating. Despite the presence of innovation or product development processes within most organizations, many recognized the process as being “used more in theory than in practice”. Organizations also tended to be reactive to the market, replicating what others offer to the market. The final inhibitor identified by one-third of the respondents was the lack of a culture that supports innovation.

A significant gap was identified in the ability of organizations to have established processes for integration activities both within an organization and between organizations. Competition is also an impediment to the capacity of health care organizations to integrate. Two different philosophies exist on this point of competition. There are organizations that are culturally resistant to investigate external options to deliver end-products and services to customers. Then, there are those organizations that have embraced external partnerships, albeit with some challenges.

Many respondents recognized that a major hindrance to a connected system with many organizations was the lack of trust. Collaborating with competitors is seen as a significant challenge due to the concern over intellectual property (IP) rights, revenue allocation, ownership of the member/client, and position differences in the value chain. A deficiency that arose from the data collection in the interviews was accountability for integration across the health care system. This also provided evidence for why diffusion

of innovations is minimal. Further, many respondents indicated that the focus is not on coordinating care but rather on lowering cost.

Finally, a lack of consensus on the definition of integration and whether integration or coordination is the ultimate goal for the system was discovered through the participant observation and the structured interviews. Coordination was defined and discussed as linkages that are provided as one delivery platform that can change and adapt quickly due to a minimalistic approach for investing in the underlying infrastructure. This is in contrast to the view of integration that was discussed as a full system and process integration for the care cycle. One participant shared that it is preferable to “achieve a coordinated versus integrated delivery platform as it is much more realistic and adaptable”.

Research Question: Relationship Between Innovation and Integration Capacity

A significant challenge for health care organizations is the coordination of care across patient conditions, services, and settings over time and consistently. Care coordination or integration across the health system requires many of the same competencies as value innovation, including an ability to disseminate information at the right time and to the right recipients in the system. Further, the challenge for coordination of care resides at many levels within an organization and across organizations (Institute of Medicine, 2001, p. 134). This requires adaptable, flexible, learning organizations that can create new procedures, linkages, and infrastructure.

Cross-organizational collaboration is an effective mechanism through which to stimulate learning, subsequently, improving innovation capacity (Handfield, Ragatz, Petersen, & Monczka, 1999/2004; Lee & Veloso, 2008). Thus, it is hypothesized that health care organizations that have a high capacity to innovate have a high capacity to integrate. Question 2 and the supportive hypothesis explore the relationship between innovative and integrative capacity. The capacity to innovate serves as the **independent** variable and the capacity to integrate serves as the **dependent** variable, or the variable affected by the independent variable of innovative capacity (Trochim, 2005, pp.5 – 6). Integrative capacity (dependent) is presumed to be affected by innovative capacity (independent).

Q2: Is there a relationship between the capacity to value innovate and the capacity to integrate

H_0 : There is no relationship between the capacity to value-innovate and the ability and capacity to integrate.

H_1 : There is a relationship.

Table 3 provides details of the significant relationships found through a rank-order correlation, specifically Spearman’s Rho analysis. In all cases, the relationships were found to be positive and significant at the $\alpha = .01$ (99% confidence) level of a two-tailed test. Most relevant are those coefficients that are > 0.75 . These indicate a relationship among the various innovation and integration categories. Specifically, the Innovation categories measuring Risk-Taking Culture (RTC) and Agile Decision-Making (ADM) had excellent relationships with each other and had excellent relationships with two additional categories. Open Communication (OC) and Internal Collaborative Process (ICP) had excellent relationships with two categories while Empowerment (EM) and Distributed Learning Network (DLN) had excellent relationships with one other category. The gray cells for these excellent relationships are outlined in black.

There were not any categories that had little or no relationship though there were several relationships that indicated only a fair relationship. For the purpose of this analysis, those coefficients that were < 0.40 were identified as the weakest and considered fair. These relationships are highlighted in gray. Interestingly, these weakest relationships were all associated with Business Intelligence (BI) and included

Meaningful Work (MW), Open Communication (OC), and Distributed Learning Network (DLN). Based on these results, there is evidence that there is a relationship among the innovative and integrative factors and the null hypothesis should be rejected.

A final analysis was conducted on the combination of the innovation and integration categories. The purpose of this analysis was to determine if there was an overall correlation between the two major areas under investigation (Table 4).

TABLE 3: SPEARMAN'S RHO CORRELATIONS – INNOVATION RELATIVE TO INTEGRATION CATEGORIES

	MW	RTC	CO	ADM	BI	OC	EM	BP	LO	ICP	DLN	CBC
MW	1	.604**	.542**	.580**	.336**	.572**	.525**	.479**	.530**	.569**	.520**	.507**
RTC	.604**	1	.626**	.824**	.471**	.820**	.755**	.561**	.660**	.715**	.662**	.643**
CO	.542**	.626**	1	.571**	.505**	.519**	.556**	.573**	.666**	.621**	.632**	.626**
ADM	.580**	.824**	.571**	1	.483**	.765**	.714**	.559**	.635**	.753**	.603**	.612**
BI	.336**	.471**	.505**	.483**	1	.361**	.427**	.423**	.496**	.419**	.393**	.447**
OC	.572**	.820**	.519**	.765**	.361**	1	.739**	.503**	.608**	.683**	.588**	.552**
EM	.525**	.755**	.556**	.714**	.427**	.739**	1	.520**	.643**	.701**	.610**	.556**
BP	.479**	.561**	.573**	.559**	.423**	.503**	.520**	1	.559**	.635**	.579**	.550**
LO	.530**	.660**	.666**	.635**	.496**	.608**	.643**	.559**	1	.679**	.692**	.624**
ICP	.569**	.715**	.621**	.753**	.419**	.683**	.701**	.635**	.679**	1	.756**	.718**
DLN	.520**	.662**	.632**	.603**	.393**	.588**	.610**	.579**	.692**	.756**	1	.713**
CBC	.507**	.643**	.626**	.612**	.447**	.552**	.556**	.550**	.624**	.718**	.713**	1

**. Correlation is significant at the 0.01 level (2-tailed).

TABLE 4: SPEARMAN'S RHO CORRELATIONS – OVERALL INNOVATION RELATIVE TO INTEGRATION

	INNOV	INTEG
INNOV	1	.918**
INTEG	.918**	1

**. Correlation is significant at the 0.01 level (2-tailed).

The analysis indicated a very strong relationship for the overall categories of innovation and integration. This was not surprising given the positive relationships found on all previous individual innovation and integration categories in the previous Spearman's analysis.

Again, the qualitative data collection methods provided supporting content for the alternative hypothesis. Technology limitations and a health care system that is extremely complex with numerous touchpoints to manage were cited as main barriers to achieving a system that works together. There is a need to integrate and coordinate treatment and care. New business models must include collaboration across systems and promote adoption of health care innovation for personalized medicine, prevention, and wellness. Further, a lack of resources (e.g. skilled people, appropriate technology, or capital to invest and develop new ideas or linkages) was a predominant inhibitor to the collective ability to innovate and integrate. In most organizations there is a constant struggle to balance the existing business with that of the new and emerging business. This challenge to balance the old and new in turn exacerbated the issue of limited resources.

This study also found that there is a persistent lack of focus on the member experience throughout the health care system. A member requires care for a certain need or condition which often requires use of multiple products/services delivered by multiple individuals and organizations. However, development and innovation focuses only on the units (product, business unit, organization).

DISCUSSION & IMPLICATIONS

Theoretical Implications

This study assessed factors that were identified as critical for enabling and realizing the full innovative and integrative capacity of an organization. Each of the inputs in the theoretical framework was assessed through one or more factors using the four research methods. Customer orientation was a predominant focus revealed by the respondents in all four research methods. The majority of respondents agreed that the customer is at the center of the value chain and that customers should be considered in the development of solutions across organizational boundaries.

However, many organizations admit that this focus is often contained within the boundaries of their own organizations versus extended across the health care system. The slow adaptation of the value chain approach in the health care arena is due to a number of reasons. There is insufficient sharing of knowledge in health care, a lack of information regarding the value/cost equation at each link in the system or chain, and an inability to create and coordinate strategic alliances and vertically integrate. One example of vertical integration has been at the U.S. Department of Veterans Affairs' Veterans Health Administration. This organization has control over the whole process – from the individual payer to the service provider (Kahan & Testa, 2008). Additionally, Kaiser Permanente and Geisinger Health System are integrated delivery organizations that own hospitals and clinics, operate insurance companies, and employ their own doctors. Their operations are focused on delivery of preventative and self-management services. These organizations are incented to save costs through delivery of services versus restricting access to care (Christensen, Grossman, & Hwang, 2009). It is expected that this customer orientation will achieve a critical mass in the future with the current expansion underway for individual and self-funded plans and programs.

Assessing the capacity for the factors that serve as the organizational engines for innovation and integration confirmed that market-based and consumer-driven competition was not driving the industry. Rather, competition in the health care industry is driving a continued progression towards sameness in the products, services, and features delivered to the end consumer. Organizations monitor the competition for the purpose of benchmarking for innovation and there is a relatively quick response to competitor movements in the market place. However, the innovation that ensues is more representative of incremental improvements to the current products, processes, and relationships. Some organizations even take pride in market followership. There is a fear of and resistance to change and a concern that too much change will disrupt the status quo and the current operating mechanism, despite the general agreement that change is necessary. Consequently, disruptive innovation is pervasive among atypical players within and outside of the U.S. health care system, which will change the competitive dynamics of the industry and force a paradigm shift for existing players and their response to a new competitive landscape.

It was expected that if internal collaborative processes, distributed learning networks, and cross-boundary collaboration and the underlying activities associated with each were prevalent within health care organizations across the system, that this would propel innovation in conjunction with consumerism and shifts in the competitive landscape. The study revealed that organizations do have moderate to high levels of innovative and integrative capacity. However, integrative capacity was lower than innovative capacity, indicating an opportunity to further develop the factors assessed. There is a significant relationship among many of the innovation and integration factors as well as an overall significant

relationship among the average of the factors. This indicates that a high capacity for innovation is positively correlated to a high capacity of integration and confirms that the integration factors of internal collaborative processes, distributed learning networks, and cross-boundary collaboration could have a positive effect on the innovation factors and ultimately, propelling innovation, productivity, and change forward. With consumerism strengthening and the realization that competition and industry structure are evolving, the potential for innovation will increase with every capacity increase in integration.

Influencing Factors

The qualitative themes, or influencing factors, were cross-tabulated with the twelve innovation and integration categories/factors used in the quantitative approaches and the participant observation (PO) themes (Table 5). As outlined in the quantitative results, five of the categories had a lower capacity including Agile Decision-Making (ADM), Business Planning (BP), Internal Collaborative Process (ICP), Distributed Learning Network (DLN), and Cross-Boundary Collaboration (CBC). Interestingly, these were also the categories with the greatest alignment to the data collected through the qualitative methods, indicating consistency across the research methods, in the deficiency areas perceived by the participants/respondents, and the need to identify solutions to mitigate the negative effects of the perceived gaps. Because of this natural alignment, the conclusions outlined in this section integrate the quantitative categories/factors within each of the nine qualitative innovation and integration themes identified.

TABLE 5: QUANTITATIVE FACTOR AND QUALITATIVE THEME ALIGNMENT

Innovation Themes

The following are themes that emerged specific to innovation: Process but No Rigor, Reactive Planning, and Cultural Effects.

Process but No Rigor

The majority of respondents indicated that an innovation or product development process was in place within their organizations. Cooper (2008, p. 213) confirms that best-practice companies have implemented some form of an idea-to-commercialization system and process. The challenge that became apparent through the data collection was the lack of consistency in the application of the process, affecting innovation implementation. Companies that are best at commercializing new ideas, or innovation, use a formal development process, a defined strategy, and include cross-functional stakeholders (Barczak et al., 2009). Over half of the respondents agreed that other stakeholders are involved in their innovation process. However, the lack of consistency in using the process precludes many organizations from fully realizing the benefits of the process and becoming more effective at commercializing ideas.

This lack of consistency could also be attributed to a reduced capacity in Business Planning. Business Planning received one of the lowest averages and was driven by minimal use of scenario planning and a limited understanding of the value chain in the examination of new opportunities. Some of these deficiencies can be attributed to a lack of understanding of how to implement and control planning. A number of respondents even indicated that there was a lack of understanding of how the health care value chain functions. Companies successful at innovation are more likely to begin innovation projects with product line planning activities (Barczak et al., 2009). Even Drucker (2002) reflects that organizations are too focused on entrepreneurial characteristics and lack commitment to the process and rigor of innovation. Without processes and techniques in place or utilized consistently, plans for innovation, developing value for customers, and implementing those plans are not realized.

Reactive Planning

The planning gaps evidenced by the lower average score for the Business Planning factor explain the reactive approach to planning in many health care organizations. The need to comply with regulatory and policy requirements and the strong focus on competitive intelligence as part of planning activities have an impact on this as well. Local and federal government requirements directly impact product design, prioritization, and long-term planning. Further, the majority of respondents monitor competitors with a significant percentage using competitors as benchmarks. Many respond quickly to competitors' actions indicating a market-follower strategy, which was further validated by the qualitative findings. Greve and Taylor (2000) confirmed that more threatening events spur on a more rigorous response. This perceived threat of innovation is one of the reasons that so many health care organizations pursue market-follower strategies.

Another consideration is that the veteran organizations within the health care system do not have the capacity to produce discontinuous competence-destroying innovations and thus, there is focus on creating a dominant design and enhancing any innovations that are launched to the market (Anderson & Tushman, 1991/2004). In the future, it will be the non-HCOs that will require a watchful eye. These are the newcomers that will introduce competence-destroying innovations that will propel the change required in the health care industry. However, it will be the veterans that perpetuate a wave of competence-enhancing activities that will result in dominant designs of products and services across the system.

Cultural Effects

Culture significantly influences the capacity of an organization to value innovate (Dillon et al., 2005). For example, the study found that tenure and institutional knowledge was recognized as an enabler to managing the existing business. However, this was also viewed as one of the most considerable inhibitors to innovation because of the lack of knowledge of the latest innovations and the strong resistance to change. Tenure is significant across the industry, which results in a limited view of the new environment, how it will impact the entire system, and how experiences or models from other industries outside of health care can contribute or apply. Many individuals also have difficulty innovating while still being positioned in the day-to-day operations.

The respondents of the quantitative surveys rated the Meaningful Work factor the highest and no challenges or issues were raised relative to employee engagement or meaningful work during the participant observation and structured interviews. Health care organizations have characteristically offered many of the elements that create meaningful work. This includes the sense of self, the engagement of the whole self in the workplace, recognizing and developing through learning, having autonomy, empowerment, and sense of control, and having a positive belief system about the work itself, achieving one's purpose, and a sense of balance (Chalofsky & Krishna, 2009).

A high capacity for meaningful work is driven by engagement and commitment that positively correlates with performance. Further, this commitment correlates positively with the ability to adapt to unforeseeable events (Chalofsky & Krishna, 2009). Recall that the inability to adapt prevents firms from surviving a recession or other industry event or disruption and from innovating. The organization types with a high rating for meaningful work are underpinned with many of the elements that promote adaptability.

Despite the high rating for the quantitative category of Meaningful Work, other influencing factors contribute to the overall cultural effects on innovation. Specifically, Risk-Taking Culture, Open Communication, Empowerment, and a Learning Organization are factors worth exploring in the context of cultural effects, all of which obtained scores of 3.49 or higher in the quantitative surveys, indicating an average to moderate capacity. Interestingly, the topic of culture and its ability to inhibit innovation were raised extensively during the qualitative data collection efforts. The composite score for the factors contributing to cultural effects did have a positive impact on the overall innovation score. Organization types with a higher innovative capacity also obtained higher scores on factors considered innovate norms.

Integration Themes

Unguided Interactions, Competition, and Diffusion of Integration were themes that emerged specific to integration.

Unguided Interactions

Many of the organizations assessed through this research indicated the presence of a process for managing innovation, albeit inconsistent. This did not translate to the efforts for integration, which the existence of a formal process or methodology for integration activities was a rare occurrence. Some organizations would use components of their innovation process for integrating, though the outcomes were not always as desired or expected. Hattori and Lapidus (2004) confirmed this finding. Organizations rarely focus on the practices, mindset, and relationships required for collaboration of people, teams, and organizations. Unguided Interactions focuses on the challenge health care organizations are having with spanning the boundaries to deliver across the full cycle of care and the health care system at the consumer level.

Integration among business units, products, and organizations requires significant foresight and planning. This planning must be flexible and adapt as conditions change internally within the organization and externally in the market. Core competencies must also be flexible. However, more often than not, core competencies and the interrelationships and linkages that support these competencies become rigid and increasingly difficult to change (Galunic & Rodan, 1998). Health care integration is no exception to this. There is also the added complexity of the system that must be overcome. Because of this complexity, many organizations are unclear as to how and where to begin.

One of the top reasons teams fail is that they are too internally focused (Ancona & Bresman, 2007). The organizations in this study and professionals in the health care industry have an opportunity to create greater value at the consumer level, but this must be accomplished through the strengthening of key factors including externally focused planning, agile decision-making, and the development of the integration factors. This does not require the extensive build-out of a complex process but a process with simple rules to manage the complexity of the system. These teams, whether internal to an organization or across organizations, can strengthen their ability to innovate and change by focusing on the development of these integrative capacities. This will provide the balanced focus and structure to ensure interactions are also guided with an external perspective.

Competition

There are two aspects of competition that were uncovered through this research. The first aspect focused on the capacity of organizations to monitor competitors, use competitors as a benchmark, and respond quickly to competitor actions in the market. The organizations were quite strong in their ability to monitor competitors but had a perceived and lessened capacity to respond to the intelligence. All scores indicated that monitoring the competition was an innovative strength for health care organizations.

The second aspect focused on the relationships among functions, business units, and organizations within the system and sub-systems. The more complexity involved in a project, the greater the need and likelihood for involvement of collaborative relationships with other organizations (Barczak et al., 2009). However, relationships between organizations within the health care system are predominantly competitive in nature. For those entities that serve consumers in ways that are complementary to each other, there is a more cooperative stance taken. When there is a collaborative relationship with a highly invested level of trust focused on the good of the whole there is the potential for breakthrough innovation (Hattori & Lapidus, 2004).

Collaboration has direct benefits for the organization as well as the consumer. Organizations that collaborate have an opportunity to improve their market position in the market and within the collaborative relationship (Hamel, 1991, p. 83). This study was not conclusive on this point but did find some moderate anecdotal successes despite barriers identified by the respondents. The barriers to collaboration identified were due to the lack of structure, process, and standard protocols for how to work with other organizations to problem solve. This gap was not found in the development of the relationship but in the implementation of the relationship and the integrated project, likely due to the lack of a defined strategic plan for alliances.

Diffusion

Diffusion of best practices in the U.S. health care industry is lengthy and even non-existent in some sectors (Institute of Medicine, 2001, p. 13). This was confirmed by the study, particularly related to integrated products, services, models, processes, and relationships. There are a number of reasons for what appears to be limited integrative capacity.

Underlying the ability to integrate is the development of trust and relationships (Hattori & Lapidus, 2004). The sharing and documenting of best practices is done internally within an organization. However, competition with similar organizations and even complementary organizations inhibits open sharing of best practices. Despite the market follower philosophy prevalent in the industry and the consistency in monitoring competitors, what is often being monitored are the standard offerings and information that is readily available including press releases, marketing materials, and recent publicly reported competitor actions. Best practices are typically guarded to gain competitive advantage versus shared to facilitate improvement across the system or to benefit the greater good.

This lack of diffusion of integration efforts can also be attributed to the lack of consistency and volume in producing integrative initiatives and outcomes. There were very few best practices identified through the research that promoted integration across the health care system. Additionally, there was an open admittance that the industry and the participant/respondents' organizations were not striving for or considered their organizations to be market leaders in this area. The variance in cost and quality for the same type of care, services, and providers also contributes to an inability to share best practices or even connect practices in the development of a full care cycle approach. Herzlinger (2006) confirmed that with presence of such a highly diverse product line in health care and each interaction with a consumer being unique, economies of scale are shifted to distribution and purchasing.

Related to both Unguided Interactions and Diffusion is the lack of accountability assumed by health care organizations for integrative activities. With a primary focus on lowering costs, coordinating care and integration across organizations to deliver full cycle care is often viewed as a secondary requirement. In some cases, organizations do not consider the challenge of integration to be their responsibility and even consider it to be outside of their scope. More often, organizations are overwhelmed with the complexity of the health care system and how to affect the change required. Plesk (2001) notes that to stimulate change in a complex adaptive system, a good starting point is to generate a "good enough plan" which is followed by observation and then evolutionary modifications. There is no possible way to anticipate how the changes will affect the system and how the system will work together. Collaborative relationships may offer an improved ability to remain a viable business and achieve competitive advantage (Hattori & Lapidus, 2004).

Overall Capacity Themes

A number of the themes were prominent in the research for both innovative capacity and integrative capacity. Thus, it is necessary to review the themes of Unfunded Vision, Unbalanced Prioritization, and Unit versus System Focus with a discussion of the interrelationships between innovation and integration.

Unfunded Vision

One of the barriers to innovation and integration for most organizations was the lack of resources (e.g. skilled people, cutting-edge technology, and/or capital). Accountability for funding and providing resources was also raised relative to integration activities and collaborative relationships with other organizations. The debate about process ownership and coverage for expenses for integrated activities serves as a barrier to innovation and change across the system. These findings were similar to the Innovation Excellence 2005 study from Arthur D. Little in many regards. The internal barriers identified in that study ranked higher than the external barriers. The lack of resources and organizational barriers, among others, were the top internal barriers to innovation. Financial barriers were a top external barrier identified that further confirmed the data gathered in this study.

The lack of resources can be attributed to a number of factors. The first potential gap that must be considered is the ability for an organization to acquire, transfer, and build knowledge, or be an effective

learning organization (Daft, 2005, pp. 600 – 601). This study revealed high average scores for the Learning Organization and Empowerment factors, which measured characteristics that are contributory to the ability of a learning organization. Organization types with lower scores for the Learning Organization factor also tended to have overall lower innovative scores (e.g. Pharmacy Manufacturer and Pharmacy Benefit Manager). The lack of capacity as a learning organization can impact the acquisition, transfer, or building of the necessary pool of human capital to drive innovative and integrative efforts.

The lack of management buy-in is another potential issue that warrants exploration. Management buy-in has a significant impact on the ability to innovate and integrate, have a sense of urgency, and to respond to crises and the needs of the market. Akgun, Byrne, Lynn, and Keskin (2007) confirmed this and further identified that team learning, speed-to-market, and new product success are positively impacted with management support. The lack of management buy-in was identified in this study and affiliated with deficiencies in Agile Decision-Making and Business Planning characteristics.

Decisions are not always made at the level where the best information is available. There is the presence of deep hierarchies and bureaucratic decision-making features that inhibit decision-making processes and there may not be alignment between the vision and plan, resulting in the denial of funds or resources. Further, the use of simulation and scenario planning are not dominant practices for many organizations. There is also the likely scenario that only a limited amount of funds and resources are available to allocate across the organization for innovation and integration activities. These issues can all impact the ability to develop and disseminate resources in a timely manner and for the appropriate objectives.

Unbalanced Prioritization

Many of the organizations in the study identified the lack of a prioritization process as one the inhibitors to the availability and appropriate allocation of resources. Business planning, or the lack thereof, also contributed to this issue. The challenge for organizations began with the void of a business plan in an environment faced with limited resources. Without a defined plan and objectives to follow, the organization and key decision-makers were ineffective in the allocation of the available resources.

A more prominent issue faced by all organizations was the inability to balance the project portfolio and investment allocation on both existing and new competencies or technology. Long-term viability of a business is contingent upon the ability of the organization to manage and invest in both and to effectively weather incremental and revolutionary change. Again, the two lowest rated factors, Agile Decision-Making and Business Planning are related to this theme. The qualitative data also showed gaps in these areas including a lessened capacity to encourage new ideas, take risks, and assess business opportunities without being constrained by the current business environment.

There is long employee tenure and long-standing operational and technological infrastructure in many health organizations. This historical context and cultural effects can breed complacency and rigidity and are an impediment to innovation and integration. As evidenced in the study, organizations with a stable and utilized product development process had greater perceived control over prioritization and allocation of resources. This could be perceived as a positive contributor to innovate and integrative capacity since best-practice companies have all implemented some form of idea-to commercialization system (Cooper, 2008). However, this could also be indicative of a strong focus on managing the current mainstream business. Katz (2003) recognized that managing the existing mainstream business requires managers to emphasize control, predictability, operating efficiency, and profit margins and likely, continuous incremental improvement.

In contrast, managing a new business requires a focus on innovation, risk taking, and market acceptance and tends to be fraught with uncertainty, inefficiency, and high costs (Katz, 2003). A number

of organizations indicated the need for this balance and found that supporting different organizational architectures, one focused on management and the other focused on development, alleviated some of the internal conflict. Ambidexterity, or the ability to pursue both incremental innovation (existing mainstream business) and new innovations requires creation of multiple, and typically incongruous, structures, processes, and cultures (Tushman & O'Reilly, 1996/2004).

Unit versus System Focus

Gatignon et al. (2002) found that innovations in systems or sub-systems that were considered core to the business were considered more strategic and executed quickly. Innovations that required acquisition of new competencies from outside of the organization to build on existing competencies were also most successful. The relatively low scores for the three integration factors reveal a deficiency across the industry. Further, the inability or even unwillingness to share programs and resources or garner expertise from external networks will be an inhibitor to system-wide innovation and integration.

The lack of customer focus also perpetuates a unit versus system focus for many health care organizations. Haines et al. (2005, p. 21) noted that customer orientation is the basis for systems thinking and overshadows innovation driven by regulatory decisions, operational efficiencies, making profit, or product orientation. This study revealed stronger scores for Customer Orientation but significantly lower scores for each of the three integration factors: Internal Collaborative Process, Distributed Learning Network, and Cross-Boundary Collaboration. The focus of many innovation activities was in fact driven by regulatory decisions, operational efficiencies, and a product or benefit design orientation.

Competing in the current health care system requires extensive collaborative arrangements. Organizations and individual care providers must combine offerings to effectively deliver a solution focused on the experience of the consumer. This has been inhibited in the past because of a product orientation versus market orientation. The industry has been delivering sick care that focuses on specific conditions or disease states versus providing a solution focused on ensuring the general well-being of an individual. Even within organizations, business units are structured to manage individual profit and loss statements versus the contribution for the greater good of the business, or even the consumer. The results of this study recognize the significant fragmentation in care delivery and supports prior research (Herzlinger, 2007; Nembhard, Alexander, Hoff, & Ramanujam, 2009; Porter & Teisberg, 2006).

A healthy system requires continual connections. There is learning within the system and about the system that is ongoing and the entire system must be involved (Wheatley, 1999). The health care organizations assessed as part of this study have many strong characteristics contributing to the innovation and integration factors. The strong cultural platform in many organizations will facilitate improvement in those deficient areas. However, a concerted effort will need to be made to accomplish these improvements, particularly for the integration factors.

Managerial Implications

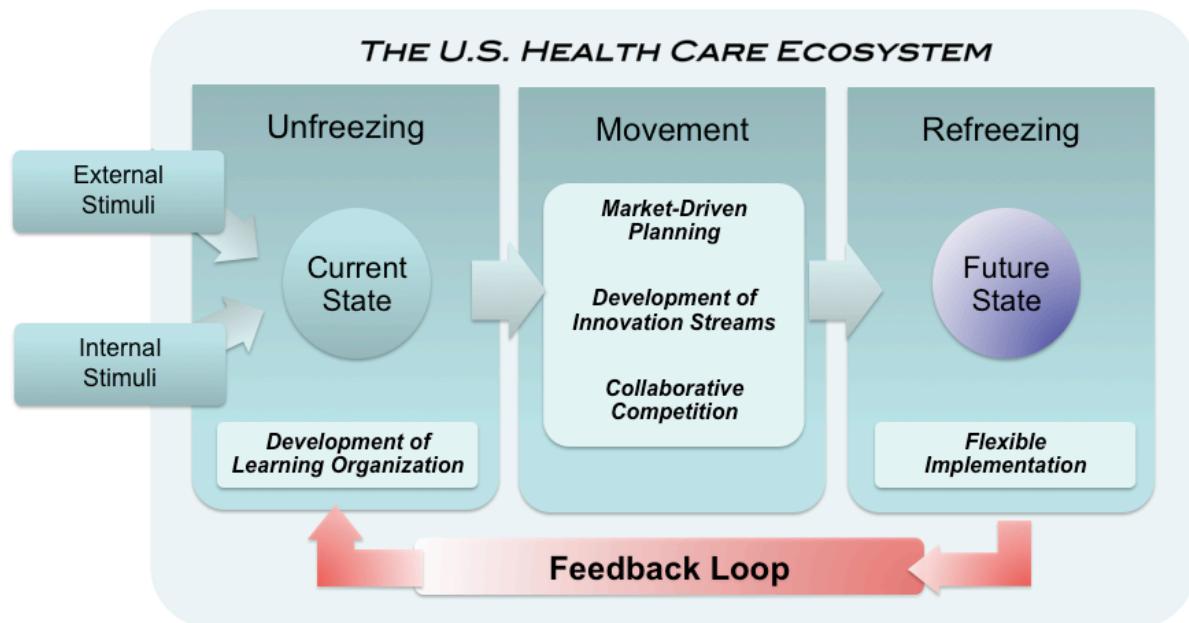
Understanding what factors are ranked lower for innovative and integrative capacity provides the platform for development of strategies that will improve innovation and integration success, and ultimately change, within the U.S. health care system. Additionally, the overlap between the quantitative and qualitative data helped to solidify common opportunities for improvement and application in the health care industry for organizations and practitioners.

At a basic level, organizations must establish an understanding for the operational definitions that will be used for innovation and integration. These definitions must also incorporate the expectations required of teams, business units, and organizations. Specifically, this involves definition of the goals and objectives that if accomplished, would be considered a successful innovation or integration activity. The

HVII Assessment Tool factors, which are based on the literature and extensive research, are a logical starting point for organizations. These factors can provide the framework and the critical elements that are necessary to realize full innovative and integrative capacity.

Beyond the initial step of operational definitions, there are seven recommendations that are outlined in this section that can be further supported by the literature. These recommendations require organizations and health care professionals to create learning organizations and teams, promote market-driven planning, use a systems thinking approach, build innovation streams, encourage collaborative competition, and enable flexible implementation. Each of these recommendations serves to fill the gaps and strengthen the weaknesses found in the ability of health care organizations to innovate, integrate, and affect change. Figure 6 provides a model for how health care organizations and professions could potentially tackle the seemingly insurmountable task of innovating and integrating across the U.S. health care system.

FIGURE 6: A MODEL FOR INNOVATIVE AND INTEGRATIVE CHANGE IN HEALTH CARE



The model is designed to provide a framework and starting point for organizations and health care professionals and is based on concepts and models from the literature (Cawsey & Deszca, 2007; Haines et al., 2005; Hoogendoorn et al., 2007; Lewin, 1951) and the results from this study. Organizational change is affected by internal (e.g. a shift towards a customer orientation) and external stimulants (e.g. health care reform) that unfreeze the current state of the organization. During the unfreezing period, communication and other variables representative of a culture of innovation and learning are a necessary platform to overcome resistant forces. As the resistant forces are changed, movement forward becomes possible.

