STIMULATING AND NURTURING PROFESSIONALISMS, CREATIVITY AND INNOVATION IN ORGANIZATION

Menara Simanjuntak[1]; Haryadi Sarjono[2]

[1,2] Management Department, Faculty of Economy and Business, Bina Nusantara University
Jln. KH Syahdan No. 9, Kemanggisan, Palmerah, Jakarta Barat 11480
haryadisarjono@yahoo.com

ABSTRACT

Knowledge management is an emerging discipline and professionalism, creativity, innovation, organization and teams need to be thought about in this new context. This paper creates a framework in which to discuss these concepts with literature research. It goes on to explore how our professionalisms, creativity and innovations is blocked in variety ways, including deep-seated beliefs about the world. The need for professional skills today in workplace faces a number of challenges, especially in unfamiliar and unpredictable situations. Finally this paper takes a brief look at two tools to support knowledge management, professionalisms, creativity and innovations - one in the human domain and the other in the technology domain. We are also needs to boost its capacity for continuous professionalism, creativity and innovation for both technology, social, economic, and organization reasons.

Keywords: *professionalism, creativity, innovation, knowledge management*

ABSTRAK

Manajemen pengetahuan (knowledge management) merupakan sebuah kemunculan disiplin dan profesionalisme, kreativitas, serta inovasi sebuah organisasi dan tim yang perlu diperlukan dalam konteks baru. Paper ini membuat sebuah kerangka kerja yang didiskusikan dengan penelitian literatur. Paper ini juga bertujuan untuk mengeksplorasi bagaimana profesionalisme, kreativitas dan inovasi manusia terhalangi dengan berbagai cara, termasuk cara pandang dunia dalam konservatif. Kebutuhan keahlian profesional sekarang di tempat kerja menghadapi berbagai tantangan, terutama situasi tak dikenal dan tak terduga. Paper ini membahas dua hal yang mendukung manajemen pengetahuan, profesionalisme, kreativitas, dan inovasi: dalam lingkungan manusia dan teknologi. Kami juga perlu meningkatkan kapasitas untuk profesionalisme, kreativitas dan inovasi yang berkelanjutan dalam bidang teknologi, sosial, ekonomi, dan organisasi.

Kata kunci: *profesionalime, kreativitas, inovasi, manajemen pengetahuan*

INTRODUCTION

Professionalism means having the skills and qualities that characterize a practicing professional. It develops over time, and in the context of professional practice. Orrell (2001) stated that the work experience, work placement and other forms of work-integrated learning at university can help students develop those skills in a professional context and make for a smoother transition to the world of employment. In creative problem solving, Osborn (2001) stated, the creative problem solving always involves creativity. However, creativity often does not involve creative problem solving, especially in fields such as music, poetry, and art. Creativity requires newness or novelty as a characteristic of what is created, but creativity does not necessarily imply that what is created has value or is appreciated by other people.

Innovation is the introduction of new goods or services. The company must adapt to change on consumer demands and to new competitors. Innovation is a change in the thought process for doing something, or the useful application of new inventions or discoveries. Byrd & Brown noted (2003) it may refer to an incremental emergent or radical and revolutionary changes in thinking, products, processes, or organizations. In many fields, Cabral (2003) stated, such as the arts, economics and government policy, something new must be substantially different to be innovative. In economics the change must increase value, customer value, or producer value. The goal of innovation is positive change, to make someone or something better. Innovation leading to increased productivity is the fundamental source of increasing wealth in an economy. When the internet allowed merchant to bypass traditional distribution channel and reach buyers directly, and Bellman (2001) states that traditional marketers had to learn how to innovate to remain competitive.

Technological Innovation System is a concept developed within the scientific field of innovation studies which serves to explain the nature and rate of technological change (Smits, 2002). A Technological Innovation System can be defined as a dynamic network of agents interacting in a specific economic/industrial area under a particular institutional infrastructure and involved in the generation, diffusion, and utilization of technology (Suurs, 2009). Hamel (2001) notes that the real competitive battle was never between the heralded new Internet economy and an old economy. Freeman (1995) notes, it contains the interaction between the actors who are needed in order to turn an idea into a process, product or service on the market.

Innovation economics, Evangelista (2000), states is an economic doctrine that reformulates the traditional model of economic growth so that knowledge, technology, entrepreneurship, and innovation are positioned at the center of the model rather than seen as independent forces that are largely unaffected by policy. Innovation economics is based on two fundamental tenets: that the central goal of economic policy should be to spur higher productivity and greater innovation, and that markets relying on price signals alone will not always be as effective as smart public-private partnerships in spurring higher productivity and greater innovation. Social innovation, Howaldt & Schwarz (2010) refers to new strategies, concepts, ideas and organizations that meet social needs of all kinds, from working conditions and education to community development and health, and that extend and strengthen civil society.

