Preface

A METHOD FOR ALIGNING IT STRATEGY TO SERVICE CUSTOMER VALUE CREATION

All firms including manufacturing firms are becoming service centered, focused on the customer. Service centered firms co-create value with their customers through the dynamic configuration of their people, processes, and systems, known collectively as organizational capabilities. The core of these capabilities is knowledge, which is underpinned by information technology. This book explores the relationships of the service firm’s knowledge, capabilities, IT, and strategy in its quest for superior value co-creation with customers. It analyzes and explains the principles of service, knowledge, and organizational capabilities, and describes the methodologies for crafting and executing a successful business-aligned IT strategy—an integrated end-to-end process from business strategy to customer value delivery. The book explains the ways by which IT strategy formulation and management practices of a technology-enabled service enterprise are used to shape the firm’s knowledge organizations and the attendant dynamic capabilities, and to facilitate service innovation and superior customer value co-creation. Summaries of selective case examples are drawn from the literature to illustrate how these basic principles of service innovation and strategic alignment management are applied in practice. It concludes by a real-life case example of an organization to illustrate the direct link and positive contribution of knowledge management to service innovation.

Information technology is a means to the business end. IT is a tool designed to perform a business task within an overall business context. A service-oriented firm is successful when its customer value proposition is always aligned with the customer’s evolving needs. Thus, IT creates value only when it contributes directly or indirectly to value co-creation with the service-oriented firm’s customers. A successful IT strategy must therefore align with the business and its service strategies, fully, from strategy setting, planning to detailed programs execution and delivery. The goal of IT strategy is to help business create and implement the unique customer value proposition. An effective IT strategy therefore starts with an in-depth understanding of the firm’s business, mission, vision, strategic goals, and positioning in the competitive market environment. It must analyze the firm’s business and service models, value configuration and core business processes required for differentiation. Naturally, IT organizations should also possess in-depth knowledge of the ways by which IT is embedded in the firm’s differentiating, and dynamic organizational capabilities, which underpin the firm’s competitive advantage. From these insights the business-aligned service and IT strategies are developed, together with the requisite future target enterprise and technology architectures. The target enterprise architecture encapsulates the strategic business/service direction and vision espoused by business and IT strategies. Architecture gap between
the current and the target architectures defines the macro-level business (core processes) and information systems capabilities gaps that need to be closed in order to sustain the firm’s competitive positioning and organizational capabilities for growth. The enterprise architecture thus serves as an important strategic business-planning tool. It plots the logical steps over a period necessary to evolve the current architecture and business environment towards the business vision. Enterprise architecture identifies the requisite strategic business programs—both exploitative and exploratory programs for incremental and radical business/service innovations, respectively—which are prioritized and selected for implementation using service/product and/or IT program/project portfolio management principles, in line with the business strategy and priorities. An end-to-end business-IT alignment from strategy to implementation and benefits realization is validated using strategy maps, which explicitly explicate the causal relationships between business and IT. The IT strategy must also define the requisite core competencies and sourcing strategies, as well as the organizational model and culture for successful execution. It incorporates and applies the service/IT governance as part of corporate governance for business programs prioritization and for governing disciplined programs execution to deliver the planned business outcomes. IT organizations are increasingly being expected by business to not only provide excellent service delivery but also contribute to business innovation. Indeed, business is beginning to look to Chief Information Officers as a new source of business model innovation. Underpinning innovation is knowledge. IT strategy must therefore also encompass the need for innovation and knowledge management. IT strategy best practice is integral to business and IT management best practice. It requires leadership and strong disciplines in integrative and holistic management of business, people, process, and systems.

**MOTIVATION, OBJECTIVE, BACKGROUND, AND TARGET AUDIENCE OF THIS BOOK**

There is an increasing international recognition of the critical roles played by services in national economic developments not only in the context of the well-known services industry but also increasingly in the traditional product manufacturing. Services are knowledge intensive. Service (customer) value is intimately dependent on the service provider’s unique capabilities to solve the customer’s problem. Organizational capabilities or core competencies of a service firm are built on and around the organization's knowledge. Knowledge organizations together with the underlying enabling technology systems are the firm’s fundamental strategic resources, which in turn are integrated and configured by the service firm into its unique core competencies or organizational capabilities to achieve sustainable competitive advantage.

The growing importance of the knowledge-intensive service-based economies has called for the increasing need by business and technology management scholars, researchers and practitioners to understand the fundamental theories of service, knowledge organizations and the integration of service, knowledge and core competence or capability principles into the formulation and execution of business and IT strategies of service-oriented organizations.

This new title aims to meet that need. It explores the ways by which IT strategy formulation and management practices of a technology-enabled service enterprise are used to shape the firm’s knowledge organizations and resultant dynamic capabilities, and facilitate service innovation and superior customer value co-creation.
Information technology strategy is clearly a critical business discipline, which ensures IT contributes to customer value co-creation. A well-crafted and executed IT Strategy will deliver not only effective business operations but also competitively differentiated, innovative products and services for the firm. Yet many business and government enterprises have found their IT organizations are, due to poor strategy and execution, either, misaligned with the business strategies or, even worse, so dysfunctional that business value is actually destroyed instead of being created by IT. With business investing close to $800 billion in IT in 2002 in United States alone (Jeffery & Leliveld, 2004), successful IT strategy and execution is undoubtedly crucial for firms aiming to achieve superior business performance.

The objective of this book is to explain the principles and methodologies for service conceptualization, development and implementation, and crafting and executing a successful complementary business-aligned IT strategy—an integrated end-to-end process from business strategy to value delivery. The book critically reviews the emergent theories related to Service-Dominant logic (S-D logic) and service science with a view towards practical applications, particularly towards IT-strategic alignment. A preliminary application of S-D logic to model outsourcing services, in conjunction with sourcing theories, is described. Several case examples are also provided to illustrate the key knowledge driven service innovation concepts.

This is a theory- and practice-based textbook, derived from over 10 years of practical service business experience in the subject area. To infuse academic rigor, we incorporate contemporary service science, management and information system theories, and research literature to help structure and explain the fundamentals of service, service innovation, organizational capabilities, and knowledge management, as well as IT strategy and management practices. IT strategy is a business management discipline. The book is therefore business-oriented. It describes service innovation, information technology strategy and management best practices from the business standpoint—step-by-step from basic models and theories of service-oriented firms (Section 1) to strategic alignment management practices (Section 2) to leadership, governance and sourcing practices (Section 3), and finally, to business service innovation practices (Section 4).

The book has evolved from a Current IT Strategy course given in the Master of Business (IT Management) program at the University of Technology Sydney and Knowledge-Based Service Innovation course given in the Master of Science (Knowledge Management) program at the Hong Kong Polytechnic University, where the enrolled students are mostly professional IT and business managers. It has also evolved from IT management courses taught at Fudan University (Shanghai), Nanyang University (Singapore), Norwegian School of Management (Norway), and Arab Academy (Egypt). The book will therefore be useful to all business and IT schools where MIS, knowledge management, and/or service operations management courses are taught—particularly to graduate students. In addition, practicing business and IT managers responsible for their firms’ products and services or IT services, from all industries, will find this book useful in their work.

Students and practitioners of business service and IT management need to acquire a broad and deep “Body of Knowledge” to be proficient in business service and IT strategy and management practices. The book provides the requisite “Body of Knowledge.” It is condensed below in an integrated summary of the book (following the overview of book outline) to give the readers a preview of the overarching concepts, principles, theories, methods, and the inter-relationships of business strategy, service strategy, business model, business process management, sourcing strategy and management, and IT management practices that they need to master to become an effective business or IT managers and leaders in service-oriented organizations.
OVERVIEW OF CHAPTERS

The book is organized into four logical sections, each with a designated research theme, as outlined in Figure 1 to guide the readership.

Section 1 contains Chapters 1, 2, 3, and 4, and addresses the theme: “What are the Basic Theories and Interrelationships of Strategy, Knowledge Organization, and Service?” This part is targeted at students of IT strategy, service science, and management practices. Business and IT practitioners may be able to skip Chapters 1, 2, and 3 without loss of continuity, but should study Chapter 4 on theories of service.

Section 2 contains Chapters 5, 6, 7, 8, and 9 to address the theme: “How to Manage Strategic Business-IT Alignment, Program Portfolio Planning, and Execution to deliver on the Service Customer Value Propositions.” They form the basic and necessary knowledge base for successful IT strategy. Both IT management practitioners and students are recommended to read these chapters.

Section 3 contains Chapters 10, 11, and 12 to address the theme: “How to Lead, Govern, and Source IT to Maximize Service Customer Value Creation.” Section 3 complements Section 2, and together they form the requisite knowledge to be an operationally effective or cost-efficiency-focused IT manager. Both IT management practitioners and students are recommended to read these chapters.

Section 4 contains Chapters 13, 14, and 15 to address the theme: “How to Innovate to Co-Create Unique Customer Value to Win the Service Game.” Section 4 is required to help IT managers influence business direction and contribute to service and innovations and drive top-line growth. Combining this
body of knowledge with the previous parts will enable IT managers to be effective in both operations and innovation management. Both IT management practitioners and students are recommended to read these chapters.

The following is an overview of the chapters.

Chapter 1 introduces and explains the theories, basic principles, business models, and value configurations of service-oriented firms with a view to identifying ways in which IT could play a role and make a difference in the firm’s performance. A complementary set of theories pertaining to IT strategy are the resource-based theory, knowledge-based and capability-based theories, and the activity-based theory of firm.

Chapter 2 explains the principles of business and corporate strategy, strategic management, strategic planning, and the methods for strategy analysis. Of particular importance is the concept of strategy maps, which shows how the firm’s strategy, core processes, human capital, information capital, and organization capital will be aligned and integrated coherently for the sole purpose of customer value creation. It forms the intellectual framework of the book.

Chapter 3 reviews the principles of knowledge organizations and relationships with organizational capabilities, which constitute the core of a service firm. In a resource perspective, where resources enable service innovation, knowledge and capabilities represent strategic resources that are integrated and configured by the service firm into its unique core competencies and organizational capabilities to achieve sustainable competitive advantage.

Chapter 4 explains the concepts and principles of service science, management, and engineering, and the basic constructs of innovative service strategies. It highlights why service is increasingly being conceptualized as a process rather than a unit of production output, an intangible good. It explains why the firm’s unique knowledge, skills, and competencies or organizational capabilities are its foundation and competitive advantage, and the principles behind value co-creation between service client and provider.