Market-driven planning facilitates the unfreezing and establishes a direction for the organization to enter the movement phase. Innovation streams and collaborative competition can foster the change required to support the new state as determined by market-driven planning. Movement also includes implementation. However, it is within the refreezing phase that implementation takes on its adaptive and flexible form required for the health care system. Organizations do not fully refreeze but reach a certain level of stability, garner feedback, and set the process in place for further adaptation to meet market needs through innovation and collaboration. The internal organization thus facilitates systemic innovation and

integration through a focus on those themes or gaps in innovative and integrative capacity within the U.S. health care organizations.

Create Learning Organizations and Teams

Despite higher average ratings for many of the factors that are contributory to organizational culture, there are still opportunities for establishing a more innovative learning culture in most organizations. Culture is at the root of innovative and integrative capacity. How a company creates and shares knowledge is a key driver for sustainable competitive advantage and superior profitability (Drucker, 1992, von Krogh, Nonaka, & Aben, 2001/2004, p. 363). The ability to embrace and benefit from innovative ideas requires a workplace that is flexible, adaptable, and willing to take risks (Pech, 2003, p. 166). Promotion of these characteristics as part of the organizational culture requires establishing an environment that employees are not afraid to try or suggest new things and are rewarded for knowledge generation and knowledge application.

Promote Market-Driven Planning

There is significant support for adopting a market orientation for planning activities. Jaworski and Kohli (1993) found that a market orientation was related to overall business performance. Further, Paladino (2008) found that a market orientation was positively related to product quality, innovation, and customer value. The health care organizations assessed as part of this study revealed gaps in innovative and integrative capacity specific to planning and decision-making. Without some level of structure for planning innovative and integrative activities, the performance potential of an organization diminishes. In many cases, health care organizations and professionals struggle with the starting point and how to drive planning with a market orientation. Firms with a market orientation and strong customer focus have a greater capacity to learn about and anticipate customer needs (Paladino, 2008).

Build Innovation Streams

The constant struggle among the existing business and new business models, technologies, and processes was prevalent in the research findings. This struggle was exacerbated in the prioritization of initiatives and allocation of resources. Organizations must expand the scope of innovation to ensure maintenance of the current business infrastructure while simultaneously developing new business opportunities to ensure long-term business viability. Competitive advantage is based on this ability to manage multiple types of innovation or innovation streams (Tushman & Smith, 2002/2004). The study results also indicated that culturally, organizations have many of the capacities that encourage management of a balanced portfolio. However, strengthening capacity in the areas of Agile Decision-Making, Business Planning, and Risk-Taking Culture will provide greater assurance for a flexible and adaptable workplace that is willing to embrace innovative ideas. Health care organizations can take a number of actions to build innovation streams including developing a sense of accountability at an individual level, develop different organizational architectures to ensure a steady cash flow while new business is being developed (Katz, 2003), balance compensation to encourage innovative behavior and support for new business opportunities.

Encourage Collaborative Competition

The lack of trust and process were identified as two of the most significant barriers to relationship development and implementation across boundaries. A paradigm shift towards a competitive collaboration is required across the U.S. health care system to focus on development of products, services, processes, and relationships that promote knowledge sharing and deliver for the greater good versus the benefit of a single unit. Collaboration is a source of competitive advantage, particularly in new product

ventures (Handfield et al., 1999/2004; Kanter, 1994). Strengthening collaboration will facilitate a change in the competitive dynamics of an industry that needs to focus on the value and results delivered instead of on competition to shift costs, limit services, and standardize offerings.

Fostering a new type of collaborative competition that balances conflicting goals and determines the appropriate level of information sharing across boundaries is a challenging proposition. The theory of co-evolution can provide some guidance in this regard. The internal dynamics of co-evolution is based on striking that balance between collaboration and competition. It also establishes the understanding that the number of linkages will facilitate growth, agility, and economies of scope (Eisenhardt & Galunic, 2000/2004).

The ability to adapt and shift over time, regroup, or disband is a unique characteristic that allows organizations to pursue the right opportunities at the right time with the right synergistic relationships. The key to success is to focus on the external environment to the team. In health care, this requires understanding not only the internal business model and nuances, but also the entire health care system and beyond what the organization may view as traditional competitors. Organizations together can create value that no single firm can create alone. However, standing firm on the position or with the relationship can result in stagnation and loss of competitive advantage. The arrangement must be iterative and agile, much like the market-driven planning process.

Collaboration across the system can be further promoted through rapid diffusion of best practices. In addition the creation of a knowledge base that was outlined earlier, another method for reaching key health care professionals is through health care conferences, forums, and trade shows. Health care professionals and organizations should consider these venues to discuss innovation and integration across the full care cycle. These venues also provide an opportunity to share analytical tools that can provide the framework to guide decision-making and innovation towards a system-wide delivery of services. Introduction to concepts, theory, or tools facilitates linkages to decision-making and action (Zulauf, 2007). Further review and comparison of the best practices, processes, approaches, and organizational characteristics that drive change to support innovation success from ideation through commercialization and sunset can serve as an intervention for knowledge acquisition.

Enable Flexible Implementation

The results of the study indicated a challenge with implementation, particularly related to integration initiatives. There was a lack of process for how to collaborate with other organizations. Nembhard et al. (2009) had similar findings relative to health care organizations and had completed a study that delineated between execution and implementation. This difference is relevant for the next steps that health care professionals will need to consider. Execution is defined as a static approach to accomplishing an objective while implementation is characterized by allowing changes to achieve the desired use of the innovation. Thus, the failure of implementation is the inability of the innovation to be used and assimilated (Nembhard et al., 2009).

As health care professionals and organizations consider improvements in implementation practices, particularly for integration projects, an allowance for the natural evolution of the initiatives and interactions within the system are necessary. Health care professionals will need to focus on process. However the process must be flexible and dynamic. Implementing a pilot project is an ideal approach for assuring agility and for allowing a natural evolution of the plan. This natural evolution will also ensure that the organization changes continuously (Medley & Akan, 2008) while also opening the possibility for stimulation of other changes that are unexpected (Plesk, 2001).

Use a Systems Thinking Approach

The U.S. health care system is a notably complex system. To be a complex system, there must be an overall output that interacts or is caused by a change agent between the levels of the system. Further, the output that results in one level is different than the output at other levels (Boyatzis, 2006, p. 608). Integrated care extends beyond patient needs based on a hierarchy, to patient needs across conditions, disease states, or events. This requires expansion in the scope of innovation to include integrative activities across the system.

Health care professionals and organizations can begin with taking a “backwards thinking” approach in planning and decision-making. The well-known adage “begin with the end in mind” is most applicable here. Backwards thinking begins with establishing a vision of the ideal future state. The Market-Driven Planning approach outlined earlier can facilitate this visioning. A review of the end-state and the desired outputs requires health care professionals to then work backwards to determine potential approaches to achieve the desired outcome. This approach to thinking helps to identify the gaps in meeting the ideal objectives instead of solving the current problems with no eye to the future (Haines et al., 2005, p. 64). Filling these gaps can then be done internally to the organization or in collaboration with other organizations.

The aspect that has not yet been covered within this recommendation is the issue of accountability. Throughout the research results, it was clear that no single organization type clearly claimed ownership for coordination across the system. Accountability for collective performance will need to come from a “higher power”. In the case of the U.S. health care system, that will likely come in the form of the U.S. Government. However, in the milieu of activity, health care professionals and organizations can be proactive by taking ownership for each of their relative pieces within the system. Determination of system fit based on the value curve can guide this decision-making.

Beyond assuming individual accountability, the organizations that appear to be the best fit for serving as a hub for care coordination are the health plans/insurers. The health plans/insurers will have significant obstacles to overcome to effectively play this role including technological limitations, integration gaps, and the lack of market focus. These can be overcome through many of the recommendations contained herein. The most significant obstacle will be to establish this organization type as a trusted adviser at a consumer level and overcoming the negative perception of health insurance as the third most hated industry in the U.S. Some of the health plans/insurers in this study are better equipped and amenable to this type of role than others. All will need to be up to the challenge of furthering their innovative and integrative capacity.

Given the complexity of the U.S. health care system a simplistic yet effective approach to interactions is much more palatable for health care professionals and organizations. Considering this theory and approach, organizations determine how to interact within the system through market-driven planning and generate a plan that is reasonable, though likely not perfect. Observation of the plan will generate modifications and subsequently impacts to the system. All elements are changeable and the cycle begins anew. The ultimate task for health care professionals and organizations will be to support self-organization through knowledge acquisition and application, market-driven planning, innovation streams, collaborative competition, and flexible implementation practices.

LIMITATIONS AND FUTURE RESEARCH

This study serves as the first step in a series of evaluations that could provide insight and new knowledge for how organizations in the U.S. health care system innovate, integrate, and affect change. Although the present study contributes both to theory and managerial practice, several limitations and

delimitations are acknowledged. The research was limited to a cross-sectional study that takes place at a single point in time. Innovation and integration efforts are often long-term initiatives that extend beyond a six-month timeframe. A longitudinal study would increase confidence in the measures and the assessment tool model.

The sample for this study was also restricted to health care organizations within the U.S. health care system. Future research should explore the research questions and test the assessment tool through samples in other geographic parts of the world with alternative health care system models. Comparison of these results among systems and geographic regions could improve the generalizability of this study or reveal differences, best practices, and knowledge to improve systems worldwide.

There are a number of opportunities to expand and further validate the theoretical model of this study. Future research should address the question of primacy of innovation or integration (i.e. whether innovation drives integration, or integration drives innovation). It is clear that there are relationships among innovation and integration factors. It is also clear from the qualitative data that integration is considered the progenitor for breakthrough innovation and systemic change. A more detailed causal investigation by factor and by organization type could provide conclusive results for the cause-effect relationship and primacy.

The dominance of market-follower strategies utilized by many health care organizations raises additional questions relative to the performance of the organizations utilizing this type of strategy. Intended imitation may inadvertently produce innovation due to the inaccurate imitation of the innovation being observed or copied (Greve & Taylor, 2000). Further research comparing the innovations produced by leaders and their followers could have interesting application to the theories on competence-destroying and competence-enhancing innovation (Anderson & Tushman, 1991/2004).

The outcomes of the quantitative data from this study indicated a lower level of capacity for organizations for the integration factors. Further, the qualitative data revealed significant challenges for health care organizations related to integration activities within their organizations and with other organizations across the system. The addition of expanded and alternative factors and sub-factors within these integration categories should provide further depth to indicate the effect on innovation and change efforts. These integration factors identified and the operationalization for this study was acceptable. However, further refinement of the measures could improve the assessment tool.

Finally, the addition of detailed characteristics for the responding organizations would allow for a deeper analysis of the impacts of innovative and integrative capacity on business performance. Measures for organizational profit levels, number of new product launches, product successes and failures, and integration activities could provide new knowledge and best practices for delivering innovation and integration. Specifically, this would focus on identifying which factors have the greatest impact on the performance.

CONCLUSION

The U.S. healthcare system is an interconnected, interdependent system with interacting parts. Unfortunately, there are misaligned incentives for providers, lack of a proper distribution channel for best practices, mandatory government requirements that serve to protect but can do more harm, lags in technology to support consumer and provider needs, and overall competing interests for limited funding and human capital. The players are vast and include large insurance companies and pharmaceutical giants as well as small regional niche players delivering specialty services and content.

Achieving customer value and superior results requires an approach that manages and integrates processes and individuals within the system and beyond a single organization or provider. Innovation in

the healthcare system is often fragmented with various parts of the system working towards opposite ends. Consequently, a systems approach to delivery, and specifically innovation across the full care cycle, is desirable but difficult to implement.

This research confirmed that health care organizations across the system have a slightly higher innovative capacity than integrative capacity. There were slight differences in these capacities based on organization type. However, the themes representing the challenges encountered by each organization type were consistent. Relationships were also identified among the innovation and integration variables with varying degrees of strength. The greatest opportunities for development for health care professionals and organizations to consider were related to Agile Decision-Making, Business Planning, Internal Collaborative Process, Distributed Learning Network, and Cross-Boundary Collaboration.

Creating a competitive advantage in the marketplace and delivering a health care strategy and system for the benefit of the greater good does require multi-stakeholder collaboration. Only collectively across all levels of the U.S. health care system will organizations and health care professionals be able to affect and deliver the change required in health care. The managerial implications discussed as a result of this research are offered as a foundation and are not meant to be the only methods for improving innovative and integrative capacity. It is hoped that this is the beginning of a knowledge base that will grow and evolve as the new U.S. health care system emerges and evolves.

REFERENCES

- Aiman-Smith, L., Goodrich, N., Roberts, D., & Scinta, J. (2005, March/April). Assessing Your Organization's Potential for Value Innovation. *Research Technology Management*, 48(2), 37-42.
- Aiman-Smith, L., & Markham, S. K. (2004, May/June). What You Should Know About Using Surveys. *Research Technology Management*, 47(3), 12-15.
- Akgun, A. E., Byrne, J. C., Lynn, G. S., & Keskin, H. (2007). Team stressors, management support, and project and process outcomes in new product development projects. *Technovation*, 27, 628-639.
doi:10.1016/j.technovation.2007.02.008
- Amidon, D. M. (1997). *Innovation Strategy for the Knowledge Economy: The Ken Awakening*. Boston, MA: Butterworth-Heinemann.
- Ancona, D., & Bresman, H. (2007). *X-teams: How to Build Teams That Lead, Innovate and Succeed*. United States of America: Harvard Business School Publishing Corporation.
- Barczak, G., Griffin, A., & Kahn, K. B. (2009, January). Perspective: Trends and Drivers of Success in NPD Practices: Results of the 2003 PDMA Best Practices Study. *The Journal of Product Innovation Management*, 26(1), 3-23.
- Boyatzis, R. E. (2006). An overview of intentional change from a complexity perspective. *Journal of Management Development*, 25(7), 607-623.
- Cash, J. I., Jr., Earl, M. J., & Morison, R. (2008, November). Teaming Up to Crack Innovation and Enterprise Integration. *Harvard Business Review*, 86(11), 90-100.
- Cawsey, T., & Deszca, G. (2007). *Toolkit for Organizational Change*. Thousand Oaks, CA: Sage Publications.
- Chalofsky, N., & Krishna, V. (2009, April). Meaningfulness, Commitment, and Engagement: The Intersection of a Deeper Level of Intrinsic Motivation. *Advances in Developing Human Resources*, 11(2), 189-203.
- Christensen, C. M., Grossman, J. H., and Hwang, J. (2009). *The Innovator's Prescription*. New York: The McGraw-Hill Companies.

- Cooper, R. G. (2008, May). Perspective: The Stage-Gate Idea-to-Launch Process - Update, What's New, and NexGen Systems. *The Journal of Product Innovation Management*, 25(3), 213-232.
- Daft, R. L. (2005). *The Leadership Experience* (Third ed.). Canada: Thomson Corporation: South-Western.
- de Caluwe, L., & Vermaak, H. (2003). Chapter 2: Why Change is Complicated. In *Learning to Change: A Guide for Organizational Change Agents* (pp. 6-38). Thousand Oaks, CA: Sage Publications.
- Dillon, T. A., Lee, R. K., & Matheson, D. (2005, March/April). Value Innovation: Passport to Wealth Creation. *Research Technology Management*, 48(2), 22-36.
- Drucker, P. F. (2002, August). The Discipline of Innovation. *Harvard Business Review*, 95-103.
- Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *Academy of Management Review*, 14(4), 532-550.
- Falletta, S. V. (2005). *Organizational Diagnostic Models: A Review & Synthesis*. Unpublished manuscript. Retrieved February 17, 2009, from Leadersphere Web site: <http://www.leadersphere.com>
- Fink, A. (2003). *The Survey Handbook: Vol. 1. The Survey Kit* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc. (Original work published 1995).
- Fruhling, A. L., & Siau, K. (2007, Fall). Assessing Organizational Innovation Capability and Its Effect on E-Commerce Initiatives. *The Journal of Computer Information Systems*, 48(1), 133-145.
- Galunic, D. C., & Rodan, S. (1998). Resource Recombinations in the Firm: Knowledge Structures and the Potential for Schumpeterian Innovation. *Strategic Management Journal*, 19, 1193-1201.
- Gatignon, H., Tushman, M. L., Smith, W., & Anderson, P. (2002, September). A Structural Approach to Assessing Innovation: Construct Development of Innovation Locus, Type, and Characteristics. *Management Science*, 48(9), 1103-1122.
- Gatignon, H., & Xuereb, J.-M. (1997, February). Strategic Orientation of the Firm and New Product Performance. *Journal of Marketing Research*, 34(1), 77-90.
- Greve, H. R., & Taylor, A. (2000, March). Innovations as catalysts for organizational change: Shifts in Organizational Cognition and Search. *Administrative Science Quarterly*, 45(1), 54-80.
- Haines, S. G., Aller-Stead, G., & McKinlay, J. (2005). *Enterprise-Wide Change*. San Francisco, CA: Pfeiffer.
- Hamel, G. (1991). Competition for Competence and Inter-Partner Learning within International Strategic Alliances. *Strategic Management Journal*, 12, 83-103.
- Hattori, R. A., & Lapidus, T. (2004, June). Collaboration, trust and innovative change. *Journal of Change Management*, 4(2), 97-104.
- Heckathorn, D. D. (1997, May). Respondent-driven sampling: A new approach to the study of hidden populations. *Social Problems*, 44(2), 174-199.
- Herzlinger, R. (2007). *Who Killed Health Care?* United States: The McGraw-Hill Companies.
- Herzlinger, R. E. (2006, May). Why Innovation in Health Care is So Hard. *Harvard Business Review*, 84(5), 58-66.
- Hoogendoorn, M., Jonker, C. M., Schut, M. C., & Treur, J. (2007, June). Modeling centralized organization of organizational change. *Computational and Mathematical Organization Theory*, 13(2), 147-184.
- Innovation Excellence 2005: How companies use innovation to improve profitability and growth.* (2005, February). Retrieved February 12, 2009, from <http://www.adl.com>

- Institute of Medicine. (2001). *Crossing the Quality Chasm* (Committee on Quality of Health Care In America, Trans.). United States: The National Academies of Sciences.
- Jaworski, B. J., & Kohli, A. K. (1993, July). Market Orientation: Antecedents and Consequences. *Journal of Marketing*, 57, 53-70.
- Jobber, D., & Lucas, G. J. (2000, August). Research notes and communications: The modified Tichy TPC framework for pattern matching and hypothesis development in historical case study research. *Strategic Management Journal*, 21(8), 865-874.
- Kanter, R. M. (1994, July/August). Collaborative Advantage: The Art of Alliances. *Harvard Business Review*, 72(4), 96-108. Retrieved February 19, 2009, from Harvard Business School Web site: <http://www.hbr.harvardbusiness.org>
- Katz, R. (Ed.). (2003). *Managing Creativity and Innovation*. Boston, MA: Harvard Business School Press.
- Kielstra, P. (2009, June 19). *Doctor Innovation: Shaking up the health system* (G. Lofthouse, I. Scott, & J. Watson, Eds.). Retrieved July 7, 2009, from Economist Intelligence Unit; Commissioned by Philips Web site: <http://www.getinsidehealth.com>
- Kim, W. C., & Mauborgne, R. (1999, Spring). Strategy, Value Innovation, and the Knowledge Economy. *Sloan Management Review*, 40(3), 41-54.
- Kim, W. C., & Mauborgne, R. (2005). *Blue Ocean Strategy*. Boston, MA: Harvard Business School Press.
- Kotler, P., Shallowitz, J., & Stevens, R. J. (2008). *Strategic Marketing for Health Care Organizations*. San Francisco, CA: Jossey-Bass.
- Kumar, K., Subramanian, R., & Yauger, C. (1998). Examining the Market Orientation-Performance Relationship: A Context-Specific Study. *Journal of Management*, 24, 201-233.
- Lee, J., & Veloso, F. M. (2008, September). Interfirm Innovation under Uncertainty: Empirical Evidence for Strategic Knowledge Partitioning. *The Journal of Product Innovation Management*, 25(5), 418-435.
- Lewin, K. (1951). *Field theory in social science*. New York: Harper & Row.
- Li, H., & Atuahene-Gima, K. (2001, December). Product Innovation Strategy and the Performance of New Technology Ventures in China. *Academy of Management Journal*, 44(6), 1123-1134.
- Mankin, E. (2007, November/December). Measuring Innovation Performance. *Research Technology Management*, 50(6), 5-7.
- Matheson, D., & Matheson, J. (1998). *The Smart Organization*. Boston, MA: Harvard Business School Press.
- Medley, B. C., & Akan, O. H. (2008, Summer). Creating Positive Change in Community Organizations. *Nonprofit Management & Leadership*, 18(4), 485-496.
- Merriam, S. B. (1998). *Qualitative Research and Case Study Applications in Education*. San Francisco, California: Jossey-Bass.
- Midgley, G. (2008). Systems Thinking, Complexity and the Philosophy of Science. *Emergence: Complexity and Organization*, 10(4), 55-73.
- Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of new methods*. Beverly Hills, CA: Sage Publications.
- Millman, A. F. (2001). Understanding Barriers to Product Innovation at the R&D/Marketing Interface. *European Journal of Marketing*, 16(5), 22-34.

- Nembhard, I. M., Alexander, J. A., Hoff, T. J., & Ramanujam, R. (2009, February). Why Does the Quality of Health Care Continue to Lag? Insights from Management Research. *Academy of Management Perspectives*, 24-42.
- Paladino, A. (2007, November). Investigating the Drivers of Innovation and New Product Success: A Comparison of Strategic Orientations. *The Journal of Product Innovation Management*, 24(6), 534-553.
- Paladino, A. (2008, November). Analyzing the Effects of Market and Resource Orientations on Innovative Outcomes in Times of Turbulence. *The Journal of Product Innovation Management*, 25(6), 577-607.
- Pech, R. J. (2003). Memetics and innovation: Profit through balanced meme management. *European Journal of Innovation Management*, 6(2), 111-117.
- Plesk, P. (2001). Redesigning Health Care with Insights from the Science of Complex Adaptive Systems. In *Crossing the Quality Chasm* (pp. 309-322) [Afterword]. United States: The National Academy of Sciences.
- Porter, M. E., & Teisberg, E.O. (2006). *Redefining Health Care: Creating Value-Based Competition on Results*. Boston, MA: Harvard Business School Press.
- Rogers, L. (2007). *03 Case Study Research*. Unpublished manuscript, International School of Management, Paris, France.
- Rogers, L. (2009). *10 Questionnaire Design*. Unpublished manuscript, International School of Management, Paris, France.
- Rowley, J. (2003). Action research: and approach to student work based learning. *Education & Training*, 45(2/3), 131-138.
- Schumpeter, J. A. (1942). *Capitalism, Socialism, and Democracy*. New York : Harper & Brothers Publishers.
- Teece, D. J. (1996). Firm organization, industrial structure, and technological innovation. *Journal of Economic Behavior & Organization*, 193-224.
- Tichy, N. M. (1983). *Managing Strategic Change: Technical, Political, and Cultural Dynamics*. New York: Wiley.
- Toffler, A., & Toffler, H. (1995). *Creating a New Civilization: The Politics of the Third Wave*. Atlanta, GA: Turner Publishing, Inc. (Original work published 1994).
- Trochim, W. M. (2005). *Research Methods: The Concise Knowledge Base*. United States: Thomson.
- Tushman, M. L., & Anderson, P. (Eds.). (2004). The Ambidextrous Organization: Managing Evolutionary and Revolutionary Change. In *Managing Strategic Innovation and Change* (2nd ed., pp. 276-291). New York: Oxford University Press. (Reprinted from *The Ambidextrous Organization: Managing Evolutionary and Revolutionary Change*, Vol. 38, by M. L. Tushman & C. O'Reilly III, 1996, California Management Review).
- Tushman, M. L., & Anderson, P. (Eds.). (2004). Coevolving: At Last, a Way to Make Synergies Work. In *Managing Strategic Innovation and Change* (2nd ed., pp. 457-467). New York: Oxford University Press. (Reprinted from *Coevolving: At Last, a Way to Make Synergies Work*, by K. M. Eisenhardt & D. C. Galunic, 2000, UK: Harvard Business School Publishing Corporation).
- Tushman, M. L., & Anderson, P. (Eds.). (2004). Innovation Over Time and In Historical Context. In *Managing Strategic Innovation and Change* (2nd ed., pp. 35-41). New York: Oxford University Press. (Reprinted from *Managing Through Cycles of Technological Change*, pp. 26-31, by P. Anderson & M. L. Tushman, 1991, Research Technology Management).
- Tushman, M. L., & Anderson, P. (Eds.). (2004). Innovation Streams, Organization Designs, and Organizational Evolution. In *Managing Strategic Innovation and Change* (2nd ed., pp. 2-18). New York: Oxford University Press. (Reprinted from *Organizational Technology*, pp. 386-414, by M. L. Tushman & W. K. Smith, 2002, UK: Blackwell Publishers Ltd.).

- Tushman, M. L., & Anderson, P. (Eds.). (2004). Involving Suppliers in New Product Development. In *Managing Strategic Innovation and Change* (2nd ed., pp. 506-522). New York: Oxford University Press. (Reprinted from *Involving Suppliers in New Product Development*, Vol. 42, by R. B. Handfield, G. L. Ragatz, K. J. Petersen, & R. M. Monczka, 1999, The Regents of the University of California: California Management Review).
- Tushman, M. L., & Anderson, P. (Eds.). (2004). Making the Most of Your Company's Knowledge: A Strategic Framework. In *Managing Strategic Innovation and Change* (2nd ed., pp. 363-374). New York: Oxford University Press. (Reprinted from *Making the Most of Your Company's Knowledge: A Strategic Framework*, Vol. 34, pp. 421-439, by G. von Krogh, I. Nonaka, & M. Aben, 2001, Elsevier).
- Tushman, M. L., & Anderson, P. (Eds.). (2004). Managerial Problem Solving: A Congruence Approach. In *Managing Strategic Innovation and Change* (2nd ed., pp. 194-205). New York: Oxford University Press. (Reprinted from *Winning Through Innovation*, by M. L. Tushman & C. O'Reilly III, 2002, Harvard Business School Publishing Corporation).
- Tushman, M. L., & Anderson, P. (2004a). Preface. In M. L. Tushman & P. Anderson (Eds.), *Managing Strategic Innovation and Change* (2nd ed., pp. xi-xvi) [Preface]. New York: Oxford University Press.
- Tushman, M. L., & Anderson, P. (2004b). Section V: Knowledge, Learning, and Intellectual Capital. In M. L. Tushman & P. Anderson (Eds.), *Managing Strategic Innovation and Change* (2nd ed., pp. 361-362) [Introduction]. New York: Oxford University Press.
- Vaitheeswaran, V. (2007, October 13). Something New Under the Sun. *The Economist*, 385(8550), 3-4.
- Weber, E. P., Lovrich, N. P., & Gaffney, M. J. (2007, April). Assessing Collaborative Capacity in a Multidimensional World. *Administration & Society*, 39(2), 194-220.
- Wheatley, M. J. (1999). *Leadership and the new science: Discovering order in a chaotic world* (2nd ed.). San Francisco, CA: Berrett-Koehler Publishing.
- Yin, K. (1989). *Case Study Research, Design and Methods* (Vol. 5). Applied Social Research Methods Series. Newbury Park, CA: Sage Publications.
- Yu, J., & Cooper, H. (1983). A Quantitative Review of Research Design Effects on Response Rates to Questionnaires. *Journal of Marketing Research*, 20(20), 36-44.
- Zulauf, C. A. (2007). Learning to think systematically: what does it take? *The Learning Organization*, 14(6), 489-498. doi:10.1108/09696470710825105

APPENDICES

Appendix A: Qualitative Interview and Ventilation Questions

Interview Questions:

1. What are your biggest challenges in driving innovation within your health care organization? What processes do you use to accomplish this?
2. What are your biggest challenges in driving innovation between your health care organization and other organizations? What processes do you use to accomplish this?
3. What are your biggest challenges in driving integration within your health care organization? What processes do you use to accomplish this?
4. What are your biggest challenges in driving integration between your health care organization and other organizations? What processes do you use to accomplish this?
5. How does your organization acquire and apply new knowledge?
6. How are you answering the call for “coordination of care” or full care cycle management?

Ventilation Questions:

1. What did you like about the interview?
2. What did you dislike about the interview?
3. What questions did you find difficult to answer?
4. What questions did you not understand?
5. What could I have asked about but did not?

Appendix B: Pilot-Testing Survey Questions

How much do you agree with the statements below:

Pilot-Testing Survey Questions	<i>Please select one for each question</i>				
	<i>1 – Strongly Disagree</i>	<i>2 - Disagree</i>	<i>3 – Neither Agree nor Disagree</i>	<i>4 – Agree</i>	<i>5 – Strongly Agree</i>
1. The instructions for completing the survey were clearly written.	1	2	3	4	5
2. The questions were easy to understand.	1	2	3	4	5
3. The response choices were mutually exclusive.	1	2	3	4	5
4. The response choices were exhaustive.	1	2	3	4	5
5. Your privacy was respected and protected.	1	2	3	4	5
6. Do you have any suggestions regarding the addition or deletion of questions, the clarification of instructions, or improvements in format?	Please Comment:				

Appendix C: Final Health Value Innovation and Integration (HVII) Assessment Tool

It is clear that fundamental change is required within the U.S. health care system to ensure that quality, cost, and access meet the needs of our most important customer in the value chain – the consumer. The top minds in our industry have made recommendations for how to affect the change required at all levels within the health care system.

Complete the Health Value Innovation and Integration survey on the ability of your organization to value innovate and integrate across the health care system and get a FREE executive summary of the compiled results. Your responses will be kept confidential.

Please rate each of the following statements by selecting one of the numbers between 1 and 5:
1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; 5 = Strongly Agree.

Section 1: Value Innovation Factors

This first section focuses on characteristics relevant to innovation within your organization.