DISCUSSION

Nature of Professionalism

The core elements of a profession are possession of a specialized body of knowledge and commitment to service. The Oxford English Dictionary defines a profession as, the occupation which one professes to be skilled in and to follow: (a) a vocation in which professed knowledge of some

department of learning or science is used in its application to the affairs of others or in the practice of an art founded upon it; (b) in a wider sense any calling or occupation by which a person habitually earns his living.

The word *professes* represents a public commitment to a set of values. The importance of the acquisition of knowledge and skills that are used to serve others is emphasized, and tacit knowledge is recognized as science and art are included. Because knowledge is used in serving others, professions are identified as being altruistic and value laden.

For a century the social science and ethics literature have gone beyond the definition and have agreed on the characteristics of a modern profession (Freidson, 1994). *First*, as professions hold specialized knowledge not easily understood by the average citizen, they are given a monopoly over its use and are responsible for its teaching. *Second,* this knowledge is used in the service of individual patients and society in an altruistic fashion. *Third*, the inaccessible nature of the knowledge and the commitment to altruism are the justification for the profession's autonomy to establish and maintain standards of practice and self-regulation to assure quality. *Fourth,* professionals are responsible for the integrity of their knowledge base, its expansion through research, and for ensuring the highest standards for its use. Licensing bodies and professional associations have responsibility for many professional activities, and use collegiality to establish common goals and encourage commitment to them.

Professional skills refer to the skills necessary for graduates to succeed in professional practice. They include the generic or transferable skills listed in many resume of discussion, and also include the attributes of self-motivation; self-confidence; self-management; self-promotion; as well as the ability to understand ethical conduct; meet deadlines; be punctual; get on well with others in the organization and clients; and show initiative.

Work-integrated learning refers to the numerous forms of workplace such as practicum, field placement, work placement, industry project, sandwich courses, etc. The need for professional skills today in workplace face a number of challenges, especially how to learn and function in unfamiliar and unpredictable situations. Multi-skilled, multi-national project teams, requiring collaboration, cooperation, flexibility and inter-cultural awareness, demand high levels of professional and interpersonal skills. Employers and graduates recognize the importance of well-developed professional skills for early and subsequent career advancement. The table below summarizes the needs of today's workplace and is based on the work of Harvey, Moon & Geall (1999).

Characteristics of Today's Workplace

Table 1 Characteristics of Today's Workplace

Characteristics of today's workplace	
Workplace challenges	Understanding that the world of work is unpredictable, and requires a wide range of skills for an individual to function effectively.
Teamwork	Group and interpersonal skills are essential when dealing with the collaboration required in multi-skilled, culturally diverse team situations.
Changing nature of work	Today's workplace requires employees to be multi-skilled; perform their own administrative tasks; and be aware of modern technological changes associated with their profession.
Job (in)security	Employees no longer expect to stay in one job for an extended time. Careers can be built across a range of diverse employment positions.

Table 1 Characteristics of Today's Workplace *(continued)*

Characteristics of today's workplace	
Broader expertise	The workplace involves the demonstration and application of professional skills, which go beyond the normal university requirements for written assessment and exams.
Transferability of skills	The more environments in which students exercise their professional skills, the more able they are to transfer learning from one learning context to another.
Interactive attributes	Communication. Teamwork. Interpersonal skills.
Personal attributes	Intellect. Disciplinary knowledge. Willingness and ability to continue learning. Ability to find things out. Willingness to take risks and show initiative. Flexibility and adaptability. Ability to pre-empt and ultimately lead change.
Self skills	Self-motivation. Self-confidence. Self-management. Self-promotion.

Howard Partner (2006) stated that the education and training were identified by businesses as a major area of concern–not only in vocational education and training but also in professional and management education. Courses and programs in these areas needed to be practice-based, relevant and appropriate for business innovation needs—rather than suiting particular academic interests and pursuits.

As we enter the 21st century, the concept of professionalism seems not only to have survived but also to be once more endorsed, albeit in renewed form. This renewal should build on the morality and altruism of the original concept, and these qualities should be transferred to the new processes through which the profession is held accountable to society.

Creative Problem Solving

To qualify as creative problem solving the solution must either have value, clearly solve the stated problem (Lau & Cheung, 2010), or be appreciated by someone for whom the situation improves. The situation prior to the solution does not need to be labeled as a problem. Alternate labels include a challenge, an opportunity, or a situation in which there is room for improvement. If a created solution becomes widely used, the solution becomes an innovation and the word innovation also refers to the process of creating that innovation. A widespread and long-lived innovation typically becomes a new tradition.

