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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 increase4d 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, &

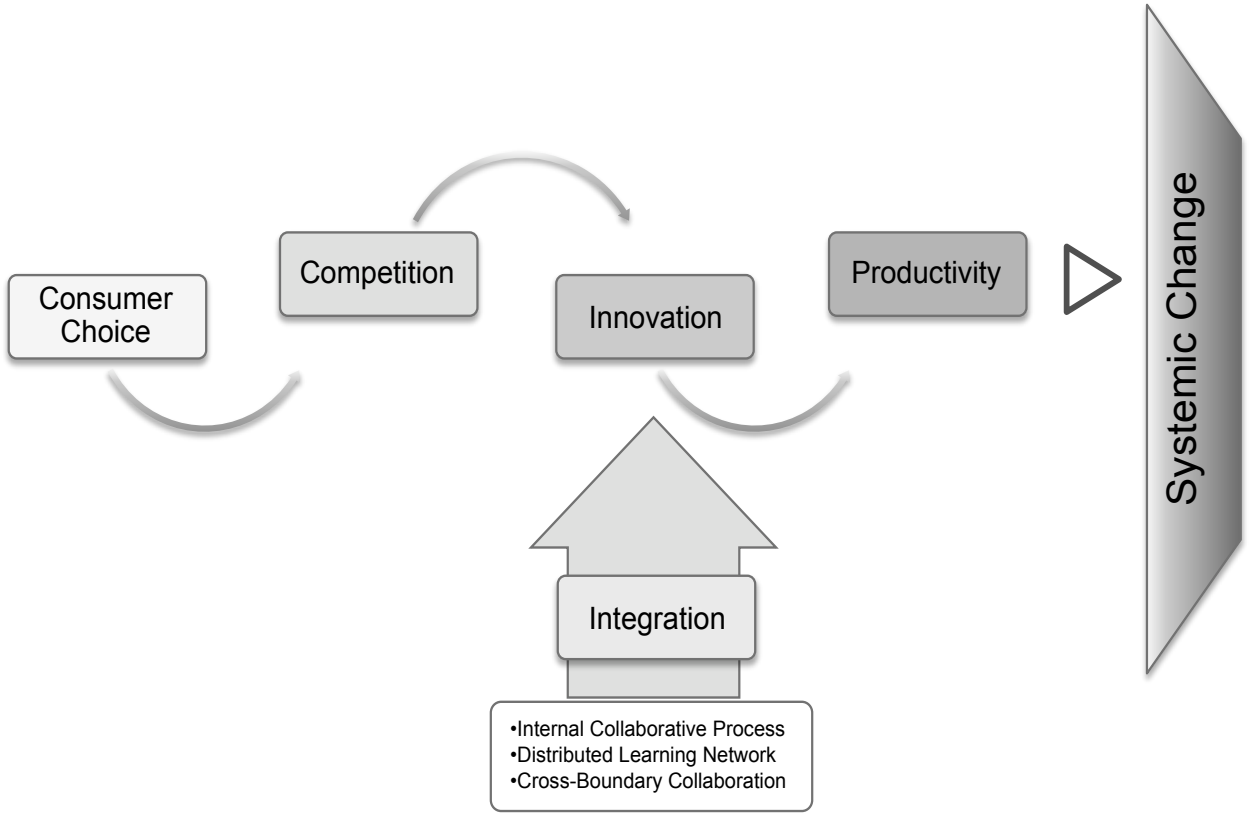
Scinta, 2005; Dillon, Lee, & Matheson, 2005). Extensive research has been conducted in change management theory and models (Cawsey & Deszca, 2007).

Similarly, much has been researched and written over the past ten years on the $2 trillion U.S. health care system, its ails 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 reoganizations, 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 economices 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*?