How much do you agree with the statements below:

Please select one for each question

<i>Meaningful Work</i>	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
1. Employees know that the work they do impacts what happens in our organization.	1	2	3	4	5
2. The work we do in the organization is meaningful.	1	2	3	4	5
3. The work we do in the organization does not impact customers.	1	2	3	4	5
4. Please add any other comments:					

<i>Risk-Taking Culture</i>	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
5. Being innovative is characteristic of our organization's culture.	1	2	3	4	5
6. Our organization's culture encourages employees to try new ideas.	1	2	3	4	5
7. Being willing to take risks is discouraged in the organization.	1	2	3	4	5
8. Our organization is adaptable to new situations.	1	2	3	4	5
9. Diversity of thought is discouraged in our organization.	1	2	3	4	5

Risk-Taking Culture	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
10. Please add any other comments:					
Customer Orientation	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
11. We regularly look at how we offer customers superior value.	1	2	3	4	5
12. We rarely re-examine who the target customers are for what we do.	1	2	3	4	5
13. We regularly look at how we can add more value to our customers.	1	2	3	4	5
14. We are encouraged to think in terms of total customer solutions.	1	2	3	4	5
15. Please add any other comments:					
Agile Decision-Making	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
16. We assess business opportunities without being constrained by where we are right now.	1	2	3	4	5
17. Decisions are usually made at the level where the best information is available.	1	2	3	4	5
18. Everyone is involved to some degree in our business planning.	1	2	3	4	5
19. We respond slowly to changes in the business environment.	1	2	3	4	5
20. Please add any other comments:					
Business Intelligence	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
21. We rarely monitor competitors.	1	2	3	4	5
22. We use competitors as our benchmark.	1	2	3	4	5
23. We respond quickly to competitors' actions.	1	2	3	4	5
24. Please add any other comments:					
Open Communication	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
25. We are unable to challenge the status quo.	1	2	3	4	5
26. We feel it's OK to speak out if we	1	2	3	4	5

Open Communication	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
disagree with others' decisions.					
27. Our organizational culture encourages employees to be open to change.	1	2	3	4	5
28. Please add any other comments:					
Empowerment	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
29. We are discouraged from identifying concerns about work.	1	2	3	4	5
30. We are encouraged to address work problems.	1	2	3	4	5
31. Individual independence is respected by our organization.	1	2	3	4	5
32. Please add any other comments:					
Business Planning	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
33. We use scenario planning as part of our business plan creation.	1	2	3	4	5
34. We do not use simulations as part of our business plan creation.	1	2	3	4	5
35. We estimate risks in each step when developing a business plan.	1	2	3	4	5
36. We take a broad value chain perspective when examining new opportunities.	1	2	3	4	5
37. Please add any other comments:					
Learning Organization	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
38. When redesigning products (or services) we use what employees have learned from their working experiences.	1	2	3	4	5
39. One of our innovation practices is finding out how our customers really use our products.	1	2	3	4	5
40. One of our innovation practices is identifying similar ways our customers use our products.	1	2	3	4	5
41. Please add any other comments:					

Section 2: Integration Factors

This second section focuses on characteristics relevant to integration activities and the ability of your organization to collaborate across boundaries.

How much do you agree with the statements below:

Please select one for each question

<i>Internal Collaborative Process</i>	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
42. Our innovation process includes other stakeholders (e.g. suppliers, customers, alliance partners).	1	2	3	4	5
43. We work to ensure our resources act as triggers for collaborative problem solving with stakeholders.	1	2	3	4	5
44. We share programs and resources with other business units in the corporation.	1	2	3	4	5
45. Our managers have a limited understanding of how the entire business can contribute to creating customer value.	1	2	3	4	5
46. Please add any other comments:					

<i>Distributed Learning Network</i>	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
47. We work to ensure our resources span (provide benefits to) several departments.	1	2	3	4	5
48. We work to ensure our resources span (provide benefits to) different levels within the company.	1	2	3	4	5
49. We have an internal network of expertise to provide assistance with business initiatives.	1	2	3	4	5
50. We do not have an external network of expertise to provide assistance with business initiatives.	1	2	3	4	5
51. We have methods to capture the learning from partner/alliance interactions.	1	2	3	4	5
52. Please add any other comments:					

Cross-Boundary Collaboration	1 – Strongly Disagree	2 - Disagree	3 – Neither Agree nor Disagree	4 – Agree	5 – Strongly Agree
53. We do not consider alternative channels of distribution for our products and services.	1	2	3	4	5
54. We have an alliance/partnership process that defines rules of participation and performance measures.	1	2	3	4	5
55. We have defined a map of our existing network of strategic alliances and have a plan for future evolution.	1	2	3	4	5
56. We have a plan for coordination of care (integration of our benefits and services) with other health care organizations.	1	2	3	4	5
57. We do not perceive external leadership activities as integral to the business (e.g. published journal articles, conference presentations, membership in industry associations).	1	2	3	4	5
58. Our view of the enterprise includes entities outside of the organization (e.g. stakeholders, partners, customers, providers).	1	2	3	4	5
59. Please add any other comments:					

Section 3: Demographics

This final section collects basic demographic information for research purposes. All responses will be kept confidential.

60. With which type of health care organization are you most closely aligned (please select one)?

- Health Plan/Insurer
- Hospital
- Provider, Physician, or Provider/Physician Group
- Pharmacy Benefit Manager
- Pharmacy Manufacturer
- Medical Equipment Supplier/Manufacturer
- Health Services Organization (e.g. health coaching, disease management, biometric screenings, etc.)
- Health Care Technology
- Brokerage Firm/Benefits Consulting Firm/Insurance Producer
- Other: _____

61. What organization do you work for? _____

62. In which sectors do you provide products or services (select all that apply)?

- Public Health Sector
- Private Health Sector

63. With which functional area are you most closely aligned (please select one)?

- Accounting
- Administrative Management/Corporate
- Clinical Services and Support
- Engineering
- Finance
- Human Resources
- Information Technology
- Marketing
- Operations or Service Delivery
- Supply Chain/Purchasing
- Quality Assurance
- Research and Development/Product Management or Development
- Training
- Other: _____

64. What is your role within your organization (please select one)?

- C-Level Executive
- Vice President
- Director
- Manager
- Physician or Provider
- Broker/Consultant
- Other: _____

Note: **Bold** items are reverse-scored.

Student Versus Employer Perceptions of College Graduate Skills

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College of business students who soon will graduate and representatives of employers likely to recruit them rated the skills "most important for [job] candidates to possess" and the skills "new college graduates most need to improve upon." Students' ratings for important to possess skills closely mirrored those of employers, demonstrating that efforts to teach students about employer preferences had been successful. Students' ratings of the skills most needing improvement differed dramatically from employers' ratings. Most critically, students rated "interviewing skills" as most in need of improvement whereas employers rated this in the middle range and employers rated "realistic expectations" and "lose sense of entitlement" as most in need of improvement whereas students rated these in the middle and low range. The results suggest that students develop career-related plans using accurate information about employer skill preferences but inaccurate information about their own skill deficiencies. Carefully targeted training likely will be required to improve student performance but success ultimately may depend upon developing academic and judgment skills.

Although professional success is the primary reason most students go to college, few matriculate with a clear sense of what will be important for their future success (Humphreys & Davenport, 2005). Instead students must learn about factors important to their future success so that they can make plans to maximize their future competitiveness. Although beginning college students tend to have a very limited view of what employers want (and perhaps what they want), by their senior year students should have a more sophisticated understanding of their own qualifications and of employers' needs and preferences. As students acquire information and develop academic skills, they should revise and improve their plans. An important first step in career planning for new college students is to learn about the skills desired by likely employers. Later steps involve revising earlier plans to accommodate new information, unanticipated problems, and changing opportunities. The final step is to identify skills that are not being adequately developed and then to revise plans accordingly.

We wanted to understand how our students were making plans to enhance their competitiveness for post-college entry-level positions. Because this is an exploratory study, we used the presence or absence of critical information as a rough index of planning quality. Students lacking the necessary information cannot develop effective plans. The minimum information students need to plan their college experiences is the skill preferences of likely future employers. At the other extreme, students preparing for their final year in college can maximize their competitiveness by using information about their own and their competitors' likely strengths and weaknesses. To gauge how well our students were planning their college experiences, we surveyed advanced students about (1) the skills that are most important for entry-level job candidates to possess and (2) the skills new college graduates most need to improve upon. Then we compared student responses to employer responses on the same survey. We reasoned that if advanced students were doing a good job of planning, then they would be knowledgeable about employer preferences and concerns, or conversely, that students lacking such information were not planning effectively.

PREVIOUS RESEARCH

There have been relatively few studies investigating how accurately students who are about to enter the job market perceive the priorities employers place on hiring characteristics. Posner (1981) had

recruiters rate the importance of a list of characteristics and then had students and faculty rate how important they felt these characteristics would be to recruiters. There were many disagreements but what stood out to Posner were the similarities among the groups. All three groups saw communication ability and future potential as the most important applicant characteristics, grades and work experience were of intermediate importance, and extra-curricular activities as least important. The major differences were that students thought that recruiters would place more importance on recommendations than the recruiters themselves did and recruiters weighted maturity and sense of humor more heavily than students thought they would.

Hafer and Hoth (1983) developed a questionnaire about the priorities employers place on different hiring characteristics and administered it to company recruiters and business students nearing graduation. Like Posner, they found general agreement on what was included in the high, intermediate, and low importance categories. They also found considerable disagreement within the categories (especially the high importance category). For example, employers rated initiative and assertiveness much higher than did students whereas students rated appearance and written communication much higher than did employers. The pattern of results suggested to Hafer and Hoth that the students' misconceptions stemmed primarily from their sources of information, namely family members, college placement officers, and sometimes the employers themselves.

Kaplan (1985) surveyed HR (human resource) managers and business seniors about the importance of different characteristics for college graduates seeking entry-level positions and the strengths and weaknesses of recent college graduates. Although there was general agreement about the importance of obvious factors such as academic major, grades, and outside work experience, the students had a very limited understanding of what HR managers considered to be important for college graduates seeking entry-level positions. The HR managers identified recent graduates' major strengths as technical skills and personal qualities and major weaknesses as poor written and oral communication skills. They viewed extra-curricular activities and field experience as significantly less important than did students and felt that students did not understand the workings of business organizations. The students overestimated the degree to which personal qualities and academic preparation were strengths and underestimated the degree to which technical skills were strengths. Students also substantially overestimated the value of behavioral skills (human relations, leadership, and interpersonal skills) and failed to realize the importance of basic qualities such as initiative, emotional maturity, and high personal standards. Kaplan noted that students may have learned to value what their professors value rather than what future employers value.

We could find no further research for the next twenty years on the accuracy of either college students' perceptions of employers' hiring preferences or employers' evaluations of the strengths and weaknesses of recent college graduates. Then, after two decades of neglect, a longitudinal study of high school students revealed that they had little understanding of what employers wanted and that increasing time in college produced little improvement in their understanding (Humphreys & Davenport, 2005). Focus group research also revealed that even after graduating from college these former students still did not place the same priorities on different learning outcomes as did employers (Hart, 2006a). This led us to wonder how well today's students were planning their college experiences to maximize their competitiveness for post-college entry-level positions.

HYPOTHESES

For many years professors, guest speakers, and Career Services Center professionals at St. Cloud State University (SCSU) have been trying to inform our students (mostly juniors and seniors in business) about employer needs, preferences, and concerns. To the degree these efforts have been successful SCSU students will be much more aware of employer preferences than were students in previous studies. Thus

hypothesis 1 was that SCSU students would be well informed about employer skill preferences. On the other hand, little or no effort has been invested in informing SCSU students about the skills that employers and alumni have reported as problematic for recent graduates. Thus, for hypothesis 2 we expected that SCSU students would not be aware of the skill deficiencies identified by employers in recent college graduates.

THE MINNESOTA COLLEGE JOB OUTLOOK SURVEY

Since the early 1990s the National Association of Colleges and Employers (NACE, formerly the College Placement Council) has conducted an annual survey of what employers and job candidates (graduating seniors and recent graduates) want from each other. The top skills desired by employers have been stable for many years although the specific rankings have varied from year-to-year. For the 2010 hiring season the most valued characteristics of the 'ideal' candidate included communication, interpersonal, problem-solving, teamwork, and analytical skills plus initiative and a strong work ethic (NACE, 2010). The SCSU College Job Outlook survey was started in 2004 to overcome several shortcomings of the NACE survey. Whereas NACE sampled fewer than ten Minnesota employers (and even fewer that recruited SCSU graduates), the SCSU survey sampled from organizations that participated in the three primary college job fairs in the state (two sponsored by public sector systems and one sponsored by the private colleges). Although the two surveys retain many similarities, the SCSU survey has evolved somewhat differently as it increasingly focused on issues its participants identified as important. For this study we used the 2010 SCSU College Job Outlook Survey (Ditlevson, 2009) that was conducted in August 2009. Its 87 respondents (32% response rate) were HR professionals (generally recruiters) from a diverse assortment of public and private sector organizations. The response rate in 2009 was unusually low because of economic conditions but the results nevertheless were very similar to previous years when the response rates ranged from 50%-60%.

MEASURES, METHOD, AND PARTICIPANTS

SCSU's online Job Outlook Survey (for employers) was converted into paper-and-pencil format and distributed in eleven sections of four different junior- and senior-level management classes during November and December of 2009. The survey was presented to students as part of ongoing efforts to improve curricula and student services. Participation was voluntary and anonymous. Just like employers, students rated each "most important to possess" and "most need to improve upon" skill on a not-at-all important (1) to extremely important (5) scale. Useable data were collected from 258 students (94% overall response rate). The sample was 1.6% freshmen, 1.6% sophomores, 31.0% juniors, and 63.2% seniors (2.7% did not provide this information). Fifty percent had visited the Career Services Center, 11% had internships, 4% were veterans, 49% were management majors, 32% were other business majors, and 16% were not business majors. Ages ranged from 19 to 48 years with a mean of 22.8 (4.4% were older than 30 years). The students were 50.8% female (1.6% failed to identify gender). Students could select multiple identity categories (therefore the results do not add to 100%) and 84% selected Caucasian, 5.8% Asian, 3.1% Black, 1.9% Hispanic, .8% American Indian, and 1.6% selected Other. Self-reported GPAs ranged from 2.0 to 4.0 (C to A) with a mean of 3.17.

RESULTS

Survey results for students and employers for the skills "most important for candidates to possess" and for the skills "new college graduates most need to improve upon" are reported in Tables 1 and 2, respectively. The average of all student and employer ratings were very similar for the "most important to possess" skills (Table 1, across all skills, students $m=4.26$ and employers $m=4.24$). As might be expected, the ratings tended to be lower for the skills graduates "most need to improve upon" and employers thought that more improvement was needed than did students (Table 2, students $m=3.55$ and

employers $m=3.77$). Interestingly, students (but not employers) rarely rated any skill at the lowest level of “most important to possess” (Table 1).

TABLE 1: WHAT SKILLS DO YOU FEEL ARE MOST IMPORTANT FOR CANDIDATES TO POSSESS?

Skill ¹	Students (Nov-Dec 2009) (n=251 to 257 responses)				Employers (August 2009) (n=84 to 86 responses)			
	Mean	Range	sd	Rank	Mean	Range	sd	Rank
Ability to acquire learning	4.38	2 to 5	0.67	7	4.31	1 to 5	0.83	9
Communication (verbal and written)	4.82	3 to 5	0.42	1	4.78	1 to 5	0.56	1
Customer service ²	4.32	2 to 5	0.74	8	4.22	1 to 5	1.02	10
Detail-oriented ^{2 **}	3.77	2 to 5	0.75	17	4.13	1 to 5	0.82	11
Develop creative solutions ²	3.82	2 to 5	0.76	15	3.85	1 to 5	0.74	15
Flexibility/adaptability *	4.1	2 to 5	0.78	11	4.38	2 to 5	0.71	8
Honesty/integrity	4.73	2 to 5	0.57	2	4.76	1 to 5	0.64	2
Interpersonal skills (relates well to others)	4.42	2 to 5	0.68	6	4.54	2 to 5	0.60	4
Leadership skills	4.18	2 to 5	0.78	10	4.01	2 to 5	0.86	13
Motivation/initiative	4.46	2 to 5	0.62	5	4.52	2 to 5	0.64	5
Organizational skills	3.95	2 to 5	0.78	14	4.05	1 to 5	0.75	12
Ability to plan and manage a project ^{2 #}	3.99	2 to 5	0.79	12	3.67	1 to 5	0.88	17
Professionalism/etiquette	4.26	2 to 5	0.70	9	4.38	1 to 5	0.78	7
Strong work ethic	4.57	3 to 5	0.57	3	4.63	1 to 5	0.70	3
Teamwork skills (works well with others)	4.53	3 to 5	0.66	4	4.49	2 to 5	0.66	6
Think analytically	3.81	1 to 5	0.77	16	3.90	1 to 5	0.83	14
Utilize technology	3.96	2 to 5	0.74	13	3.78	1 to 5	0.82	16
Mean	4.26			4.24				
Range	3.67-4.78			3.77-4.82				

Each skill was rated on a scale from (1) not important to (5) extremely important.

¹ The order on this table is the same as on surveys.

² These items were not included in the "most need to improve upon" survey.

* $p<.06$ using the Bonferroni correction, ** $p<.05$ using the Bonferroni correction (.05/17=.002941), # $p<.05$ but only when the Bonferroni correction is not used.

TABLE 2: WHAT SKILLS DO YOU FEEL NEW COLLEGE GRADUATES MOST NEED TO IMPROVE UPON?

Skill ¹	Students (Nov-Dec 2009) (n=251 to 257 responses)				Employers (August 2009) (n=84 to 86 responses)			
	Mean	Range	sd	Rank	Mean	Range	sd	Rank
Ability to acquire learning [#]	3.18	1 to 5	1.10	16	2.89	1 to 5	0.95	16
Communication (verbal and written) [#]	4.25	2 to 5	0.90	2	3.94	1 to 5	0.93	4
Flexibility/adaptability [*]	3.48	1 to 5	1.01	14	3.84	2 to 5	0.92	7
Honesty/integrity ^{**}	3.67	1 to 5	1.05	11	3.26	1 to 5	1.06	14
Interpersonal skills (relates well to others) [#]	3.77	1 to 5	0.98	9	3.40	1 to 5	0.99	10
Interviewing Skills ^{2 ***}	4.25	1 to 5	2.08	1	3.51	1 to 5	0.96	9
Knowledge of company/environment ^{2 #}	4.21	1 to 5	0.87	3	3.87	1 to 5	0.95	6
Leadership skills ^{**}	3.88	2 to 5	0.89	7	3.38	1 to 5	0.86	11
Lose sense of entitlement ² ^{**}	3.45	1 to 5	0.99	15	4.11	1 to 5	1.01	2
Motivation/initiative	3.71	1 to 5	0.96	10	3.87	1 to 5	1.05	5
Organizational skills ^{**}	3.66	1 to 5	0.97	12	3.26	1 to 5	0.87	13
Professionalism/etiquette ^{**}	4.11	1 to 5	0.89	4	3.71	1 to 5	1.02	8
Realistic expectations ^{2 *}	3.98	1 to 5	0.91	6	4.31	1 to 5	0.83	1
Teamwork skills ^{**} (works well with others)	3.81	1 to 5	1.05	8	3.28	1 to 5	0.97	12
Think analytically ^{**}	3.58	1 to 5	0.88	13	3.15	1 to 5	0.95	15
Utilize technology [#]	3.05	1 to 5	1.24	17	2.64	1 to 5	1.12	17
Work ethic	3.99	1 to 5	0.97	5	3.99	1 to 5	0.97	3
Mean	3.55				3.77			
Range	2.64- 4.31		0.83-1.12		3.05-4.25		0.87-2.08	

Each skill was rated on a scale from (1) not important to (5) extremely important.

¹ The order on this table is the same as on surveys.

² These items were not included in the "most important to possess" survey.

* p<.06 using the Bonferroni correction, ** p<.05 using the Bonferroni correction (.05/17=.002941), # p<.05 but only when the Bonferroni correction is not used.

In Table 3 the "most important to possess" results from Table 1 were ranked by rating means to facilitate comparing students and employers. The means were very highly correlated ($r=.88$, $p<.001$). For the top three skills, students and employers agreed perfectly and for the next three skills the disagreements were trivial (i.e., the rankings for two closely related skills were interchanged). There was even a high level of agreement about the relative importance of skills ranked seven through seventeen ($r=.51$, $n=11$) despite the many small disagreements (i.e., differences of 2 or 3 ranks). The largest disagreements were that students rated "ability to plan and manage a project" much higher than did employers (12th v 17th) who in turn rated "detail oriented" much higher than did students (11th v 17th).

TABLE 3: WHAT SKILLS DO YOU FEEL NEW COLLEGE GRADUATES MOST IMPORTANT TO POSSESS?

Student Rank	Student Mean	Skill		Employer Mean	Employer Rank
		Students (If different)	Employer (If different)		
1	4.82	Communication (verbal and written)		4.78	1
2	4.73	Honesty/integrity		4.76	2
3	4.57	Strong work ethic		4.63	3
4	4.53	Teamwork skills (works well with others)	Interpersonal skills (relates well to others)	4.54	4
5	4.46	Motivation/initiative		4.52	5
6	4.42	Interpersonal skills (relates well to others)	Teamwork skills (works well with others)	4.49	6
7	4.38	Ability to acquire learning	Professionalism/etiquette	4.38	7
8	4.32	Customer service	Flexibility/adaptability *	4.38	8
9	4.26	Professionalism/etiquette	Ability to acquire learning	4.31	9
10	4.18	Leadership skills	Customer service	4.22	10
11	4.10	Flexibility/adaptability *	Detail-oriented **	4.13	11
12	3.99	Ability to plan and manage a project #	Organizational skills	4.05	12
13	3.96	Utilize technology	Leadership skills	4.01	13
14	3.95	Organizational skills	Think analytically	3.90	14
15	3.82	Develop creative solutions		3.85	15
16	3.81	Think analytically	Utilize technology	3.78	16
17	3.77	Detail-oriented **	Ability to plan and manage a project #	3.67	17

* $p<.06$ using the Bonferroni correction** $p<.05$ using the Bonferroni correction ($.05/17=.002941$)# $p<.05$ but only when the Bonferroni correction is not used.

In Table 4 the “most need to improve upon” results were ranked by rating means. Considerable disagreement is apparent and reflected in the much weaker correlation between student and employer means ($r=.50$, $p=.04$). The most serious disagreements have been highlighted. The students’ top rated improvement need, “interviewing skills,” was rated 9th (of 17) by employers whereas employers’ top rated improvement needs, “realistic expectations” (1st) and “lose the sense of entitlement” (2nd), were rated 6th and 15th by the students. In addition, employers rated “work ethic” (3rd v 5th), motivation/initiative” (5th v 10th), and “flexibility/adaptability” (7th v 14th) higher than did students. If these disagreements are ignored, then high levels of agreement for the remaining skills become apparent. For example, the top

"remaining" skills for both students and employers were communication, knowledge of company/environment, and professionalism/etiquette.

TABLE 4: WHAT SKILLS DO YOU THINK EMPLOYERS FEEL NEW COLLEGE GRADUATES MOST NEED TO IMPROVE UPON?

Student Rank	Student Mean	Students (If different)	Skill	Employer (If different)	Employer Mean	Employer Rank
1	4.25	Interviewing skills **	Realistic expectations *	4.31	1	
			Lose sense of entitlement **	4.11	2	
			Work ethic	3.99	3	
2	4.25	Communication (verbal and written) #		3.94	4	
			Motivation/initiative	3.87	5	
3	4.21	Knowledge of company/environment #		3.87	6	
			Flexibility/adaptability *	3.84	7	
4	4.11	Professionalism/etiquette **		3.71	8	
5	3.99	Work ethic				
6	3.98	Realistic expectations *	Interviewing Skills **	3.51	9	
			Interpersonal skills (relates well to others) #	3.40	10	
7	3.88	Leadership skills **		3.38	11	
8	3.81	Teamwork skills ** (works well with others)		3.28	12	
9	3.77	Interpersonal skills (relates well to others) #				
10	3.71	Motivation/initiative	Organizational skills **	3.26	13	
11	3.67	Honesty/integrity **		3.26	14	
12	3.66	Organizational skills **				
13	3.58	Think analytically **		3.15	15	
14	3.48	Flexibility/adaptability *				
15	3.45	Lose sense of entitlement **				
16	3.18	Ability to acquire learning #		2.89	16	
17	3.05	Utilize technology #		2.64	17	

* $p < .06$ using the Bonferroni correction, ** $p < .05$ using the Bonferroni correction ($.05/17 = .002941$), # $p < .05$ but only when the Bonferroni correction is not used.

The preceding analyses interpreted the relative rankings of means (i.e., compared the mean ratings across different skills). This could be challenged using the logic that the only "real" differences were between student and employer rating means for the same skills. To address this issue we tested for significant differences between rating means. First, we used the very conservative Bonferroni procedure to compensate for repeating the same T -test 17 times in each table (i.e., a table-wise $p < .05$ was maintained by using $p < .05/17$ or $p < .003$ for each comparison). In Table #1 only the difference for "detail-oriented" was significant ($p < .05$). This was consistent with the ranking-based interpretation of

Table 3 (i.e., almost perfect ranking agreement). The situation for Table #2 was very different . More than half of the differences in mean ratings were significant ($p<.05$). Thus the differences in the rankings in Table #4 can be explained by significant differences among the rating means. Because the Bonferroni procedure can considerably reduce statistical power, we repeated the T -tests without the correction (i.e., treating every test as independent). The idea was that the corrected and uncorrected tests would bracket the full range of statistical results. In Table #1 only "ability to plan and manage a project" became significant whereas in Table #2 every skill except "motivation/initiative" and "work ethic" became significant. Thus, at either extreme in statistical testing , the results are consistent with the ranking-based interpretations provided by Tables 3 and 4.

DISCUSSION

Employers who recruit SCSU graduates and students who soon will graduate rated the skills that (1) are "most important for [job] candidates to possess" and that (2) "new college graduates most need to improve upon." We hypothesized that the students would (1) be well informed about employers' skill preferences but (2) know little about the skill deficiencies of recent college graduates identified by employers. Hypothesis 1 was strongly supported. Students' ratings almost exactly mirrored those of employers and the minor disagreements can be explained by annual variations in survey results. Hypothesis 2 also was supported. Students failed to identify the critical skill deficiencies identified by employers. Although the students could identify some underdeveloped skills, these tended to be obvious (e.g., learn about a company before an interview) or easily inferred from "important to possess" information. The irony is that students' believe the skill they most need to improve is "interviewing skills," yet efforts to improve their interviewing skills might serve only to help employers discover that they have unrealistic expectations and entitlement issues! In summary, the efforts to teach students about employer skill preferences were very successful. The problem was that there was little or no additional learning or progress in students' learning about employers' views of their likely skill deficiencies.

The #1 employer-identified skill improvement need, "realistic expectations," turns out to be at the heart of the growing incidence of highly ambitious students who choose career paths with very low chances of success (Reynolds, Steward, MacDonald, & Sischo, 2006). Students suffering from "the ambition paradox" believe that they have made good plans for achieving laudable goals but, because their plans are unrealistic, invariably fail when more realistic plans could have produced success. The problem is not that students' suffering from the ambition paradox produce illogical plans. Rather, the problem is that their plans are based on faulty information, wishful thinking, and poor judgment.. The #2 employer-identified skill improvement need was "lose [the] sense of entitlement." Chao and Gardner (2007) found that college students often have inappropriate senses of entitlement (and therefore superiority) that produce counterproductive behaviors in the job search processes and later on the job. These students and graduates do their career exploration by "surfing" through majors and jobs just like they "surf" through Web sites. As a result they learn only through direct on-the-job experience about what they want. This exceptionally inefficient learning and decision-making strategy causes problems such as unnecessary turnover and lack of commitment. Employers try to minimize these problems by limiting hiring to graduates with internship or substantial full time work experience.

We expected that as their academic and reasoning skills develop college students would discover and correct unrealistic expectations, inappropriate entitlement beliefs, and other mistakes and misconceptions. That they did not is troubling. One explanation is that the students lacked the cognitive and academic skills necessary to apply what they were supposed to be learning in their business classes to their own lives and careers. As a result they could be failing to benefit from professors' efforts to correct their reasoning and judgment errors. A related and revealing phenomena has already been documented. Surveys reveal that many college students incorrectly conclude that they possess far greater computer competency than their professors and future employers possess (Humphreys & Davenport, 2005).

Meanwhile employers complain that college graduates are deficient in information and computer skills (Hart, 2006b) and that recent graduates lack the basic skills needed to locate and evaluate the increasingly abundant information available through computers (Katz & Macklin, 2009). The problems are caused by students' failing to acquire the cognitive and intellectual skills necessary to navigate, critically evaluate, and make sense of the information available today (ETS, 2003). Students who perceive themselves as more technologically competent than their professors will resist attempts by professors to teach them information literacy skills (Twenge, 2007). Correcting these sort of judgment and reasoning problems long has been a central goal of a liberal (or liberal arts) education. Today's employers still strongly value these necessary academic, scholarly, and reasoning skills and report them to be inadequately developed in recent college graduates (AACU, 2007).

In summary, it has been decades since college students were surveyed about employers' skill preferences or employers' evaluations of graduates' strengths and weaknesses. At our university, upper division students in business classes knew about employer skill preferences but were uninformed or misinformed about employer evaluations of the strengths and weaknesses of recent graduates. Thus, the students had not progressed beyond learning the basic information provided by the institution. It is encouraging that the students readily learned about employer skill preferences and incorporated the information into their academic and extra-curricular plans. At the same time we find the students' failure to progress beyond what they were specifically taught to be troubling. Why did students simply stop learning and exploring when they had learned about employer preferences? How did they develop the impression that they needed no additional information? Did professors fail to provide them with the information they needed? Did they get the information but fail to understand it? Unless our study represents a unique situation, these problems are likely to be widespread and serious in programs similar to ours. Contemporary research about today's students suggests that the problems we have identified might be widespread and that developing an effective training program might be much more challenging than it appears. On the other hand, because this was an exploratory study we don't know if the findings will stand the test of time or generalize across changing economic conditions, types of institutions, and perhaps even colleges and academic disciplines. The problems may seem small but we think they are worthy of more attention.

REFERENCES

- AACU (2007). College Learning for the New Global Century, National Leadership Council, Liberal Education and America's Promise (LEAP), Accessed March 2006 from the American Association of Colleges and Universities Web site <http://www.aacu.org/liberaleducation/>.
- Chao, G. T., & Gardner, P. D. (Winter, 2007). Today's young adults: Surfing for the right job. White Paper prepared for MonsterTRAK.com by the Collegiate Employment Research Institute (CERI), Michigan State University, <http://ceri.msu.edu>, accessed March 2008.
- Ditlevson, A. (2009). Minnesota College Job Outlook, surveys conducted every year since 2004, available from the St. Cloud State University Career Services Center.
- ETS (2003). Succeeding in the 21st Century What Higher Education Must Do to Address the Gap in Information and Communication Proficiencies, Educational Testing Service Brochure & Report, Last accessed December 2009 at http://www.ets.org/Media/Tests/Information_and_Communication_Technology_Literacy/ICTwhitepaperfinal.pdf.
- Hafer, J. C. & Hoth, C. C. (1983). Selection characteristics: Your priorities and how students perceive them. *The Personnel Administrator*, 28(3), 25-29.
- Hart, P. D. (2006a). How should colleges prepare student to success in today's global economy? Surveys among employers and recent college graduates conduced on behalf of The Association of American Colleges and

Universities (AACU) by Peter D. Hart Research Associates, Inc. Accessed online January 2007 at <http://www.aacu.org/leap/documents/Re8097abcombined.pdf>

Hart, P.D. (2006b). Report of findings based on focus groups among business executives conducted on behalf of The Association of American Colleges and Universities (AACU) by Peter D. Hart Research Associates, Inc. Accessed online January 2007 at <http://www.aacu.org/advocacy/documents/PrivateEmployersFindings.pdf>.

Humphreys, D., & Davenport, A. (2005). What really matters in college. *Liberal Education America's Promise*, 91(3), 36-43.

Kaplan, E. (1985). College recruitment: The view from both sides. *Personnel*, 62(11), 44-49.

Katz, I.R. & Macklin, A.S. (2009). Information and Communication Technology (ICT) Literacy: Integration and Assessment in Higher Education, *Journal of Systemics, Cybernetics and Informatics*, 7(5).

NACE (2010). Job Outlook 2010, National Association of Colleges and Employers, accessed from the NACE press release Web page on February 15, 2009 (www.naceweb.org).

Posner, B. Z. (1981). Comparing recruiter, students, and faculty perceptions of important applicant and job characteristics. *Personnel Psychology*, 34, 329-339.