Even if people knew how to systematically and routinely innovate beyond brainstorming, there are other challenges. They may resist trying for fear of failure (Lee, Edmondson & Worline, 2004). Status-conscious employees often keep their good ideas to themselves, afraid to test them in the workplace, fearing embarrassment and loss of status if their ideas fail.

Another barrier is that even when people generate novel ideas for the good of the organization, their colleagues may see these ideas as tainted. Menon & Pfeffer (2003) states, that acknowledging a superior idea from a colleague implies deference to their internal rival and devalues their own status and distinctiveness within the organization. Employees may resist sharing their best ideas for fear of

colleagues stealing or free-riding on that idea. People may harbor ideas waiting for the ideal time to reveal them in a way that limits their colleagues from taking credit.

A frequent approach to teaching creative problem solving is to teach critical thinking in addition to creative thinking, but the effectiveness of this approach is not proven. As an alternative to separating critical and creative thinking, some creative-problem-solving techniques focus on either reducing an idea's disadvantages or extracting a flawed idea's significant advantages and incorporating those advantages into a different idea. Creative-problem-solving tools typically consist of software or manipulate objects (such as cards) that facilitate specific creative-problem-solving techniques (Rigopoulos, Karadimas & Orsonni, 2008). Electronic meeting systems provide a range of interactive tools for creative-problem-solving by groups over the Internet.

Innovation

Innovation is an important topic in the study of economics, business, entrepreneurship, design, technology, sociology, and engineering. Colloquially, the word innovation is often synonymous with the output of the process. However, economists tend to focus on the process itself, from the origination of an idea to its transformation into something useful, to its implementation; and on the system within which the process of innovation unfolds. Since innovation is also considered a major driver of the economy, especially when it leads to new product categories or increasing productivity, the factors that lead to innovation are also considered to be critical to policy makers. In particular, followers of innovation economics stress using public policy to spur innovation and growth. Those who are directly responsible for application of the innovation are often called pioneers in their field, whether they are individuals or organizations.

In the organizational context, innovation may be linked to performance and growth through improvements in efficiency, productivity, quality, competitive positioning, market share, etc. All organizations can innovate, including for example hospitals, universities, and local governments. While innovation typically adds value, innovation may also have a negative or destructive effect as new developments clear away or change old organizational forms and practices. Organizations that do not innovate effectively may be destroyed by those that do. Hence innovation typically involves risk.

A key challenge in innovation is maintaining a balance between process and product innovations where process innovations tend to involve a business model which may develop shareholder satisfaction through improved efficiencies while product innovations develop customer support however at the risk of costly R&D that can erode shareholder return. Innovation can be described as the result of some amount of time and effort into researching an idea, plus some larger amount of time and effort into developing this idea, plus some very large amount of time and effort into commercializing this idea into a market place with customers. Innovation has been studied in a variety of contexts, including in relation to technology, commerce, social systems, economic development, and policy construction. There are, therefore, naturally a wide range of approaches to conceptualizing innovation in the scholarly literature.

Distinguishing from Invention

Invention is the embodiment of something new. While both invention and innovation have uniqueness implications, innovation also carries an undertone of profitability and market performance expectation. An improvement on an existing form or embodiment, composition or processes might be an invention, an innovation, both or neither if it is not substantial enough. According to certain business literature, an idea, a change or an improvement is only an innovation when it is put to use and effectively causes a social or commercial reorganization.

In business, innovation can be easily distinguished from invention. Invention is the conversion of cash into ideas. Innovation is the conversion of ideas into cash. This is best described by comparing Thomas Edison with Nikola Tesla. Thomas Edison was an innovator because he made money from his ideas. Nikola Tesla was an inventor. Tesla spent money to create his inventions but was unable to monetize them. Innovators produce market and profit from their innovations. Inventors may or may not profit from their work well having those is unsustainable.

In organizations, a convenient definition of innovation from an organizational perspective is given by Luecke & Katz (2003), who wrote: innovation is generally understood as the successful introduction of a new thing or method. Innovation is the embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services. A content analysis on the term innovation carried out by Baregheh, et al. (2009) within the organizational context, defines innovation as: innovation is the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.

For innovation to occur, something more than the generation of a creative idea or insight is required: the insight must be put into action to make a genuine difference, resulting for example in new or altered business processes within the organization, or changes in the products and services provided. Innovation, like many business functions, is a management process that requires specific tools, rules, and discipline.

From this point of view emphasis is moved from the introduction of specific novel and useful ideas to the general organizational processes and procedures for generating, considering, and acting on such insights leading to significant organizational improvements in terms of improved or new business products, services, or internal processes. Through these varieties of viewpoints, creativity is typically seen as the basis for innovation, and innovation as the successful implementation of creative ideas within an organization. It should be noted, however, that the term 'innovation' is used by many authors rather interchangeably with the term 'creativity' when discussing individual and organizational creative activity.