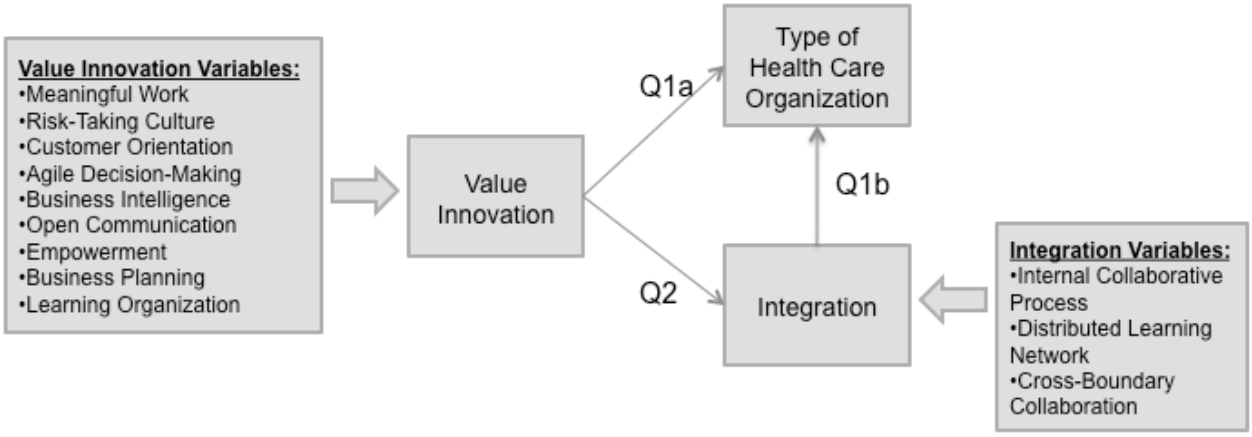
H_0: There is no relationship between the capacity to integrate and the type of health care organization.
H_1: There is a relationship.

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.

$$\mathbf{H_O: \mu_1 - \mu_2 = 0}$$

$$\mathbf{H_A: \mu_1 - \mu_2 \neq 0}$$

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).

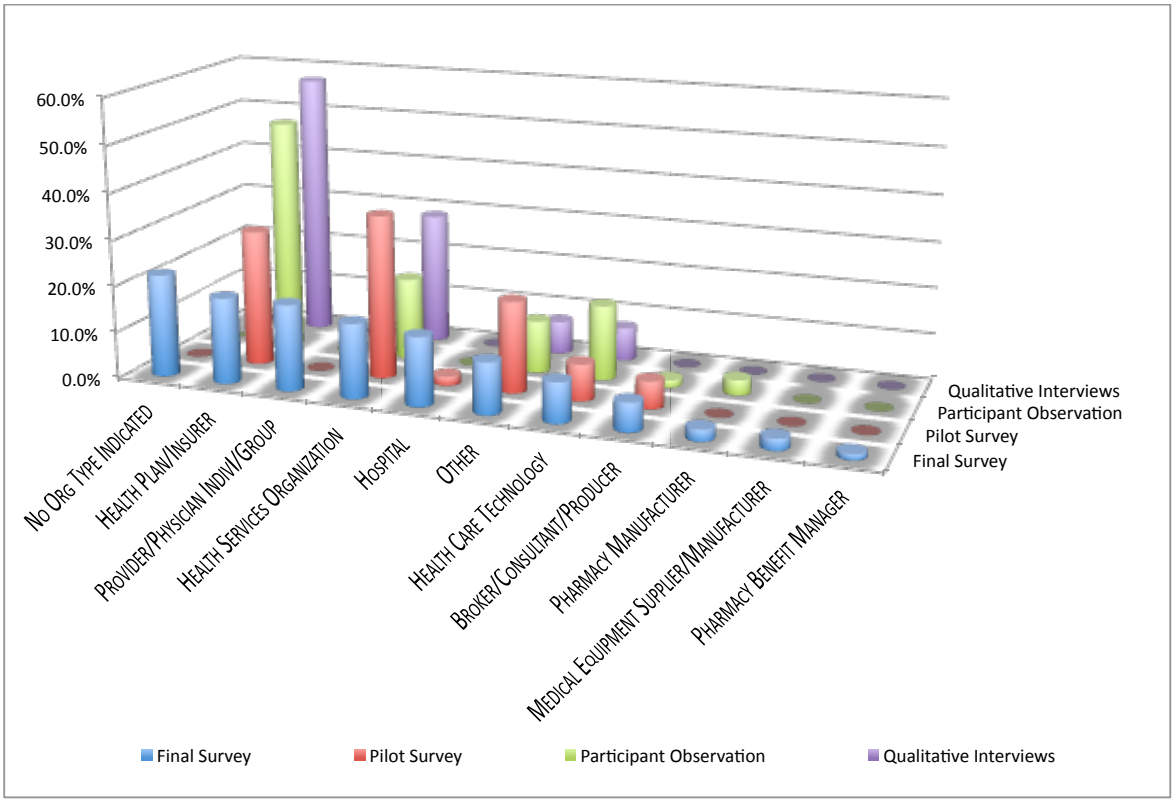
TABLE 1: DESCRIPTION OF MEASURES

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.