Chapter 5 reviews the principles of business-IT strategic alignment to facilitate value co-creation with the customers, and discusses in detail the various methods for IT value and organizational maturity analysis.

Chapter 6 examines the critical success factors of IT strategy, holistically, across four phases of the strategic management lifecycle from strategy formulation to planning to execution and to value delivery and monitoring—end-to-end. It stipulates and explains the many disparate but related ways by which IT and business must act as one in producing the mutually aligned business and IT strategy deliverables in each of these phases. It reviews the requisite ambidextrous CIO leadership practices to engender service/organizational innovations and business agility while simultaneously maintaining operational excellence.

Chapter 7 reviews the underlying principles and explains how enterprise architecture assures strategic and operational alignment or fitness between business and IT, and facilitates the realization of the enterprise vision and strategy. It discusses the interrelationships of core processes and associated business process management, business activity system, business model, strategy, and dynamic capabilities in the context of achieving organizational agility, and how enterprise architecture will contribute towards achieving that end.

Chapter 8 is concerned with strategy execution. It explains, through reviewing Spewak and Cassidy methods, how the enterprise architecture gap could be decomposed from work packages into strategic programs for staged implementation. It reviews the basic models and practices of strategic program and portfolio planning and management. The portfolio of programs (each comprising projects of similar strategic theme) constitutes the evolutionary logical stages that the firm will invest in, at a desired risk/return
ratio defined by portfolio and IT governance, to deliver the maximum business value while migrating
towards the target enterprise architecture. It also describes product/service portfolio management as a
tool for new service development management.

Chapter 9 describes three case studies to illustrate how the concepts of strategy maps and service
systems are applied in practice. Both strategy map case examples demonstrate the importance of both
formal (structured) and informal (unstructured) processes for managing mutual alignment and interde-
pendencies between business and IT—both strategically and operationally. The service systems case
example demonstrates the versatility of the proposed descriptive model of service systems in modeling
the emergent characteristics of “value-in-use” of IT outsourcing services.

Business performance and differentiation is determined by the firm’s ability to configure internal
and external strategic resources and capabilities, including IT resources and capabilities. Chapter 10
reviews strategic IT resources and how they can be aligned to the organization’s strategy and improve
firm performance.

Chapter 11 discusses the transformational power and theories of sourcing strategy, which allow firms
to combine internal and external (outsourced) resources to obtain sustainable strategic advantage.

Judicious resource allocation to strategic programs and initiatives is the key to successful strategy
execution. A sound IT governance lead by a disciplined Chief Information Officer (CIO) is a necessary
condition for successful IT strategy execution. This is the focus of Chapter 12. It describes the basic
principles of IT governance, linking it to architecture and portfolio governance described in previous
chapters, and demonstrates its application to governing outsourcing relationships. It uses the organizational
framework of business process management to define a service governance framework. It describes the
CIO leadership behaviors required to lead and govern a modern business-savvy and mature IT organization.

Chapter 13 reviews an increasingly important discipline in which the CIO must become skillful—busi-
ness innovation. To contribute to company growth, CIOs must be skillful in product, service, and process
innovation. To help transform the business, CIOs must be capable of conceiving business concept/model
innovation through creative use of disruptive technologies. This chapter reviews how information and
IT management practices can contribute to business innovation.

Chapter 14 explains the basic principles, theories, processes, and management of service innova-
tion. It is targeting at the strategic leaders who drive the innovation agenda as well as the operational
managers who make innovations happen in a firm. A common thread that runs through all these topics
is the role of the customer—the arbiter of a firm’s service innovation agenda as to whether it meets their
evolving needs or not. Chapter 14 reviews the basic set of customer-centric principles and conceptual
model of service innovation. It describes service innovation process, new service development, service
engineering, customer participation, and lifecycle management. In addition, it uses two case studies
to illustrate the core concepts of service innovation, and summarizes the future research directions for
service science espoused by the world’s leading service science scholars.

A firm’s innovation capabilities are underpinned by its knowledge and knowledge management
capabilities—that is “ability to absorb and put to use new knowledge.” This book concludes by review-
ing innovation-driven knowledge management practices in Chapter 15. It reviews the characteristics
of knowledge as a strategic resource and its relationship to strategy, and describes in detail the various
approaches to knowledge management and knowledge management strategy for innovation. It concludes
by relating IT to supporting knowledge management—to cover the full spectrum of IT management
practices expected in running modern enterprises.
While IT strategy and management are a well-established discipline, service innovation is still an emergent interdisciplinary practice on which much research is still needed to help managers to become consistently proficient in both incremental and radical innovations of services.

The above overview of the book gives the reader a bird’s eye view of the “landscape” of the book. To get a more in-depth view of the overall summary of the book before launching into the individual chapters, the reader is recommended to peruse the following integrated summary of the book describing how successful IT strategy can be developed and implemented for service innovation.

SUCCESSFUL IT STRATEGY FOR SERVICE INNOVATION:
AN INTEGRATED SUMMARY OF THE BOOK

Section 1: What are the Basic Theories and Interrelationships of Strategy, Knowledge Organization, and Service?

Strategy is about creating a competitively differentiated position to win customers in the marketplace. Firms leverage their resources to conduct business and create the differentiated position (Priem & Butler, 2001; Porter, 1985). Two complementary types of theories of firm are commonly used to study business strategy: resource-based theory (and its subsidiaries knowledge-based and capability-based theories) and activity-based theory.

Resource-based theory stipulates that the firm’s performance and strategic advantage is differentiated by the internal resources and capabilities it possesses, rather than the external opportunities and threats dictated by the industry conditions (Loewendahl, 2000; Priem & Butler, 2001; Barney, 2001; Hitt, et al., 2001). The theory holds that, in order to generate a sustainable competitive advantage, the firm’s resources must be valuable, rare, inimitable, non-substitutable—known as the VRIN principle. For IT resources, it is the unique combination of sophisticated IT infrastructure and skilled human resources (core competences) of the enterprise that create the differentiated customer value (Ravichandran & Lertwongsatien, 2005).

Knowledge is the most strategically important, and the principal productive resource of the firm. It forms the basic building block of the firm’s organizational capabilities—the source of the firm’s competitive advantage (Grant, 1996a). The knowledge-based theory of the firm posits “the firm as a dynamic, evolving, quasi-autonomous system of knowledge production and utilization” (Spender, 1996).

Activity-based theory of firm conceives the firm as a bundle of activities (Porter, 1985)—as distinct from a bundle of resources in the resource-based theory (Sheehan, 2002). It studies the firm’s production function in value creation—transforming inputs to end products. From the activity-based theory, firms can configure its activities to create value, known as value configuration. Three types of value configuration can be used to model the firm: value chain (Porter, 1985) and value shop and value network (Stabell & Fjeldstad, 1998). Normann and Ramirez (1993) propose another form of value network, called “value constellation,” in which the firm must build an ever-increasing fit of its competencies with customers, and its knowledge with relationships—a fundamental principle of service innovation.

A related concept to value configuration is the business model of firm, which is also closely related the firm’s business strategy. Business models explain how firms work—they identify who the customers
are and define how the pieces of a business fit together as a system to create value to the customers at appropriate price so profit can be made (Magretta, 2002).

Numerous IT-enabled e-business models have been proposed, based on the firms’ specific e-strategies. The basic principles of business model must be adhered to by e-business models. E-business can be classified into eight atomic e-business models (Weill & Vitale, 2002). The Hayes and Finnegan (2005) framework (encompassing economic control, supply chain integration, functional integration, innovation, and sourcing) can be used for determining a firm’s appropriate e-business model.

Business-aligned IT strategy is developed in accordance with Porter’s (1985) business strategy principles. Business strategy with a clear goal and a “continuity of direction” must be first defined. The strategy must have a unique value proposition supported by a distinctive value configuration. The strategy must also define how all the elements (resources and activities) of what the firm does fit together and reinforcing each other. This usually involves making trade-offs. Corporate strategy shapes business and IT strategies, so different corporate roles must be understood. Firm uses strategic management discipline to formulate its strategic position, make strategic choices for the future, turn the strategy into action, and realize the benefits (Johnson & Scholes, 2002). Translating strategy into actions require strategic planning skills. Strategic planning is the process of deciding on the projects/programs that the organization will undertake and the appropriate amount of resources that will be allocated to each program over the next several years. Strategic planning practice performance can be measured from the perspectives of cost leadership, differentiation, focus, and intensity (Nayyar, 1993).

Resource-based strategy leverages the firm’s unique resources and capabilities as a platform across many markets and products (Barney, 2001). The firm can be viewed as an institution for integrating knowledge, which gives rise to the firm’s organizational capabilities (Grant, 1996a). Organizational capabilities are socially complex routines that determine the efficiency with which firms physically transform inputs into outputs (Collis, 1994). Stalks et al. (1992) offer four basic principles of capabilities-based strategy: 1) the basic building blocks are business processes not products or markets; 2) transform the firm’s core processes into strategic capabilities that consistently provide superior value to the customer; 3) make strategic investments in a support infrastructure that links together and transcends traditional business units and functions to create these capabilities; 4) because capabilities necessarily cross functions, the champion of capabilities-based strategy is the CEO. Teece, Pisano, and Shuen (1997) argue that the firm needs to possess dynamic capabilities to sustain its competitive advantage, which rest on the firm’s distinct processes, asset positions and the evolution paths it has adopted or inherited. However, the firm can only sustain the advantage if it has the capacity (dynamic capabilities) to identify and seize new opportunities in the turbulent business environment by reconfiguring its capabilities and attendant resources/assets (Teece, 2007).

Activity-based strategy achieves sustainable competitive advantage through: (a) establishing a unique competitive strategic position for the company, (b) configuring a system of synergistically reinforcing activities tailored to fit with the strategy, (c) making clear trade-offs and choices vis-à-vis competitors to implement the strategic position, (d) ensuring competitive advantage achieved from disciplined execution of the activity system not the parts, (e) maintaining continuous operational effectiveness at all times (Porter, 1996). Kaplan and Norton (2004) propose a strategy map for managing strategic alignment and execution, based on the following principles: strategy balances contradictory forces and is based on differentiated customer value proposition. Value is created through internal business processes, shaped
by the customer value proposition. Strategy consists of simultaneous complementary themes of business processes. Strategic alignment determines the value of intangible assets, such as human, organizational, and information capitals.

“Organizations are social communities in which individual and social expertise is transformed into economically useful products and services by the application of a set of higher-order organizing principles” (Kogut & Zander, 1992). “The primary role of the firm is in the application of existing knowledge to the production of goods and services” (Grant, 1996a, p. 112).