A Collaborative Innovation Network, or CoIN, is a social construct used to describe innovative teams. It has been defined by the originator of the term, Peter Gloor (2005), a Research Scientist at MIT Sloan's Center for Collective Intelligence, as a cyber team of self-motivated people with a collective vision, enabled by the Web to collaborate in achieving a common goal by sharing ideas, information, and work. COINs feature internal transparency and direct communication. Members of a COIN collaborate and share knowledge directly with each other, rather than through hierarchies. They come together with a shared vision because they are intrinsically motivated to do so and seek to collaborate in some way to advance an idea. The five essential elements of collaborative innovation networks, what Gloor & Cooper (2007) calls their genetic code, are: evolve from learning networks; feature sound ethical principles; based on trust and self-organization; make knowledge accessible to everyone; operate in internal honesty and transparency.

COINs rely on modern technology such as the Internet, e-mail, and other communications vehicles for information sharing. Creativity, collaboration, and communication are their hallmarks. COINs existed well before modern communication technology enabled their creation and development (Mumford, 2002). The most valuable and complex technologies are increasingly innovated by networks that self-organize. Networks are those linked organizations (e.g., firms, universities, government agencies) that create, acquire, and integrate diverse knowledge and skills required to innovate complex technologies (e.g., aircraft, telecommunications equipment). In other words, innovation networks are organized around constant learning. Self-organization refers to the capacity these networks have for combining and recombining these learned capabilities without centralized, detailed managerial guidance. The proliferation of self-organizing innovation networks may be linked

to many factors, but a key one seems to be increasing globalization. Indeed, globalization and self-organizing networks may be coevolving. Changes in the organization of the innovation process appear to have facilitated the broadening geographical linkages of products, processes, and markets (Silvestre & Dalcol, 2009). At the same time, globalization seems to induce cooperation among innovative teams in organizations.

Technological Innovation System

The technological innovation system is a concept developed within the scientific field of innovation studies which serves to explain the nature and rate of technological change (Chakravorti & Bhaskar, 2003). A Technological Innovation System can be defined as a dynamic network of agents interacting in a specific economic/industrial area under a particular institutional infrastructure and involved in the generation, diffusion, and utilization of technology (Chesbrough, 2003). The approach may be applied to at least three levels of analysis: to a technology in the sense of knowledge field, to a product or an artifact, or to a set of related products and artifacts aimed at satisfying a particular societal function. With respect to the latter, the approach has especially proven itself in explaining why and how sustainable (energy) technologies have developed and diffused into a society, or have failed to do so.

The concept of a Technological Innovation System was introduced as part of a wider theoretical school, called the innovation system approach. The central idea behind this approach is that determinants of technological change are not only to be found in individual firms or in research institutes, but also in a broad societal structure in which firms, as well as knowledge institutes, are embedded (Freeman, 1995). Since the 1980s, innovation system studies have pointed out the influence of societal structures on technological change, and indirectly on long-term economic growth, within nations, sectors or technological fields.

The purpose of analyzing a Technological Innovation System is to analyze and evaluate the development of a particular technological field in terms of the structures and processes that support or hamper it. Besides its particular focus, there are two, more analytical, features that set the Technological Innovation System approach apart from other innovation system approaches (Hekkert, Suurs, Negro, Kuhlmann & Smits, 2007).

Firstly, the Technological Innovation System concept emphasizes that stimulating knowledge flows is not sufficient to induce technological change and economic performance. There is a need to exploit this knowledge in order to create new business opportunities. This stresses the importance of individuals as sources of innovation, something which is sometimes overseen in the, more macro-oriented, nationally or local oriented innovation system approaches. *Secondly*, the Technological Innovation System approach often focuses on system dynamics. The focus on entrepreneurial action has encouraged scholars to consider a Technological Innovation System as something to be built up over time.

Technological Innovation Systems are defined in terms of knowledge or competence flows rather than flows of ordinary goods and services. They consist of dynamic knowledge and competence networks. In the presence of an entrepreneur and sufficient critical mass, such networks can be transformed into development blocks, i.e. synergistic clusters of firms and technologies within an industry or a group of industries (Carlsson & Stankiewicz, 1991). This means that a Technological Innovation System may be analyzed in terms of its system components and/or in terms of its dynamics. Both perspectives will be explained below.