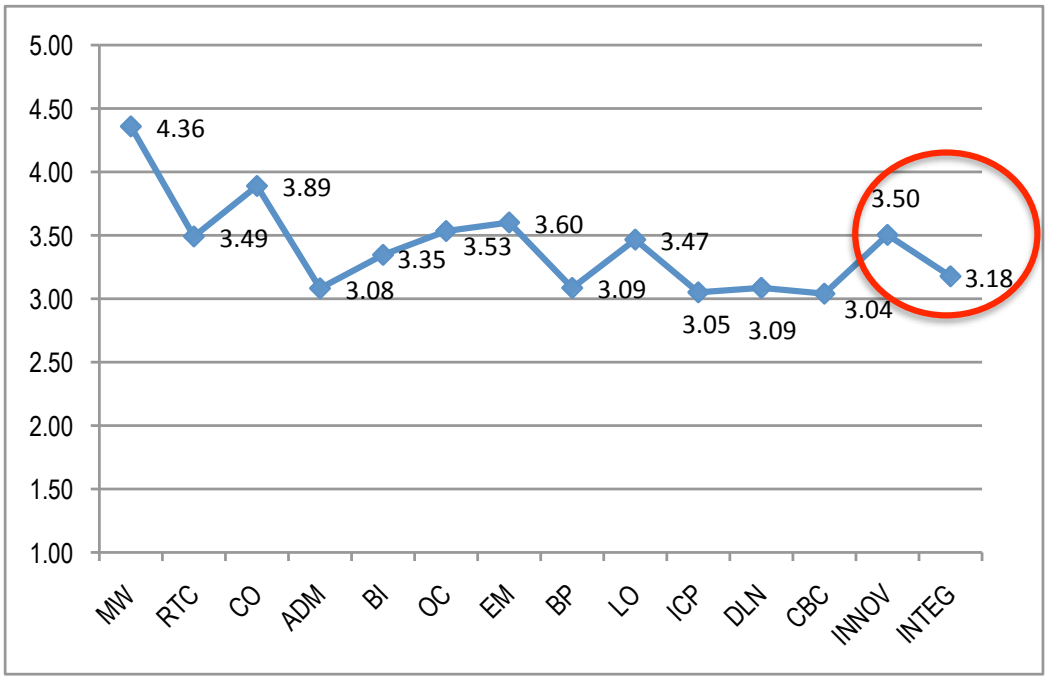
Q1b: Is there a relationship between the type of health care organization and its capacity to *integrate*?

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

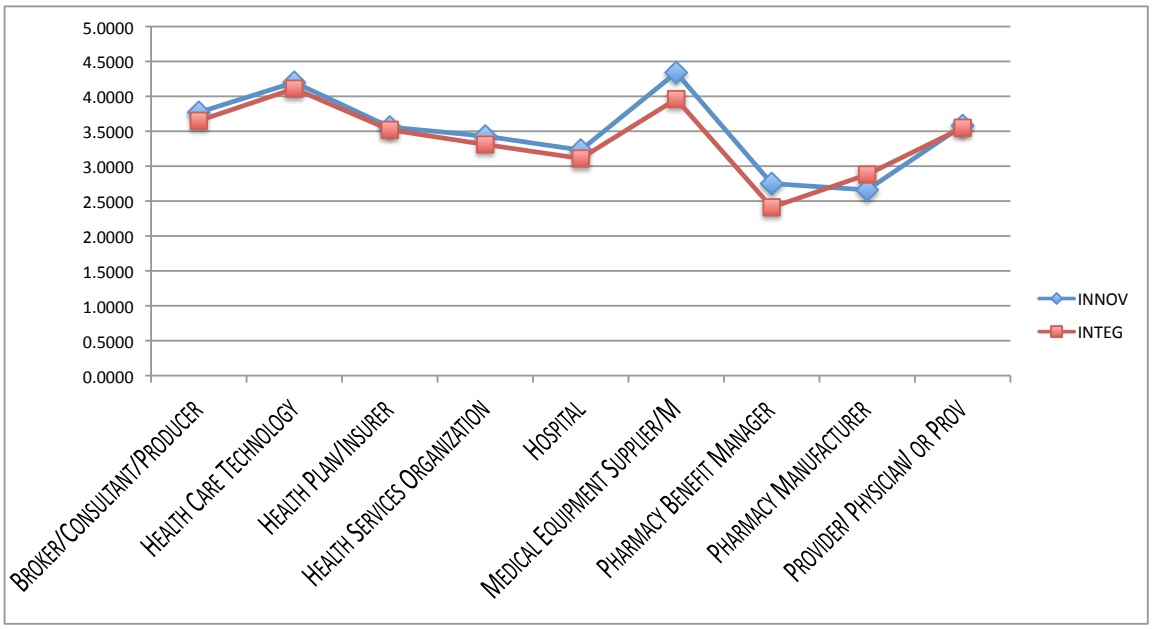
Variable	Contingency Coefficient	Relationship
INNOVATION		
Meaningful Work	.606	Moderate relationship
Risk-Taking Culture	***.801***	***Very good to excellent relationship***
Customer Orientation	.676	Moderate to good relationship
Agile Decision-Making	.728	Good relationship
Business Intelligence	.616	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			Integration Themes			Overall Capacity Themes		
	Process but no Rigor	Reactive Planning	Cultural Effects	Unguided Interactions	Competition	Diffusion	Unfunded Vision	Unbalanced Prioritization	Unit vs. System Focus
Innovation Factors									
Meaningful Work			X						
Risk-Taking Culture			X						
Customer Orientation									X
Agile Decision-Making				X			X	X	
Business Intelligence		X			X	X			
Open Communication			X						
Empowerment			X						
Business Planning	X	X		X		X	X	X	X
Learning Organization			X			X	X		X
Integration Factors									
Internal Collaborative Process				X	X	X	X	X	X
Distributed Learning Network				X	X	X	X		X
Cross-Boundary Collaboration				X	X	X		X	X
PO - Innovation Themes									
Regulatory and Policy Requirements		X							
Management Buy-In							X		
Resources							X		
Lack of Customer Focus									X
PO - Integration Themes									
Technology Limitations									X
Complexity									X