Business ethics can be studied via stakeholder theory, which is a theory of organizational management and ethics. In an IT strategy context, a stakeholder theory approach will describe the relationship as a nexus of cooperative and competitive interests possessing intrinsic value. IT strategy should ensure the design and use of information technology to be transparent and open to ongoing scrutiny by stakeholders such that the values of ethics are upheld, always. This is assured through diligent application of IT governance.

Competitive business strategy formulation requires competitive strategic analysis. Eight popular methods of strategy analysis are available: SWOT analysis, X-model, business direction, market strategy, competitive forces, product portfolio analysis, environmental analysis, and knowledge analysis. From analysis of each method, a strategic change can be determined and the corresponding IT system can be identified.

Internet technology will enable the reconfiguration of existing industries that had been constrained by high costs for communicating, gathering information, or accomplishing transactions. Internet-driven business strategy, known as e-strategy, has created successful new-generation companies such as e-Bay, Google, Amazon, Yahoo. Differentiation is more sustainable than cost leadership strategy for e-business firms. In particular, an e-strategy will be able to achieve superior, sustainable performance through an “integrated strategy” discipline, which strives to achieve both cost leadership and differentiation strategic positioning (Kim, et al., 2004). E-strategy is developed through gaining insights on ten fundamental properties of Internet (Afuah & Tucci, 2003). In-depth understanding of Internet capabilities in reshaping business models will give IT managers the ability to influence business strategy to take advantage of, and incorporate, Internet into the business and IT strategies to keep firms competitive, adaptive and responsive to changing market and external environments.

Services are knowledge intensive and service innovation is knowledge driven. Service value is dependent on the service provider’s unique capabilities to solve the customer’s problem. Organizational capabilities and core competencies of a service firm are built on organizational knowledge and knowledge workers (Choi & Jong, 2010). Knowledge organizations are complex adaptive systems composed of a large number of self-organizing components that seek to maximize their own goals but operate according to rules in the context of relationships with other components (Bennet & Bennet, 2005a).

Knowledge is the primary driver of a firm’s value. In the knowledge organization, current practices emphasize using the ideas and capabilities of employees to improve decision-making and organizational effectiveness (Bennet & Bennet, 2005b). In knowledge organizations, transformational and charismatic leadership is an influential mode of leadership that is associated with high levels of individual and organizational performance (Kark & Dijk, 2007). Uretsky (2001) argues that the real knowledge organization is the learning organization—one that changes as a result of its experiences. Under the best of circumstances, these changes result in performance improvements. Future knowledge organizations will be characterized by organizational intelligence. Organizational intelligence is the ability of an organization to perceive, interpret, and respond to its environment in a manner that meets its goals while
satisfying multiple stakeholders (Bennet & Bennet, 2005b). According to Bennet and Bennet (2005a), designing the knowledge organization of the future implies development of an intelligent complex adaptive system. Within knowledge organizations, we often find communities of practice. Brown and Duguid (2001) argue that for a variety of reasons, communities of practice seem a useful organizational subset for examining organizational knowledge as well as identity. Firm needs to devise mechanisms via common vision and shared goals to link disparate communities of practice within the organization to achieve collective coherence in the new organizational knowledge being created. Brown and Duguid (1998, p. 103) propose three “boundary spanning” social strategies termed “translation,” “brokering,” and “boundary objects” for promoting the spread of knowledge between communities.

Knowledge organizations maturity tends to evolve in four stages: 1) Activity Organization: Tasks are performed and completed in workflows according to specifications, rules, and regulations; 2) Problem Organization: Each new assignment is perceived more as a problem to be solved than as a task to be completed. Problems are interpreted and solved by application of relevant knowledge; 3) Value Organization: Value creation logic determines priorities and resource allocation; 4) Learning Organization: Continuous improvements are to be achieved based on experience. Change in resources, activities and approaches occur in the organization on a continuous basis. At Stage 4, knowledge organizations would incorporate the notion of “distributed organizing” extending the enterprise to link up with external organizations or, indeed, customers sharing common goals, purposes, or interests to form a virtual organization, virtual communities, or virtual alliances. The central focus of these virtual organizations is about “community engagement” to co-create value for the communities themselves and for the firm that sponsors the communities or alliances (Porter, et al., 2011). An organizational culture of sharing, transparency, and contribution is stimulated. Corporate entrepreneurship is crucial in the acquisition of dynamic organizational capabilities (Zahra, et al., 1999). Scholars have identified entrepreneurship as the core process by which companies have attempted to redefine, renew, and remake themselves.

According to Prahalad and Hamel (1990), core competencies are the collective learning in the organization, especially how to coordinate diverse service skills and integrate multiple streams of technologies. Competencies are the glue that binds existing business and coordinate service innovation. They are also the engines for new business development. Harreld et al. (2007) suggest that capabilities build on the notion of competencies but focuses on the role of management in building and adapting these competencies to address rapidly changing environments. Dynamic capabilities help enterprises to identify opportunities and mobilize competencies by reallocating resources. The ability to adapt and extend existing competencies is a key characteristic of dynamic capabilities. A capability is defined as dynamic if, in a rapidly changing environment, it enables the firm to modify itself so as to continue to produce, efficiently and/or effectively, market offerings for some market segments (Madhavaram & Hunt, 2008).

Knowledge resources, core competences, and dynamic capabilities are key drivers of service innovation in firms. Based on such drivers, a variety of modes of innovation emerge in knowledge-intensive business services. For example, Corrocher et al. (2009) identified the interactive innovation mode, the techno-organizational mode, the conservative mode, and the product innovation mode for knowledge-intensive business services. Knowledge production is increasingly directed at business services. The emphasis is laid in the role of business services in innovative networks as carriers of knowledge and intermediates between science (knowledge creator) and their customers (knowledge users).

All businesses are service business (Lusch, Vargo, & O’Brien, 2007). In the early days of service marketing, the service-based view of firm treats services (such as a life insurance) as intangible goods as distinct from tangible products (such as an automobile). These services are modeled as subordinate
to products and exhibit the so-called IHIP (Intangibility, Heterogeneity, Inseparability, and Perishability) characteristics of services (Lovelock & Gummesson, 2004). This modeling construct is known as a goods-dominant logic of services, which treats services as a unit of production output. However, many distinguished service scholars (such as Vargo & Lusch, 2004; Lovelock & Gummesson, 2004; Edvardsson, Gustafsson, & Roos, 2005) have since refuted the distinguishing IHIP characteristics of service as myths, which are not generally applicable to all services. Indeed, they claim some products (e.g. mi-Addidas running shoes) resemble such characteristics better than some other services (e.g. life insurance). Instead, they argue a more consistent theory and principles of service could be developed by viewing service from a process orientation. The process-oriented view of service is inherently customer-centered and relational (Gallouj, 2002; Gaffrey & Gallouj, 2002). A distinguishing feature of a process-based service view is the participation of the customer in the co-production of service offerings (frequent) as well as the co-creation of value (always) which must be addressed by the fundamental service principles. Sampson (2010) proposes the Unified Service Theory (UST) to distinguish a service process, in which the customer is a supplier of resources to and intimately involved in the service production to co-create value.

Vargo and Lusch (2004, 2008a) define service “as the application of specialized competences (operant resources—knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself.” An early known example of this phenomenon is the “user toolkits for innovation” in semiconductor manufacturing (von Hippel, 2001). The toolkit allows the user to iteratively design the solutions (based on the manufacturer’s competences embedded in the toolkits) until a match to the user’s need (problem) is found and thus value co-created. The application of operant resources forms the foundation of the so-called “Service-Dominant Logic” (S-DL). Vargo, Lusch, and O’Brien (2007) stipulate the S-DL is “based on an understanding of the interwoven fabric of individuals and organizations, brought together into networks and societies, specializing in and exchanging the application of their competences for the applied competences they need for their own well being.” In such networked societies, the S-DL postulates service (the application of operant resources) is exchanged for service between the collaborating service systems to improve their respective adaptability and survivability in the dynamically changing environment. Lusch, Vargo, and O’Brien (2007) argue that service business is about understanding, internalizing, and acting on this logic better rather than the competition.

Service business can be viewed as a service system. A service system could be a customer, provider, employee, or partner in an adaptive value network within which the focal firm partakes in value co-creation. Specifically, a service system is a complex adaptive system of people, and technologies working together to create value for its constituents (Spohrer, et al., 2007). In this context, goods then are simply appliances (in which the specialized competences of the provider are embedded) as a distribution channel for service provision for mutual benefit (Vargo & Lusch, 2004, 2008a), and information symmetry is governed reciprocally between participating service systems as equal partners in an open and transparent manner (Vargo, Lusch, & Akaka, 2010). Service systems are interconnected by their value propositions (Maglio & Spohrer, 2008); and they engage in knowledge-based interactions to co-create value (Vargo, et al., 2008). Service interactions between service systems are established by each service system making a proposal (of value co-creation), agreeing to a proposal, and finally realizing the proposal in collaboration with the proposing service system (Maglio, et al., 2009). However, the value co-created is ultimately derived and determined in use by the beneficiary. This involves the application and integration of (operant) resources by the beneficiary in the specific context of the problem being solved by the service interaction (Vargo, et al., 2008). Edvardsson et al. (2011) suggest that “a well-conceived service
system based on SDL is one that is able to dynamically reconfigure its resources to empower the user to co-create value…[which] can deliver a favorable and memorable customer experience” (p. 554).

Lusch, Vargo, and Tanniru (2009) envision the firm as an essential service provisioning agent in a complex and adaptive value network. Such a network requires agility and adaptability for the survival and growth of organizations that are part of the value network. The social and economic actors of a value network are held together by the trinity of competences, relationships, and information (Lusch, Vargo, & Tanniru, 2009). The relationships are collaborative and guided by non-coercive governance; so customers and suppliers become partners, and competitors become collaborators as well (Chesbrough & Davies, 2010), each operating as an open system (Maglio, et al., 2009). Firms must practice open innovation (Chesbrough, 2003) and develop systems integration capability (Chesbrough & Davies, 2010) to integrate the requisite competences and resources from external sources with their own to co-create value, e.g. Apple’s creation of the iPod/iTune music service.