Structures

The system components of a Technological Innovation System are called structures. These represent the static aspect of the system, as they are relatively stable over time. Three basic categories are distinguished by: (1) actors: Actors involve organisations contributing to a technology, as a developer or adopter, or indirectly as a regulator, financer. It is the actors of a Technological Innovation System that, through choices and actions, actually generate, diffuse and utilise technologies; (2) institutions: institutional structures are at the core of the innovation system concept. It is common to consider institutions as the rules of the game in a society, or, more formally, the humanly devised constraints that shape human interaction; (3) technological factors: technological structures consist of artefacts and the technological infrastructures in which they are integrated. They also involve the techno-economic workings of such artefacts, including costs, safety, reliability. These features are crucial for understanding the feedback mechanisms between technological change and institutional change. For example, if R&D subsidy schemes supporting technology development should result in improvements with regard to the safety and reliability of applications, this would pave the way for more elaborate support schemes, including practical demonstrations.

The structural factors are merely the elements that make up the system. In an actual system, these factors are all linked to each other. If they form dense configurations they are called networks. An example would be a coalition of firms jointly working on the application of a fuel cell, guided by a set of problem-solving routines and supported by a subsidy programmed. Likewise, industry associations, research communities, policy networks, user-supplier relations etc. are all examples of networks. An analysis of structures typically yields insight into systemic features - complementarities and conflicts that constitute drivers and barriers for technology diffusion at a certain moment or within a given period in time.

Dynamics of Technological Innovation Systems

Structures involve elements that are relatively stable over time. Nevertheless, for many technologies, especially newly emerging ones, these structures are not yet (fully) in place. For this reason, mostly, the scholars have recently enriched the literature on Technological Innovation Systems with studies that focus on the build-up of structures over time. The central idea of this approach is to consider all activities that contribute to the development, diffusion, and use of innovations as system functions (Bergek, 2002). These system functions are to be understood as types of activities that influence the build-up of a Technological Innovation System. Each system function may be ‘fulfilled’ in a variety of ways. The premise is that, in order to properly develop, the system should positively fulfil all system functions. Various ‘lists’ of system functions have been constructed. Note that it is also possible that activities negatively contribute to a system function. These negative contributions imply a (partial) breakdown of the system. As an example, the seven system functions defined by Suurs (2009) are: (1) F1 Entrepreneurial Activities: the classic role of the entrepreneur is to translate knowledge into business opportunities, and eventually innovations. The entrepreneur does this by performing market-oriented experiments that establish change, both to the emerging technology and to the institutions that surround it; (2) F2 Knowledge Development: the Knowledge Development function involves learning activities, mostly on the emerging technology, but also on markets, networks, users etc. There are various types of learning activities, the most important categories being learning-by-searching and learning-by-doing. The former concerns R&D activities in example in the form of laboratory experiments or adoption trials; (3) F3 Knowledge Diffusion or Knowledge Exchange: the characteristic organization structure of a Technological Innovation System is that of the network. The primary function of networks is to facilitate the exchange of knowledge between all the actors involved in it. Knowledge Diffusion activities involve partnerships between actors, for example technology developers, but also meetings like workshops and conferences; (4) F4 Guidance of the Search: the guidance of the search function refers to activities that shape the needs, requirements and

expectations of actors with respect to their (further) support of the emerging technology; (5) F5 Market Formation: emerging technologies cannot be expected to compete with incumbent technologies. In order to stimulate innovation, it is usually necessary to create artificial (niche) markets; (6) F6 Resource Mobilization: Resource Mobilisation refers to the allocation of financial, material and human capital. The access to such capital factors is necessary for all other developments; (7) F7 Support from Advocacy Coalitions: the rise of an emerging technology often leads to resistance from actors with interests in the incumbent energy system. In order for a Technological Innovation System to develop, other actors must counteract this inertia. This can be done by urging authorities to reorganise the institutional configuration of the system. The Support from Advocacy Coalitions function involves political lobbies and advice activities on behalf of interest groups.

In this context, cumulative causation is the phenomenon that the build-up of a Technological Innovation System accelerates due to system functions interacting and reinforcing each other over time. For example, the successful realisation of a research project, contributing to Knowledge Development, may result in high expectations, contributing to Guidance of the Search, among policy makers, which may, subsequently, trigger the start-up of a subsidy programme, contributing to Resource Mobilisation, which induces even more research activities: Knowledge Development, Guidance of the Search, etc. System functions may also reinforce each other 'downwards'. In that case interactions result in conflicting developments or a vicious circle! Recently scholars have increasingly paid attention to the question of how cumulative causation may be established, often with a particular focus on the development of sustainable energy technologies.