Reynolds, J., Stewart, M., MacDonald, R., & Sischo, L. (2006). Have adolescents become too ambitious? High school seniors' educational and occupational plans, 1976-2000. *Social Problems*, 53, 186-206.

Twenge, J. M. (2007). *Generation Me: Why today's young Americans are more confident, assertive, and entitled—and more miserable than ever before*. New York: Simon & Schuster Adult Publishing Group.

Using General Systems Theory as a Business Application Paradigm

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Abstract: General Systems Theory (GST) is reviewed as a paradigm for modeling business applications. The theory has been used and abused for over sixty years, oftentimes the subject of scholarly articles written by authors who felt the need to write, especially as GST was the current 'flavor of the day', but who hadn't reviewed the basic literature to learn what the GST concept actually entailed. The GST concept is reviewed, from its original documents, and the history is explored. A section is devoted to reviewing some of the literature that has been published in scholarly journals or books over the decades, and the general trend of ascribing much greater complexity to the application of GST to business and management is noted. This article presents a paradigm that is based in the simplicity of the original concept of general systems theory as offered by Ludwig von Bertalanffy, and using the time-honored concepts of business organization and management that have been studied, researched, applied, and taught for many years. The marriage of the business concepts with the explanatory power of the general systems theory provides a model that is easy to understand, teach, and apply.

INTRODUCTION

General Systems Theory (GST) has been around for six decades, and can be a viable and useful paradigm for modeling business organizations; in this author's view, it is the most useful paradigm for business, especially from a management view. There is evidence that many textbook authors feel that GST is a concept that should be introduced into the curricula of business schools, as there is generally a short, cursory section about how a business might be modeled as a system. Of about 100 textbooks reviewed by this author, only one actually presented General Systems Theory properly, and it was not a management text, but communications.

This paper concerns the use of a systems paradigm for application of systems theory and systems thinking to business systems, as opposed to the study of systems for the purpose of generating knowledge. This author has been presenting GST to every management course that he has taught for the past three years, finding that students are able to comprehend and retain management concepts much better than before, when systems theory was not presented. It is the author's belief that providing general systems theory, with a business management orientation, helps students to understand business concepts by presenting the concepts as integral to the whole system, with interdependencies between them. The author recommends that the professoriate in schools of business should investigate the General Systems Theory from its basic concepts, and provide their students with a good business paradigm that can assist them to understand the concepts we teach. This paper will start with a brief history of GST, followed by some illustrations of how GST has been interpreted and presented by business and management writers in the past, and then present the author's adaptation of GST to fit business as a model, retaining the basic principles developed by Bertalanffy and Boulding, incorporating some principles from later researchers, and modifying a few principles that the author felt necessary to better fit the model to business concepts.

GST HISTORY

A review of how GST came into being might be helpful before examining how it can best be used; examining the origins allows the intent of the concept to be considered. In his seminal article "The

History and Status of General Systems Theory" (Bertalanffy, 1972), Bertalanffy provided us a historical view of the development of GST and the rationale for its concepts.

He alluded to Aristotle's contribution to the development of GST with: "... the Aristotelian world view with its holistic and teleological notions. Aristotle's statement, 'The whole is more than the sum of its parts,' is a definition of the basic system problem which is still valid." (Bertalanffy, p.407) Aristotle is considered to be the inventor of teleology; from his interest in ends (final clause) and process (efficient clause), or the end and the means to get to the end. (Johnson, 2005) In fact, his four causes roughly approximate the basic elements of a system: material cause – *components*, formal clause – *structure*, efficient clause – *process*, and final clause – *purpose*. In his paper for the British Society for the Philosophy of Science, in enumerating the types of (system) finality, von Bertalanffy stated:

Finally, there is true finality or purposiveness, meaning that the actual behavior is determined by the foresight of the goal. This is the original Aristotelian concept. It presupposes that the future goal is already present in thought, and directs the present action. True purposiveness is characteristic of human behavior, and it is connected with the evolution of the symbolism of language and concepts. (Bertalanffy, 1950)

This brings to the fore one of basic concepts of open systems: a system exists to convert inputs into outputs through a transformation process. The output (the future goal) is already present in thought, and the requirement for the output directs the present action to produce it (obtain the materials necessary to create the output and accomplish the processes needed to transform the materials into the output). Without a conversion process, a system does not exist; many so-called systems are actually networks that are part of the structure of a system (for example, a highway 'system').

He further explained that the Scientific Revolution of the sixteenth-seventeenth centuries replaced Aristotle's doctrine, in research and writings, with Descartes' "break down every problem into as many separate simple elements as might be possible" (Bertalanffy, 1972, p.408). This study of everything by evaluating its constituent parts (reductionism) advanced science by leaps and bounds; however, the applicability to living organisms left many gaping holes in the theory. It did not account for the relations between the simple elements which actually defined the whole, separate and distinct from any of the single elements. [*Neither a male nor a female, separately, could produce offspring; nor could the two together, but acting separately as two individuals, produce offspring. However, when the male and female consort with one another as a couple, it is possible.*] Another example, from physics: [*neither hydrogen nor oxygen can exhibit the characteristic of wetness; yet, the combination of the two can do so.*] Aristotle's statement, 'The whole is more than the sum of its parts,' (the basic concept of holism) is the substrate of von Bertalanffy's protest against reductionism, which led to the concepts of open systems and GST. (Bertalanffy, 1972, p. 410)

In stating the foundations of general systems theory, he reiterated from an earlier publication:

Since the fundamental character of the living thing is its organization, the customary investigation of the single parts and processes cannot provide a complete explanation of the vital phenomena. This investigation gives us no information about the coordination about the parts and processes. ... (Bertalanffy, 1972, p. 410)

He then described the evolution of a "dynamical" system theory which became his "open system" which was published by the American Association for the Advancement of Science (Bertalanffy, 1950a). The open system became the general systems model (Bertalanffy, 1950b), which initiated a rapidly spreading interest among researchers and led to the foundation of the Society for the Advancement of General System Theory (later renamed to Society for General System Research, and later still, to reflect

the broadening scope of inquiry, to International Society for the Systems Sciences) (Bertalanffy, 1972, pp. 412-413)

In discussing the trends (at the time) of general systems theory, he wrote:

General systems theory, then, consists of the scientific exploration of “wholes” and “wholeness” which, not so long ago, were considered to be metaphysical notions transcending the boundaries of science. Novel concepts, methods, and mathematical fields have developed to deal with them. At the same time, the interdisciplinary nature of concepts, models, and principles applying to “systems” provides a possible approach toward the unification of science. ... *“System” being a new “paradigm”* (in the sense of Thomas Kuhn), contrasting to the predominant, elementalist approach and conceptions, ... (Bertalanffy, 1972, p.415) [Author’s note: Italics added for emphasis.]

He went on further to caution that:

... ‘system’ is a *model* of general nature, that is, a conceptual analog of certain rather universal traits of observed entities. The use of models or analog constructs is the general procedure of science (or even of everyday cognition), as it is also the principle of analog simulation by computer. ... “system” refers to the very general characteristics partaken by a large class of entities conventionally treated in different disciplines. ... system-theoretical arguments pertain to, and have predictive value, inasmuch as such general structures are concerned. (Bertalanffy, 1972, p.416)

His caution was to ensure that general systems theory is used as intended, a *model*, rather than a description of the situation, itself, in general nature. The model is to simplify the complex situation in order to analyze the interrelations of the set of elements within the superordinate “whole” and its relation with its environment.

The General Systems Theory (GST) concept has been associated with management as a paradigm since 1956, when Boulding provided a 9-level classification of systems for the Management Science journal (Boulding, 1956). Boulding’s 9-level classification of systems contains:

1. Frameworks
2. Clockworks
3. Thermostats (his definition should have named this “sensor-controlled systems”)
4. Cells
5. Plants
6. Animals
7. Human Beings
8. Social Organizations
9. Transcendental Systems

With respect to management, we are primarily concerned with Social Organizations and secondarily with Human Beings.

GST enjoyed a period of robust investigation and research publications by business and management researchers in the late 1960’s and early 1970’s, then a resurgence in the 1990’s, but has never caught on as a topic of enduring widespread research interest. This author’s opinion is that the researchers, attempting to out-do all other research with their own, introduced layers of complexity in an attempt to make the theory fit every conceivable situation, primarily aiming at methods to create knowledge rather than applying the knowledge to actual situations in general nature. This rendered application of the theory unwieldy and difficult, causing loss of interest.

PRIOR PRESENTATION AND APPLICATION

A comprehensive review of the literature about systems cannot be accomplished here, but a sampling of some of the more noted authors will be presented.

Johnson, Kast, and Rosenzweig

In one of the first serious efforts to harness GST to management theory, these authors outlined a systems theory for business. They provided a substrate by first describing the GST rationale, then explaining Boulding's concept of system levels to establish the place of a human organization within the concept, and finally establishing a linkage to von Bertalanffy's open systems concept by comparing a business organization with the description of an open system

... The business organization is a man-made system which has a dynamic interplay with its environment – customers, competitors, labor organizations, suppliers, government, and many other agencies. Furthermore, the business organization is a system of interrelated parts working in conjunction with each other in order to accomplish a number of goals, both those of the organization and those of individual participants. (Johnson, Kast, & Rosenzweig, 1964, pp. 369-371)

Having established the foundation upon which their systems theory for business would be built, they outlined their suggested model:

There are certain key subsystems and/or functions essential in every business organization which make up the total information-decision system and which operate in a dynamic environmental system subject to rapid change. The subsystems include:

A *sensor subsystem* designed to measure changes within the system and with the environment.

An *information processing subsystem* such as accounting, or data processing system.

A *decision-making subsystem* which receives information and outputs planning messages.

A *processing subsystem* which utilizes information, energy, and materials to accomplish certain tasks.

A control component which ensures that processing is in accordance with planning. Typically, this provides feedback control.

A *memory or information storage subsystem* which may take the form of records, manuals, procedures, computer programs, etc.

A goal setting unit will establish the long range objectives of the organization, and the performance will be measured in terms of sales, profits, employment, etc. relative to the total environmental system.

This is a general model of the systems concept in a business firm. ... (Johnson, Kast, & Rosenzweig, 1964, pp.372-373)

Although the goal setting unit and the control component were not specifically mentioned as subsystems, their description and placement with the list indicated that they were considered to be subsystems. As this model was developed in 1964, very little research on adapting general systems theory to business applications had been accomplished. Many theoretical writers seized on the model as something on which they could elaborate, perpetuating some of the errors included in this early model. The only subsystem that actually fits as a system is the *processing subsystem*. The *sensor, information*

processing, and *memory* subsystems are tools; decision making, controlling, and goal setting are management functions.

The remainder of the paper illustrated how the model would fit into a business; it seemed to be a presentation of the then prevailing concepts of management and organization with the word “system” inserted whenever possible. Although the beginning (establishing the foundation for the model) was an accurate portrayal of the systems theory concepts, it appeared to stray from the concepts in the model and application portion.

Katz And Kahn:

Katz and Kahn, both with doctorates in Social Psychology, took an interest in open systems. They developed an open system model which incorporated four phases: (a) energetic input, (b) a process within the system to convert the input into outputs, (c) energetic outputs, and (d) an event of recycling in which the outputs are converted into energy as inputs. They considered the inputs to include not only tangible items such as capital, employees, and raw materials, but also environmental intangibles, such as community appreciation and industry recognition, among other things. The throughput conversion process converts the inputs into products and services, which become the energetic outputs sent into the environment. The environment provides the inputs in the recycling process by payment for the products and services which allows purchasing of new raw materials, payment of employees, and an additional amount of energy (profit) for growth.

Their model not only included the open system concept of negative entropy (an additional amount of energy for growth), but also dynamic homeostasis or balancing of the interrelated components (for example, increasing or decreasing organizational support to match production capability, which, in turn, changes to match expected requirements for outputs) and equifinality, which posits that the organization can reach a final state by more than one path or from different initial states.

The model defined five subsystems required for a business organization:

Production – the process within the system to convert the input into outputs,

Supportive – the processes of acquiring inputs, exporting outputs, and accomplishing the administrative tasks related to employees (pay, training, workspace, etc.)

Adaptive – gather information from the environment about opportunities and threats and develop plans, products, and services to adapt to the environment

Maintenance – provide the right employees for the various roles and provide for conditions to keep employees satisfied (work conditions, motivation, other needs)

Managerial – directs, coordinates, and controls the other subsystems and activities, using a feedback mechanism that compares outputs to inputs.

Their book was used as a reference and a basis for many of the writings about application of systems theory to organizational behavior that followed. (Katz & Kahn, 1966)

Given the date of the research, 1966, the model is surprisingly versatile. However, the adaptive subsystem’s functional purpose is a normal function of management, the supportive and maintenance subsystems functional roles greatly overlap, and there are still many necessary functions that are not addressed by the model.

Kast and Rosenzweig:

Eight years after publishing the 1964 paper with Johnson, Kast and Rosenzweig reviewed the literature of organization theory which had adopted systems theory as a frame of reference. It is ironic that they concluded that most authors, beyond the beginning of presenting an accurate view of systems theory and its relationship to organizations, departed substantially from systems theory when moving into the subject matter applying the theory to their application content. (Kast & Rosenzweig, 1972, p.451)

The paper demonstrated a maturity in their conceptualization of using systems theory as a paradigm for studying organizations over the earlier one, but it still failed to fully apply the basic system theory concepts. In questioning the system effectiveness, they presented:

General systems theory with its biological orientation would appear to have an evolutionary view of system effectiveness. That living system which best adapts to its environment prospers and survives. The primary measure of effectiveness is perpetuation of the organism's species. Teleological behavior is therefore directed toward survival. ...

General systems theory emphasizes the organism's survival goal and does not fully relate to the question of the effectiveness of the system in its suprasystem – the environment. Parsonian functional-structural views provide a contrast. “The *raison d'être* of complex organizations, according to this analysis, is mainly to benefit the society in which they belong, and the society is, therefore, the appropriate frame of reference for the evaluation of organizational effectiveness” (Yuchtman & Seashore, 1967, p.896)

But, this view seems to go to the opposite extreme from the survival view of general systems theory – the organization exists to serve the society (Kast & Rosenzweig, 1972, p.456).

In stating “The primary measure of effectiveness is perpetuation of the organism's species. Teleological behavior is therefore directed toward survival.”, the authors have apparently inserted an interpretation of their own; this author could not find the statements to corroborate it in von Bertalanffy's papers. *The primary measure of effectiveness is survival.* Survival depends greatly on the ability of the organization to fulfill its purpose; without a purpose, it ceases to exist as meaningful system. The better the system fulfills its purpose (to benefit the society in which it belongs) by exporting to the environment the output as mandated by the purpose, the greater chance it has of survival.

Kast and Rosenzweig went on to suggest that “organizational effectiveness must be concerned with at least three levels of analysis: The level of the environment, the level of the social organization as a system, and the level of the subsystems (human participants) within the organization.” They further said: “... we see the systems approach as the new paradigm for the study of organizations; but, like all new concepts in the sciences, one which has to be applied, modified, and elaborated to make it as useful as possible.” (Kast & Rosenzweig, 1972, p.456)

As suggested above, organizational effectiveness should be analyzed by measuring the ability of the organization to fulfill its purpose by providing the environment (society) with its output (goods, services, ideas, and information) that meet the expectations and requirements ultimately made by the environment, monitored at the interface between the environment and the organization.

Miller:

In 1978, James G. Miller published a book to describe his Living Systems Theory. Elaine Parent, a close associate and assistant to Dr. Miller, described the living systems theory as:

A fundamental concept in general systems theory is the notion of emergence and interaction. A system is defined as a set of interacting units with relationships among them. The properties (or behavior) of a system as a whole emerge out of the interaction of the components comprising the system.

The eight levels of living systems are: cells: a basic building block of life organs: the principle components are cells, organized in simple, multi-cellular systems. organisms: there are three kinds of organisms: fungi, plants and animals. Each has distinctive cells, tissues and body plans and carries out life processes differently. groups: these contain two or more organisms and their relationships. organizations: these involve one or more groups with their own control systems for doing work. communities: they include both individual persons and groups, as well as groups which are formed and are responsible for governing or providing services to them. societies: these are loose associations of communities, with systematic relationships between and among them. supranational systems: organizations of societies with a supraordinate system of influence and control.

The twenty subsystems and processes of all living systems arranged by input-throughput-output processes. Processes which take place in the Systems Input Stage: Input transducer: brings information into the system. Ingestor: brings material-energy into the system. Processes which take place in the Systems Throughput Stage A: Information processes: Internal transducer: receives and converts information brought into system channel and Net: distributes information throughout the system. Decoder: prepares information for use by the system. Ttimer: maintains the appropriate spatial/temporal relationships. Associator: maintain appropriate relationships between information sources. Memory: stores information for system use. Decider: makes decisions about various system operations. Encoder: converts information to needed and usable form. B: Material-energy processes: Reproducer: with information, carries on reproductive function. Boundary: with information, protects system from outside influences. Distributor: distributes material-energy for use throughout the system. Converter: converts material-energy into suitable form for use by the system. Producer: synthesizes material-energy for use within the system. M-e storage: stores material-energy used by the system. Motor: handles mobility of various parts of the system. Supporter: provides physical support to the system. C: Processes which take place in the Systems Output Stage: Output transducer: handles information output of the system.. Extruder: handles material-energy discharged by the system.

Because the Living Systems Theory of James Grier Miller is a general Theory, the aforementioned concepts are metaphorical only, meant to be algebraically translated to the particular living system in systemic inquiry (Parent, 2000).

The concept is very thorough, and considered to be a definitive work. It is, however, not designed to be a simple model that can be readily used as a paradigm for applying GST to business organizations. Putting the layman (or business student) in the position of developing twenty subsystems for analyzing any particular system practically guarantees a lack of interest in using the theory in a practical application.

Ashmos and Huber:

Ashmos and Huber (1987), in an Academy of Management Review article, lamented that the systems paradigm had:

... gone out of fashion among organization researchers. Explicit recognition of the paradigm by organization scholars peaked in 1972 with the *Academy of Management Journal's* special issue on general systems theory. The paradigm that was referred to in 1972 as "vital to the study of social organizations and as providing the major new paradigm for our field of study" (Kast & Rosenzweig, 1972, p.457) has certainly not received the kind of attention in recent years that might have been expected of a "major new paradigm." ...

Millet:

Reflecting a resurgence of interest in applying systems concepts to organization theory during the 1990's, Millet (1998) wrote about the dominance of systems theory in the existing literature and explored viewing the emerging explanations of complexity and chaos theories as evolutionary system theories. He introduced the paper with an assumption that there is a definite black/white dichotomy between viewing an organization as one that blindly defines an endpoint and is only concerned with arriving there or defines and redefines endpoints as conditions change.

The reader can get lost in the verbiage which seems to provide a sense of being lost in the management jungle, discussing the emerging perspectives of chaos theory and complexity theory. Millet offers:

... The implication of sensitive dependence is that the future is unknowable. Consequently, strategic planning and the creation of visions to take the organization into the future, is questionable and dangerous. It could be more by sheer chance that some companies succeed in fulfilling their long-range plans. A structural adjustment from a functional to a process emphasis moves the stable/unstable borders with consequences for the organization's capability for self development. Although this switch is not necessarily undesirable, it merely points out that there will be long-term consequences in the trade off between functional and customer boundaries.

One does not need to even understand the implication of sensitive dependence or even to understand the meaning of sensitive dependence to know that the future is unknowable. If we had the ability to know the future, we would have invested everything we had to buy stocks at their lowest point and sold at the highest; we would have used our knowledge to change the course of nations such that the entire world would be prosperous and at peace. We do know that much of the future is predictable, given that we evaluate the environment and use our knowledge to define probabilities.

Taking Millet's reasoning to its ultimate conclusion, we should just allow things to happen. Chaos theory would seem to militate that planning is an exercise in futility; however this negates what we have learned over centuries, nay, millennia, since Aristotle developed the concept of teleology. We have known of many examples of businesses which have grown and prospered through strategic planning and creation of visions; this author has yet to find one with a history of growth and prosperity without planning or a leadership vision on which to base the planning. Ad hoc companies just seem to fail, for some reason.

Charlton and Andras:

Charlton and Andras (2003) specifically looked at management as a system (a needed perspective), beginning by defining management systems as "a form of social organization system which is engaged in modelling the organization it manages." (Charlton & Andras, p.2) Next, they suggest that, as management systems can only measure their performance by comparing actual outcomes with the predicted outcomes, if a discrepancy occurs, management will need to set up a new system to observe the management system in order to understand the reason for the discrepancy. They term this a 'management-of-management' system, which will not only model "the management system, but also the organization system and the external environment." (Charlton & Andras, p.4) They conclude from this that management is a system of global self-reference.

Taking this to its logical conclusion, if the management-of-management system has a discrepancy between its predictions and the actual outcomes, there needs to be another subsystem created to observe the management-of-management system, constituting a management-of-management-of-management system. This author tends to disagree with the tenor of this argument. Management, as an expert on

management of its own suprasystem, can self examine itself and determine the reason for the discrepancy through logical analysis.

Later, Charlton and Andras refine the definition:

As a minimal definition, therefore, management is a form of self-representation by an organization, and management systems model organisation systems. But this definition is not sufficiently precise. Partial forms of self-reference are almost universal in human organizations require a substantial degree of inter-communication in order to function. This entails one part of a system referring to another. ... We suggest that management is constituted by global self-reference by an organization: in which a management system operates on the assumption that it models all the necessary aspects of organizational activity, such that the model may be used for monitoring, prediction and planning of the organization as a whole. If global self-reference is taken as definitive of management, then it is clear that not all organizations will have a management system. Simpler forms of organizations typically neither need, nor benefit from, management systems. ... Not all management occurs in the form of an organizational system – after all, management may be a single human individual. ... The management system is defined as the pathway and processing of the sampled information. It can be seen that the management system may include human brains and bodies, but also the outputs of machines ... and that processing may include non-human cognitive activity – such as computers which perform statistical analyses. Management is therefore not synonymous with human managers ... Management systems are abstract information-processing systems, and their delineation requires empirical study of the specific system under investigation. (Charlton & Andras, pp.5-6)

Again, this author disagrees with the tenor of the argument; as the authors do not differentiate between management and the tools management might use in performing its activities as required by its purpose. In the next section of the paper, Charlton and Andras mischaracterize the function of management through obfuscation and perpetuation of a misinterpretation of systems theory. They state: “Due to the cognitive specialisation within modern management systems, the function of a management system is not necessarily understood by any of the participants in the system. ... The function of any specific management system must be therefore be discovered by empirical investigation.” (Charlton & Andras, p.6) The implication of this is that no one knows what management is doing, not even the managers, until an empirical investigation of the specific management system has been accomplished.

They further stated: “The primary function of a management system, as for any system, is its own replication. Without this attribute management would neither be observable, nor would it be a system – because all systems by definition process information in order to reproduce themselves.” (Charlton & Andras, p.6) A cursory examination of this statement will show errors. All systems are not open systems. Only open systems can even have the capability to reproduce themselves, and that capability is not the primary function. The primary function of any system is to process inputs into outputs in accordance with its purpose. Only living systems can actually accomplish their own replication, but is a by-product of their system process functioning in an effective manner. A management system exists in an organization, and its primary function is to provide planning and control to the organization to assure that the organization’s operations systems process inputs into outputs in accordance with the organization’s purpose. The management system, if it proves to be ineffective, could be replaced; however, it does not replicate itself.

WHERE DO WE GO FROM HERE?

KISS

One of the old adages from the military is: "*Keep It Simple, Stupid!*" If you want people to learn a concept and to use it, the adage holds, whether in the military or out of it. Very few of the books and articles in the literature attempt this; mostly they either misrepresent GST or try to apply it in a very complicated manner (or sometimes, both). In an effort to keep things simple, this author's recommendation is to retain much of what we have already learned and accept about organizational theory, and restate it in terms of GST.

Each organizational system is a subsystem of a suprasystem, having relationships and interdependence with one or more other systems that comprise the structure for the suprasystem. Each organizational system is also a suprasystem itself, having subsystems which comprise its structure. Each of these subsystems is a system in its own right, with a purpose, and subsystems to accomplish the functions required to fulfill its purpose. The purpose of any system is to support the purpose of its suprasystem. Each system has two subsystems in common, and may have more that are designed and created to fulfill specific requirements of fulfilling its mission. The two common subsystems are management and operations; the management subsystem fulfills the planning, control, communications, and environmental evaluations for its suprasystem; and the operations subsystem creates the outputs for the suprasystem.

Even a very cursory look at the economic situation in the United States will reveal that, as with the advent of the industrial revolution, when the economic base changed from primarily agricultural to production of material goods, the technological revolution has changed the base from production of material goods to services. The paradigm suggested here fits well with the shift in the economic base, and is fully adaptable to all types of outputs: material goods, services, energy, electronic information, or ideas.

GST business model with KISS

The basic functional areas of a business are (a) management, (b) operations, (c) marketing, (d) finance, and (e) administration. These are the major subsystems of a business; their relationships and interdependence generate synergy and provide the business suprasystem the ability to fulfill its purpose (mission), as a whole entity. There may be other major subsystems, depending on the type of business, (e.g. legal), but the five are required for all businesses. Any subsystem could be represented by a single person, and a single person could represent all subsystems; the functional requirement remains as a subsystem – if one person performs the functions of more than one subsystem, that person is the staff of each subsystem. A human is very complex, and can be many systems: a manager, a worker, a mother, a coach, a cook, and a student. Each is a different system, with different inputs, different outputs, and different purposes, but the same person.

The management subsystem's purpose is to perform planning, control, communications, and environmental evaluations.

Its planning mission depends on the level of the suprasystem in which it is a subsystem; however, the planning will include the mission requirements for all of the subsystems to support the business mission, including its own requirements. The plans, at the business level, will be strategic. The planning mission requires coordination with (a) the marketing subsystem to determine the type of outputs that are needed to satisfy the desires and expectations of the suprasystem, in accordance with the system mission, (b) the operations subsystem to establish design, development, and production requirements to support the output

expectations, (c) the administration subsystem to establish the requirement for plant, equipment, personnel, training, and other support that will be needed to implement the plans, and (d) the finance subsystem to ascertain that the available funding will support the plans, or that additional funding will be required, or that the plans will need to be able to fit to the constraints of the available funding. The planning mission will require a separate subsystem, which might have subsystems of their own.

The control function is to monitor the output produced by operations to evaluate its adequacy for fulfilling the business' mission, and to signal when to plan for or implement change in operations. The control function requires close coordination with the operations subsystem and interfaces with the planning function to indicate a need for plan changes, and may require a separate subsystem.

The communications function requires communicating with stakeholders in the environment and with all subsystems within the structure. Communication is the central and primary reason that social organizations can exist; without communication, no system could convey coordinating, planning, directing, or organizing information nor could liaison be conducted with another system within its suprasystem, any part of the environment, or with its own subsystems. Without communication, systems could not exist as systems; they might be an aggregated group of entities, but could not even know that they are aggregated or why.

The environmental evaluation function is how the system knows If (a) the output is satisfying the current suprasystem expectations, (b) expectations are changing, (c) an opportunity to satisfy new expectations within the current system capabilities has surfaced, or (d) if a situation has arisen that poses a threat to the business as it is currently structured. This function interfaces with the planning function to indicate a new need for planning.

The management subsystem of the business, *as a system*, has a management subsystem and an operations subsystem as its structure.

The management subsystem will provide the planning, control, communications, and environmental scanning functions for its suprasystem (planning subsystem for the business).

The operations subsystem will accomplish the functions required by the planning subsystem for the business: it will accomplish the planning; operate the feedback mechanism to monitor, record, and store output of the business system; and analyze/evaluate the environment (within the business structure, including the other business subsystems).

The operations subsystem's purpose is to do whatever is needed to provide the output required by the planning subsystem's plans. This entails analyzing the business output requirements to determine the inputs and transformation processes needed to convert them into the expected outputs. Once the transformation processes are determined, the structure (plant, equipment, personnel, training, utilities, and technology) that will be needed to provide the processes is evaluated and compared to the existing structure to determine if additional structure is needed. After determining the requirements and planning is accomplished, the plans are implemented to actually produce the outputs.

Depending on the business type, the operations subsystem, *as a system*, may require two or more subsystems as its structure. It needs, of course, a management subsystem and an operations subsystem (which may itself require many independent operations subsystems). If the business is a manufacturing firm, or a service firm, or a virtual marketing firm, or a financial brokerage firm, or any other different type of firm, the subsystems required will vary. Some will need a research and development subsystem. Some will need a special inbound or outbound logistics subsystem. Some will need engineering (design, development, manufacturability, software, etc.) subsystems.

The management subsystem of the operations system will provide the planning, control, communications, and environmental scanning functions for its suprasystem (operations subsystem for the business). It will analyze the business output requirements and determine, requisition, and schedule the input and structure requirements, and plan and schedule the operations needed to fulfill the business mission. It communicates all of the information to the business management subsystem for use in higher level planning. It also communicates all requirements to administration, which accomplishes the purchasing, hiring, and training functions; coordinates with marketing to align output processing with demand and with finance for inclusion of major requirements into finance plans, and accomplishes liaison with the environment for incoming and outgoing logistics.

The operations subsystem will accomplish the functions required of the operations subsystem for the business: it will implement the plans provided by the management subsystem (of the operations system) through its process subsystems.

The marketing subsystem's purpose is to research the environment to seek out opportunities for the business to exploit, evaluate customer opportunities and develop requirements in terms of customer benefits, create awareness of output within the environment through demonstration of benefits, obtain intelligence on the competitive state of the environment (competition developments and status or research and development news of competing or substitute products, for example), and market the output in the environment.

The marketing subsystem of the business, *as a system*, has a management subsystem and an operations subsystem as its structure.

The management subsystem of the marketing operations system will provide the planning, control, communications, and environmental scanning functions for its suprasystem (marketing subsystem for the business). It will analyze the business environment and provide the intelligence obtained to the management subsystem of the business. In addition to communicating with the management subsystem and the environment, it also communicates and coordinates with the administration and finance subsystems.

The operations subsystem will accomplish the functions required of the marketing subsystem for the business: it will implement the plans provided by the management subsystem (of the marketing system) through its process subsystems.

The other two major subsystems can be similarly described; however, it is not necessary. All of you undoubtedly understand business well enough that you can fill in the blanks with similar prose that fits the functional requirements for the finance and administrative subsystems.

The main point established is that a GST model to fit a business can be simply defined and allow analysis both systematically and systematically.

GST SYMBOLISM

Bertalanffy stated:

... the system is considered to be a "black box"; its relations to the environment and other systems are presented graphically in block and flow diagrams. The system description is given in terms of inputs and outputs (*Klemmenverhalten* in German terminology); its general form are transfer functions relating input and output. ... external description, typically, is given in terms of communication (exchange of information between system and environment and within the system) and control of the system's function with respect to environment (feedback) ... (Bertalanffy, 1972, p. 419)

The representation of a system is normally seen as a box (representing the transformation process), with an arrow into the box (representing inputs), an arrow out of the box (representing outputs), and a return arrow from the output arrow to the input arrow with a “control mechanism” in the middle (representing the feedback loop). See figure 1.