From a service implementation perspective, a service concept is pivotal for a service firm. A service concept describes what the service is and how it satisfies customer needs. It is a most critical component of service strategy, which reflects the overlap (alignment) of customer needs (job and outcome opportunities) and company capabilities (Bettencourt, 2010, p. 215). Service concept is the principal driver of service design decisions at all levels of planning and implementation, and it also forms the fundamental part of service innovation (Fynes & Lally, 2008). Service concept relates to service architecture or service blueprint which guides service design create differentiating customer experience, and to service governance process which defines the decision rights and the process for decision making on service design, planning, and implementation (Goldstein, et al., 2002).

Service design starts from the customer/user (i.e. outside-in) and uses human-centered and user-participatory methods to model how the service will be performed (Holmlid & Evenson, 2008). Service design must address strategic service issues such as marketing positioning and the preferred type of customer relationship, within the strategic intent of the service organization. Service governance is also required to monitor the service qualities and financial performance against the design outputs.

The service encounter design—addressing the “critical moments of truth”—is a critical element of service design (Bittner, et al., 2000). The design must focus on maximizing the quality of “service experience” by the customer. This means the “back stage” information and processes and the “front stage” customer handling must both work seamlessly in unison in satisfying the customer request (Glushko & Tabas, 2009). Zomerdijk and Voss (2010) posit that customer experience is attributed to any sensation or knowledge acquired from interaction with the elements of a context created by a service provider. The delivery of experience-centric services requires the systematic management and design of customer experiences through the careful planning of tangible and intangible service elements in the service delivery system (Pullman & Gross, 2004).

Service quality measured by “the difference between the level or nature of service that the customer expected and the level or nature that the customer perceives” is a critical service implementation factor (Zeithaml, et al., 1998). Glushko and Tabas (2009) observe that service quality is influenced by the service intensity, which is defined in terms of the number of actions initiated by the service provider or the duration of the service encounter.

Service architecture and modularity are regarded to be an important method to promote systematic service design and innovation. Voss and Hsuan (2009) posit that there are three properties of service architecture that can contribute to the service firm’s competitiveness: 1) possession of inimitable unique
service modules or elements, 2) replicability of these unique modules across multiple services or multiple sites, 3) possession of a degree of modularity which in turn supports both customization and rapid new product/service development. Service architecture is designed to facilitate service agility, which is capable of change dynamically in response to external stimuli.

A successful service strategy links what the customer will value with what the company can deliver. This means aligning the service concept (what it would take to deliver on the customer need opportunities) with firm’s capabilities, resources, culture and strategy. Successful service strategy can be developed in four steps (Bettencourt, 2010, pp. 15-25): 1) Select the innovation focus; 2) Uncover customer needs in terms of jobs to get done and outcomes expected (not service features or ideas); 3) Prioritize customer needs; 4) Develop a service strategy using the high opportunity customer needs.

Section 2: How to Manage Strategic Business-IT Alignment, Program Portfolio Planning, and Execution to Deliver on the Service Customer Value Propositions

Alignment between business strategy and IT strategy is widely believed to improve business performance (Sabherwal & Chan, 2001). Therefore, strategic alignment is both a top management concern and also an important attribute of effective CIOs. Business-IT alignment is optimal when IT strategy is integrated with and forms part of business strategy (Cassidy, 2006). Elemental IT strategy comprises the business strategic direction and strategy outline, the enterprise architecture and attendant applications and technology infrastructure platforms, the requisite resources and capabilities (competence), and the organization model and management control (governance). Strategic management must be cognizant of the tightly coupled inter-relationship between activity (process), technology, organization (structure) and people, which must be managed holistically to ensure strategic fit.

Customer value creation is the outcome of strategy execution—the realization of the firm’s unique customer value proposition espoused by the business strategy to differentiate from the competition (Kaplan & Norton, 2004). IT managers need to recognize several critical conditions or factors for strategic alignment success, namely: shared method for business and IT strategic planning, process for stakeholder participation (shared domain knowledge between business and IT), and program management implementation to deliver stated benefits, top management involvement and support, business direction, business before technology, and communication and coordination (Earl, 1993; Reich, et al., 2000).

Strategic alignment has two dimensions: strategic fit of internal intangible assets with externally customer-focused strategy and functional integration between business and IT domains (Henderson & Venkatraman, 1993). Strategic alignment is a process of continuous adaptation due to changing external market and technology environments. A non-linear adaptation using complex theory model is necessary to account for the co-evolution (Benbya & McKelvery, 2006). Luftman et al. (2011) argue that the question of strategic alignment is less being about “aligned versus misaligned” but more being about “leveraging the opportunities for enhancing the relationship among IT and business organizations to attain demonstrable success” (p. 205).

From a service firm’s perspective, the Melville et al. (2004) integrative IT business value model could be enhanced by extending the reach of the firm’s IT to the customer. This allows the firm’s IT and competencies to be used by the customer to “do” the requisite “job” in the context of his/her business or personal welfare to co-create value (Gallouj & Weinstein, 1997; de Vries, 2006). IT strategic alignment with a cost-reduction strategy is more able to deliver immediate tangible benefits to firms than a
revenue-growth strategy; and profitability is shown to be higher when both business and IT strategies are rated high (Oh & Pinsonneault, 2007). An organization’s strategic alignment maturity can be assessed by six criteria (Luftman, et al., 2004): communication, competency/value measurement, governance, partnership, scope and architecture, and skills. The model is useful for assessing strategic alignment in each of the abovementioned four phases of strategic management lifecycle.

Moreover, IT managers must analyze and understand how IT can add value to firms, organizationally. In a service business, it means the service delivery processes and the attendant front-office and back-office requirements derived from the service strategy will drive the firm’s IS/IT solution architecture designs. This include IS/IT solutions designed as part of service offerings to solve customers’ problems to co-create value with the customers. With the increasing need for customer participation in co-production of service offerings, the service firm will need to design creative ways of using IT such as the prevalent social media of Facebook, Twitter, etc. to connect customers to the firm’s new service development process. There are nine available methods for IT value-add analysis: Method 1: Benefits analysis; Method 2: Stages of IT organizational growth analysis; Method 3: Analysis of IT usage in management activities; Method 4: Analysis of IT in business processes; Method 5: Analysis of IT support for value configuration; Method 6: Analysis of IT value add via the King and Teo (1997) model of strategic integration; Method 7: Analysis of IT support for knowledge management; Method 8: Analysis of IT support in e-business maturity; and Method 9: Analysis of IT-enabled business transformation.

Service firms, such as for examples those in banking, finance, telecommunications, logistics and retail, are critically dependent on IT to achieve and maintain their competitive advantage. These firms tend to use IT as business enabler or strategic weapon, which focuses on core business processes and product/service development respectively (Weiss, Thorogood, & Clark, 2006, p. 680). All firms need managerial capabilities to develop and sustain continuous business-IT strategic and tactical alignments in highly dynamic and changing market environments (Tarafdar & Qrunfleh, 2009; Byrd, Lewis, & Bryan, 2006; Bhatt & Grover, 2005).

A successful IT strategy must align with the business, fully, from strategy setting, planning to detailed programs execution and delivery. The King and Teo (1997) Model of Strategic Integration and the Luftman et al. (2004) Strategic Alignment Model have been used in the end-to-end analysis. A fundamental principle common to all the critical success factors is “business and IT acting as one.” Each IT task must then be aligned with and justified by the business function it is designed to contribute, by which the business value is assessed. A basic requirement for success is that IT must be regarded as being part of the business, devoid of the “us” vs. “them” chasm (separating IT from the business) that is found in most traditional organizations where IT is viewed as a subservient role performing basically a “back office” function. Lu and Ramamurthy (2011) call the close business-IT partnership IT-business spanning capability (p. 936). This critical capability ensures “speedy, effective, and efficient translation of innovative responses [to changing business environments] that usually require radical changes to and reengineering of business processes and information systems” (p. 937).

Acting as one requires strong relationship and trust between business and IT, which depends on: (1) shared domain knowledge between business and IT executives, (2) IT implementation success to reinforce trust, (3) communication between business and IT executives, and (4) connections between business and IT planning processes including long-term agreement on IT priorities (Reich & Benbasat, 2000; Cohen & Toleman, 2006; Basselier & Benbasat, 2004). It will be aided by conducive informal structures based on relationships, trust, and culture (Huang & Hu, 2007). Above all, IT needs to institutionalize organizational learning to develop dynamic capabilities (Teece, 2007) to constantly renew its
core competencies to sustain business alignment in a rapidly changing environment (Bhatt & Grover, 2005; Chen, et al., 2008). Chew (2011) finds the emergence of a hierarchical framework of three value-creation types of CIO leadership practices. Type 1 value creation delivers operational excellence, which contributes to enterprise efficiency and productivity maximization. It is delivered by supply-side CIO leadership. Type 2 value creation delivers operational excellence and new business capabilities through innovations, which contribute to cost leadership and revenue growth. Type 3 value creation comprises type 2 value creation as above plus taking business accountability for a specific corporate value-creation role such as business operations or aspects of M&A activities or service innovation which deliver directly to the bottom or top line of the firm. Both types 2 and 3 are adept to leading ambidextrously—exploiting current IS and corporate capabilities and exploring or innovating possible future business capabilities through creative use of IT to maximize value creation. Type 3 in addition contributes directly to the firm’s agility by providing the requisite capabilities to reconfigure knowledge and process assets (such as business operations transformation or M&A activities as a result of business model innovation) in response to market changes (Chew, 2011).

This means the IT organization must, at a minimum, be at the Sequential Integration stage (2) of the King and Teo (1997) Model. At this level, IT strategy and resources support and align with the business strategy, and IT executive validates with the business executive to ensure the IT strategy aligns with and implements the business strategy. Business and IT act as one behaviorally and organizationally via IT governance. IT governance ensures IT is “doing the right thing”—ensuring strategic alignment, “doing the thing right”—ensuring architecture compliance “getting it done well and realizing the benefits”—ensuring program portfolio management compliance (ITGI, 2006). The business and IT strategic plans comprise four key deliverables: enterprise architecture, portfolio management and program plans, core competencies and sourcing strategy. Two critical disciplines for strategic program delivery are program portfolio management and program management. The former prioritizes and selects programs for implementation based on risk/return profiles and alignment with business strategy. The latter focuses on diligent, disciplined execution of the selected programs to budget and plan. Business benefits realization must be monitored against business (case) plan following completion of program implementation, using post implementation review process. With IT and business acting as one, IT strategy will be successful when business and IT alignment is validated in each of the four phases of end-to-end strategic management lifecycle, namely: Direction setting; Planning; Execution; and Outcomes. The critical organizational requirement of business and IT acting as one is founded on the rigor and discipline of IT governance.