Social Innovation

Over the years, the term has developed several overlapping meanings. It can be used to refer to social *processes* of innovation, such as open source methods and techniques. Alternatively it refers to innovations which have a social purpose, like microcredit or distance learning. The concept can also be related to social entrepreneurship (entrepreneurship isn't always or even usually innovative, but it can be a means of innovation) and it also overlaps with innovation in public policy and governance. Social innovation can take place within government, within companies, or within the nonprofit sector (also known as the third sector), but is increasingly seen to happen most effectively in the space between the three sectors. Recent research has focused on the different types of platforms needed to facilitate such cross-sector collaborative social innovation (Nambisan, 2009). Currently, social innovation is becoming increasingly important within the academic debate, also regarding its theoretical concepts (Howaldt & Schwarz, 2010).

The idea of social innovation has become much more prominent with ongoing research, blogs and websites (such as the social innovation exchange), and a proliferation of organizations working on the boundaries of research and practical action. Several currents have converged in this area, including: (1) new thinking about innovation in public services, pioneered particularly in some of the Scandinavian and Asian countries. Governments are increasingly recognising that innovation isn't just about hardware: it is just as much about healthcare, schooling and democracy; (2) growing interest in social entrepreneurship; (3) business, which is increasingly interested in innovation in services; (4) new methods of innovation inspired by the open source field; (5) linking social innovation to theory and research in complex adaptive systems to understand its dynamics (Westley, Zimmerman & Patton, 2006); (6) Collaborative approaches to social innovation, particularly in the public sector (Phills, Jr, Deighlmeier & Miller, 2008).

A recent overview of the field highlighted the growing interest of public policy makers in supporting social innovation in these different sectors, notably in the UK, Australia, China and Denmark (Mulgan, Tucker, Ali, Saunders, 2007). A focus of much recent work has been on how innovations spread and on what makes some localities particularly innovative (Dees, et al, 2007).

Innovation Economics

Innovation economics is an economic doctrine that reformulates the traditional model of economic growth so that knowledge, technology, entrepreneurship, and innovation are positioned at the center of the model rather than seen as independent forces that are largely unaffected by policy. Innovation economics is based on two fundamental tenets: that the central goal of economic policy should be to spur higher productivity and greater innovation, and that markets relying on price signals alone will not always be as effective as smart public-private partnerships in spurring higher productivity and greater innovation. This is in contrast to the two other conventional economic doctrines, neoclassical economics and Keynesian economics. Innovation economists believe that what primarily drives economic growth in today's knowledge-based economy is not capital accumulation, as claimed by neoclassic lists (Warsh, 2006), but innovation. The major changes in the U.S. economy of the last 15 years have occurred not because the economy accumulated more capital to invest in even bigger steel mills or car factories; rather they have occurred because of innovation. The U.S. economy developed a wide array of new technologies, particularly information technologies, and used them widely. Although capital was needed for these technologies, capital was not the driver; nor was capital a commodity in short supply.

The major drivers of economic growth are productive efficiency and adaptive efficiency. If the focus in neoclassical economics is "the study of how societies use scarce resources to produce valuable commodities and distribute them among different people," the focus in innovation economics is the study of how societies create new forms of production, products, and business models to expand wealth and quality of life.

In contrast to neoclassical economics, which is focused on getting the price signals right to maximize the efficient allocation of scarce resources, innovation economics is focused on spurring economic actors, from the individual, to the organization or firm, and to broader levels, such as industries, cities, and even an entire nation, to be more productive and innovative. From the standpoint of innovation economists, if government policies to encourage innovation distort price signals and result in some minor deadweight loss to the economy, so be it, because allocate efficiency is not the major factor in driving economic growth in the 21st century knowledge-based economy.

Spurring evolving and learning institutions is the key to growth. Neoclassical economics, which focuses principally on markets and individuals and firms acting in them as atomistic particles responding pretty much exclusively to price signals along supply and demand curves does explain a share of the economy. But innovation in the neoclassical economic model is an exogenous process, a black box, if you will, that works its magic solely in response to price signals. In this sense, the neoclassical model sees innovation as falling like *manna from heaven* not something that can be induced by proactive economic policies.

In innovation economics, innovation is central. Innovation economists recognize that innovation and productivity growth take place in the context of institutions. Indeed, it is the social technologies of institutions, culture, norms, laws, and networks that are so central to growth, yet are so difficult for conventional economics to model or study. Innovation economists view innovation as an evolutionary process in a market where firms act on imperfect information and where market failures are common.