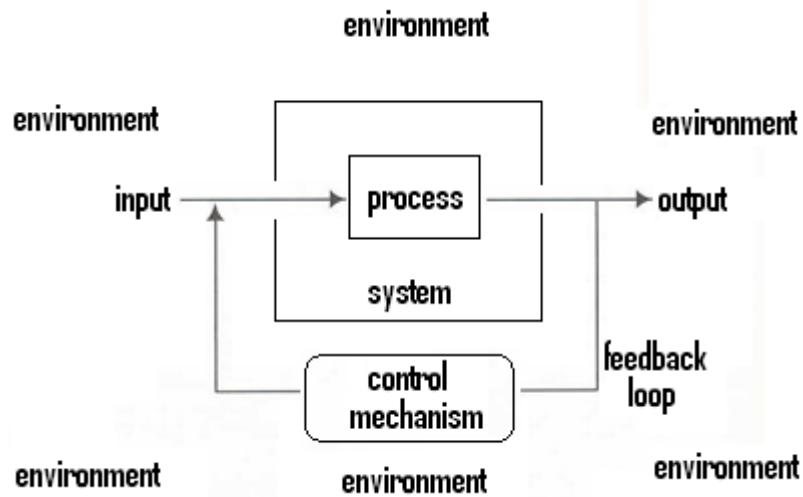


FIGURE 1. COMMON REPRESENTATION OF A SYSTEM

This is confusing, as the feedback mechanism is not a self-standing subsystem; it is contrived as a tool for a subsystem that does exist. A better representation might be: See figure 2.

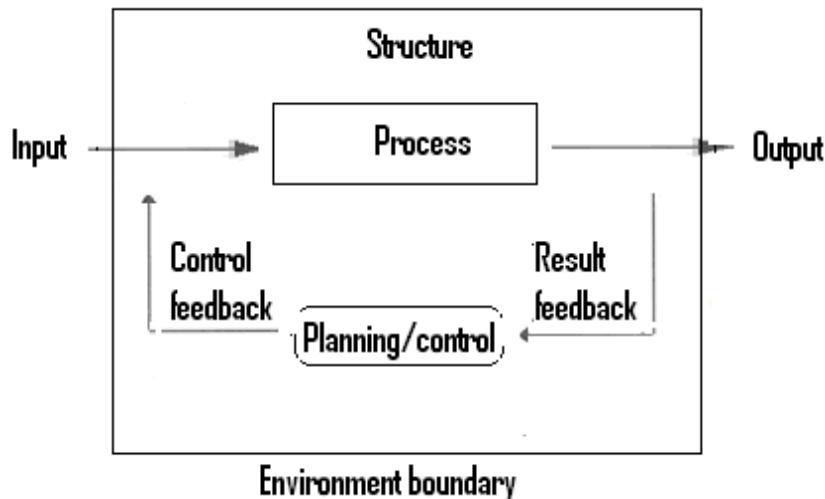


FIGURE 2. A BETTER REPRESENTATION OF A SYSTEM

The graphic representation at figure 2 shows the feedback loop inside the structure of the system, as described above, so that the management subsystem (part of the structure) operates it and uses it for control purposes.

A graphic representation of the business as a system, with its subsystems and relationships might be seen here in figure 3:

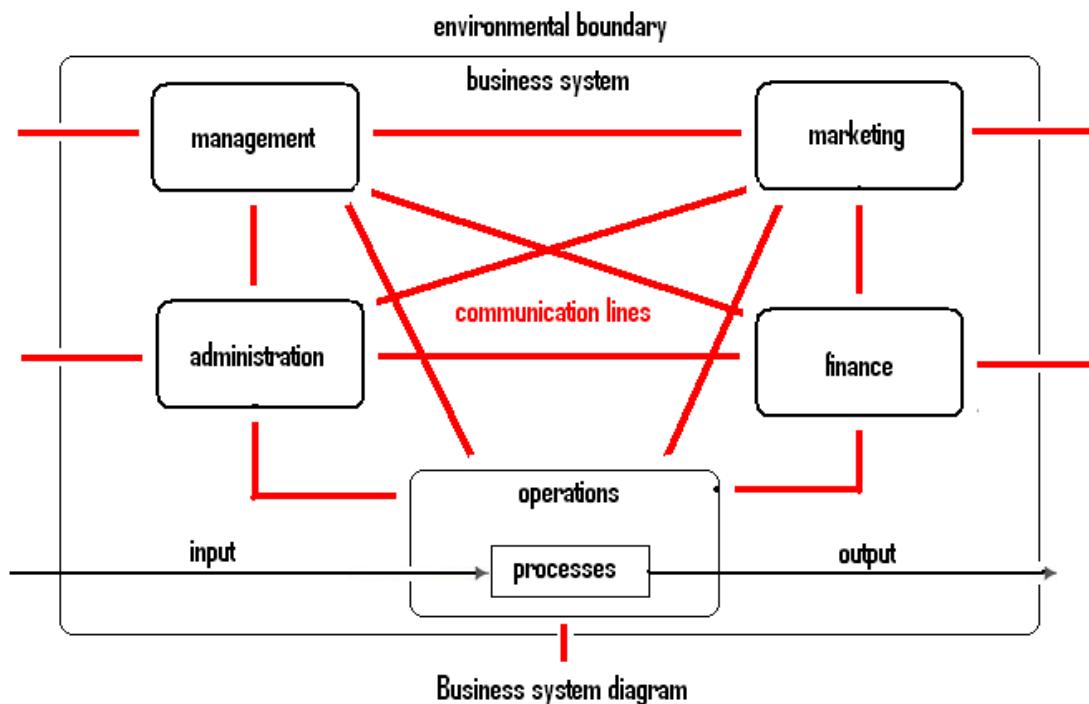


FIGURE 3. A BUSINESS SYSTEM WITH SUBSYSTEMS

This diagram shows the business system with the five major subsystems and lines of communication between the subsystems. The communication lines also define relationships and interdependencies. In each subsystem, its management subsystem accomplishes the communication.

BENEFITS OF THIS APPROACH

Using this approach greatly simplifies modeling a business for planning and decision-making. It uses the organizational constructs that have been learned, and trusted, in the past, but puts them into a format that is easy to understand and use.

Major functional business areas are represented as subsystems of the business; in fact, they are the structure of the business system.

The system at each level within a system of systems is a system (so defined), a suprasystem (to the subsystems below it in the system), and a subsystem (to the suprasystem above it).

All subsystems within a system comprise the structure of the system, and are interrelated and interdependent, while still functioning as a stand-alone independent system.

Each system has a purpose, and its output is designed to fulfill the purpose.

Outputs are exported out of a system into its environment and become inputs to the receiving system in the environment.

Inputs are consumed by the system and converted into outputs (which could be useful products or waste).

Although as an open, living system, the principle of equifinality (the final result may be reached by more than one path) implies that the same final form could be reached with different inputs and different processes, the same input transformed with the same process will each time result in the same output.

When an output requires change, a change in input or a change in process will result in a change in output.

Each subsystem in the business system has two subsystems (management and operations) with clearly defined functional requirements; there may be more as required to provide specialized output.

Each management subsystem's purpose is to perform planning, control, communications, and environmental evaluations.

Each operations subsystem will accomplish the functions required by the planning subsystem of its suprasystem: it will accomplish the planning; operate the feedback mechanism to monitor, record, and store output of the process; and analyze/evaluate its environment.

Having a structure that remains fairly stable enables the planning/decision-making elements to accomplish their functional requirements within a simple model. The system is teleological, implying that one must define an end and design processes to attain the end. This is a well-defined principle of management, and is the basis of planning and decision-making.

This author has also found that this simplified model of a business enables his students to grasp the concepts of management easily, and greatly facilitates business case analysis. Using the model as a substrate for each course enables students to examine the suprasystem as a holistic entity, looking at the interdependencies between subsystems in producing the output of the suprasystem and fulfilling the system's mission (purpose). At the same time, it enables them to examine changes to the output caused by changes in either inputs or processes of the various subsystems and how the changes in a subsystem can affect other subsystems in the interdependent system.

In the Introduction to Business course, the systems concepts enable the students to readily understand the relationship of business to the economic suprasystem and the relationship of a business firm to its suprasystem industry, or, from the viewpoint of a small business, to its suprasystem community. The concepts facilitate learning the components and relationships of the network of subsystems in a small business. They provide a basis for understanding the functions of management.

Systems concepts provide students in the Principles of Management course with a substantial substrate for understanding how management fits into an organization, as the management subsystem for its suprasystem. Students also learn, via the relationships between the subsystems, how management plans and controls all inputs, processes, and outputs for the business at the system level and for each of the subsystems at the subsystem level.

The General Systems Theory is especially helpful for Production and Operations Management courses, which essentially teach concepts of managing the business operations subsystem. The majority of textbooks are devoted to presenting management techniques and how to use various tools for measuring and controlling inputs, processes, and outputs. Providing systems theory training enables students to put operations into the proper context of a business, and show the interrelationships between operations, marketing, administration, finance, and management. All of the subsystems must coordinate in order to effectively and efficiently produce the output needed to fulfill the business purpose.

GST concepts are the most helpful in the capstone policy course. Presenting case analyses in the context of GST catches the imagination of students, who probe deeply the interrelationships to discover

the root causes of dysfunction, and evaluate how an original abnormality grew to spread to other subsystems and sometimes metastasized to cripple or destroy the business. Students become excited with finding probable means of early detection and corrective action, but also with discussing preventive measures to preclude the abnormality in the first place. They also use systems theory to look at cases of healthy companies, finding practices that fit and can be used as comparisons to the unhealthy company cases.

CONCLUSION

General Systems Theory is the most complete paradigm this author has encountered to explain the functioning of social organisms; in particular, business organizations. It provides the flexibility to fit to any business type, and allows inclusion of the basic time-tested principles of business management in such a way that it can be understood and applied by managers and students, as long as it is not distorted by well-meaning academicians who attempt to make the model fit every conceivable situation.

This paper presents a simple method of interpreting, and applying the systems paradigm to business organization.

Every system has a purpose, and accomplishes the purpose by importing inputs from its environment, transforming the inputs by internal processes into outputs which fulfill its purpose, then exporting the outputs into its environment, where they will be used as inputs into another system.

Every system has a management subsystem which plans the inputs-to-outputs process through monitoring the system environment to determine requirements and controls the operations through communications and operation of a feedback mechanism.

Every system also has an operations subsystem which accepts the inputs from the environment, performs the processing as needed to transform the inputs into outputs to fulfill the systems purpose.

Any system might need other subsystems to support the management and transformation processing requirements.

It defines the business system such that there are five major subsystems: (a) management, (b) operations, (c) marketing, (d) finance, and (e) administration. Each of the subsystems, as a system in its own right, has at least the two requisite (management and operations) subsystems; each will also have others as needed for its functioning. All components of the system are interdependent and communicate with each other and the environment.

This version of the paradigm has been tested on students in various management courses, and has earned praise and accolades from the students for the ease in understanding concepts that had been previously difficult. This paradigm should be presented to business students in their curricula on a much broader basis to improve their understanding of business concepts and assist in improving the economy through application of their better understanding.

REFERENCES

- Bertalanffy, Ludwig von (1972). The History and Status of General Systems Theory. *The Academy of Management Journal*, Vol. 15, No. 4 (Dec., 1972), pp. 407-426.
- Bertalanffy, Ludwig von (1950). *The Theory of Open Systems in Physics and Biology Science*, New Series, Vol. 111, No. 2872 (Jan. 13, 1950), pp.23-29.

Boulding, Kenneth (1956). General Systems Theory The skeleton of Science. *Management Science*, Vol. 2, No. 3 (Apr., 1956), pp.197-208.

Charlton, Bruce G & Andras, Peter (2003). What is Management and What do Managers do? A Systems Theory Account. *Philosophy of Management*, 3 (2003), pp.1-15

General systems theory (n.d.) in BusinessDictionary.com online. Retrieved from
<http://www.businessdictionary.com>

Heylighen, F. & Joslyn, C. (2000): "What is Systems Theory?", in: F. Heylighen, C. Joslyn and V. Turchin (editors): *Principia Cybernetica Web* (Principia Cybernetica, Brussels), URL: <http://cleamc11.vub.ac.be/systheor.html>.

Johnson, Richard A., Kast, Fremont E. & Rosenzweig, James E. (1964). Systems Theory and Management. *Management Science*, Vol.10, No. 2 (Jan., 1964), pp.367-384

Kast, Fremont E. & Rosenzweig, James E. (1972). General Systems Theory:

Applications for Organization and Management. *The Academy of Management Journal*, Vol.15, No. 4 (Dec., 1972), pp.447-465

Katz, Daniel & Kahn, Robert L. (1966). *The Social Psychology of Organizations*. New York: Wiley

Millet, Bruce (1998). Understanding Organizations: The Dominance of Systems Theory.

International Journal of Organizational Behavior, Vol.1, No. 1 (Jan., 1964), pp.1-12

Paradigm (n.d.) in BusinessDictionary.com online. Retrieved from <http://www.businessdictionary.com>

Parent, Elaine (2000) The Living Systems Theory of James Grier Miller. Retrieved from
http://www.newciv.org/ISSS_Primer/asem14ep.html

Yuchtman, Ephraim & Seashore, Stanley E., (1967) A System Resource Approach to Organizational Effectiveness, *American Sociological Review*, (Dec. 1967)

Impact of Mandatory Diversity Training: Lessons from a Private University

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Abstract: Attendance at diversity training programs is often dictated by management, and participants find themselves caught between their genuine desire to broaden their understanding of the subject and resentment at being forced to do so. The outcomes of these mandatory training programs have not been systematically assessed. This study looks at the cognitive, attitudinal, and behavioral impacts of attending such a program and finds valuable lessons learned and cautious room for optimism.

While numerous books, workshops, and college courses provide information on understanding and managing diversity (Miller & Katz, 2002; Thiederman, 2003), there remains a paucity of research on the impact of diversity training on interpersonal behaviors generally (Nemetz & Christensen, 1996; Sanchez & Medkik, 2004).

This stems from a lack of discussion in the literature regarding the desired behavioral outcomes of such training (Gutierrez, Kruzich, Jones, & Coronado, 2000). To date, the literature has primarily focused on development of conceptual frameworks for understanding diversity (De Meuse & Hostager, 2001; Mandell & Kohler-Gray, 1990) or on broad approaches for managing it (Cox, 1993; Rynes & Rosen, 1994). The lack of attention to desired outcomes has led to frustration among human resource managers, with more than two-thirds of them rating their diversity training efforts as unsuccessful (Wheeler, 1994).

The motivation and content of diversity training has evolved from one of compliance (mid-1960s to early 1980s) to improving working relationships (mid-1980s to mid-1990s) to a more recent focus on accepting and leveraging all dimensions of diversity based on the belief that enhanced business performance will result (Anand & Winters, 2008). This repositioning of diversity as an interpersonal competency has created a paradigm shift from the assumption that only certain groups – such as white men – require training, to one where all employees need to be more cross-culturally competent. This competence affects organizational viability and profitability through more creative decision making, reduced diversity-related conflict, improved cross-cultural understanding, and more functional interpretation of pluralistic differences (Combs & Luthans, 2007).

Like corporations, colleges and universities are embracing diversity. Predominantly white liberal arts colleges are renewing their commitment to maintain a welcoming and diverse community of students, faculty, and staff. Nationally, 71 percent of Americans think diversity education helps bring people together but 65 percent believe that colleges and universities are not doing a good job if their graduates cannot get along in a diverse population (DYG Inc., 1998). Responsive institutions have used diversity training not just to advance their goal of social justice but also as a means to promote greater engagement among students, faculty and staff. Davis (2002) notes that the most successful academic communities employ proactive programs to improve diversity while Brown and Duguid (2002) claim that they are inhabited by people who share common tasks, obligations, and goals.

For smaller institutions, shifting to a more heterogeneous student body and workforce is rarely an easy experience. Private, religiously affiliated colleges and universities face a particularly difficult dilemma. The more top management wants its members to accept its core values and inherited culture, the harder it becomes to demonstrate support for strong differences amongst students, faculty, and staff. While a greater variety of perspectives may enhance creativity and lead to better decisions, it can also result in increased distrust and conflict, lower job satisfaction and higher turnover (Milliken & Martins, 1996).

INSTITUTION

My University is a private, 4-year university in the Catholic tradition. Of the 1600 or so independent college and universities in the United States, about half are considered to be church-affiliated. Of these, 221 are Catholic (U. S. Conference of Catholic Bishops, 2006). From its beginning in the late 19th century, My University welcomed students from all religious faiths, ethnic backgrounds and economic circumstances, unusual for Catholic schools at the time. These values of inclusiveness continued to evolve through the 20th century with evening classes being offered to non-traditional students in the 1920s and women admitted in the 1930s. Today, the university has some 4,000 students, of which 45 percent are over 23 years of age, 50 percent come from rural communities, and 7.6 percent are minorities. It employs some 200 faculty and 250 staff and offers several graduate programs.

TRAINING PROGRAM

In 2007, in a legal settlement, the university committed itself to a one-day, 8-hour, diversity training program for all its employees. This is in keeping with the findings of Gutierrez et al, (2000) who found that legal pressures have been the dominant drivers in diversity training expansion.

Typically, such programs emphasize heightened awareness over skill development (Rynes & Rosen, 1995). Such awareness programs are inexpensive, relatively easy to conduct, and can be used in a wide variety of contexts (Roberson, Kulik, & Pepper, 2003). The training conducted at MY University claimed to combine both approaches with awareness training presented first to realize the strategic benefit of connecting with a diverse range of people and second skill training to acquire the skills to repair any damaged relationships resulting from insensitivity to the other's differences.

These twin objectives formed the basis of the training curriculum which included interactive cross-cultural simulation, a presentation showing what happens when people are unconsciously discriminated against, an exercise in false perception, case scenarios, an intercultural learning activity, discussion and analysis of the "Blue Eyes/Brown Eyes" video. (The now famous video traces the controversial experiment by a 3rd grade teacher at an all-white school in Iowa in 1968. The students were branded inferior or superior based solely upon the color of their eyes and received a startling lesson on discrimination). The training ended with an 'economic summit' game which sought to impart the value of trust.

A subgroup of 42 participants agreed to participate in a longitudinal study. This subgroup completed the evaluation one week after the training and again three months later. Of these, 14 were men and 28 women; 14 were faculty and 28 were staff. The median age was 50. The only other demographic data collected was length of service.

METHODOLOGY

A total of 450 faculty and staff participated in the training workshops. At the end of the training, attendees were asked to evaluate the program and the trainers. This instrument focused on content, delivery, currency, as well as cognitive and attitudinal outcomes. Based on these evaluations, the overwhelming majority of participants stated that the training was effective in meeting its immediate goals.

To evaluate the short-term and intermediate effects of the training, the authors developed a new instrument. We sought to measure cognitive, attitudinal, and behavioral changes towards co-workers as a result of the training. The instrument resembles the Workplace Diversity Survey created by De Meuse and Hostager (2001) but replaces the broad and amorphous term ‘diversity,’ with the more immediate and tangible ‘co-workers who are different.’ Specifically, it asked participants to rate the training in accomplishing the following:

- increasing their understanding of co-workers who are different
- changing their attitudes towards co-workers who are different
- providing the skills necessary to treat such co-workers with sensitivity
- imbuing them with commitment to change their behaviors towards co-workers who are different
- imbuing their friends with commitment to change their attitudes and behaviors towards co-workers who are different
- providing the university as a whole with commitment to become more inclusive

The second part of the survey asked if respondents had received disrespectful treatment at work, and if they had caused offense or embarrassment to co-workers. Finally, they were asked to specify behavioral changes, if any, they intended to make. Identical questions were asked – in the past tense – in the follow-up evaluation taken 90 days later.

The survey was structured as perceptions of the course and perceptions of self. A Principal Components Analysis (PCA) was run separately on both evaluations. Three components emerged. The first included the six statements described as “Perception of the training program.” The first four statements isolated themselves definitively to this group, and there was some overlap with the other groups on statements five and six. Statements seven and eight are clearly separated into groups two and three. These two statements are in the block labeled “Perceptions of self.” Question 7 is a “victim” question, and Question 8 is self-indicting, or a “guilt” question. In other words, they are of a different nature, and are considered separately.

RESULTS

This survey was conducted immediately after a diversity training program. A follow-up survey was taken three months later. Since no pre-program survey was taken, the statements relating to perceptions of the training program cannot be used to evaluate the immediate effects of the course. However, it is possible to evaluate the lingering effects of the course by using the first and second survey results.

Paired difference t-tests were used to compare responses from the two evaluations.¹ These showed statistically significant differences for the following statements:²

2. This program changed my attitudes towards co-workers who are different from me.
5. As a result of this program, I expect my work friends to make changes in their behavior towards co-workers who are different from them.
7. I have experienced disrespectful treatment from co-workers due to my differences from them.
8. I have caused offense or embarrassment to co-workers.

The remaining questions/statements showed no statistically significant differences and are not addressed.

Summary		1	2	3	4	5	6	7	8
Statements	Mean difference	0.050	0.350	0.050	-0.200	-0.550	-0.105	-1.105	-0.632
	p-value	0.358	0.045	0.402	0.214	0.019	0.315	0.001	0.024
Result		Improved attitude				Friends have not made behavioral changes		Incidents of disrespect have lessened	Personal comportment has improved

Negative mean differences show tendency toward disagreement with a statement. Blanks in the result row mean there were no statistically significant changes.

Statements 2 and 5 involve perceptions of the training program.

Statement 2. This program changed my attitudes towards co-workers who are different from me ($p = 0.045$)

In terms of age, three usable groups emerged: 40 and younger; 41-50, and older than 50. The only age group to show a difference was those 40 years of age or less. The change was positive, indicating that the younger age groups may have taken the lessons to heart. The survey did not indicate any change in attitude for those over the age of 40, nor for any other demographic category.

Statement 5. As a result of this program, I expect my work friends to make changes in their behavior towards co-workers who are different from them (p -value = 0.019).

Findings for statement 5 were negative. Ninety days after the training, respondents suggest that desired behavioral changes in friends did not materialize. On a gender basis, male respondents showed no significant differences on this statement while female respondents showed significant differences. It appears that women account for the bulk of the changes. Those respondents over 50 years of age suggest that nothing has changed in this respect. For length of service, statistically significant findings came from those with less than 5 years employment at the university. The newer employees did not perceive that

¹ In case t-test assumptions were not met, the Wilcoxon Signed Ranks test was used. The results were the same with p -values ranging from 0.015 to 0.026.

² These questions are from the initial set taken immediately after the program was finished.

expected behavioral changes had occurred among their co-workers. Regarding behavior of friends, 53 percent expected less change from their friends after three months than immediately following the workshop.

Statements 7 and 8 refer to perceptions of self.

Statement 7. I have experienced disrespectful treatment from co-workers due to my differences from them (p-value = 0.001).

For both faculty and staff, incidents of disrespect had diminished ($p = 0.038$ for faculty and 0.020 for staff). The findings were similar for those over 50 years of age ($p = 0.003$) and for those with less than 5 years employment ($p = 0.033$). 68 percent of the respondents saw a decrease in disrespectful treatment from co-workers.

Statement 8. I have caused offense or embarrassment to co-workers ($p = 0.024$).

For length of service, the most significant differences came from those with less than 5 years employment ($p = 0.049$). Respondents who first acknowledged that they might have caused offense to others believe that they have changed their ways and no longer are the cause of offense to others. In the follow-up survey, respondents deny even more strongly that they, personally, had caused offense to others. 47 percent of the respondents perceived improvement in their own treatment of co-workers.

Specific behavior statements (7 and 8) revealed an increased awareness of situations that might cause offense and increased efforts toward more effective two-way communication.

Open-ended (narrative response) questions:

Question 9: If you intend to change your behavior as a result of this program, please provide one or two examples of those changes.

Question 10: What else would you like to tell us about this training program?

Responses to these questions suggest that the program had many limitations. Themes that emerged were lack of relevance to academia, misrepresentation of the course as “new and different,” eight hours being too long, and the inappropriateness of the “economic summit” game. Several noted the lack of enthusiasm of others in their sessions, and their unwillingness or inability to participate in activities as a team.

Part of this can be attributed to the biases of self-presentation and social desirability – how people think of themselves in relation to others. For example, ninety days after the training, 39 percent of respondents said they had made behavioral changes as a result of the program. Of that 39 percent, less than a quarter expected their friends to make changes in their behavior, and only a handful provided specific examples of their own adjustments, such as: listening better; not interpreting silence as rejection; teaching a coworker how to do certain tasks; and “avoiding those who make me uncomfortable.”

Overall, we found that the training program improved understanding of the issue, but had no significant impact on real or perceived behaviors. We also found scant difference between the short-term and intermediate effects of diversity training.

IMPLICATIONS

The results of this paper do not imply that diversity training is a waste of time. Rather, they indicate that one size does not fit all and that careful needs assessment is a necessary prerequisite for success. Gilbert and Ivancevich (2000) found that few diversity training programs are preceded by a thorough needs assessment of organization, tasks and people. Good needs assessment should include input from staff at a variety of organizational levels (Gutierrez et al., 2000). This not only clarifies what kind of change is needed, but at what level and for whom.

Nemetz and Christensen, (1996) found that diversity training is most likely to lead to attitudinal and behavioral change when participants have not already formed strong prejudices, negative peer pressure is removed, and there is an organizational culture that supports appreciation of multiculturalism. Wentling and Palma-Rivas (1998) suggest that college leaders consider the following as key diversity training components: management commitment and support; inclusion in strategic planning; attention to specific organizational needs; qualified trainers; mandatory attendance; inclusiveness; trust and confidentiality; accountability; and clearly focused evaluation.

In addition to changing myths about the subject (e.g. it's just code for affirmative action), diversity training must also offer ways to respond to the challenges of valuing and managing it in the workplace (Tan, Morris, & Romero, 1996). Rynes and Rosen (1995) note that diversity-related problems don't necessarily spring from lack of awareness. Rather, proponents of change may lack the specific behavioral guidelines required to bring about the desired behavioral changes. Proven post-training practices such as behavioral coaching and follow-up sessions (Sanchez & Medkik, 2004) were lacking. In addition to the cognitive skills necessary to understand those who are 'different,' trainees must be given the opportunities to develop the social and perceptual skills to navigate those differences and assume the best of others.

Managing diversity has to be a continuing process, not an isolated, one-shot awareness treatment (Sanchez & Medkik, 2004). A comprehensive review of 31 years of data from 830 mid-size to large U.S. workplaces found that mandatory programs - often undertaken with an eye to avoiding liability in discrimination lawsuits - are ineffective and even counterproductive in increasing the number of women and minorities in managerial positions (Kalev, 2009). The study also found that when diversity training is voluntary and undertaken to advance a company's business goals, it was associated with increased diversity in management.

Real change in attitudes and behaviors follows an evolutionary, not revolutionary, path and requires a commitment of time, people, and resources. For many employees, the behavioral changes needed to accommodate diversity follow a similar trajectory to those of any innovation – evolving through the stages of knowledge acquisition, to attitude formation, to a decision to adopt, to implementation, to confirmation that the decision was correct. Management should no longer assume that diversity training programs are successful in and of themselves (Hostager & De Meuse, 2002) and must strive to align the diversity effort with other changes taking place. If the desired change does not fit well with the existing culture and have the support of day-to- leadership, it is usually destined to fail.

APPENDIX – SURVEY QUESTIONS*

This program increased my understanding of co-workers who are different from me.

This program changed my attitudes towards co-workers who are different from me.

This program provided me with the skills necessary to treat co-workers who are different from me with sensitivity and understanding.

As a result of this program, I intend to make changes in my behavior toward co-workers who are different from me.

As a result of this program, I expect my workplace friends to make changes in their behavior toward co-workers who are different from them.

As a result of this program, I expect the college community to become more inclusive and accommodating of differences

I have experienced disrespectful treatment at work due to my difference/s from co-workers.

I have caused offense or embarrassment to co-workers, without perhaps intending to.

If you intend to change your behavior as a result of this program, please provide one or two examples of those changes.

What else would you like to tell us about this training program?

*Questions were changed to past tense for follow-up survey

REFERENCES

- Anand, R. & Winters, M. F. (2008). A retrospective view of corporate diversity training: From 1964 to the present. *Academy of Management Learning & Education*, 7, 356-372.
- Brown, J. S., & Duguid, P. (2000). *The social life of information*. Boston: Harvard Business School Press.
- Combs, G. & Luthans, F. (2007). Diversity training: Analysis of the impact of self-efficacy. *Human Resource Development Quarterly*, 18, 91-120.
- Cox, T. (1993). *Cultural diversity in organizations: Theory, research, and practice*. San Francisco: Berrett-Koehler.
- Davis, L. (2002). Racial diversity in higher education. *Journal of Applied Behavioral Science*, 38(2), 137-155.
- De Meuse, K. P., & Hostager, T. J. (2001). Developing an instrument for measuring attitudes toward and perceptions of workplace diversity: An initial report. *Human Resource Development Quarterly*, 12(1), 33-51.
- DYG Inc. (1998). *The Ford Foundation Campus Diversity Initiative national poll gauging public attitudes towards diversity in higher education*. New York: Author.
- Gilbert, J. A., & Ivancevich, J. M. (2000). Valuing diversity: A tale of two organizations. *Academy of Management Executive*, 14(1), 93-105.
- Gutierrez, L., Kruzich, J., Jones, T., & Coronado, N. (2000). Identifying goals and outcome measures for diversity training: A multi-dimensional framework for decision-makers. *Administration in Social Work*, 24(3), 53-69.
- Hostager, T. J., & De Meuse, K. P. (2002). Assessing the complexity of diversity perceptions: Breadth, depth, and balance. *Journal of Business and Psychology*, 17(2), 189-206.
- Kalev, A. (2009). Cracking the glass cages? Restructuring and ascriptive inequality at work. *American Journal of Sociology*, 114, 1591-1643.
- Mandell, B. L., & Kohler-Gray, S. (1990). Management development that values diversity. *Personnel*, 67, 41-47.
- Miller, F. A., & Katz, J. H. (2002). *The inclusion breakthrough: Unleashing the real power of diversity*. San Francisco: Berrett-Koehler.
- Milliken, F. J., & Martins, L. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review*, 21(2), 402-433.
- Nemetz, P. L., & Christensen, S. L. (1996). The challenge of cultural diversity: Harnessing a diversity of views to understand multiculturalism. *Academy of Management Review*, 21(2), 434-462.
- Roberson, L., Kulik, C. T., & Pepper, M. B. (2003). Using needs assessment to resolve controversies in diversity training design. *Group and Organization Management*, 28(1), 148-174.
- Rynes, S., & Rosen, B. (1994, October). What makes diversity programs work? *HR Magazine*, 39, 67-73.
- Rynes, S., & Rosen, B. (1995). A field study of factors affecting the adoption and perceived success of diversity training. *Personnel Psychology*, 48, 247-270.
- Sanchez, J. I., & Medkik, N. (2004). The effects of diversity awareness training on differential treatment. *Group & Organization Management*, 29(4), 517-536.