The successful execution of IT strategy—both the implementation of the resulting strategic programs and the support and maintenance of the evolving enterprise IT environment—depends on IT strategic resources especially IT people. Tarafdar and Qrunfleh (2009) opine that tactical (or operational) alignment is required to ensure the planned applications are successfully implemented, maintained, and used, and that the implemented IT delivers the envisaged business benefits. Tactical alignment is about the execution of IT projects to deliver on the business capabilities espoused by business strategy—it is about “sensing day-to-day operational hot buttons and pitfalls and instituting appropriate mechanisms and processes to resolve disconnects in priorities, activities and understanding of IT and functional managers” (p. 348). Moreover, business performance and differentiation is determined by the firm’s ability to configure internal and external strategic resources and capabilities, including IT resources and capabilities. Embedding IT within areas of the firm’s core competency makes IT assets inimitable (Richardson & Lertwongsatien, 2005), as due to causal ambiguity, it is difficult for rivals to create similar bundles of complementary IT and organizational assets. Dynamic capabilities will assist these core competencies
in achieving evolutionary or external fitness with the changing external environment, in part by helping to shape the environment (Teece, 2007, p. 1321).

The concept of process alignment has been used by organizations to manage the fit between their processes and their institutional assets, which include their human resources, organizational structures and information systems, etc.—all working in harmony in pursuit of common enterprise goals, centered on customer value creation (Hung, 2006). Ray, Barney, and Muhana (2004) suggest that business processes are the mechanisms by which resources and capabilities are transformed to create the firm’s ultimate value and ability to generate competitive advantages. Strnadl (2006) defines a business process as a dynamically coordinated set of activities performed to deliver value to customers in line with the enterprise’s strategic goals. Smith (2003) posits that business process has three characteristics: state, capability, and design. Raghu and Vinze (2007) argue that “The challenge of managing knowledge in organizational context lies in effectively harnessing multiple knowledge sources into coherent business intelligence and embedding the intelligence into organization’s memory.” Armistead, Pritchard, and Machin (1999) argue BPM should be viewed from a strategic perspective and propose an Organizational Framework for BPM which comprises seven themes: (1) strategic choice and direction of the firm; (2) organizational design; (3) maximizing the market value chain; (4) performance management; (5) organizational co-ordination; (6) organizational learning and knowledge management; (7) organizational culture. BPM is about process alignment and people involvement both of which are positively associated with organizational performance (Hung, 2006).

Agility is about economies of scope (Mathiassen & Pries-Heje, 2006). IT supports enterprise agility by enhancing the “reach” and “richness” of a firm’s knowledge and its processes (Overby, et al., 2006). As enterprises improve their process management maturity over time, process policies, standards, and organizational structures become institutionalized (Hammer, 1996). The McCormack business process maturity model (McCormack, et al., 2009) assesses the following process components of the firm: process view, process jobs, process measurement and management systems, process structure, customer-focused process values and beliefs. A process-oriented firm is focused on customer value creation through managing end-to-end business processes effectively across many disparate business units, and it applies BPM comprehensively as a business discipline (Kohlbacher, 2010). From Cash, Earl, and Morrison’s (2008) point of view, the firm’s organizational fitness is about organizational integration which makes the multiple units, functions, and sites of large organizations work together to increase capacity, improve performance, lower cost structure, and discover opportunities for improvement which only become visible when the firm addresses end-to-end process integration across disparate functions centered on the goal of customer value creation.

Business model is a system of interdependent activities (processes) that transcends the focal firm and spans its boundaries (Zott & Amit, 2010). The chosen business model is a reflection of the firm’s strategy and represents the logic of the firm, the way it operates, and how it creates value for its stakeholders (Casadesus-Masanell & Ricart, 2010). The logic of the firm or its activity system—a structural construct—is constructed in terms of business processes but focused on the firm’s transactions with external partners (including customers). The firm’s core processes, however, are principally focused on the firm’s internal operations but with streamlined links to external partners’ internal business processes (to form the firm’s value network) guided by the firm’s business model activity system. BPM needs to manage the firm’s processes in the context of its role in the overall value network (defined by the activity system at a higher level). Bask, Timila, and Rajahonka (2010) argue that a business model is positioned between business strategy and business processes. Business model design is an iterative,
discovery process with continuous model refinement through customer feedback from live interactions (Chesbrough, 2010).

Normann and Ramirez (1993) posit that “successful companies conceive of its strategy as systematic social innovation: the continuous design and redesign of complex business systems.” Lusch et al. (2009) argue that “the social and economic actors of a value network are held together by the trinity of competences (used to offer and provide service), relationships (with customers and suppliers), and information (shared via common standards and protocols)—the most valuable firm resources.” Dynamic capability is a meta-competence (with sensing, seizing, and transforming capabilities) which sustains the firm’s evolutionary fitness. Dynamic capability transcends operational competences, which help sustain technical fitness (Teece, 2007).

Armistead, Pritchard, and Machin (1999) argue the strategic view of business process management includes the strategic choice of business process architecture for operational effectiveness. Smart et al. (2008) proposes process architecture represents the organization from a business process perspective, because processes are the conceptual notation of what organizations do. Strnadl (2006) proposes the business process architecture “defines a complete, dynamically coordinated set of collaborative and transactional activities that (1) delivers value to customers or (2) fulfils other strategic goals of the enterprise.” Strnadl (2006) proposes a process-driven enterprise architecture for ensuring IT alignment with the business. According to Ross, Weill, and Robertson’s (2006) the first step towards defining enterprise architecture is for the executive management team to define and agree on what is the firm’s operating model. Ross, Weill, and Robertson’s (2006) define an operating model as “the necessary level of business process integration and standardization for delivering goods and services to customers.” According to Ross, Weill, and Robertson (2006), an operating model has two dimensions: business process standardization and integration.

What are the practical guidelines for business-strategy-aligned enterprise architecture implementation? Architecture gap analysis is used to determine the requisite portfolio of business programs (and attendant information systems) and the associated roadmap for realizing the business strategy. From a real-life EA implementation experience, Richardson and Jackson (1990) find that: “(1) principles-based architecture is a long term process, not a single event; (2) being consistent throughout the EA is more important than individual groups searching for local solutions; and (3) time must be spent building consensus among technical staff and communicating derived principles throughout the organization.” Gregor et al. (2007) find that it is the combination of the social and intellectual dimensions of strategic alignment, not by a formal EA alone, that will ensure strategic alignment. Lindstrom et al. (2006) argue that “the CIO role is the primary stakeholder of Enterprise Architecture, so his/her need for decision support should guide Enterprise Architecture research and framework development.” According to Rico (2006), “The goal of EA is to improve the operational efficiency and effectiveness of organizations by aligning their strategies with their IT. Return on Investment (ROI) is an excellent way to measure EA’s success or failure.”

Strategic planning and program implementation can be performed systematically and diligently via the Cassidy (2006) model or Spewak (1992) model, amongst several others. The Cassidy (2006) Model for strategic planning starts with identifying the future target and current states of the enterprise, assessing the IT gap between these two states, and determining the path (roadmap) or IT strategic (program) plan to get from the current state to the future target state. It comprises four phases, which start from business vision and ends with recommendations for the IT strategic program plan or roadmap for realizing the business vision. An alternative, advanced, strategic planning practice is via enterprise architecture. The business and systems (architecture) gap needs to be decomposed into logical work packages for staged
implementation as part of strategy execution (Spewak, 1992). Execution is the most critical part of strategic management—only by diligent and disciplined execution will the value of strategy be materialized. The architecture gap analysis offers systemic and integrative assessment of the business—business operating model, value configuration, core business processes, domain by domain from customer front-end to back-end supply chain and partners network, together with systems architectural changes—required to realize the business strategy. Gap analysis is performed on every viewpoint of the enterprise architecture. The scope and extent of architecture change required constitutes the overall scope of the strategic programs that need to be defined and developed to deliver the objectives of the business strategy. These programs will be prioritized by IT governance using IT portfolio management principles. Their implementations in time sequence will define the migration path of the current enterprise architecture towards the target future state architecture. The critical success factors for enterprise architecture and strategic planning are: executive management commitment and strong project leadership skills (Spewak, 1992).

A key benefit of architecture approach is that the architecture solution design for each strategic program will be guided by the enterprise architecture principles and architecture direction. This is what the IT Governance Institute calls “doing the thing right” governance (ITGI, 2006).

The architecture-driven strategic plan will guide which projects to select, which to continue and which to decommission. Selection implies judicious resource allocation including technology assets, business processes, human resources and competencies, and potentially customer and partner resources. Program/project selection requires financial investment, thus judicious consideration of risk/return and cost of each IT program/project proposal. The process for selecting the “right” IT projects to invest in is called IT Portfolio Management (ITPM). It unites business and IT executives to work together to make the “right” strategic decision. Thus, ITPM provides a sound business communication tool for business and IT executives to jointly manage the execution of the mutually aligned business and IT strategies. It focuses on more on value maximization and cost optimization, rather than solely on cost reduction (Luftman, et al., 2004; Cameron, 2006; Weill & Aral, 2006; Jeffery & Leliveld, 2004). IT portfolio is a categorized set of assets (the outputs) and investments (the inputs). A three-category approach is commonly used: operate the business, grow the business, and transform the business (Cameron, 2006). Another well-known approach categorizes IT investment portfolio into four classes (Weill & Aral, 2006): Infrastructure asset provides shared services to be used by multiple applications to allow for future business growth as well as cost reduction through standardization, rationalization and consolidation. Transactional asset is for efficiency improvement and cost reduction through automation of repetitive business processes. Informational asset is for business intelligence, accounting, reporting, strategic decision support, compliance, and communication. Strategic asset is for developing new products and services or business processes to enter new markets and gain strategic competitive advantage. Typical IT portfolio mix ranges for an average firm are: operate-the-business (50-80%), grow-the-business (10-35%), transform-the-business (0-25%) (Cameron, 2006). Alternatively, the average portfolio mix could be: 46% infrastructure, 26% transactional, 17% informational, and 11% on strategic applications (Weill & Aral, 2006).