Organizational Innovation

Programs of organizational innovation are typically tightly linked to organizational goals and objectives, to the business plan, and to market competitive positioning. One driver for innovation programs in corporations is to achieve growth objectives. As Davila, Epstein & Shelton (2006) note

that companies cannot grow through cost reduction and reengineering alone. Innovation is the key element in providing aggressive top-line growth and for increasing bottom-line results. In general, business organizations spend a significant amount of their turnover on innovation, such as making changes to their established products, processes and services. The amount of investment can vary from as low as a half a percent of turnover for organizations with a low rate of change to anything over twenty percent of turnover for organizations with a high rate of change. The average investment across all types of organizations is four percent. For an organization with a turnover of one billion currency units, this would represent an investment of forty million units. This budget will typically be spread across various functions including marketing, product design, information systems, manufacturing systems and quality assurance. The investment may vary by industry and by market positioning. One survey across a large number of manufacturing and services organizations found, ranked in decreasing order of popularity, which systematic programs of organizational innovation are most frequently driven by: improved quality; creation of new markets; extension of the product range; reduced labour costs; improved production processes; reduced materials; reduced environmental damage; replacement of products/services; reduced energy consumption; conformance to regulations.

These goals vary between improvements to products, processes and services and dispel a popular myth that innovation deals mainly with new product development. If we're going to define quality as the ability of a product or service to reliably do what it's supposed to do and to satisfy customer expectations, there are two dimensions (Hit, Ireland & Hoskisson, 2001): product and service quality dimension. In product quality dimension, there are characteristics like: (1) performance, operating characteristics; (2) features, important special characteristics; (3) flexibility, meeting operating specifications over some period of time; (4) durability, amount of use before performance deteriorates; (5) conformance, match with reestablished standards; (6) serviceability, ease and speed of repair or normal service; (7) aesthetics, how a product looks and feels; (8) perceived quality, subjective assessment of characteristics (product image).

Meanwhile, in service quality dimension, the characteristics are: (1) timeliness, performed in promised period of time; (2) courtesy, performed cheerfully; (3) consistency, giving all customers similar experiences each time; (4) convenience, accessibility to customers; (5) completeness, fully serviced, as required; (6) accuracy, performed correctly each time. Most of the goals could apply to any organization be it a manufacturing facility, marketing firm, hospital or local government. Whether an innovation goal is successfully achieved or otherwise depends greatly on the environment prevailing in the firm (Ettlie, 2006).

Research findings vary, ranging from fifty to ninety percent of innovation projects judged to have made little or no contribution to organizational goals. One survey regarding product innovation quotes that out of three thousand ideas for new products; only one becomes a success in the marketplace. Failure is an inevitable part of the innovation process, and most successful organizations factor in an appropriate level of risk. Perhaps it is because all organizations experience failure that many choose not to monitor the level of failure very closely. The impact of failure goes beyond the simple loss of investment. Failure can also lead to loss of morale among employees, an increase in cynicism and even higher resistance to change in the future.

Innovations that fail are often potentially good ideas but have been rejected or postponed due to budgetary constraints, lack of skills or poor fit with current goals. Failures should be identified and screened out as early in the process as possible. Early screening avoids unsuitable ideas devouring scarce resources that are needed to progress more beneficial ones. Organizations can learn how to avoid failure when it is openly discussed and debated. The lessons learned from failure often reside longer in the organizational consciousness than lessons learned from success. While learning is important, high failure rates throughout the innovation process are wasteful and a threat to the organization's future.

The causes of failure have been widely researched and can vary considerably. Some causes will be external to the organization and outside its influence of control. Others will be internal and ultimately within the control of the organization. Internal causes of failure can be divided into causes associated with the cultural infrastructure and causes associated with the innovation process itself. Failure in the cultural infrastructure varies between organizations but the following are common across all organizations at some stage in their life cycle (O'Sullivan, 2002): poor leadership, poor organization, poor communication, poor empowerment, and poor knowledge management. Common causes of failure within the innovation process in most organizations can be distilled into five types, those are poor goal definition, poor alignment of actions to goals, poor participation in teams, poor monitoring of results, and poor communication and access to information

Individuals and Teams Innovation

Effective goal definition requires that organizations state explicitly what their goals are in terms understandable to everyone involved in the innovation process. This often involves stating goals in a number of ways. Effective alignment of actions to goals should link explicit actions such as ideas and projects to specific goals. It also implies effective management of action portfolios. Participation in teams refers to the behavior of individuals in and of teams, and each individual should have an explicitly allocated responsibility regarding their role in goals and actions and the payment and rewards systems that link them to goal attainment. Effective communication and access to information are important for individual members and teams on daily activities in innovation process. Finally, effective monitoring of results requires the monitoring of all goals, actions and teams involved in the innovation process.

Innovation can fail if seen as an organizational process whose success stems from a mechanistic approach *pull lever obtains result*. While driving change has an emphasis on control, enforcement and structures it is only a partial truth in achieving innovation. Organizational gatekeepers frame the organizational environment that enables innovation, however innovation is enacted (recognized, developed, applied and adopted) through individuals and teams.