- Tan, D. L., Morris, L., & Romero, J. (1996, September). Changes in attitudes after diversity training. *Training and Development*, 54-55.
- Thiederman, S. (2003). *Making diversity work: Seven steps for defeating bias in the workplace*. Dearborn, MI: Dearborn Trade Publishing.
- U. S. Conference of Catholic Bishops. (2006, August). *The Catholic Church in America - Meeting real needs in your neighborhood*, [Web page]. Author. Available: <http://www.usccb.org/comm/cip.shtml#toc9> [2009, June 15].
- Wentling, R., & Palma-Rivas, N. (1998). Current status and future trends of diversity initiatives in the workplace: Diversity experts' perspectives. *Human Resource Development Quarterly*, 9, 235-253.
- Wheeler, M. L. (1994). *Diversity training* (Research Report 1083-94-RR). New York: Conference Board.

Emotional Intelligence Founded Transformational Leadership Traits: The Impact of Gender, Tenure, and Organization Position Among Virtual Workers

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Teaming, in combination with the drive to complete work virtually has exploded on the enterprise scene over the last two decades. This paradigm shift has precipitated the need for leaders to better understand the impact of the virtual teaming work environment on leadership methodology. Within leadership methodology a major component is the recognition of the effect and fostering of emotional intelligence within the workforce.

This study explores a series of transformational leadership traits which can be directly related to the enhancement and specific needs associated with emotional intelligence factors. The study specifically focuses on workers who complete the majority of their work within information technology driven virtual work environments as members of virtual work teams. The study investigates the levels of exposure the members of the study group have experienced relative to these leadership activities and the importance the members assign to these same activities. The study also investigates any impact to the data which might be related to the participant's gender, level within the organization, and years of employment.

1. INTRODUCTION

Emotional Intelligence (EI) is one of the most important concepts to cross the business world in recent years. It directly draws implications of a leader's ability to understand the emotions of themselves and their followers and the impact this has on both their performance as a leader and their team's performance for the organization. EI is directly related to the transformational leadership methodology. The four components of transformational leadership are idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. [1]

Corporate activity has become more global as competition from both foreign and domestic arenas increase. [2] The application of information technology has launched the teaming atmosphere into the virtual world. [3] Gaining a better understanding of the relationship between emotional intelligence founded transformational leadership traits, the needs and experiences of team members in this realm, and the consideration of virtual working environment dependencies offers the opportunity to gain knowledge which might be applied to gain an advantage in the enterprise global work space.

2. VIRTUAL TEAMING

Combs and Peacocke illustrated virtual teams as collections of individuals who function narrowly together while being physically separated. [4] Team members are able to function from remote locations as members of different teams facilitated by asynchronous communication. [5] Asynchronous communication involves the use of e-mail, databases, bulletin boards, and other forms of delayed response communication to support asynchronous expertise. [6]

As the presence of virtual teams becomes a greater part of business life, the importance of virtual leadership increases along with concerns for job satisfaction which is linked to EI. Ammeter and Dukerich's research concluded that leader behavior is the only predictor of team performance and suggested that the interaction between leader methodology and team member needs would be a fruitful area for future study. [7] The proliferation of virtual work equates to managers being required to provide

leadership within the new environment and the fine-tuning of methods to rally the demands put on themselves and the team. [8]

3. EMOTIONAL INTELLIGENCE

Research, work, and writing within the Emotional Intelligence arena has expanded tremendously from 1990 through the present day with work prior to 1990 consisting of a small number of articles and book sections. The study of EI grew exponentially over the 1990's while expanding even further in the new millennium with the United States leading the research charge. [9] Emotion might be viewed as a compiled feeling or sense incorporating physiological changes, initiation of preparation in an individual's motor faculties, understanding of related actions, and generated inner experiences which are created an appraisal of self and the situation taking place at the time. [10] In defining EI, an incorporation of intelligence takes place which might be defined as a combination of cerebral founded abilities which allow for recognition, learning, memory incorporation, and ability to reason about different forms of information and sensory perceptions. [11]

Mayer & Salovey define emotional intelligence as "...the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions to discriminate among them and to use this information to guide one's thinking and actions". [12] Bar-On equates emotional-social intelligence to "...a number of intrapersonal and interpersonal competencies, skills and facilitators that combine to determine effective human behavior, measured by self-report within a potentially expandable multi-modal approach including interview and multi-rater assessment". [13] Emotional intelligence concerns the ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought. Higher levels of emotional intelligence are associated with better performance in the following areas:

- Participative Management
- Putting People at Ease
- Self-Awareness
- Balance Between Personal Life and Work
- Straightforwardness and Composure
- Building and Mending Relationships
- Doing Whatever it Takes
- Decisiveness
- Confronting Problem Employees
- Change Management

Leaders which improve their understanding of EI and monitor and apply the related factors in their leadership style will meet with greater levels of success and personal and follower growth and development. [9]

4. TRANSFORMATIONAL LEADERSHIP

Strong and appropriate leadership within the virtual realm is an important factor to team success. [14] The team leader guides the team members to reason through innovative channels and to applying logic before attempting to solve a problem. [15] This approach allows an environment where the employee realizes greater levels of growth and job satisfaction. Saros and Santora emphasize the EI factors of caring, vision, role modeling, and team building leadership as being paramount in today's organizations. [16]

Transformational factors of team leadership include telling the team member what to do and how to do it, selling the team member through directive and supportive behavior, allowing the team members to participate in decision making, and delegating tasks to team members. Transformational leadership is the

dominant methodology in leadership training and application with most major organizations and naturally incorporates many of the factors related to EI and a broadened understanding of diversity demanded by the increased application of virtual teaming schemes.

5. COMPILED OF STUDY FACTORS

Virtual teams take on general teaming characteristics, but the members have partition by time and space and the communication is asynchronous. The proliferation of virtual work equates to managers being required to provide leadership within the new environment and the fine-tuning of methods to rally the demands put on themselves and the team. [8] Leadership development must therefore, mature in tandem with the virtual environment.

Transformational leadership functionality needs to adapt to the virtual environment to enable the greatest results. Factors such as trust, team member selection, collaboration techniques, employee training and development, etc. must be facilitated while meeting the special demands of the virtual workspace. This fusion of considerations naturally allows the incorporation of emotional intelligence dependencies and needs. It is a general tendency to put EI related behaviors under a category oftentimes referred to as “people skills”. These same people skills are also often referenced in discussions of transformational leadership.

The connections become obvious between transformational leadership dependencies and variables related to EI. This study combines this consideration with the fact that leadership via virtual means and virtual teaming is expanding exponentially and that leadership and follower knowledge might be gained through exploring the relationship between EI and transformational leadership among employees working with virtual teaming and work environments. The study also facilitates thoughts into how information technology development might take into consideration the resulting influence on EI.

6. METHODOLOGY

The purpose of this quantitative research design applying descriptive, analysis of variance techniques of a non-experimental nature was to explore virtual team member views on the emotional intelligence founded, transformational methodology leadership behaviors they receive relative to what they desire and study this relationship as compared to the gender, years of work experience, and level within the organization of the sample members. Likert-type, Internet based surveys were administered to 123 members of VE Forum, an Internet based virtual teaming support organization. The study was highlighted within the VE Forum Newsletter and the link to the research site included in that virtually bound publication. Respondents represented 23 different countries including the United States, United Kingdom, Australia, Greece, Brazil, China, Denmark, Finland, France, Germany, Italy, Poland, Russia, Sweden, Romania, Switzerland, Croatia, Austria, Mexico, Ireland, Israel, Canada, and India.

To achieve a 95% confidence interval from a general population a minimum of 120 surveys needed to be completed according to a formula described by NCS Pearson (2003). This study included 120 responses with the unemployed and participants over 70 years of age eliminated. The survey was housed on the SurveyMonkey.com Internet site and the sample was mixed based on gender, age, educational background, years within the workforce, and years with an organization. The participants were geographically dispersed with the majority coming from outside the United States.

The research employed a Likert-type survey in which a “. . . quantitativedescription of some fraction of the population – the sample – through the data collection process of asking questions of people . . . enable[s] the researcher to generalize the findings from a sample of responses to a population”. [17] The analyses applied to the data were parametric, which assumed that the data would be interval instead

of ordinal. Jaccard and Wan determined that applying interval-based statistics does not have an adverse impact on Type I and Type II errors in this type of facilitation. [18]

The survey applied the Ruggeberg Leadership Behaviors and Tasks instrument addressing the leadership factors. [19] The instrument was constructed to collect data comparing leadership behaviors desired by team members and the level to which the behavior is exhibited by the team leadership with 96 Likert-type survey inquiries. [19] Sample inquiry from the applied survey:

1a-The extent to which facilitating collaborative/joint decision making among team members has been a part of team leadership you have experienced.

1b-The importance of facilitating collaborative/joint decision making among team members to successful team leadership.

Fifty of the 96 Ruggeberg leadership behavior inquiries were chosen for use in this study based on their relationship to transformational leadership and emotional intelligence. Twenty-five of the 50 referred to leadership behaviors received by the participant and 25 referred to the value of that behavior to the participant. The researcher chose 25 specific inquiry pairs from the Ruggeberg survey based on research conducted by Parnin creating a foundation for the relationship between these 25 pairs of inquiries and their measurement of transformational leadership and relationship to emotional intelligence. [20] Parnin references a series of relationships and studies providing foundation for the EI and transformational leadership relationship of these Likert type survey inquiries including Wang and Huan (2009), Vrba (2007), and work done on transformational leadership studied with the MLQ. [20]

The participants answered by evaluating 25 statements relative to the leadership behaviors they receive on a scale of 1 to 4. The scale equated to the possible choices of: 1 = not part of leadership, 2 = minor part of leadership, 3 = moderate part of leadership, and 4 = major part of leadership. The participants also evaluated 25 statements relative to what behaviors the participant desires or values in a leadership style on a scale of 1 to 4. The scale equated to the possible choices of: 1 = important part of leadership, 2 = minor importance to leadership, 3 = moderate importance to leadership, and 4 = major importance to leadership. Demographic data included work location, age, gender, years with the present organization, level within the organization, simultaneous participation on different virtual teams, and years in the workforce.

Analysis of the data was completed using the two sample t-Test, and ANOVA Bonferroni analysis. All statistics were completed using SPSS and EXCEL software. The F-Tests was applied to confirm equal levels of variance within the data and that equal variance was confirmed

7. HYPOTHESES

Hypothesis 1

H1o (Null): Virtual work team members experience no difference in leadership behaviors they receive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

H1a (Alternative): Virtual work team members experience a difference in leadership behaviors they receive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

Hypothesis 2

H2o (Null): Male and female virtual work team members experience no difference in leadership behaviors they receive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

H2a (Alternative): Male and female virtual work team members experience a difference in leadership behaviors they perceive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

Hypothesis 3

H3o (Null): Differing levels of work length tenure virtual work team members experience no difference in leadership behaviors they receive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

H3a (Alternative): Differing levels of work length virtual work team members experience a difference in leadership behaviors they perceive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

Hypothesis 4

H4o (Null): Differing levels of organizational position level virtual work team members experience no difference in leadership behaviors they receive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

H4a (Alternative): Differing levels organizational position level virtual work team members experience a difference in leadership behaviors they perceive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies.

8. RESULTS

Data for the testing of Hypothesis 1 were prepared for analysis by first determining the mean response for each participant to the received leadership behavior inquiries and for the desired leadership behavior inquiries. A paired samples, two tailed, t Test was then completed for the 109 mean response values for each participant to the received leadership behavior inquiries and for the mean response values for the desired leadership behavior inquiries. A paired samples *t* test revealed a statistically reliable difference between the mean value of leadership behavior received ($M = 2.93$, $s = .540$) and leadership behavior desired ($M = 3.40$, $s = .375$), $t(108) = -10.482$, $p = 0.0$, $\alpha = .05$ and the null hypothesis may be rejected. The results were as follows:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	All Leadership Received	2.9354	109	.54020	.05174
	All Leadership Desired	3.4044	109	.37517	.03593

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)			
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference							
				Lower	Upper						
Pair 1	All Leadership Received - All Leadership Desired	-.46899	.46714	.04474	-.55768	-.38030	-10.482	.000			

Data testing of Hypothesis 2 for females was prepared for analysis by first determining the mean response for each participant to the received leadership behavior inquiries and for the desired leadership behavior inquiries. A paired samples, two tailed, *t* Test was then completed for the 36 mean response values for each participant to the received leadership behavior inquiries and for the mean response values for the desired leadership behavior inquiries. A paired samples *t* test revealed a statistically reliable difference between the mean value of leadership behavior received ($M = 2.98$, $s = .073$) and leadership behavior desired ($M = 3.44$, $s = .058$), $t(35) = -5.806$, $p = 0.0$, $\alpha = .05$ and the null hypothesis may be rejected. The results were as follows:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Female Leadership Received	2.9822	36	.44134	.07356

		Paired Differences					t	df	Sig. (2-tailed)			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference							
					Lower	Upper						
Pair 1	Female Leadership Received - Female Leadership Desired	-.45556	.47080	.07847	-.61485	-.29626	-5.806	35	.000			

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference							
					Lower	Upper						
Pair 1	Female Leadership Received - Female Leadership Desired	-.45556	.47080	.07847	-.61485	-.29626	-5.806	35	.000			

Data testing of Hypothesis 2 for males was prepared for analysis by first determining the mean response for each participant to the received leadership behavior inquiries and for the desired leadership behavior inquiries. A paired samples, two tailed, *t* Test was then completed for the 72 mean response values for each participant to the received leadership behavior inquiries and for the mean response values for the desired leadership behavior inquiries. A paired samples *t* test revealed a statistically reliable difference between the mean value of leadership behavior received ($M = 2.89$, $s = .068$) and leadership behavior desired ($M = 3.38$, $s = .044$), $t(71) = -8.887$, $p = 0.0$, $\alpha = .05$ and the null hypothesis may be rejected. It should be noted that there was a greater difference between the means for males than there was for females. The results were as follows:

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Male Leadership Received	2.8928	72	.57910	.06825

		Paired Differences					t	df	Sig. (2-tailed)			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference							
					Lower	Upper						
Pair 1	Male Leadership Received - Male Leadership Desired	-.49333	.47104	.05551	-.60402	-.38264	-8.887	71	.000			

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference							
					Lower	Upper						
Pair 1	Male Leadership Received - Male Leadership Desired	-.49333	.47104	.05551	-.60402	-.38264	-8.887	71	.000			

Data for the testing of Hypothesis 3 was prepared for analysis by first determining the mean response for each participant to the received leadership behavior inquiries to emotional intelligence competencies and for the desired leadership behavior inquiries to emotional intelligence competencies. The absolute value of the difference between these two means was then determined. Hypothesis testing was completed using ANOVA and the Bonferroni procedure. These types of analyses required three assumptions be made which included that independent random samples had been taken from each population, the

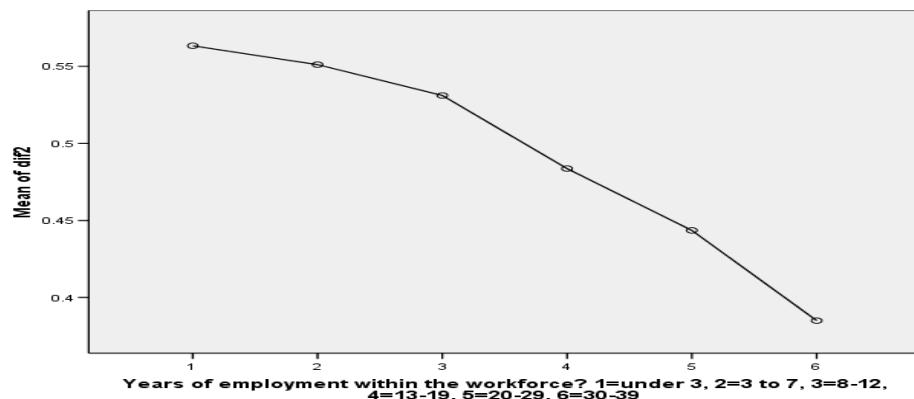
populations were normally distributed, and the population variances were all equal (Norusis, 2006). The method used the p-value and a pre-set significance level of $\alpha = 0.05$ to decide if the null hypothesis should be rejected. If the p-value was greater than the significance level of $\alpha = 0.05$, there was no significant difference from the null hypothesis, justifying the decision to fail to reject the null hypothesis. The Bonferroni procedure was used to make multiple comparisons for the five different levels of work tenure including 1= less than 3 years, 2= 3 - 7 years, 3= 8 - 12 years, 4= 13 – 19 years, 5= 20 – 30, and 6= 30 39 years.

Results indicated that there were no significant variations between different tenure groups relative to the calculated difference between the means of rankings for leadership behaviors they receive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies and the null hypothesis may not be rejected. The results were as followed:

ANOVA						
dif2	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	.409	5	.082	.442	.818	
Within Groups	19.046	103	.185			
Total	19.455	108				

Multiple Comparisons						
Dependent Variable: dif2		Mean Difference (I-J)	Std. Error	Sig.	95 % Confidence Interval	
(I) Years of employment within the workforce?	(J) Years of employment within the workforce?				Lower Bound	Upper Bound
1=under 3, 2=3 to 7, 3=8-12, 4=13-19, 5=20-29, 6=30-39	1=under 3, 2=3 to 7, 3=8-12, 4=13-19, 5=20-29, 6=30-39					
1	2	.0122	.1603	1.000	-.469	.494
	3	.0322	.1603	1.000	-.449	.514
	4	.0797	.1795	1.000	-.460	.619
	5	.1198	.1444	1.000	-.314	.554
	6	.1783	.1642	1.000	-.315	.672
2	1	-.0122	.1603	1.000	-.494	.469
	3	-.0200	.1433	1.000	-.411	.461
	4	-.0675	.1646	1.000	-.427	.562
	5	-.1076	.1253	1.000	-.269	.484
	6	-.1661	.1477	1.000	-.278	.610
3	1	-.0322	.1603	1.000	-.514	.449
	2	-.0200	.1433	1.000	-.451	.411
	4	-.0475	.1646	1.000	-.447	.542
	5	-.0876	.1253	1.000	-.289	.484
	6	-.1461	.1477	1.000	-.298	.590
4	1	-.0797	.1795	1.000	-.619	.460
	2	-.0675	.1646	1.000	-.562	.427
	3	-.0475	.1646	1.000	-.542	.447
	5	-.0401	.1492	1.000	-.408	.488
	6	-.0986	.1684	1.000	-.408	.605
5	1	-.1198	.1444	1.000	-.554	.314
	2	-.1078	.1253	1.000	-.484	.289
	3	-.0876	.1253	1.000	-.484	.289
	4	-.0401	.1492	1.000	-.488	.408
	6	.0585	.1304	1.000	-.333	.460
6	1	-.1783	.1642	1.000	-.672	.315
	2	-.1661	.1477	1.000	-.610	.278
	3	-.1461	.1477	1.000	-.590	.298
	4	-.0986	.1684	1.000	-.605	.408
	5	-.0585	.1304	1.000	-.460	.333

Although according to the Bonferroni test, none of the means had a significant difference from the others, the Means Plot revealed an interesting pattern. The pattern indicated that as the tenure with the organization increased, the mean value of the difference between the mean response for each participant to the received leadership behavior inquiries to emotional intelligence competencies and for the desired leadership behavior inquiries to emotional intelligence competencies tended to decrease. The Means Plot was as follows:

Means Plots

Data for the testing of Hypothesis 4 was prepared for analysis by first determining the mean response for each participant to the received leadership behavior inquiries to emotional intelligence competencies and for the desired leadership behavior inquiries to emotional intelligence competencies. The absolute value of the difference between these two means was then determined. Hypothesis testing was completed using ANOVA and the Bonferroni procedure. The method used the p-value and a pre-set significance level of $\alpha = 0.05$ to decide if the null hypothesis should be rejected. If the p-value was greater than the significance level of $\alpha = 0.05$, there was no significant difference from the null hypothesis, justifying the decision to fail to reject the null hypothesis. The Bonferroni procedure was used to make multiple comparisons for the four different position levels within the organization including 2= worker, 3= manager, 4= supervisor, and 5= executive.

Results indicated that there were no significant variations between different organization levels relative to the calculated difference between the means of rankings for leadership behaviors they receive related to emotional intelligence competencies and the leadership traits they desire related to emotional intelligence competencies and the null hypothesis may not be rejected. The results were as follows:

ANOVA

dif1	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.631	3	.210	1.134	.339
Within Groups	19.464	105	.185		
Total	20.095	108			

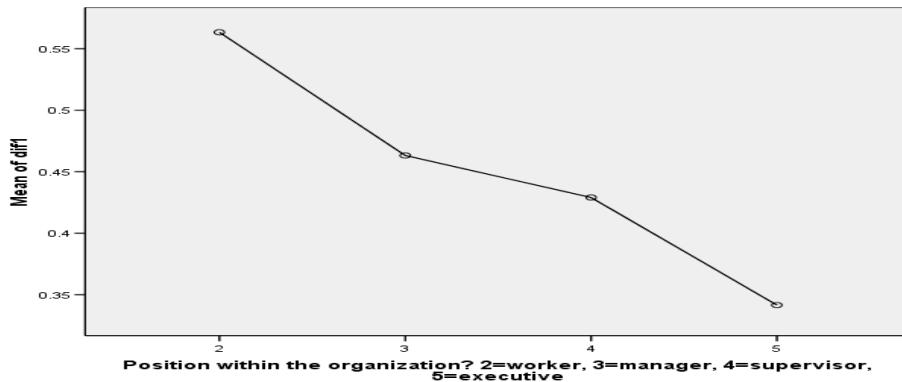
Multiple Comparisons

Dependent Variable: dif1

Bonferroni

(I) Position within the organization? 2=worker, 3=manager, 4=supervisor,	(J) Position within the organization? 2=worker, 3=manager, 4=supervisor,	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
2	3	.1002	.1322	1.000	-.255	.456
	4	.1343	.1112	1.000	-.165	.433
	5	.2218	.1219	.430	-.106	.550
3	2	-.1002	.1322	1.000	-.456	.255
	4	.0342	.1200	1.000	-.288	.357
	5	.1216	.1299	1.000	-.228	.471
4	2	-.1343	.1112	1.000	-.433	.165
	3	-.0342	.1200	1.000	-.357	.288
	5	.0875	.1085	1.000	-.204	.379
5	2	-.2218	.1219	.430	-.550	.106
	3	-.1216	.1299	1.000	-.471	.228
	4	-.0875	.1085	1.000	-.379	.204

Although according to the Bonferroni test, none of the means had a significant difference from the others, the Means Plot revealed an interesting pattern. The pattern indicated that as the tenure with the organization increased, the mean value of the difference between the mean response for each participant to the received leadership behavior inquiries to emotional intelligence competencies and for the desired leadership behavior inquiries to emotional intelligence competencies tended to decrease. The Means Plot was as follows:

Means Plots

In summary, for Hypotheses 1 and 2 the null hypothesis was rejected. For Hypotheses 3 and 4 the analysis did not allow the rejection of the null hypothesis. The analysis did indicate that there was a decrease in overall mean difference as the participants increased in organization position and as the participant's increased in tenure with their organization.

9. CONCLUSIONS AND RECOMMENDATIONS

This is a critical point in a time, where globalization and growing competition applies pressure on modern organizations. [21] Leaders employ many styles, behaviors, and skills in an attempt to achieve these ideals with varying degrees of success. [22] The expectations on leaders are that they will be farsighted and strategic, apply appropriate technology, take necessary risks, motivate and inspire those within the organization, and create and foster an environment of interdependence. [23] Leadership behaviors that will lead to effective change implementation and build sustained change capability include focusing on building the capability of organizational members to turn continuing change into an advantage and inspiring shared vision by engaging others with a vision of things which can be accomplished. Other essential behaviors include enabling followers to act by believing in their fellow

members' potential and establishing conditions in which their potentials can be realized. This process encompasses acting as a role model and displaying integrity via coordination of words and actions while gaining a perspective of the needs and personalities of each follower. [24]

Virtual work environments have grown significantly in popularity during the last decade. As of last year, approximately 14.7 million Americans functioned within virtual work environments on the majority of work days while 28.7 million worked within virtual atmospheres at least once every month. [25]. The speed with which the virtual work environment has advanced has created concern as to if leadership adaptation is keeping pace. This can equate to possible conflict between needed leadership behaviors and follower needs.

An understanding of the needs of the followers may be applied by the leader in constructing a leadership methodology and an understanding the needs and foundation EI factors is a part of that picture. Research by Parnin indicated there were no differences between the desire for EI motivated leadership factors between participants within the United States and outside the United States equating to a conclusion that EI factors might be universal in their need across the species. [20] The research documented here indicates a significant difference between the meeting of the EI driven factors and the need to meet those same factors indicating that leadership can do a better job in this realm. [20]

Emotional intelligence might be defined as a multifunctional collection of interconnected emotional, personal, and social abilities which sway our overall capability to actively and successfully cope with burdens and pressures. [13] Leadership involves a great deal of human qualities and personal characteristics such as empathy, a sense of humor, and an understanding of basic human needs. Kouzes and Posner extrapolate that, "... true leaders tap into people's hearts and minds, not merely their hands and wallets." [26] Earlier research indicates a positive connection between emotional intelligence and successful leaders. [27] Research has determined that emotional intelligence scores are a strong forecaster of leadership efficiency. [28]

In summation of the previously stated considerations and this research, the conclusion might be reached that leaders can better meet the EI needs of their followers and thereby possibly improve the results they desire and that this runs across the virtual workforce of the globe. It also might be interpreted that as a worker advances in age and position that the need for greater concern of meeting these needs may decrease. Emotional intelligence offers multiple areas for continued insight and research application as the quest continues to increase worker performance in conjunction with increasing worker satisfaction and performance. Knowledge of EI dependencies must mature along with information technology impact on business so that understanding might be taken advantage of in quest of the greatest levels of success.

11. REFERENCES

- [1] K. Cashman, K. Awakening the leader within, Hoboken, NJ, John Wiley and Sons 2003.
- [2] J. McLean, J. (2007). Prepare for the future. It's happening fast. British Journal of Administrative Management, Vol. 58, 2007, p. 17.
- [3] M. B. O'Leary, & J. N. Cummings, The spatial, temporal, and configurational characteristics of geographic dispersion in teams, MIS Quarterly, Vol 31, Issue 3, 2007, p. 433-452.
- [4] Combs, W. & Peacocke, S. Leading virtual teams. T+D, Vol 61, Issue 2, 2007, p. 27.
- [5] M. Messmer, Rebuilding your workforce, Strategic Finance, Vol 86, Issue 9, 2005, p. 11-25.

- [6] S. Wilson, S. (2003). Forming virtual teams, Quality Congress ASQ's; Annual Quality .Congress Proceedings, Vol 57, 2003, p. 489-500.
- [7] A. P. Ammeter, & J. M. Dukerich, Leadership, team building, and Team member characteristics in high performance project teams, Engineering Management Journal, Vol 14 Issue 12, 2002
- [8] Morris, S. A., Marshall, T. E., & R. K. Rainer Jr, R. K. (2002). Impact of user satisfaction and trust on virtual team members, Information Resources Management Journal, Vol 15, Issue 2, 2002, p. 22-31.
- [9] G. Matthews, M. Zeidner , R. D. Roberts, Emotional intelligence: Knowns and unknowns, Cambridge, MA: Oxford Univ, 2007.
- [10] P. N. Lopes, D. Grewal, J. Kadis, M. Gall, P. Salovey, Emotional intelligence and positive work outcomes, Psicothema, Vol 18, 2006, p. 132.
- [11] H. A. Elfenbein, M. D. Der Foo, J. White, H. H. Tan, Reading your counterpart: the benefit of emotion recognition accuracy for effectiveness in negotiation, Nonverbal Behavior, 2006.
- [12] J. D. Mayer., M. T. DiPaolo, & P. Salovey, Perceiving affective content in ambiguous visual stimuli: A component of emotional intelligence. Journal of Personality Assessment, Vol 54, 1990, p. 772-781.
- [13] R. Bar-On, R., The Bar-On model of emotional-social intelligence (ESI). Psicothema, Vol 18, 2006, p. 13-25. Retrieved from <http://eiconsortium.org>
- [14] F. Gil, R. Rico, C. M. Alcover, & A. Barrasa, Change-oriented leadership, satisfaction and performance in workgroups: Effects of team climate and group potency. Journal of Management Psychology, Vol. 20, 2005, p. 312-341.
- [15] J. Houghton & S. Yoho, S., Toward a contingency model of leadership and psychological empowerment: When should self-management be encouraged. Journal of Leadership & Organizational Studies, Vol 11, Issue 5, 2005, p. 65-84.
- [16] J. C. Saros, & J. C. Santora, The transformational-transactional leadership model in practice. Leadership and Organizational Development Journal, Vol 7, 2001, p. 383-393.
- [17] J. W. Creswell, Research design: Qualitative & quantitative approaches. Thousand Oaks, CA: SAGE Publishing, Inc, 2004.
- [18] J. Jaccard & C. K. Wan, LISREL approaches to interaction effects in multiple regression. Thousand Oaks, CA: Sage Publications, 1996.
- [19] B. J. Ruggeberg, B. J., Toward understanding team leadership: The empirical development of a team leadership classification system Unpublished doctoral dissertation. Old Dominion University, Norfolk, Virginia, 1996.
- [20] A. Parnin, Emotional intelligence and transformational leadership: A dynamic relationship among global workers, Unpublished Master's Thesis, Indiana Institute of Technology, 2009.
- [21] K. Suter, K., Globalization. Oxon, UK: Bookpoint, Ltd, 2006.
- [22] C. Russon & C. Reinelt, The results of an evaluation scan of 55 leadership development programs. Journal of Leadership & Organizational Studies, Vol 10, Issue 3, 2004, p. 104.
- [23] B. Lim & R. E. Ployhart, Transformational leadership: Relations to the five-factor model and team performance in typical and maximum contexts. Journal of Applied Psychology, Vol 89, Issue 4, 2004, p. 610-621.

- [24] M. Higgs, How can we make sense of leadership in the 21st century? *Leadership & Organizational Development Journal* Vol 24, Issue 5/6, 2003, p. 273.
- [25] WorldatWork, Telework trend-lines for 2006. Scottsdale: WorldatWork, 2007.
- [26] J. M. Kouzes., & B. Z. Posner, *Encouraging the heart: A leader's guide to rewarding and recognizing others*, San Francisco, CA: Jossey-Bass, 2003.
- [27] S. Lyubomirsky, L. King, E. Diener, The benefits of frequent positive affect: Does happiness lead to success? *Psychol. Bulletin*, Vol 131, 2005, p. 803.
- [28] C. E. Izard, S. Fine, D. Schultz, A. J. Mostow, B. Ackerman, E. Youngstrom, Emotion knowledge as a predictor of social behavior and academic competence in children at risk. *Psychol. Sci.* Vol 12, 2001, p. 18.

Smart Mobile Devices and Competitive Strategy: A Resource-Based Perspective

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Abstract: This research examines the implications of smart mobile devices (SMDs), or smartphones, for organizational competitiveness. It employs a resource-based framework to analyze the relationship among smart mobile devices, strategy, and firm performance. Building on existing strategic management research which suggests that leveraging IT to build business strategies can be a source of sustainable competitive advantage, six propositions relating smart mobile devices to sustainable competitive advantage are presented. Drawing also from scholarly work in the information technology and information systems domains, strategic implications of mobile-device technology for firms are provided. It is suggested that SMDs impact firm communications, decision-making, innovation, and performance.