Despite the critical importance of ITPM to business value creation, Jeffery and Leliveld (2004) found the ITPM performance of companies surveyed had been rather patchy due to the CIOs’ different levels of ITPM practice maturity. Some of the barriers to ITPM success are the same as poor strategic alignment skills, such as difficulty of quantifying business value, poor communication between IT and business, IT staff’s lack of business skills and business executives’ lack of understanding of and low respect for IT. A sensible solution to the barriers could be staged implementation with a clear roadmap for capability upgrade, supported by extensive training and education programs. Most importantly, IT organiza-
tions should involve (engage) and inform business people continuously, from the beginning (Jeffery & Leliveld, 2004). To maximize IT value, firm needs to define, under IT governance, its target future IT portfolio mix; to understand its IT asset class performance and benchmarks; to re-weigh and balance, transparently, the portfolio for strategic alignment and risk-return profile; to incorporate the IT portfolio approach into the IT governance framework; and to learn from post-implementation reviews and formal training (Weill & Aral, 2006). ITPM is an advanced management practice, typically taken by firms with higher maturity in IT management practice. We recommend its adoption by firms to maximize business return on IT investments. To put IT portfolio management into practice firms require three key components: ITPM framework and standardized process; tools for “what-if” analysis of IT project portfolio; and a common business taxonomy for communication and governance1 (Maizlish & Handler, 2005).

Smit and Trigeorgis’ (2006) view strategic planning as a process, which actively develops and manages portfolios of corporate real options in the context of competitive interactions. Firms need to strike a fine balance of how much to invest in projects with short-term profitability vs. projects with long-term growth potential or strategic significance to ensure the long-term viability and success of the firm – a practice known as Product Portfolio Planning or Management. The portfolio planning framework must account for the increased dynamics and volatility of today’s business environment so as to build in a degree of flexibility and adaptability in strategic planning. The Smit and Trigeorgis (2006) options portfolio valuation framework is “able to capture the value of the adaptive resources and capabilities that enable a firm to adapt and re-deploy assets, develop and exploit synergies, and gain competitive advantage via time-to-market and first- or second-mover advantages.” To be used by product-service portfolio planning, Lee and Park (2008) propose an integrated product-service technology roadmap which helps experts of products and services to have a common vision, and saves time and money by avoiding many conflicts and modifications that could appear during a sequential design process. Their integrated roadmap and its underlying process together provide the right direction for the development of successful product-service offerings and long-term strategic planning.

The strategic alignment case studies by Huang and Hu (2007) and Chew and Gottschalk (2009) have clearly demonstrated the power of Norton and Kaplan’s (2004) strategy maps methodology in both the formulation and diligent execution of business and IT strategies with a special focus on the stipulated (embedded in the methodology) processes, both formal (structured) and informal (unstructured), for managing the mutual interdependencies and alignment between business and IT—both strategically and operationally. Both case study companies have achieved sustained business-IT alignment because strategic alignment as an organizational capability has become embedded in the company cultures—“it is a way of making a living.”

Stucky et al. (2011) has shown that the proposed descriptive model of service systems, derived from the Spohrer et al. (2007) conceptualization of service systems, is capable of modelling the emergent (often social in nature) factors affecting the client’s value-in-use, arisen from the dynamic value co-creation interactions between provider and client service system entities. The resultant service system modelling allows both positive and negative emergent variations in value-in-use to be explicitly co-managed by both entities proactively to ensure the client-perceived “value-in-use” will be aligned with the value propositions contractually agreed by the two service system entities.
Section 3: How to Lead, Govern, and Source IT to Maximize Service Customer Value Creation

From the resource-based view, the firm’s IT resources can be divided into three assets: human assets, technology assets, and relationship assets, which together with processes contribute to business value. This categorization was later modified to include IT infrastructure, human IT resources, and IT-enabled intangibles. IT resources of the firm can also be sorted into three types of processes: inside-out, outside-in, and spanning (Wade & Hulland, 2004). Inside-out resources are deployed from inside the firm in response to market requirements and opportunities, and tend to be internally focused. Outside-in resources are externally oriented, placing an emphasis on anticipated market requirements, creating durable customer relationships, and understanding competitors. In addition, spanning resources are needed to integrate the firm’s inside-out and outside-in resources. Thus, IT capability is a strategic resource as it enhances both the firm’s market capitalizing agility and operational adjustment agility (Lu & Ramamurthy, 2011).

There are many definitions for IT outsourcing. A representative one is by Levina and Ross (2003): “Outsourcing is a phenomenon in which a user organization (client) transfers property or decision rights over [all or parts of] information technology infrastructure to an external (vendor) organization.”

Arguments in favor of outsourcing can be broken down to five areas: concentration on core business development by firms, cost control, access to state of the art technology, market discipline through greater transparency, and added flexibility to respond to demand changes (Clott, 2004). The motivations for outsourcing are evolving from a primary focus on cost reduction to an emerging emphasis on improving business performance and innovation (or commercial exploitation outsourced resources). Against these benefits are seven “deadly sins” (risks) of outsourcing (Barthélemy, 2003b): 1) Outsourcing activities that should not be outsourced; 2) Selecting the wrong vendor; 3) Writing a poor contract; 4) Overlooking personnel issues; 5) Losing control over the outsourced activity; 6) Overlooking hidden costs of outsourcing; 7) Failing to plan an exit strategy. In addition, Earl (1996) cautions against the following eleven risks of outsourcing: Possibility of weak management; Inexperienced staff; Business uncertainty; Outdated technology skills; Endemic uncertainty; Hidden costs; Lack of organizational learning; Loss of innovative capacity; Dangers of an external triangle; Technological indivisibility; and Fuzzy focus. To this list of risks, Bahli and Rivard (2003) add four more: Lock-in; Costly contractual amendments; Unexpected transition and management costs; Disputes and litigation.

Strategic sourcing has the following six characteristics (Else, 2002): a) Systematic, ongoing effort to align individual sources and the portfolio of sources with broad high-level corporate strategy; b) Choosing and managing a set of specific sources in ways that advances one or more of strategic goals; c) Continuous business process—not a tactical procurement exercise—intended to dynamically map business requirements to service delivery options; d) Methodology to deploy technology strategy and the means, by which a business strategy is optimized; e) Highly multi-sourced environments will be the norm; f) Enterprises must develop new roles, processes, and governance structures to effectively manage the sourcing spectrum. Above all the leadership capability of the IT leader is the key to outsourcing success.

Strategic alignment of IT resources is achieved through CIO aligning IT strategy and the requisite resources to (particularly the core competencies of) business strategy. CIO and IT become enablers of
corporate and business strategies when IT resources become a corporate strategic resource. Attainment and sustenance of this status requires ongoing proactive business engagement supported by disciplined application of Human Resource Management best practice.

IT sourcing is concerned with judicious deployment of internal and external IT resources to fulfill business objectives. IT managers must analyze the sourcing opportunities (Lacity & Willcocks, 1998) and threats (Barthelemy, 2003b) from the ways in which the IT functions are organized (Agarwal & Sambamurthy, 2002) and define up-front the desirable performance objectives (Domberger, et al., 2000). Sourcing strategy is produced as a result of analysis of business strategy (and, where available, past experience) and attendant requirements for strategic resources. Sourcing strategy serves as the logic underlying the firm’s outsourcing decisions—such as degree of integration (selective or comprehensive outsourcing), allocation of control (fees for service or partnership), or contract performance periods. Outsourcing success can be measured by: strategic competence, cost efficiency, and technology catalysis (Lee, et al., 2004). Empirical evidence shows that carefully crafted IT sourcing strategies result in more successful IT outsourcing and increase the overall performance of the firm (Barthélemy, 2003a). Outsourcing success can be measured from business and user perspective (Lee & Kim, 1999). The former is motivated by the promise of strategic, economic, and technological benefits, while the latter is by the quality of offered services.

Cloud-based services are offering on-demand “outsourced” services, which enable firms to create their own firm-specific value network (Ojala & Tyrvainen, 2011). Increasingly, firms will be creating “virtual enterprise”—a business-level strategy that allows firms to gain and maintain a competitive advantage (Cao & Hoffman, 2010)—using cloud-based value networks.

Underpinning the move toward outsourcing has been a confluence of structural and theoretical changes in the nature of business and organizations dating back approximately two decades. Theorists have suggested that the changing nature of competition has resulted from two factors: (a) globalization of commerce engendering worldwide competition, and (b) technology developments that have changed basic business processes related to time and distance. Globalization and technology have placed enormous pressure on firms to cut costs and improve efficiency in the interests of self-preservation (Clott, 2004).

Kaiser and Hawk (2004) argue that there is currently an evolution of offshore software development from outsourcing to cosourcing. Five recommendations are obtained, from the experience of a financial institution on structuring offshore outsourcing relationships: (1) understand where cosourcing is applicable, (2) define and develop the appropriate in-house IT competencies, (3) build trust but avoid building a binding relationship, (4) foster mutual understanding of ethnic and corporate cultures, and (5) map out a progression to cosourcing.

More and more firms are adopting a new practice known as transformational outsourcing to facilitate rapid organizational change, launch new strategies and to reshape company boundaries—a form of business model innovation (Linder & Cantrell, 2000). While this requires senior executive leadership, dramatic organizational performance improvements have been reported by many firms. To succeed, firms need to manage effectively both contractual and relationship aspects of outsourcing in the context of the nature of the innovation sought from the outsourcer, i.e. whether incremental or radical innovation (Oshri & Kotlarsky, 2011).

Driven by ever-increasing cost pressures, a new trend has emerged—firms are increasingly sourcing more complex and strategic IT projects to low cost offshore locations (Levina & Vaast, 2008). Thus, to facilitate offshore collaboration and offshoring success, Levina and Vaast (2008) recommend IT organizations “to grow IT personnel to be effective in their new ‘boundary-spanning’ roles and to support
individuals in such roles with proper authority and resources.” Vlaar, van Fenema, and Tiwari (2008) show that offshore outsourcing vendors can alleviate the potential collaboration problem by using a combination of onshore and offshore personnel to achieve common or mutual understandings of the client project mission among geographically dispersed workers. Cha, Pingry, and Thatcher (2008) find that knowledge transfer from the offshore vendor back to the domestic firm is a very critical factor for the long-term success of a complex IT offshoring such as software application development.

Hahn, Doh, and Bunyaratavej (2009) observe that with increased prevalence of IT and business process offshoring, and with increased cost pressures to compete, firms are increasingly accepting greater degrees of host country risk to offshore to such lower-cost (but lesser-known) countries. They surmise that, instead of focusing on the risks of offshoring, firms seem to be more concerned with “the risks of not offshoring, the loss of competitiveness that would entail!” Whitaker, Mithas, and Krishnan (2010) find that firms with experience in onshore IT outsourcing and capabilities related to IT coordination applications and process codification are more likely to engage in BPO, and firms with experience in internationalization are more likely to engage in offshore BPO. According to Bharadwaj, Saxena, and Halemane (2010), successful offshoring and outsourcing of business processes to low-cost destinations has made BPO a strategic decision. Hutzschenreuter, Lewin, and Dresel (2011) confirm empirically that firm-specific offshoring experience, together with publicly available knowledge on offshoring, path dependencies, cultural distances, and the chosen governance mode all influence the success of offshoring activities. On the other hand, Liu, Feils, and Scholnick (2011) find that (a) services that are more routine, less complex or less interactive are outsourced more to foreign countries; (b) services are outsourced more to countries with higher institutional quality and greater cultural proximity; (c) non-routine, complex, and interactive services are outsourced relatively more to countries with a better institutional quality.