Individuals and teams are the atom of the organization close to the minutiae of daily activities. Within individuals gritty appreciation of the small detail combines with a sense of desired organizational objectives to deliver and innovate for a product or service offer. With these constraints, it appears that people place a premium on getting the idea out of their head and over to their partner first rather than pre-judge the merits of the idea and the value to their personal status for having thought of it. Working in pairs seems to create a sense of accountability and transparency. Once the idea is out on the table, each partner gives some sense of oversight or verification that the idea has been shared with the larger group. A participant may think afterward that one of his or her ideas is brilliant and thus too good to share with the teams, but it is too late. The idea has been captured for the larger group to consider.

The systematic inventive thinking method produces several dozens to several hundreds of ideas depending on the amount of time dedicated to the activity. Skillful facilitation is required again to help overcome the problem of peer acceptance of those ideas. *First*, the facilitators create an environment of non-attribution so that no one individual is associated with a specific idea. Because the idea was generated in a small team of two or three, and because the moment of truth was born out of a stepwise contribution of their insights and notions during the mini-exercises, it is often hard to distinguish who actually could be credited with generating one specific idea. Idea anonymity reduces the internal competitive threat among colleagues and makes ideas no longer tainted. Participants come to recognize idea contribution as process output.

Second, the facilitation process emphasizes only newly-created ideas rather than ideas participants had before coming to the workshop. This inhibits the problem of people selling their pet ideas to their peers, which are usually ideas that the peers have already rejected. *Third*, the facilitators lead the larger team to develop a specific set of objective, weighted criteria to judge each of the new ideas generated in the workshop. Diverse teams bring the value of diverse thinking but also the added cost of having to converge on a set of guiding principles.

With these criteria in place in the form of a linear weighted model, ideas are allowed to rise to the top without the stigma of who generated them or who judged them. Internal competition among peer rivals is minimized allowing for a more objective evaluation of ideas. Thoughtful facilitation seems to bring about this alignment much more efficiently than what internal teams can do left on their own. There are two fundamentally different types of measures for innovation: the organizational level and the political level. The measure of innovation at the organizational level relates to individuals, team-level assessments, and private companies from the smallest to the largest. Measure of innovation for organizations can be conducted by surveys, workshops, consultants or internal benchmarking. There is today no established general way to measure organizational innovation.

How Organization More Innovative

We've identified three set of variables that have been found to stimulate innovation; the organization structure, culture, and human resource practices (Woodman, Sawyer & Griffin, 1993). Structural variables consists of organic structure, abundant resources, high inter unit communication, minimal time pressure, and work and non-work support. Cultural variable consists of acceptance of ambiguity, tolerance of the impractical, low external controls, tolerance of risk, tolerance of conflict, focus on ends, open system focus, and positive feedback. Meanwhile human resources variables consist of high commitment to training and development, high job security, and creative people.

Idea champions actively and enthusiastically support new ideas, build support, overcome resistance, and ensure that innovations are implemented. Research finds that these idea champions have common personality characteristics: extremely high self confidence, persistence, energy, and a tendency toward risk-taking. Champions also display characteristics associated with dynamic leadership. They inspire and energize others with their vision of the potential of an innovation and trough their strong personal conviction on their mission.

CONCLUSIONS

The need for professional skills today in workplace face a number of challenges, especially how to learn and function in unfamiliar and unpredictable situations. Multi-skilled, multi-national project teams, requiring collaboration, cooperation, flexibility and inter-cultural awareness, demand high levels of professional and interpersonal skills. All innovations begin as creative solutions, but not all creative solutions become innovations. Some innovations also qualify as inventions. If we find a better product and services, process or procedure to accomplish our task, we have an innovation. Two fundamental types of innovation are product and process innovation. Product or services innovation are changes in the actual outputs themselves. Process innovations are change in technology, a departure from previous ways of doing things.

Programs of organizational innovation are typically tightly linked to organizational goals and objectives, to the business plan, and to market competitive positioning. There is science behind making new product or services. No matter what you are doing, there is a body of knowledge that precedes your efforts. If you don't have good access to this knowledge, you are destined to repeat the

mistakes of the past and waste a lot of effort reinventing the wheel. Social innovation can take place within government, within companies, or within the nonprofit sector (also known as the Third Sector), but is increasingly seen to happen most effectively in the space between the three sectors. In innovation economics, innovation is central. Innovation economists recognize that innovation and productivity growth take place in the context of institutions. Innovation economists view innovation as an evolutionary process in a market where firms act on imperfect information and where market failures are common. Organizational gatekeepers frame the organizational environment that "enables" innovation, however innovation is enacted: recognized, developed, applied and adopted, through individuals and teams to be champions with dynamic leadership.

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