INTRODUCTION

Management scholars interested in competitive strategy have long been fascinated by the implications of innovation and technology for firm and national competitiveness (e.g. Schumpeter, 1942; Powell and Dent-Micallef, 1997; Röller and Waverman, 2001). Though technologies may be widely available, and in some cases are approaching commoditization, existing research suggests that leveraging IT to build business strategies is not only feasible, but can be a source of sustainable competitive advantage (Clemons and Row, 1991; Mata, Fuerst, and Barney, 1995; Wade and Hulland, 2004). Much of the research that has addressed the relationship between technology and competitiveness has focused on computer systems and information and communications technology (ICT) infrastructure, technologies that have historically been fixed geographically. However, today mobile telephones have surpassed both computers and fixed-line phones in terms of the number of users globally, and the business, cultural, organizational, and economic impacts of mobile technologies are dramatic. In terms of market penetration, the International Telecommunication Union (ITU, 2009) reported that globally there were 4.6 billion subscriptions for mobile phones in 2009 compared to 1.9 billion people with access to a computer and 500 million with fixed broadband. In terms of impact, The Economist (2009) recently reported that remarkable social and economic transformations are being anticipated and realized in emerging economies as a consequence of the increasing availability of mobile telephony. In developed countries, the mobile phone market is now larger than the fixed-line market, and is increasingly being driven by growth in the deployment of advanced or "smart" mobile devices (e.g. Android, Blackberry, iPhone, Palm, etc.), which are capable of providing high-speed mobile access to electronic mail and the Internet. The adoption rate of these devices in developed markets has been growing very rapidly, more than doubling every two years from 2005-2009 (ITU, 2009). Due to their small size, extended battery life, and unique capabilities, these mobile devices are reshaping the business strategies and competitive environment for a multitude of organizations. For example, based on a survey of top-500 enterprises located in the United States and Europe conducted by independent research firm Coleman Parks and sponsored by Mformation Technologies, Inc., more than half of managers and one-third of staff now use smart mobile devices, and their use is continuing to increase. Clearly, smart mobile devices and their accompanying mobile applications are becoming influential strategic corporate assets (Mformation, 2007).

In light of the important link between firm strategy and technology identified by management scholars, and the relatively limited assessment of the unique characteristics of mobile technologies as well as their implications for business strategy, we address the relationship between smart mobile technologies and business strategy in the pages that follow. Specifically, using a Resource-Based View (Rumelt, 1984; Wernerfelt, 1984; Barney, 1986, 1991) this paper focuses on the strategic implications of smart mobile devices, a specific and unique form of ICT that has grown rapidly in the last five years. Mobile devices fall under an umbrella of several different technologies: smartphones, PDAs (personal digital assistants), cell phones, mp3 music players, voice recorders, cameras, and other portable devices. While all of these different handheld devices offer unique possibilities for strategic application, the focus of this research is specifically on "smart mobile devices" (SMDs), also called smartphones, defined as handheld devices that offer a combination of the following services: email, voice communication, document manipulation, Internet browsing, calendar updating, GPS locating, and the ability to add new software applications; most also include the capability to take pictures or videos. This definition is developed inductively, based on the observations that "smart phones are fast becoming as important to the business user as laptops" (Mformation, 2007). Enterprise users are increasingly using smart devices with all of these capabilities; mobile email, internet and calendar applications are already pervasive, with more than 90 percent of companies using them, and businesses are set to significantly increase the use of new mobile applications such as sales force applications and company file sharing systems (Mformation, 2007).

In the pages that follow we present a brief review of the Resource-Based View, followed by a discussion of scholarly literature that has used the Resource-Based View to examine firm applications of technology resources to achieve strategic aims. Afterwards, we discuss the unique characteristics of smart mobile devices (SMDs) and some basic assumptions from which we operate in developing propositions. We then present and discuss our propositions relating SMDs to organizational performance and sustainable competitive advantage, and finish by discussing implications of our ideas and suggestions for additional examination of SMD influences on firm strategies.

THE RESOURCE-BASED VIEW

The Resource-Based View (RBV) focuses on how firms rely on their core competencies to compete and why some firms outperform others (Freeman and Harrison, 2001). "The notion that firms are fundamentally heterogeneous, in terms of their resources and internal capabilities, has long been at the heart of the field of strategic management" (Petersaf, 1993, p. 179). This theoretical framework has been used by researchers and practitioners alike to identify, explain, and exploit the unique set of resources that firms possess to obtain a sustainable competitive advantage (SCA). Specifically, several empirical studies have been completed using the RBV to identify those resources, which has undoubtedly strengthened the framework's face validity (Armstrong and Shimizu, 2007). There is still some debate, however, which Armstrong and Shimizu (2007) bring to light, regarding how researchers operationalize the variables being studied in the Resource-Based View. In summary, they suggest that the RBV can be successfully used to empirically study issues in strategic management, offering recommendations for selecting dependent variables that reflect sustainability as well as how to identify firm resources. Often, it is not a single resource that a firm identifies, but instead a bundle of resources that leads to a SCA (Powell and Dent-Micallef, 1997). This is an important consideration when analyzing resources that are individually homogenous in nature, and where substitutability and imitability are viable options for competitors. Mata et al. (1995, p. 491) state that "the resource-based view of the firm is based on two underlying assertions, (1) that the resources and capabilities possessed by competing firms may differ (resource heterogeneity); and (2) that these differences may be long lasting (resource immobility)." Petersaf (1993) adds that *ex ante* and *ex post* limits to competition are cornerstones of resource-based competitive advantage. These assumptions can be used to take a particular resource or bundle of resources available to a firm and examine its potential for producing competitive advantage. These advantages then become the basis for creating corporate strategies, including "cost leadership, product differentiation,

strategic alliance strategies, diversification strategies, and vertical integration strategies" (Mata et al., 1995, p. 492). Barney (1991) describes the competitive advantages as "sustaining" only when competitors are unable to duplicate those strategies, regardless of the amount of calendar time for which that advantage is held.

Identifying the resources available to firms and their potential for a sustainable competitive advantage can be a particularly arduous process. According to Dierickx and Cool (1989, p. 1504), "managers often fail to recognize that a bundle of assets, rather than the particular product market combination chosen for its deployment, lies at the heart of their firm's competitive position." In relation to understanding the strategic implications of SMDs, Barney's (2001) guidelines are instructive. Barney (2001, p. 43) states that, "in all high-quality resource-based work, researchers must begin by addressing the value of resources with theoretical tools that specify the market conditions under which different resources will and will not be valuable." Barney clarifies why the definition of firm resources is left for the specific context being studied by saying, "rather than limit its [RBV] prescriptions to specific resources that can be identified, a priori, managers can apply resource-based logic to any resource whose value can be determined from the market context within which the resource is to be applied" (Barney, 2001, p. 51). Firm resources do not need to be in the form of tangible assets, such as machinery, buildings, or employees. Intangible assets, although possibly more difficult to identify, also constitute a part of the firm's overall resources at any given point in time (Wernerfelt, 1984). The criteria set forth by Barney (1991) establish that, whether or not resources are tangible or intangible, they should be valuable, inimitable, non-substitutable, and rare to contribute positively to SCA. Resources are classified as valuable when, according to Barney (1991, p. 106), they "enable a firm to conceive of or implement strategies that improve its efficiency and effectiveness." A resource that does not add value contradicts the definition of a competitive advantage. The next two criteria identified by Barney, inimitability and non-substitutability, are closely related. There is an inverse relationship that exists between a resource's degree of imitability and substitutability and its potential for being a sustainable competitive advantage (Wernerfelt 1984; Dierickx and Cool 1989). Finally, a resource is classified as rare when competing firms do not possess the same or similar resource, regardless of it being valuable (Barney 1991).

Our research, similar to that of others using the Resource-Based View, points to the combination of tangible and intangible assets that provide the opportunity to create a sustainable competitive advantage. Because the use of smart mobile devices spans across such diverse industries (e.g. financial services, health care, education, etc.) and use of the devices is increasing rapidly, it has become evident that there is a need to examine how these unique technological assets influence competitive outcomes directly and indirectly, through interactions of these devices with other tangible or intangible assets to produce sustainable competitive advantages. According to Bharadwaj (2000, p. 171), "resources tend to survive competitive imitation when protected by isolating mechanisms such as time-compression diseconomies, historical uniqueness, embeddedness and causal ambiguity." These "isolating mechanisms" explain why two competitive businesses that use similar resources to compete can still have a basis for a sustainable competitive advantage. For example, causal ambiguity describes how some characteristics or processes of a firm can be so unique and tacit that they are imperfectly imitable. This makes it difficult if not impossible to ascertain what special characteristics or processes firms use that make them unique. In the area of mobile technology, we investigate how smart mobile devices, although they are not rare by themselves, can be used to create a bundle of resources that may be advantageously heterogeneous and imperfectly imitable.

TECHNOLOGY RESOURCES AND THE RESOURCE-BASED VIEW

The fields of information technology (IT) and information systems (IS) have been heavily researched (Ginsberg and Venkatraman, 1992; Feeny and Willcocks, 1998; Caldeira and Ward, 2003). The IT/IS domain is broad and largely dominated by research on computers, database systems, electronic

data interchange (EDI), and enterprise resource planning systems. Although strategies for successful adoption and the importance of technologies have been covered thoroughly, very little research addresses the relatively new and quickly growing area of mobile-device technologies, and how they may impact strategic management. Most IT/IS research is done on a macro-level which overlooks strategic implications of quickly developing technologies. It is noted, however, that the importance of such research has been profound as it relates to the field of business strategy. According to Clemons and Row (1991, p. 276), "resources are needed to exploit any innovation. For example, a new product requires manufacturing capacity, marketing support systems, and access to distribution channels. Such resources are complementary to the innovation when the value or uniqueness of the resources are altered by the innovation." Also supporting this relationship, Itami and Numagami (1992) describe how important the link is between strategy and technology. "Technology is the most fundamental of the core capabilities of a firm. It is a systematic body of knowledge about how natural and artificial things function and interact" (Itami and Numagami, 1992, p. 119). The authors continue this thought by stating that the two are connected by a dynamic relationship that can be understood only by examining how each affects the other. Further supporting this argument, Powell and Dent-Micallef (1997, p. 376) state that "from the outset, IT researchers advocated tight IT-strategy linkages, asserting that IT affects firm strategies, that strategies have IT implications, and that firms must somehow integrate strategic thrusts with IT capabilities." Inarguably, mobile devices are a form of information technology; thus the research pertaining to IT/IS relates to them. However, smart mobile devices are also quite revolutionary in the capabilities that they produce and, accordingly, merit direct and specific investigation.

Support for technology being a source of sustainable competitive advantage is offered not just in the attributes and capabilities that make the technology so appealing to firms. Research has shown that, although technology provides powerful opportunities for greater efficiency, communication, decision making, etc., there are certain inevitabilities that prevent it from singly being the answer for firm competitiveness (Mata et al., 1995; Powell and Dent-Micallef, 1997). Powell and Dent-Micallef (1997) use the strategic necessity hypothesis, as proposed by Clemons and Row (1991), to identify how technology can be used as a source of sustainable competitive advantage. "According to this view, firms would appear to have only three paths to IT-based competitive advantages: either (1) reinvent IT advantages perpetually through continuous, leading-edge IT innovation; or (2) move first and erect unassailable first-mover advantages; or (3) embed ITs in organizations in such a way as to produce valuable, sustainable resource complementarity" (Powell and Dent-Micallef, 1997, p. 378). Only the third path, according to the authors, provides a strong opportunity for sustainable competitive advantage. Thus, their further analysis examined the types of resources most suitable for resource complementarity with information technology. Those complementary resources include two broad, over-arching categories: human and business resources. Their findings indicated that, "human resources such as communication and consensus play a vital role in the successful implementation of IT" (Powell and Dent-Micallef, 1997, p. 394).

Mata et al. identified similar constructs and findings, stating that "there are four attributes of IT that have been suggested as possible sources of sustained competitive advantage - access to capital, proprietary technology, technical IT skills, and managerial IT skills" (1995, p. 495). Arguments are presented against all of the attributes except for managerial IT skills. The authors then state that, "if managerial IT skills are valuable and heterogeneously distributed across firms, then they usually will be a source of sustained competitive advantage, since these relationships are developed over time; and they are socially complex and thus not subject to low-cost imitation" (Mata et al., 1995, p. 499). This work suggests that smart mobile devices, seen as a form of IT, show only limited support for sustainable competitive advantages without the aforementioned *human* elements of managerial IT skills and human resources. We address in our propositions which of these resources produce positive relationships with firm performance through the use of smart mobile devices. These proposed interaction effects have special relevance given that direct-effects "research has suggested that IS assets (e.g., infrastructure) are

the easiest resources for competitors to copy and, therefore, represent the most fragile source of sustainable competitive advantage for a firm" (Wade and Hulland, 2004, p. 111).

Given that the purpose of this paper is to advance strategy research that connects mobile technological resources to sustained competitive advantage, and to provide the basis for further empirical analysis, our attention now shifts to theoretical development. First, we will communicate general assumptions and then relate propositions relating mobile technologies to performance. Bharadwaj noted the need for developments such as ours by observing that "despite the widely held belief that information technology (IT) is fundamental to a firm's survival and growth, scholars are still struggling to specify the underlying mechanisms linking IT to financial performance" (2000, p. 169).

ASSUMPTIONS

In this section we outline assumptions that guide our thinking about SMDs and their impacts. First, we assume that smart mobile devices, when used as intended, speed communication within organizations. Internet information, contact information, email communications, images, and documents can all be accessed or shared more quickly with smart mobile devices than without. Historically, the telegraph, telephone, facsimile machine, voice mail, electronic mail, online chatting and video-conferencing have all represented ways to share written, audio, or visual information faster, cheaper, or more effectively than was previously possible. Substantially, the telephone replaced the telegraph, while partially, electronic mail has substituted for faxing, and mobile phones or smart mobile devices are increasingly substituting for land-line phones. Not all older technologies are replaced; multiple, complementary technologies customarily are used for sharing information within organizations (e.g. electronic mail, letters, telephone, voice mail, etc.) according to their suitability to the particular wishes of the sender or receiver of the information. While the speed of information transfer between land-line phones is roughly equivalent to the speed transfer between mobile phone calls, the fact that a person typically carries his or her mobile device in a pocket or purse allows messages to be received that otherwise would be missed or received at a later time. This represents a speed improvement relative to fixed-line communications. Put another way, even though a phone call or email message can be sent relatively instantaneously to either a fixed-line or mobile device, the fact that a manager on a golf course can receive the communication instantly, instead of receiving it after getting back to the clubhouse, office, or home, demonstrates that speed of communication is affected both by how quickly a message can be sent and how quickly a message can be received; a caller could leave a message for a manager or colleague at the office quickly but if it is hours before the golf-playing manager gets back to his or her office to receive the message, there is a clear speed advantage to receiving the communication on a smart mobile device. Additionally, a manager or employee who comes up with an instruction, or a creative idea or valuable suggestion, while away from the workplace can communicate the information immediately back to the office or a co-worker using a smart mobile device. So, communication can be initiated as well as received more quickly with SMDs; in sum, smart mobile devices do not slow more traditional forms of communication and they can often result in information being received or sent more quickly than would otherwise occur. This leads to our first assumption:

Assumption 1: Use of smart mobile devices speeds communication within organizations.

In the same way that smart mobile devices allow email, phone or other communications to occur more quickly between organizational members, they also support quicker communications with stakeholders by employees in boundary-spanning roles. Communications with suppliers, customers, partners or other relevant external constituencies can occur more quickly with SMDs than without. Scholars including Bharadwaj et al. (1998, 2000) and Benjamin and Levinson (1993) have discussed how technology resources can be used to manage external relationships. While their focus was not on speed and mobile technologies, their concepts are consistent with our view that SMDs support quicker and

potentially more effective communications with external constituencies. Thus, our second assumption follows.

Assumption 2: Use of smart mobile devices speeds boundary-spanning communications.

If, through the use of smart mobile devices, managers, workers, or employees can send, receive and access written, audio, and visual information more quickly than they otherwise would be able to, then it follows that they can use this information to make decisions more quickly, and they can share their decisions with relevant parties more quickly. For example, if one must review a contract and indicate a response, or decide on an advertising, human resources, or other decision, the decision often can be made quickly based on an evaluation of information received on a SMD, and a choice, opinion, or decision can be shared quickly using the mobile device. Ultimately, many decisions can be made more quickly through the use of SMDs.

Assumption 3: Use of smart mobile devices speeds organizational decision making.

SMDs increase information available to those who carry the devices. For example, a bank president shared with the authors that he recognizes two benefits to communicating by email with his SMD, as opposed to by phone call. First, email communications produce a written (i.e. typed) legal record of statements and activity, and second, when examining emails the bank president is able to see the email message received along with forwards, replies, and attachments; this is much more information than could be gleaned through a voice-only phone call. Contact information, electronic mail, documents, voice mail, images, and all the world's information that is contained on the internet are available to a person with an SMD, and the information is generally available at all times of day and in all places with wireless phone service. The fact that one can carry this substantial information resource, a smart mobile device, everywhere and have access to it at all times represents a clear and dramatic increase and improvement in information availability relative to fixed-line devices such as traditional telephones and hard-wired computers. SMDs also have clear advantages over traditional cellular phones in terms information availability because traditional cellular phones are not well suited to accessing the internet or reviewing emails and documents. Lastly, it is worth noting that SMDs turn on nearly instantly and fit in one's pocket whereas computers, even if equipped with mobile broadband capabilities, take time to boot up and are too large to reasonably carry 24 hours per day. This leads to our final assumption.

Assumption 4: Use of smart mobile devices increases information availability within organizations.

PROPOSITIONS

Assuming that smart mobile devices increase information availability and speed communications and decision making, what organizational impacts can one expect to result? First, increased innovation is to be expected. Von Hippel (1988) has emphasized that ideas for innovation arise from multiple sources, including within the firm as well as from suppliers, customers and competitors. In the case of competitors Von Hippel describes the process of "know-how trading," which refers to an "informal, cooperative pattern of R & D. It involves routine and informal trading of proprietary information between engineers working at different firms-sometimes direct rivals" (Von Hippel 1988, p. 6). This routine trading of information can be influential for producing innovation, and if ideas for innovation originate both within and outside of the firm, then it follows that a smart mobile device, which enables efficient communication or "informal trading" of information, will lead to increased firm innovation. This line of thinking is consistent with Teece's (1996) arguments that firm formal and informal structures and their external linkages influence their rate of innovation. More recently, Von Hippel (2005) has argued that users are

playing an increasing role in the creation of innovation. Since SMDs provide a link between organizations and their external constituencies, including users and customers, it is reasonable to believe that organizations that use SMDs will access ideas and pressures for innovation that will not come to firms that do not use SMDs. This leads to our first proposition.

Proposition 1: Use of smart mobile devices is positively related to organizational innovation.

Sustainable competitive advantage may be considered nearly synonymous with a firm's ability to achieve enduring high performance. Firms and stakeholders may, of course, have different performance objectives and time horizons. In the case of time horizons, Geert Hofstede (2005) has identified that these do vary across cultures, while in the case of organizational performance objectives, sales, profits, market share, stock price, survival, leadership, balanced scorecard, and other individual or compound measures may be the preferred or choice measure. SMDs can be expected to enhance organizational performance inasmuch as they help organizations achieve their performance objectives. Scholars have observed in prior studies that technologies or technological portfolios have been effective for producing improvements in performance objectives, including product quality (Bharadwaj, 2000), cost effectiveness (Ross et al., 1996), market responsiveness (Ross et al., 1996; Zaheer and Zaheer, 1997), adaptability (Jarvenpaa and Leidner, 1998), and diversification activity (Silverman, 1999). Given these findings suggesting the existence of technology-performance links in other contexts, and given the capabilities described above that SMDs can produce, we argue that implementation and use of SMDs is associated with improved organizational performance.

Proposition 2: Use of smart mobile devices is positively related to organizational performance.

While our first two propositions address proposed direct relationships between SMDs and innovation and performance, our remaining propositions relate to interactions between SMDs and other influential constructs. First, timing is expected to be influential. Many scholars have identified that first-mover effects can benefit pioneers (Lieberman and Montgomery, 1988), but in special circumstances there may be reasons to follow rather than lead (Lieberman and Montgomery, 1998), such as when a company possesses substantial complementary or specialized assets or if the appropriability regime is weak (Teece, 1986, 1988, 2006). Appropriability regime refers to the context of competition insomuch as it influences a firm's ability to capture value produced by innovations or intellectual property assets. Because there is a learning curve associated with most information technology products we argue that firms which adopt SMDs earlier will realize an advantage greater than firms that adopt SMDs later.

Proposition 3: Firms that use smart mobile devices earlier than competitors will strengthen their relative competitive position, ceteris paribus.

Because acceptance is important to effective use of a technology, and because it is observed that some people welcome electronic devices while others resist, we propose that performance benefits from SMDs will be moderated by managerial and employee acceptance or resistance to the devices.

Proposition 4a: Use of smart mobile devices interacts positively with managerial enthusiasm for the use of smart mobile devices to influence organizational performance.

Proposition 4b: Use of smart mobile devices interacts positively with employee acceptance of smart mobile devices to influence organizational performance.

Consistent with the consensus of both strategy and information systems scholars (e.g. Mata et al., 1995; Powell and Dent-Micallef, 1997) we propose that SMDs positively influence performance when

they are combined with specialized or proprietary human, business, or technological resources. This is because SMDs are not a rare resource, and they are available in standardized fashion at relatively low cost to all firms; however when combined with specialized assets SMDs can be transformed from a homogeneous resource to a heterogeneous bundle of capabilities that is difficult to imitate. This leads to our fifth proposition.

Proposition 5: Use of smart mobile devices in conjunction with specialized or proprietary human, business, or technological resources increases organizational performance.

Finally, environmental conditions may influence how beneficial SMDs are to organizations. In particular, environments characterized by rapid and unexpected changes should realize higher benefits from SMDs because these environments require the kind of information sharing and quick responses that SMDs support. As an example, organizations such as firms, not-for-profits, governments, or even political campaigns would likely find SMDs highly beneficial for achieving high performance but their benefits would be especially true if the organizations face rapidly changing economic, political, or legal circumstances. This leads to our last proposition.

Proposition 6: Use of smart mobile devices will interact positively with environmental turbulence to influence organizational performance.

DISCUSSION, IMPLICATIONS AND RELEVANCE TO SCHOLARS AND MANAGERS

The research that we have presented is conceptual and presented within a resource-based framework. That being considered, we realize it is also an extension of the body of research that examines the relationship between information technology (IT) and firm performance. SMDs have distinct characteristics relative to immobile technologies, however, that make studying them as unique devices insightful, rather than studying technology as a whole. Consider that business transactions and decisions can be made exclusively through the use of a single device and can be made nearly anywhere, at any time. SMDs are one of the few technological devices that have become practically an extension of the human hand. It does, however, face the possibility of eventual commoditization, which could influence firms' ability to achieve a sustainable competitive advantage through a strategy based on mobile devices.

Scholars interested in strategic management, applications of the Resource-Based View, and technology can all benefit from this research. It contributes to the work already done by researchers who have studied the Resource-Based View in the context of technology (e.g. Mata et al., 1995; Powell and Dent-Micallef, 1997; Wade & Hulland, 2004) and in other disciplines. This research topic was chosen to identify specific constructs for further empirical research. It is intended to show the strategic implications associated with mobile device technology and encourage the use of RBV framework for empirical research in other disciplines. Our propositions suggest that firms can improve performance and develop strategies around SMDs. These ideas may be helpful for firms and for understanding other applications of the Resource-Based View.

We make note of several ways SMDs can be the medium by which firms combine resources to gain a sustainable competitive advantage. A better understanding of the strategic implications of SMDs will lead to better deployment of the technology. One goal with this research was to identify opportunities for deployment that may have been overlooked or not considered by managers. In terms of importance, managers could conceivably support generic firm strategies (e.g. cost, differentiation) based on the conclusions presented. Finally, the relevance of our work to managers can be summarized by the observation that information is perhaps the most valuable asset to a firm. Thus, finding ways to better input, share, use, and manipulate it is a powerful potential source of SCA. This research highlights the importance of speed in relation to communication. It is not enough to be able to communicate effectively

in today's mobile environment. Employees, managers, and all firm stakeholders must be able to communicate effectively *and* quickly in order to have a competitive advantage over other firms.

Both scholars and practitioners will find the arguments presented in this research relevant. Managers may better understand and observe the evolution of mobile commerce and the growing importance of mobile devices for business. Some steps firms are currently taking to manage SMDs are: creating clear policies on SMD usage, creating safe networks for employees to access the company's computer systems, and documenting acceptable forms of monitoring employees via their SMD. Some have called for cell phone operators to start providing business solutions for their wireless products. This has prompted operators to deliver secure, password-protected devices and solutions for mobile device management (e.g. easy system updates, remote device control, and data wiping). To face the issue of mobile device management, companies may revisit practices regarding the issuance of corporate SMDs. The costs of employees leaking or losing important information also merits consideration. Again, this wasn't the primary focus of our research, which was more oriented on the *strategic* implications of SMDs, but it yields merit in discussion of the technology.

DIRECTIONS FOR FUTURE RESEARCH

Although some scholars debate the strength of the Resource-Based View (e.g. Priem and Butler, 2001), it is an influential perspective in the field of strategic management, and we have further developed it by extending its application and creating a strong foundation for further empirical testing. Using recommendations put forth by Armstrong and Shimizu (2007) one might operationalize the appropriate variables needed for surveying businesses across several different industries to test our ideas. We suggest that surveys initially could be employed to gather information how firm strategies and performance are being impacted by smart mobile devices. A benefit of our research is that it identifies constructs and relationships that are appropriate for further development and testing.

One area of this research that we mentioned but did not discuss in great detail is the concept of user acceptance. This merits further investigation because the response of employees, customers, competitors, and other stakeholders to smart mobile devices may influence firm strategic choices and responses. Other areas to which our ideas might usefully be extended include the fields of change management, innovation, and culture, inasmuch as all of these areas are closely tied to firm strategy, and likely to be impacted by SMDs.

CONCLUSION

This research demonstrated the strategic implications of smart mobile devices by first identifying a framework used to study the concept of sustainable competitive advantages, the Resource-Based View. After mentioning the RBV's core concepts, we highlighted its use in prior strategic management and related IT/IS research. We proposed that the impacts SMDs have on firms include: increased speed of communication and decision-making, greater information availability, and consequently increased innovation and firm performance. Smart mobile devices enable the flow of information in a way that was previously restricted by time or location. It was also identified that the *human* resources, such as communication, consensus, and managerial IT skills, when aligned properly with this technology, show the strongest evidence for providing a sustainable competitive advantage, consistent with the views of Powell and Dent-Micallef (1997) and Mata et al. (1995). In conclusion, smart mobile devices are a form of technology with widespread implications for managers and researchers, especially as trends indicate that the future of business is indeed going mobile.

REFERENCES

- Armstrong, C. and Shimizu, K. "A Review of Approaches to Empirical Research on the Resource-Based View of the Firm," *Journal of Management*, 33, 2007, pp. 959-986.
- Barney, J. "Firm Resources and Sustained Competitive Advantage," *Journal of Management* (17:1), 1991, pp. 99-120.
- Barney, J. "Is the Resource-based View a Useful Perspective for Strategic Management Research? Yes," *Academy of Management Review* (26:1), 2001, pp. 41-56.
- Barney, J. "Strategic Factor Markets: Expectations, Luck, and Business Strategy," *Management Science* (32:10), 1986, pp. 1231-1241.
- Benjamin, R. and E. Levinson. "A framework for managing IT-enabled change," *Sloan Management Review*, 1993, pp. 23-33.
- Bharadwaj, A. S., Sambamurthy, V., and Zmud, R. W. "IT Capabilities: Theoretical Perspectives and Empirical Operationalization," in Proceedings of the 19th International Conference on Information Systems, R. Hirschheim, M. Newman, and J. I. DeGross (eds.), Helsinki, Finland, 1998, pp. 378-385.
- Bharadwaj, A. S. "A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation," *MIS Quarterly* (24:1), 2000, pp. 169-196.
- Caldeira, M.M., and Ward, J.M. "Using Resource-based Theory to Interpret the Successful Adoption and Use of Information Systems and Technology in Manufacturing Small and Medium-sized Enterprises," *European Journal of Information Systems* (12), 2003, pp. 127-141.
- Clemons, E. K., and Row, M. C. "Sustaining IT Advantage: The Role of Structural Differences," *MIS Quarterly* (15:3), 1991, pp. 275-292.
- Dierickx, I., & Cool, K. "Asset stock accumulation and sustainability of competitive advantage," *Management Science*, 35, 1989, pp. 1504-1511.
- Feeny, D. F., and Willcocks, L. P. "Core IS Capabilities for Exploiting Information Technology," *Sloan Management Review* (39:3), 1998, pp. 9-21.
- Freeman, R. Edward, and Jeffrey S. Harrison. *The Blackwell Handbook of Strategic Management*. Malden: Blackwell Limited, 2001.
- Ginsberg, A. and N. Venkatraman. "Investing in new information technology: The role of competitive posture and issue diagnosis," *Strategic Management Journal*, Summer Special Issue, 13, 1992, pp. 37-53.
- Hofstede, G. and Hofstede, G. J. *Culture and Organizations: Software of the Mind*. New York: McGraw-Hill, 2005.
- "Information Society Statistical Profiles 2009." *International Telecommunication Union*. Web. 5 Nov. 2009. <<http://www.itu.int/publ/D-IND-RPM.AM-2009/en>>.
- Itami, H., and T. Numagami. "Dynamic Interactions Between Strategy and Technology," *Strategic Management Journal*, 13, 1992, pp. 119-135.
- Jarvenpaa, S. L., and Leidner, D. E. "An Information Company in Mexico: Extending the Resource-Based View of the Firm to a Developing Country Context," *Information Systems Research* (9:4), 1998, pp. 342-361.
- Lieberman, M. and D. Montgomery. "First mover advantage," *Strategic Management Journal*, 9, Special issue, 1988, pp. 41-58.
- Lieberman, M. B., & Montgomery, D. B. "First-mover (dis)advantages: Retrospective and link with the resource-based view," *Strategic Management Journal*, 19, 1998, pp. 1111-1125.
- Mata, F. J., Fuerst, W. L. and Barney, J. B. "Information Technology and Sustained Competitive Advantage: A Resource-based Analysis," *MIS Quarterly* (19:4), 1995, pp. 487-505.
- MFORMATION. Mobile Business Application Usage to Surge by 2009, Driving Need For Device Management. 23 July 2007. Web. 24 Sept. 2009. <<http://www.mformation.com/mformation-news/press-coverage/mobile-business-application-usage-to-surge-by-2009-driving-need-for-device-management>>.