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 is 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

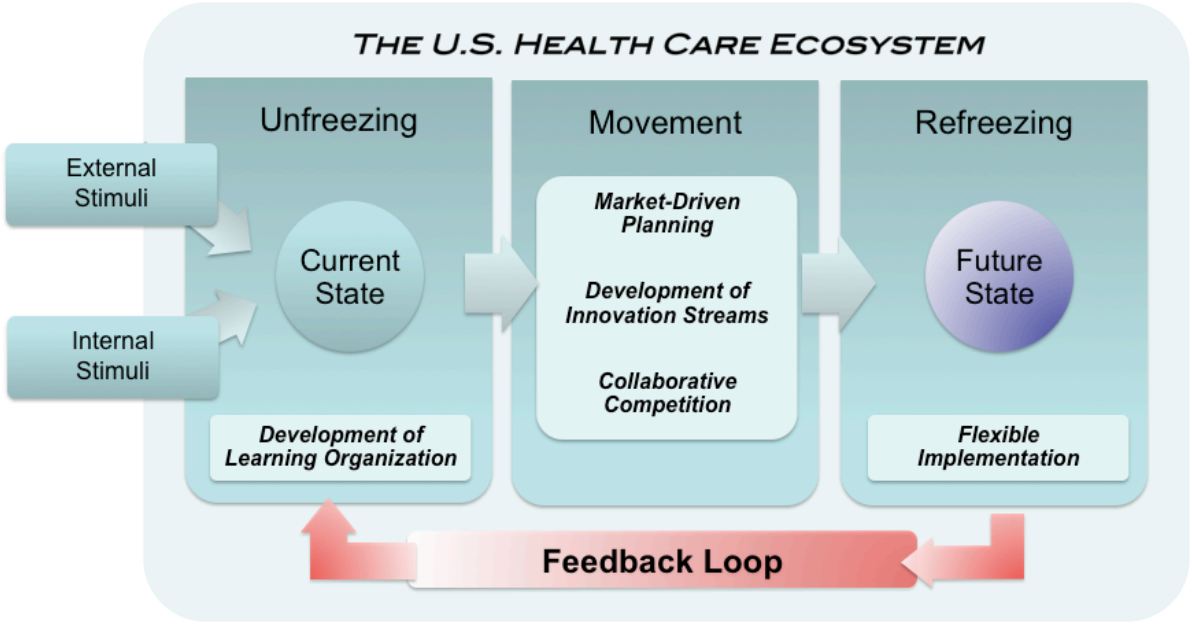
Understanding what factors are ranked lower for innovative and integrative capacity provides the platform for development of strategies that will improve innovation and integration success, and ultimately change, within the U.S. health care system. Additionally, the overlap between the quantitative and 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.

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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:

Please select one for each question

Pilot-Testing Survey Questions	*1 – Strongly Disagree*	*2 - Disagree*	*3 – Neither Agree nor Disagree*	*4 – Agree*	*5 – Strongly Agree*
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

Meaningful Work	*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:					

Risk-Taking Culture	*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

Internal Collaborative Process	*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:					

Distributed Learning Network	*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.