To help firms assess what to outsource and how to succeed in an outsourcing arrangement, eleven theories concerned with outsourcing can be used (Gottschalk & Solli-Sæther, 2006). The theories are: core competencies, resource-based, transactional cost, contractual, neoclassical economic, partnership and alliance, relational exchange, and agency.

A preliminary service-dominant logic model of successful outsourcing is developed using the sourcing theories in conjunction with Weeks and Feeny’s (2008) framework for outsourcing. According to Weeks and Feeny (2008), IT outsourcing typically goes through a three-stage learning curve: stage 1 is the cost focus where the firm outsources its non-core IT function (business activity); stage 2 is the quality focus where the firm applies “fitness for purpose” outsourcing of underperforming business critical activities to get the “right” level of service quality; stage 3 is the innovation focus where the firm is leveraging the vendor’s capabilities to create new innovations for competitive advantage—it focuses on business innovation.

In developing sourcing strategies, IT managers can leverage from the experiences of several alternatives for sourcing strategies reported by Schniederjans et al. (2004), Lacity and Willcocks (2000), Lacity et al. (1996), Laudon and Laudon (2005), and Barthelemy and Geyer (2004), and from the case studies performed by Gottschalk and Solli-Sæther (2006).

Judicious resource allocation to strategic programs and initiatives is the key to successful strategy execution. A sound IT governance lead by a disciplined Chief Information Officer (CIO) is a necessary condition for successful IT strategy execution. IT governance defines the firm’s decision rights and accountability framework to encourage the desirable behaviors in the management and use of IT (Weill & Ross, 2004). Distinct from IT management, which focuses on effective management of IT operations to deliver quality IT services, IT governance focuses on performing and transforming IT to meet present
and future demands of the business and external customers (Grembergen, et al., 2004). IT governance includes enterprise architecture governance and IT portfolio management governance and outsourcing governance. Research has shown that IT governance has enabled top-performing firms to generate superior returns on their IT investments (Weill & Ross, 2004). Outsourcing governance model consists of four elements: contracts, principles, resources, and activities. Governance issues for each element evolve with outsourcing lifecycle, which comprises three stages: formation, operation, and outcome—for instance, contracts are concerned with transactions at the formation stage but evolve to relationships and partnerships at the outcome stage. The eleven outsourcing theories can also help both the client company and the outsource vendor analyze how to be successful in the relationship (Gottschalk & Solli-Sæther, 2006). We propose an integrated service organizational framework (Armistead, Pritchard, & Machin, 1999; Hung, 2006; Smart, Maddern, & Maull, 2009) for the design of a strategy-aligned service governance. The framework incorporates the service outsourcing governance model for governing the collaboration with focal firm’s service partners defined by its value network in value co-creation. Both IT governance and service governance demand strong executive leadership to ensure success Indeed, the impact of IT governance on enterprise adaptability is mediated by CIO’s leadership capabilities (Heart, et al., 2010). From IT governance standpoint, CIO plays an astute resource allocator and entrepreneurial roles (Useem & Harder, 2000). Both roles require strong understanding of business and competitive markets to excel. Strong leadership also renders governance process more efficient and effective. From outsourcing standpoint, CIO needs to be skilled in strategic thinking, deal making, partnership governing, and managing change (Usee & Harder, 2000). In hyper-competitive markets, the “new” CIO must excel in both business and technology capabilities, as well as being organizationally (some says politically) savvy. These capabilities allow the CIO to lead IT organizations towards high level of maturity in all core practices: business/IT strategic alignment, strategic integration, enterprise architecture, IT portfolio management, service management, knowledge management, and business innovation. When IT organization becomes a highly recognized key contributor to business success, CIO’s leadership standing will be such that business will be seeking his/her input for future growth strategy (Broadbent & Kitzis, 2005). The new CIOs will need to be adept to leading ambidextrously—exploiting current IS and corporate capabilities and exploring or innovating possible future business capabilities through creative use of IT to maximize value creation (Chew, 2011). They will need the leadership capabilities to leverage, expand, and transform organizational capabilities and above all pioneer innovative products/services or business models (IBM, 2011). Influencing, shaping business expectations, conceiving and implementing business model innovation may become the new CIO’s core focus. It may even pave the way for possible growth into becoming a future CEO!

Section 4: How to Innovate to Co-Create Unique Customer Value to Win the Service Game

Business innovation is an increasingly important discipline in which the CIO must become skillful. To contribute to company growth, CIOs must be skillful in product, service, and process innovation. To help transform the business, CIOs must be capable of conceiving business concept/model innovation (Hamel, 2000; IBM, 2006) through creative use of disruptive technologies. IT organizations must be capable of investing resources in a portfolio of incremental innovations (product and service improvement) for incremental revenue growth, and higher risk radical or disruptive innovations (business model transformation) for dramatic profit growth. IT organizations must grasp the characteristics and scale of
innovation. To become an innovator, IT must first win business trust and respect by becoming an excellent IT service provider with high quality and reliable service 7×24×365. Then, IT must improve its maturity to level 5 of IT-enabled transformation—business direction change (Venkatraman, 1994). At this level, IT must have simultaneously attained level 5 of strategic alignment process—optimized process (Luftman, et al., 2004), where strategic integration is norm (King & Teo, 1997), and level 4 of IT portfolio management—synchronized process (Jeffery & Leliveld, 2004). At this level, too, IT and the firm must possess all three information capabilities of information behaviors and values, information management practice, and information technology practice (Marchand, et al., 2001), and, more importantly, be able to concurrently manage their interactions. For example, at this level of maturity, firm’s knowledge workers will be proactive in sensing dynamic external market and technology environmental changes, and taking timely action on the new ‘intelligence’ to create an innovative response—be it a new product idea or strategy repositioning—which will strengthen the firm’s competitive position. IT will add value in three ways: provide the IT infrastructure to streamline the innovation process (with environmental sensors, collaborative and knowledge management tools, and customer feedback loop), provide the IT solution for new product idea, and create the innovative idea as a result of detection of emerging market or technology environmental changes. This is ultimate level of IT management excellence. Ubiquitous digital connectivity and globalization have driven firms to adopt open innovation (Chesbrough, 2003; Chesbrough & Garman, 2009) and business model innovation (Chesbrough, 2010) towards the new age of business innovation—a customer-centered, service-oriented innovation through value cocreation (Prahalad & Krishnan, 2008) in which each customer is engaged as an individual (IBM, 2012) and offered unique personalized experience. To prepare for the journey of business innovation excellence, IT organizations must understand the conditions for and drivers of innovation, and investigate the issues surrounding innovation process, infrastructure, and management measurement. An organization’s innovation capability is shaped by the leadership agenda (Barsh, et al., 2007). CIOs must lead by example, and actively create and sustain an innovative IT climate (Watts & Henderson, 2006) and the associated culture that encourages and promotes innovation across the whole IT organization.

The secret of service innovation is to know how customers define value and the types of their needs. There are four basic principles about customers: 1) they hire products and services to get a job done; 2) they hire solutions to accomplish distinct steps in getting an entire job done; 3) they use outcomes to evaluate success in getting a job done; 4) they have distinct needs that arise related to the “consumption” of a solution (Bettencourt, 2010). Service innovation can occur in one or more of four dimensions: new service concept, new client interface, new service delivery, and technology options (den Hertog, 2002). The mutual interrelationships of technologies and service innovation are complex and various such as substitution relation, identity relation, determination relation, diffusion relation, and production relation (Gallouj, 2002). Technology-based service innovations tend to start from automating the back-end processes—process innovation, then “digitalizing” the front-end process—radical process innovation, and finally, product innovation—new product and methods to deliver value (Fitzsimmons & Fitzsimmons, 2010, pp. 52-53). Knowledge Intensive Business Services (KIBS) are characterized by the ability to receive information from outside the company and to transform this information together with firm specific tacit knowledge into useful services for their customers—a service offering co-production and value co-creation process (Hipp, 1999; den Hertog, 2002).

There are three approaches to studying service innovation: 1) an assimilation or technologist approach—approximating services to manufacturing; 2) demarcation or service-oriented approach—treating service distinctively from manufacturing; 3) a synthesis or integrative—converging treatment of manu-
factured goods and services to one integrated model (Gallouj & Savona, 2009), which is congruent with service-dominant logic. Gallouj and Weinstein (1997) define an integrated model of service, which is represented as a system of (provider) competences (PCi), technical characteristics (PTi), and final output characteristics (Oi). For example, a bank client with competencies (CCi) interacting with a financial advisor (PCI) supported by technical system (PTi) to create a financial solution (Oi) is represented by: (CCi) ←→ {PCI ←→ PTi} ←→ (Oi). In the case of using self-service ATM: CCi ←→ PTi ←→ Oi (cash). Based on this formalization, six types of service innovation can be identified: radical, improvement, incremental, ad hoc, recombinative/architectural, and formalization. Windrum and Garcia-Goni (2008) extend the Gallouj-Weinstein model and propose a multi-agent framework for studying innovation in service industries, containing political actors, public/private service providers and consumers, and interest groups all of whom influence the evolution of innovations. Firm’s service innovation capability is positively influenced by its customer orientation and competitor orientation or market orientation capabilities embedded in the firm’s organizational culture (Grawe, et al., 2009; Jaw, et al., 2010).

Service innovation process or New Service Development (NSD) generally (Thomke, 2003; Engel, et al., 2006) consists of five phases: Create ideas; Evaluate and select ideas; Plan, design, develop and implement ideas; Commercialize the ideas; and Review the impacts. With the emergence of open innovation, the service innovation process would be represented as a “Service Value Web” with the customers being able to interact directly with the key cyclical innovation processes of the Web linked in a cyclically iterative manner (Chesbrough, 2011). Service firms compete through strategic positioning of its process structure per its strategic service vision—aimed at maximizing customer experience. The customer experience requirements of multi-interface design can be captured by the service blueprint method as described by Patricio et al. (2008). The multi-interface service design must unify service management, human computer interface, and software engineering perspectives into an integrated design embodying the customer experience requirements.