- Peteraf, M. A. "The cornerstones of competitive advantage: A resource-based view." *Strategic Management Journal*, 14, 1993, pp. 179–192.
- Powell, T. C., and Dent-Micallef, A. "Information Technology as Competitive Advantage: The Role of Human, Business and Technology Resources," *Strategic Management Journal* (18:5), 1997, pp. 375-405.
- Priem, R., and Butler, J. "Is the Resource-Based "View" a Useful Perspective for Strategic Management Research?," *Academy of Management Review* (26:1), 2001, pp. 22-40.
- Röller L. H. and Waverman, L. "Telecommunications Infrastructure and Economic Development: A Simultaneous Approach," *The American Economic Review* (91:4), 2001, pp. 909-23.
- Ross, J. W., Beath, C. M., and Goodhue, D. L. "Develop Long-term Competitiveness Through IT Assets," *Sloan Management Review* (38:1), 1996, pp. 31-42.
- Rumelt, R. P. "Towards a strategic theory of the firm," *Competitive Strategic Management*, 1984, pp. 556-570.
- Schumpeter, Joseph A. 1942. *Capitalism, Socialism, and Democracy*. New York: Harper and Brothers. (Harper Colophon edition, 1976.)
- Silverman, B. S. "Technological Resources and the Direction of Corporate Diversification: Toward an Integration of the Resource-Based View and Transaction Cost Economics," *Management Science* (45:8), 1999, pp. 1109-1124.
- Teece, D.J., "Profiting from technological innovation," *Research Policy*, (15:6), 1986, pp. 285–305.
- Teece, D. J. "Capturing Value from Technological Innovation: Integration, Strategic Partnering, and Licensing Decisions," *Interfaces* (18:3), 1988, pp. 46-61.
- Teece, D. J. "Firm organization, industrial structure, and technological innovation," *Journal of Economic Behavior & Organization* (31:2), 1996, pp. 193-224.
- Teece, D.J., "Reflections on 'Profiting from technological innovation,'" *Research Policy*, (35:6), 2006, pp. 1131-1146.
- Von Hippel, E. *The Sources of Innovation*. New York: Oxford University Press, 1988.
- Von Hippel, E. *Democratizing Innovation*. Cambridge, MA: The MIT Press, 2005.
- Wade, M., J. Hulland. "Review: The resource-based view and information systems research: Review extension, and suggestions for future research," *MIS Quarterly* 28(1), 2004, pp. 107–142.
- Wernerfelt, B. "A Resource-Based View of the Firm," *Strategic Management Journal* (5), 1984, pp. 171-180.
- Zaheer, A., and Zaheer, S. "Catching the Wave: Alertness, Responsiveness, and Market Influence in Global Electronic Networks," *Management Science* (43:11), 1997, pp. 1493-1509.

Governors as CEOs: An Evolution

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Abstract: This paper examines the emergence of American governors as modern day CEOs from the historical perspective. In the 1960s, the shift in the power of the governorship was beginning, and by the 1970s, the trend toward stronger chief executives was reinforced by various federalism initiatives and the increasing complexity of managing state government. As the 1980s arrived, shifts in federal responsibilities to state governments, economic challenges and competitiveness, increased urbanization, demands for additional services and programs, and accelerating technologies have required a new kind of leadership in the governor's office. Such leadership requires not only authority, but a managerial expertise and information to be successful and effective as a governor. With this emergence of a "new breed" of governors, the office has acquired a growth in respect and power. Over the last forty years, five out of the last seven U.S presidents were state governors before becoming the country's chief executive. This is unprecedented in American history.

During the first half of the twentieth century, governors mostly functioned in the traditional role as state figurehead in a strongly political framework. They were often not known beyond their state's boundaries, and they spent an estimated 15% of their time on traditional management and administration. Today, if states were considered corporations, most would be among the Fortune 500 companies! Now governors are functioning more like corporate chief executive officers than traditional politicians. This paper seeks to explain this shift toward governors becoming influential, effective and powerful organizational leaders.

INTRODUCTION

"The governors are coming, the governors are coming!" That is how then Governor Lamar Alexander of Tennessee opened the annual meeting of the National Governors Association meeting in 1985 in his "Chairman's Speech" in Boise, Idaho (Alexander, 1985). Indeed, the governors were arriving at a new place on the national scene. Over a span of around forty years, the prominence and influence of governors changed considerably in this nation.

This paper examines the emergence of the American governors functioning as modern day CEOs, from a historical prospective. In the 1960s, the shift in the power of the governorship was beginning, and by the 1970s, the trend toward stronger chief executives was reinforced by various federalism initiatives and by the increasing complexity of managing state government. When the 1980s arrived, state governments were striving to be economically competitive amid an environment of social and economic change, dramatic technological advances, shifting demographics, increasing urbanization, and other factors. Over the last forty-plus years, five out of the last seven U.S presidents were state governors before becoming the country's chief executive. This is unprecedented in American history.

During the first half of the twentieth century, governors seemed to function in the traditional role of state figurehead in a strongly political framework. They were often not known beyond their state's boundaries, and they spent an estimated 15% of their time on traditional management and administration (Behn & Behn, 1986). Today, if states were considered corporations, most or all would be among the Fortune 500 companies! Today's governors have become managers and leaders, functioning more like corporate chief executive officers than traditional politicians. This paper seeks to describe this major shift that has led to how governors have become influential, effective and powerful organizational leaders, functioning as CEOs.

THE HISTORICAL ROLE OF GOVERNORS

The term "governor" is about the only aspect of the governorship that has not drastically changed throughout America's history (Sabato, 1983). The first governors in America wielded a great deal of power while serving at the pleasure of the king during the colonial period. After the American Revolution, when the original 13 colonies wrote their state constitutions, the new Americans showed their distrust for executive power (Behn, 1986; Brough, 1986) through the creation of strong legislatures (Sabato 1983; Sanford, 1967). The governorship was weakened and became not much more than a figurehead (Brough, 1986). Lambert (1960) quoted James Madison as calling the governors "little more than ciphers" when compared with the "omnipotent legislatures."

As the American presidency gained power and respect so did the governorship. During Andrew Jackson's presidency, the governorship regained some its lost power and authority and developed additional respect, as did the office of president (Sabato, 1983). It was during this period that many governors' terms were lengthened to four years and their powers broadened.

When the Civil War occurred, it weakened the governorship considerably... The ultimate resort of secession gave way to "national supremacy" (Sanford, 1967, p. 20). In 1888, Bryce (quoted Sanford, 1967) wrote that the "office of governor carries little either of dignity or of power" (p. 149).

Recognizing the potential power of governors, President Theodore Roosevelt called the first governors' conference in 1908 as he sought support for his conservation initiatives. The governors were still seen as somewhat weak, and they were sharing authority with elected officials over whom they had no control (MacDonald, 1927). The outlook for the future of the governorship at that time has been described as "weak and bleak" (Solomon, 1983, p. 42). However, the starting of a collaboration of the governors on national issues was beginning.

Since 1908, state governors have met for every year with the exception of 1909 and 1917. The National Governors' Association grew out of this first meeting of the states' governors and was formally organized by Woodrow Wilson in 1912 creating a bipartisan voice for the governors to the President and Congress. It also provided assistance to governors on domestic and state management issues. This has given the governors a new power in numbers as they have banded together to foster and influence national policy issues. At present, the strong voice of the governors is being heard on the health care reform issues.

Almost at the same time, the 16th Amendment to the Constitution, passed in 1913, strengthened federal power with the federal income tax and lessened power of the states (McLeod, 1986). Later, the national focus on World War I and "The Great Depression" further weakened the states. States did not have resources or remedies for such massive social and economic problems (Sanford, 1967).

The people turned to Washington for help since only the federal government had the where-with-all to correct what had gone wrong in America (Castle, 1988). Baliles (1988) described the 1930s as the "geographic fault line in federalism" (p. 8) with the New Deal beginning an era of even greater federal assumption of authority, and the federal government being seen as the problem solver. Former North Carolina Governor Sanford (1967) wrote that from the viewpoint of efficacy of state government, the states lost their confidence, and the people lost their faith in the states during the Depression. A gap widened at this time between citizen confidence and the authority and responsibility of state governments (Sabato, 1983). As the power of states weakened so did the office of governor.

During the 1920s, the abuse of power by Governor Huey Long of Louisiana further weakened the office of governor as well as the prestige. He held almost complete control of the state of Louisiana "through his indomitable will and his sheer strength of personality" (Brooks, 2007, p. 220). In 1949,

Laski asserted that state governments were so hopeless that the governors were either "second-rate" (p. 146) or using the governorship to ascend to higher office. By this time, many of the duties of governors had become ceremonial.

The style of Alabama Governor George Wallace further weakened the perception and prestige of the office of governor. His perpetual campaigning for over two decades, and his stands on civil rights issues hurt creditability of the office. He even had his wife run for his office when he could not succeed himself. His terms were marked by political action, but little concrete results (Brooks, 2007, p. 220).

By contrast, in the twentieth century, governors, acquired significantly more legitimate power from the state legislatures. Additionally, the path to the U. S. presidency was increasingly going through the governor's office. (Beyle 2008, p. 202). In 1900, former New York governor Theodore Roosevelt was elected to the first of two terms as president. He was followed by Woodrow Wilson, former governor of New Jersey, elected in 1912. Later, former New York governor, Franklin D. Roosevelt became president in 1932 and served until his death in 1945.

In the 1960s a shift in the significance and power of the governorship was beginning. Several strong governors emerged like Terry Sanford of North Carolina, Dan Evans of Washington, Nelson Rockefeller of New York, and John Chafee of Rhode Island. Sanford (1967) called the governors "the most potent political power" in the states and offered this challenge to governors:

The center of the state system, and its chief proponent in the eyes of the people, is the governor. The governor's prestige and his power to move people and ideas within his state are the strongest weapons in each state arsenal. The future of the American system could well be determined by his performance. (Sanford, p. 21)

Moore (1988) asserted that from 1933-1980, the role of the federal government grew more quickly than the role of the states, but since the late 1960s. Every federal administration through Reagan's has "rediscovered" the states and developed some federalism issue. This can currently be seen in the Health Care Reforms bills, in both the senate and house versions, which push much of the needed funding down to the states and reinforcing federalism.

Former California governor, President Richard Nixon introduced the "New Federalism," the basis of the State and Local Assistance Act of 1972, which resulted in revenue sharing with the states (Baliles, 1988) and contributed to the changing role of governors. Ironically, this bill was drafted by Lamar Alexander, then an aide to Senator Howard Baker, who would later become governor of Tennessee (McLeod, 1986). The ability of the governor to provide leadership was the foundation of the New Federalism and that the increased role of governor would demand political leadership (Morehouse, 1976).

The new leadership in the governorship began evolving in the 1970s, according to Osborne (1988). Fundamental economic transitions demanded new roles for government and new ideologies. He observed:

The last two decades have been a period of ideological interregnum, in which neither party, or any coherent ideology, has established its dominance. But if one looks closely, one can see a new political paradigm evolving in America's state capitols. (p. 14)

By 1972, pollster Louis Harris identified governors as the "best known of political figures in the country" (cited in State of the States, 1972, p. 21) besides the president. Reapportionment of state legislatures, modernization of state constitutions, and a great deal of administrative reform have contributed to the states' authority and capacity to govern (Doyle & Hartle, 1985). Additional resources that provide for expanded governors' staffs have also enhanced the capacity for effectively governing

(Beyle, 1983). Furthermore, these resources have continued to grow with the growth of electronic technology.

Just as Georgia Governor Jimmy Carter was elected president in 1976, Americans began to sense something was very wrong with the national economy (Osborne, 1988). The worst recession since the 1930s set in. Governors had to deal with problems generated by high unemployment rates, staggering interest rates of 16-18%, and a stagnant economy. Carter had been a governor himself and understood the difficulty of the states; however, because of the Iran hostage crisis and the failing economy, his credibility slipped. Several governors like Massachusetts Governor Michael Dukakis and California Governor Brown developed new economic strategies for their states. The southern governors like Bill Clinton of Arkansas, William Winter of Mississippi, Richard Riley of South Carolina, and Lamar Alexander of Tennessee began supporting comprehensive education reform (Osborne, 1988). The recognition of the global economy began taking shape.

Former California governor, President Ronald Reagan followed up with historic cuts in federal grants to states that focused greater attention to the states. In so doing, he curbed "the size and influence of the federal establishment" (Nathan & Doolittle, 1987, p. 167).

Then Governor Blanchard of Michigan (1988) argued that domestic policy initiatives no longer originate in Washington and that active state governments were then tackling social programs. Governors are identified as taking the lead in formulating initiatives in the area of national domestic policy according to the National Governors' Association (The Institutional Powers of the Governorship, 1987). Former John Kean of New Jersey (1988b) declared that governors are "crafting innovative solutions to problems with which Congress ... cannot deal" (p. 77) because of the federal deficit and other problems. Governors have been pushed into this role by the federal deficit and the cutbacks in domestic and social programs. Former Governor Sununu of New Hampshire (1988a) maintained that governors must meet the pressing needs of citizens who face real problems that require societal support.

The trend of stronger chief executives was reinforced by the new federalism initiatives and by the increasing complexity of managing state governments in the economically competitive 1980s (Brough, 1986). Sabato (1983) attributed the governor's resurrection to the "intricate interweaving of the social, political, economic, and institutional forces that wrought urbanization, the civil rights revolution, the spread of the party competition and reapportionment" (p. 201). The resultant "new breed" of governors (Osborne, 1988; Scheppach, 1983) had and will continue to have enormous significance for government in the United States. Clearly over the past 30 years, the American governor has emerged as a major policy leader and is currently emerging as a leader as the responsibilities of state management increase (Ransone, 1982).

Governor Kean of New Jersey (1986) said that "the action isn't in Washington anymore. It's in the states" (p. 52). Alexander and Orr (1986) expanded on that thesis:

For there to be action in the states, there has to be leadership. That is what governors are for. That is what they do. For, if people want action, the person to whom they will logically look for the necessary leadership is the chief executive. The governors are CEO's of state government not because the state constitutions say they are, but because the people want them to be. The action is in the states, in part, because Washington has been caught up in its own, internal quarrels, and in part because when the voters want something done, they recognize that the states have to do it (p.52).

In 1986, Behn further noted that when there's a job to be done, the public counts on the governor to get it done and that's what makes a governor the state's CEO. It has taken two centuries of various forms of change to transform the office of governor from a figurehead into that of state CEO (Brough, 1986).

Former Governor John Sununu of New Hampshire and later chief of staff for President H. W. Bush (1988) observed after his tenure that American governors are now on the front line of government. Muchmore (1981) claimed that "traditional management and administration," (p. 5) which once took up about 15% of a governor's time, now seem to be the most important aspect of the office. When one considers that if the 50 states were considered corporations, all 50 would rank among the Fortune 500 companies (Behn & Behn, 1986), the CEO concept becomes even more significant. In 1985, in a speech to the National Governors' Association, Alexander called upon the organization to help governors to be better chief executives--noting that governors should spend more time on better schools, better roads, better jobs, cleaner water, and other such domestic concerns which he described as the job of governors. Scheppach (1989) noted as the role of governors has changed and evolved so has the National Governors' Association.

While President Reagan was denouncing government intervention in the marketplace, governors emerged in the role of economic activists (Osborne, 1988). They took up issues of economic development for their states, welfare reform and education, which both had direct impact on their state economies. The backlash against the Great Society had produced an altered state government (Lee, 1981; McLeod, 1986). One result of all this has been the emergence of governors as corporate chief-executive officers of their states. Behn (cited in McLeod, 1986) said that despite lingering lack of formal authority, "governors are now performing like chief executives officers" (p. 9).

THE NEW BREED OF GOVERNORS AS CEOS

In the early 1990s and again in 2001, following in the footsteps of Carter and Reagan, two governors once more became presidents. Both had enjoyed popularity and success in leading their respective states. Bill Clinton had been elected to four terms as Governor of Arkansas, giving him extensive experience under the new emerging paradigms of governing a state. George W. Bush was elected president after having been elected governor of Texas, serving as CEO of a major league baseball team and of Texas oil companies. Both had advanced education degrees, Clinton had a law degree from Yale, and Bush had a Master of Business Administration from Harvard. Both fit the descriptions of a "new breed of governors" that both Osborne (1988) and Scheppach, (1983) had predicted would emerge and have an enormous significance to the United States government.

Governor Terry Sanford of North Carolina was a leader and trail-blazer in the evolution of state governors to becoming the chief-executive-officer of a state. He wrote two years after leaving the governorship that he detected "a sense of direction and excitement of action in our American states" (1967, p 44). He also developed a clear set of goals for state reform on behalf of the governors:

Make the chief executive of the state the chief executive in fact.

The two-year term for governors should be replaced with a four-year term, and a governor should be allowed to succeed himself at least once.

The governor should be given the dominant authority over the budget process. The governor should be the chief planner of the state enabling the state to look forward.

The governor should have the authority to reorganize and regroup the executive agencies subject to legislative veto within a specified period of time.

The governor must have adequate staff to represent adequately the public interest.

The governor's office should be organized to be receptive to new ideas and use the experience of other states in seeking fresh solutions to problems. (p. 45)

The “governorships prospered under these new initiatives.” (Beyle, 2008, p. 206) and reforms outlined by Sanford. Over the next decades following Sanford’s reforms, nearly every state reworked its government, thus, expanding the powers and influence of the American governorship. However, the reforms that Sanford designed for expanding a state governor’s role, responsibilities and influence are reflected in the current day-to-day functions of most governors. In fact, Sanford’s set of goals for reforms serve as a basis for an index for measuring institutional powers of the governorship today.

As far back as 1983, Ray Scheppach (1983), Executive Director of the National Governors’ Association, traced the last 75 years of the governorship:

Vast changes have occurred. State constitutions have been modernized, their court systems streamlined and legislature reapportioned, reorganized and strengthened. The governors’ authority has been strengthened, their office staffs upgraded, their control over administrative staffs and agencies extended. In what the Advisory Commission on Intergovernmental Relations called a ‘transformation over the past 20 years with no parallel in history, states have become the federal system’s resurgent partners. Governors are younger, better educated, with more political, and administrative talent than ever before. (p. 34).

Today, the governor is the chief policymaker in the American states. The governor’s ability to provide political leadership will affect the quality and distribution of public policy. Now, when people want their problems solved, they look to the states (Alexander & Orr, 1986) --not the federal government as they did 50 years ago. Governors are seriously engaged in issues that "will determine the future of this country," and they make decisions every day that "really count, both governmentally and politically" (Broder, 1986, p.13). Behn and Behn (1986) noted that the real change in today's governors has come in the thinking and behavior of the governors themselves. They maintained that the governors are taking their executive responsibilities seriously, redefining their own role, and essentially writing a new job description, not just for themselves, but for others who follow them to the governorship in the years to come.

Long ago, Sanford noted that governors set the agenda for public decision making and can cover the state with their ideas, innovation and by utilizing and maximizing the governor’s special access to the media (1967). In 2007, *Legacy of Innovation Governors and Public Policy* was published. It is a testament to the innovation of state governors. This testament is particularly true of governors over the past thirty years. Currently, governors struggle to develop effective initiatives to emerging challenges while they are playing “a major role in shaping economic and social climate of today” (Sribnick, 2007, p. vii). To illustrate this, topics such as leadership in a global economy, homeland security, global warming, pollution controls, economic recovery from disaster, and the improving the nation’s economic competitiveness have dominated the National Governors’ Association agenda over the last six years (Sribnick, 2007, p. 254-256).

Grappling with these issues has required different skills, knowledge and education, experience in governors than in the “goodtime Charlies” described by Sabato (1983). Today’s, modern governors have evolved into functioning more as a CEO than a traditional politician. This trend was noted as far back as 1986 (McLeod), when he noted that governors had become “more like a corporate chief-executive-officer than a traditional politician.” Sabato noted this trend in 1983:

The “good-time Charlies” who once dominated the governorships, could command little respect at home or beyond their state boundaries; more importantly shackled by their inadequacies and those of their state governments, they could accomplish little for their people. The “goodtime Charlies” are gone. In Arizona, Arkansas, Mississippi, and Missouri, Washington and West Virginia, and almost all states across the country, concerned, capable, accomplished persons have been elected in their stead. (p. 201). The powers of governors have expanded, but “governor responsibilities have mushroomed. The“good-time

Charlies" would be clueless in the current environment. Federalism expansion, new programs and services and unimagined challenges" revolutionized the scope and aim of governors. To be an effective and successful governor in the 21st century, governors must be proven administrators, executives, business people, negotiators and boosters (Brooks, 2007, p. 220).

Lewis Lavine, a political consultant and former deputy governor of Tennessee, reflected on the shift in the ways governors now lead and manage more in the CEO model:

Historically, there has been a divide among the three sectors of our economy: business leaders have succeeded by using proven business principles, nonprofit sector leaders have appealed to emotion and passion, while government leaders have pursued pure political power. Having served in all three sectors, I have observed the differences. But recently these gaps in methods have narrowed. Nowhere is this more in evidence than in the case of the Governors of U.S. states. In the past twenty years, Governors, led first by those in the South, have employed business principles to set specific programmatic goals and to achieve them. From using Collins' dictum to put the right people on the bus, to Deming's quality efforts, to relying on quantifiable data, Governors have shifted the definition of power from one of raw influence over interests and individuals to one of genuinely improving the jobs and education of their constituents. (Lavine, 2009).

TEN "NEW BREED" GOVERNORS

In this study, ten governors are identified as examples of the "new breed" of governors and behaving more like CEOs than in the traditional governors' model of years past. Table 1 identifies the ten governors and provides other basic information including their states, terms, and their ages. Table 2 outlines the education and experience of the ten governors along with identification of initiatives relating to effective management of state government.

All ten governors are well-educated. Nine of the ten have higher degrees beyond a bachelor degree. Barbour, Crist, Daniels, Napolitano, Sebelius and Pawlenty have law degrees. Romney has a joint degree of JD/MBA (law and master of business administration) from Harvard. Corzine has an MBA degree. Jindal has a master degree from Oxford and was a Rhodes Scholar. Bredesen earned his undergraduate degree from Harvard.

All have had careers outside of government. Five have had experience in being a CEO. Phil Bredesen founded Healthcare America, Corp. a health care management company that eventually employed 6000 people and was publicly traded on the New York Stock Exchange. He sold his controlling interest in the company in 1986, and he does not accept a governor's salary. He managed the state of Tennessee out of near-bankruptcy with a reformed health care plan and more responsible fiscal management.

Mitt Romney was CEO of a company that he founded, and went on to be CEO of the 2002 Winter Olympics in Utah. When he took the helm, the Olympics was 379 million short of its budget and was suffering significant management problems. He revamped the leadership, management and policies, boosted fundraising, and reinvented security plans following 9/11. When the Olympics ended, the games cleared \$100 million not counting the 224 million in security provided by contributors. (Romney, 2004, pp. 375-376).

Mitch Daniels was CEO of the Hudson Institute. He left that position to join E. I. Lilly Company to become President of the North American Operations and later was promoted to Vice President for Corporate Strategy and Policy for the E. I. Lilly worldwide. Haley Barbour served as CEO of the Republican National Committee, in his position as Chairman. Jon Corzine was Chairman and Co-CEO of Goldman Sachs after an extensive career in finance and banking.

TABLE 1

Governors	State	Terms	Age
Haley Barbour	Mississippi	2004 - present	64
Phil Bredesen	Tennessee	2006 - present	66
Jon Corzine	New Jersey	2006 - 2009	62
Charlie Crist	Florida	2007 - present	53
Mitch Daniels	Indiana	2005 - present	60
Bobby Jindal	Louisiana	2008 - present	38
Janet Napolitano	Arizona	2002 - 2008	52
Tim Pawlenty	Minnesota	2002 - present	49
Mitt Romney	Massachusetts	2002-2006	62
Kathleen Sebelius	Kansas	2002-2008	61

Sources: Governors' websites and National Governors' Association website

TABLE 2
GOVERNORS' EDUCATION & EXPERIENCE

Governors	State	Bachelor Degree	Higher Degree	CEO Experience	Other Executive Experience	Fiscal Initiatives & Reforms
Haley Barbour	Mississippi	X	X	X	X	X
Phil Bredesen	Tennessee	X		X	X	X
Jon Corzine	New Jersey	X	X	X	X	X
Charlie Crist	Florida	X	X		X	X
Mitch Daniels	Indiana	X	X	X	X	X
Bobby Jindal	Louisiana	X	X		X	X
Janet Napolitano	Arizona	X	X		X	X
Tim Pawlenty	Minnesota	X	X		X	X
Mitt Romney	Massachusetts	X	X	X	X	X
Kathleen Sebelius	Kansas	X	X		X	X

Sources: Governors' websites and National Governors' Association website

CONCLUSION

The governor trail blazers of the 60s, 70s, and 80s gave rise to this “new breed” of governors as CEOs. A confluence of events, needs and situations brought about this shift from a traditional, political orientation in governing states to a larger role in management and leadership in the states. That emergence is seen everyday in the actions and results of governors in the states that they lead.

Governors have a unique space of America to work in – their states. This is an opportunity for creativity and innovation that doesn't exist in any other part of the American government. Tommy Thompson, former governor of Wisconsin from 1987-2001 and later U.S. secretary of health and human services under George W. Bush, addressed the benefits of being a governor at the annual meeting of the National Governors' Association in 2006. "You don't realize how wonderful it is to be a governor until you leave and go to Washington." He further elaborated, "When you're a governor, you wake up in the morning with an idea, and you have someone working on it by 11:00 in the morning" (Thompson, 2006). He further noted that was not how it worked as a U S. secretary in Washington.

Governor Lamar Alexander of Tennessee envisioned creating more jobs in Tennessee and strengthening the state economy. He recruited the first foreign automobile manufacturer, Nissan, to the U.S., about 30 miles from Nashville. A few years later, he landed the Saturn GM plant near the already functioning Nissan plant. These are only two events that lead to an overall improvement in the state economy.

Governor Janet Napolitano of Arizona converted a 1 billion dollar deficit in 2003 into a 300 million dollar surplus – without raising taxes! A newly-inaugurated Governor Bobby Jindal of Louisiana set in place a strategic plan based on lessons learned from the Katrina disaster to ensure that history did not repeat itself in New Orleans. When Hurricane Ike approached the Gulf Coast in August 2008, New Orleans and other parts of the Louisiana coast were prepared.

Governor Charlie Crist of Florida even refers to himself as the "CEO of Florida" (Gregory, NBC News, Feb. 22, 2009). This "new breed" of governors shows examples of governors acting as CEOs with vision and producing results from the vision. Many other examples exist as well as other "new breed" governors, but they are too numerous to mention in this study. However, the changes that are seen in the ways governors lead and manage today can be traced back to that time in the 60s, 70s, and 80s when paradigms of how governors govern changed forever.

REFERENCES

- Alexander, L. (1984, August 6). New chairman's speech presented to the National Governors' Association, Boise, ID.
- Alexander, L. & Orr, R. D. (1986). The fifty best jobs in the country. *The Journal of State Government*, 52(20), 54-57.
- Baliles, G. (1988). The new era of federalism. In *Restoring the balance: State leadership for America's future* (pp. 7-10). Washington, DC: National Governors' Association
- Behn, J. H. & Behn, R. D. (1986). The governor as ceo. *Capital Ideas*. Washington, DC: National Governors' Association.
- Behn, R. D. (1986). Getting the job done. The governor's legal and moral authority. *The Journal of State Government*, 52(2), 54-57.
- Beyle, T. D. (2008). The evolution of the gubernatorial office. In E. M. Brooks (Ed.) *The legacy of leadership*. Philadelphia: University of Pennsylvania Press.
- Beyle, T. D. (1983). Governors' offices: Variations on common themes. In T. L. Beyle (ED.) *Being governor: A view from the office*. (pp. 131-143). Durham, NC: Duke University Press.
- Blanchard, J. J. (1988). Criteria for restoring federal state relations. In *Restoring the balance: State leadership for America's future*. (pp. 101-107). Washington, DC National Governors' Association.
- Bredesen, P. (2009). Tennessee governor. Retrieved from <http://www.tennesseeanytime.org/governor>
- Broder, D. (1986, September 1). The governors are where the action is. *The Chattanooga Times*, p. 13.

- Brooks, E. M. (2008). *The legacy of leadership*. Philadelphia: University of Pennsylvania Press.
- Brough, (1986). The powers of the gubernatorial CEO: Variations among the states. *The Journal of State Government* , 52(2), 58-63.
- Bryce, J. (1967). In T. Sanford). *Storm over the states*. New York: McGraw Hill.
- Corzinne, J. (2009). State of New Jersey. Retrieved from <http://www.state.nj.governor.org>
- Crist, C. (2009). Florida governor. Retrieved from <http://www.flgov.com>
- Daniels, M. (2009). State of Indiana. Retrieved from <http://www.gov.state.Ia.us>
- Doyle, D. P. (1985). Leadership in education: Governors, legislators, and teachers. *Phi Delta Kappan*, 67(1), 21-24.
- Governor Haley Barbour. (2009). Governor Barbour. Retrieved from <http://www.governor barbour.com>
- Governors. (2009). All governors, past and present. National Governors' Association. Retrieved from <http://www.nga.org>
- Governors. (2009). Biographies of current governors. National Governors' Association. Retrieved from <http://www.nga.org>
- Gregory, D. (Narrator) (2009, Feb. 22). *Meet the Press*. [Television broadcast]. Washington. NBC.
- Jindal, B. (2009). State of Louisiana. Retrieved from <http://www.gov.state.la.us>
- The institutional powers of the governorship; 1965-1985*. (1987). Washington, DC: National Governors' Association.
- Kean, T. (1988). To promote innovation. In *Restoring the balance: State leadership for America's future*. (pp.8-9). Washington, DC: National Governors' Association.
- Lambert, L. (1960). The executive article. In B. Graves (ed.) *Major problems of constitutional revision* (p. 185). Chicago: Public Administration Service.
- Laski, H. J. (1949). *The American democracy: A commentary and an interpretation*. London: Allen & Unwin.
- Lee, B. (1981). *Reflections on being governor* (pp. 153-164). Washington, DC: National Governors' Association.
- MacDonald, A. F. (1927, November). American governors. *National Municipal Review*, pp. 715-716.
- McLeod, D. (1986, December 22). Affairs of state turn corporate. *Insight: Washington Times Magazine*, pp. 8-13.
- Moore, A.A. (1988). To provide efficient decision making. In *Restoring the balance: State leadership for America's future*. (pp.27-34). Washington, DC: National Governors' Association.
- Morehouse, S. E. (1976). The governor as a political leader. In H. Jacob & K. N. Vines (Eds.), *Politics in the American states*. (pp 196-241). Boston: Little Brown.
- Muchmore, L. (1981) Introduction. In *Reflections on being governor* (p. 5), Washington, DC: National Governors" Association.
- Osborne, D. (1988). *Laboratories of democracy*. Boston: Harvard Business School Press.
- Pawlenty, T (2009). State of Minnesota. Retrieved from <http://www.governor.state.mn.us>
- Riley, R. (1986, September 10). Governing through independent boards and commissions. Speech presented to the Governors' Center, Duke University.
- Romney, M. (2009). Biography. Retrieved from <http://www.biography.com/articles/mittromney>
- Romney, M. (20004). *Turnaround*. Washington, DC: Regency Publishing.
- Sabato, L. (1983). *Goodbye to goodtime Charlie*. Washington, DC: Congressional Quarterly Press.
- Sanford, T. (1967). *Storm over the states*. New York: McGraw Hill.

- Scribnick, E. G. (2008). *A legacy of innovation: Governors and public policy*. Philadelphia: University of Pennsylvania Press.
- Scheppach, R. (1983). Introduction. *State Government*, 56 (2), 34.
- The State of the States*. (1972). (p. 21). Washington, DC National Governors' Association.
- Sununu, J. H. (1988). The spirit of federalism. In *Restoring the balance: State leadership for America's future*. (pp.1-4). Washington, DC National Governors' Association.
- Thompson, T. (2006). Speech. From proceedings of the National Governors Association Annual Meeting. Hilton Head, N. C.

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