Innovative service firms have strong commitment to innovation from top management backed by well-structured innovation processes and governance together with the aligned culture and systems, and the attendant prioritized resources allocated to innovation efforts. Service innovation is technology-enabled but more human-centered and process-oriented. Therefore, the “envisioning, energizing, and enabling” capabilities, sound communication/coordination, and reducing intra-organizational conflicts and power struggle are fundamental and very critical for NSD to minimize organizational inertia/resistance (Nijssen, et al., 2006). Service firms need to possess excellent NSD competence (Menor & Roth, 2007) and manage NSD as emergent and organic models (Cunha & Gomes, 2003) with a market-oriented organizational culture (Jaw, Lo, & Lin, 2010).

Service engineering is a technical discipline concerned with the systematic development and design of services using suitable models, methods, and tools. It adopts a technical-methodological approach, using existing engineering-based know-how in the area of traditional product development to develop innovative services. A typical service is characterized by three different dimensions: a structure dimension, a process dimension and an outcome (or result) dimension (Bullinger, Fahnrich, & Meiren, 2003). A Product Service System (PSS) is a social construction of a combined (tangible) product and service solution, based on “attraction forces” (such as goals, expected results, and problem-solving criteria) which catalyze the value co-production of several partners (Morelli, 2006; Aurich, et al., 2010). Aurich et al. (2010) regard the Life Cycle Management (LCM) of Product-Service Systems (PSS) should focus on the design and realization of required user functionalities over the whole product life cycle (including end-of-life).
Service is always determined by the customer, new creative ideas must be developed from the customer’s outside-in view (Edvardsson, et al., 2007; Payne, et al., 2008). Successful firms are co-opting customer involvement in service and value co-creation (Prahalad & Ramaswamy, 2000). Lusch, Vargo, and O’Brien (2007) advise firms that want to compete through service to collaborate with customers and network partners to enhance knowledge, the fundamental source of competitive advantage. Companies that draw on the knowledge of their customer base can capitalize on customer competencies in the firms’ service innovation activities (Blazevic & Lievens, 2008). Business has to develop organizational models or systems where customer involvement and innovation is both persistent and inherent in the system (Oxton, 2008). Customer involvements shorten service development cycle time, and the best result was achieved when the customers worked in a service development team to help generate new service ideas (Alam, 2006). Manufacturer/provider-developed “user toolkits” is a highly effective platform for integrating provider’s and user’s competencies in co-production of user-defined manufacturing-service solution (von Hippel, 2001). With the advent of social media and cloud-based services, online Community-Based Innovation (CBI) virtual community has emerged as a strategic mechanism for firms to directly engage customers and other stakeholders in the firms’ service innovation processes (Fuller, et al., 2006; Porter, et al., 2010). Edvardsson et al. (2010) argue the customer must play a co-developer role in service innovation, in addition to their traditional role in service production. As a co-developer, the customer is able to “identify and translate current or more importantly latent customer needs (i.e. the job to be done).” Service offer co-creation with customer is directly linked to customization (Etgar, 2008; Moeller, 2008). The real value of customer involvement lies not in its (direct) commercial outcomes but in its potential to speed up the development process and to improve service’s technical quality (Carbonell, et al., 2009).

Customers can take on three different roles for knowledge coproduction in electronic services—passive user, active informer, and bidirectional creator—each with distinctive characteristics and distinct impacts on the three phases of innovation: detection, development, and deployment (Blazevic & Lievens, 2008). Dong, Evans, and Zou (2008) find that, when customers participate in co-created service recovery, they are more likely to report higher levels of role clarity, perceived value in future co-creation, satisfaction with the service experience, and intention to co-create in the future. Heiskanen et al. (2007) find that consumers are sometimes unexpectedly resistant toward radically innovative product/service concepts even when they understand the product/service concepts, because of the innovation’s instrumentalism, its impact on consumers’ autonomy, its organizational complexity, and systemic effects.

Two selected case study examples from the literature illustrate the interplay of knowledge, dynamic capabilities, and service innovation. Shang, Lin, and Wu’s (2009) case study of an automobile service firm shows how a firm aligns its dynamic capabilities and knowledge management approach toward service innovation. Blazevic and Lievens’ (2008) study of a leading global computer services company show “how companies may use electronic services, such as self-service technologies and virtual communities, systematically to coproduce knowledge with customers for different innovation tasks” (p. 139).

A firm’s innovation capabilities are underpinned by its knowledge and knowledge management capabilities—that is “ability to absorb and put to use new knowledge” (Adams, et al., 2006). Knowledge management contributes to value creation by enhancing: intellectual asset management, operational efficiency, customer and competitor intelligence, continuous improvement, organizational learning, product and service innovation and time to market (Metaxiotis & Psarras, 2006). The success of firms is not only based on the economics of the contracts it implements, but also on its heterogeneous stocks and flows of knowledge (Grover & Davenport, 2001). Companies having superior knowledge are able to coordinate and combine their traditional resources and capabilities in new and distinctive ways, providing
more value to their customers than can their competitors (Zack, 1999). Knowledge, especially context-specific, tacit knowledge embedded in complex organizational routines and developed from experience, tends to be unique and difficult to imitate (Zack, 1999). There are three categories of knowledge, with increasing level of sophistication: core (to stay in business), advanced (to remain competitively viable) and innovative (to lead entire industry) knowledge (Zack, 1999). This strategic knowledge framework helps firms conduct strategic knowledge gap analysis to define their business and knowledge strategies.

Knowledge management is a discipline focused on systematic and innovative methods, practices, and tools for managing the generation, acquisition, exchange, protection, distribution, and utilization of knowledge, intellectual capital, and intangible assets (Montana, 2000). There are three schools of knowledge management: the economic school, the organizational school, and the strategic school (Earl, 2001). The economic school has a focus of income, where the aim is to exploit knowledge assets (i.e. incremental innovation). The organizational school has a focus of networks, where the aim is knowledge pooling (e.g. Socialization, Externalization, Combination, Internalization SECI process). The strategic school has a focus of competitive advantage, where the aim is to identify, exploit, and explore knowledge capabilities (as the essence of the firm’s strategy). Firms may choose a combination of principles from these schools to guide their knowledge management strategies. Three variant strategies are identified for three different types of businesses: stock strategy for efficiency-driven business, flow strategy for experience-driven business, and growth strategy for expert-driven business (Hansen, 1999).

The emergence of value constellations in the modern business landscape is giving rise to a new Knowledge Management (KM) ecosystem of loosely interconnected Communities of Practice (CoPs) for which knowledge transfer (often spontaneous and unanticipated) may arise beyond organizational boundaries and control structures (Burkhard, et al., 2011). Firms need to “go beyond KM as we know it and engage in knowledge management sharing and transfer, working at a meta-level to integrate the customer as partner in their universe” (Burkhard, et al., 2011, p. 6). To succeed in managing differentiated exploratory and exploitative business units simultaneously (i.e. ambidextrously), firms need to establish informal social integration among senior team members and formal cross-functional interfaces (boundary spanners) at lower hierarchical levels of both units “to deepen knowledge flows across differentiated units yet retain the contradictory processes and time orientation within exploratory and exploitative units” (Jansen, et al., 2009, p. 808). Similarly, Revilla et al. (2010, p. 45) find that product (innovation) development efforts operating in dynamic complex and dynamic environments choose an ambidextrous knowledge strategy by pursuing both knowledge exploration and knowledge exploitation simultaneously. However, when the environment is mostly dynamic or mostly complex, the knowledge strategy will tend to be a punctuated equilibrium cycling through exploration or exploitation, respectively.

Donate and Canales (2012) find that a firm could outperform another by establishing a coherent and integrated Knowledge Strategy (KS) comprising the following dimensions: the knowledge strategy objectives pursued; the KM vision and broader KM concept adopted; the use of KM tools; and organizational culture, leadership, and Human Resources practices to support implementation of the strategy. The most innovative firms with superior product and process innovations and business performance have adopted proactive KS position with highest scores across all the above dimensions. Proactive KS confers firms with dynamic capabilities (Donate & Canales, 2012). So we would infer that ambidextrous KS adopted by the most innovative firms (Revilla, et al., 2010) is a proactive KS because ambidexterity is a dynamic capability (O’Reilly & Tushman, 2008).

A Chief Knowledge Officer (CKO) is often appointed to lead corporate-wide knowledge management initiative in the organization. The CKO role is an important one for both operational and symbolic
reasons (Grover & Davenport, 2001). CKO is responsible for knowledge-based innovations in the firm. CKO evangelizes the business value of knowledge management to get the whole organization embrace sound knowledge management practice both operationally and behaviorally. CKO leads the development and implementation the organization’s knowledge management strategy (to close the strategic knowledge gap) in line with business strategy. CKO needs to be an intrapreneur (Antoncic & Hisrich, 2001), skillful in knowledge design (Davenport & Prusak, 1998; Earl & Scott, 1999) and knowledge architecture (Applehans, et al., 1999).

Eleven distinct IT requirements of knowledge management emerge: interaction between information and knowledge; interaction between tacit and explicit knowledge; knowledge management strategy; combination of SECI process; explicit transfer of common knowledge; link knowledge to uses; treat knowledge as an intellectual asset in the economic school; treat knowledge as mutual resource in the organizational school; treat knowledge as a strategy in the strategy school; value configuration determines knowledge needs in primary activities; incentive alignment (Alavi & Leidner, 2001; Hansen, et al., 1999; Ba, et al., 2001).

The source of strategic advantage lies with the application of knowledge. IT can enhance the speed of knowledge integration and application by codifying and automating organizational routines. Workflow automation and rule-based expert systems are example applications. IT can also facilitate each of the four knowledge processes of creation, storage and retrieval, transfer and application (Alavi & Leidner, 2001). In short, IT can improve knowledge management to support business innovation for competitive advantage.

In conclusion, Baloh, Uthicke, and Moon (2008) show, through a Samsung case study, how business-aligned KM strategy can be successfully implemented as business process-oriented organizational change projects.

REFERENCES


ENDNOTES

1. IT portfolio management governance is a subset of IT governance. Maizlish and Handler (2005, Chapter 3) regard people and governance as the most important success factor of IT portfolio management best practice. They recommend (p. 91) adopting the CoBIT (Control Objectives for Information and Related Technology) framework for managing and controlling IT risks in line with business risks and objectives.