

# Intellectual Capital Strategy Management for Knowledge-Based Organizations

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*Robert Tennyson, University of Minnesota, USA*

There has been increasing interest in informal learning in recent years and interest in managing informal learning, especially in workplaces. This study selects sample companies and surveys in informal learning in work environments and presents the current situation and problems of informal learning in workplaces. The study establishes the mode of informal learning in the work environment and develops the conceptual framework of managing informal learning. This is done based on the theories of knowledge management and social constructionism.

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*Shigeki Sugiyama, University of Gifu, Japan*

We are now in the age of various capitals like money, facility, real estate, movable property, structure, system, information, relations, human resource, intellectual property, knowledge, intelligence, and dynamic knowledge wisdom, which will have much influence in production, sales, management, economy, society, country, and the world. Some of them are tangible and the others are intangible. According to the tangible capitals, we have been developing the management methods here and there in real usages, but according to the intangible capitals, it is very hard to say that we are able to treat and manage the intangible capitals in an appropriate method by a proper intention. It is just because they are themselves quite ambiguous to understand and treat. Therefore, the present situations of the capitals, a treating method in principle, and a future direction of the capitals are studied by introducing the basic idea of "Intangible Capital Management Method as Dynamic Knowledge Wisdom."

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This chapter discusses the Intellectual Capital (IC) and its management within the services-oriented firms. It argues that IC and its management are as important as in a product-oriented firm. The authors aim to analyze the intellectual capital in the service-oriented firms, focusing on various components, such as human, structural, and relational capital (IC stock), and how to manage it (IC activities). Specifically, the authors examine IC stock and IC activities in a special type of Italian services firms: the Local Public Utility (LPU). These firms are peculiar since were affected by the privatization process and this has made a great need for rethinking the role of intellectual capital within their structure and how to handle it.

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Traditional strategic management focuses on securing organizational assets and maximizing resources through top-down leadership and the formation of competitive strategies to advance market position, meet performance objectives, and gain competitive advantage. Top-down bureaucratic paradigms are not well suited for gaining an edge in the knowledge economy, and in many cases, these strategic behaviors are counterproductive. There is a growing need for alternative ways of thinking about strategic management and human resource development. Complexity science provides a new framework for 21st century strategic management. The complex responsive processes approach to strategic management strengthens employee engagement, knowledge creation, and organizational learning, and it improves performance, achievement of long-term competitive advantage, and strengthens intellectual capital.

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*Carol Yeh-Yun Lin, National Chengchi University, China*

From Resource-Based View (RBV), this chapter introduces intellectual capital as a valuable resource leading to competitive advantage at both organizational and national levels. The chapter elaborates on National Intellectual Capital (NIC) policy implications, using financially-strained countries such as Greece, Iceland, Ireland, Portugal, and Spain as examples. The co-development of NIC and GDP per capita (ppp) of four southern European countries and four Greater China economies during 2005-2010 are also presented and compared. This NIC development study discloses systematic warning signs starting in 2000 for those countries that were later in deep financial trouble, much earlier than the outburst of 2008 global financial crisis. "Intellectual capital explains a country's resilience to financial crisis" is observed from the comparison. Consequently, in an era when intangible assets have become a key competitive advantage, investing in national intellectual capital development is investing in future national development and well-being.

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The Australian Manufacturing Environment has over a short time changed from being low or medium cost to becoming high cost. In the previous environment, success could be achieved through imitation and efficiency focus whereas in the new environment efficiency becomes a table stake where the basis for success becomes innovation. Innovation requires enablers, strategy, and management systems to deliver, and the innovative focus must be on both value creating innovations and value appropriating innovations. One of the key tools in appropriating value is business models. The effectiveness of business model innovations to manufacturing firms in this changed environment is investigated, and it is found that business model innovations are highly effective but that the dimensions expressed in the literature, which mainly focuses on ICT-based or dependent firms, are insufficient for manufacturing firms. Based on the literature and the empirical study, an improved business model framework is proposed.

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This chapter introduces Complex Adaptive Systems Thinking (CAST) into the domain of Intellectual Capital (IC). CAST is based on the theories of Complex Adaptive System (CAS) and Systems Thinking (ST). It argues that the CAST, combined with Intelligence Base offers a potentially more holistic approach to managing the Intellectual Capital of an organization. Furthermore, the authors extend this IC management with additional dimensions proper to a social entity such as an organization. New organizational design methods are needed and the capability approach is such a method that supports IC in virtual and real organizations. The characteristics of Intellectual Capital are discussed in the iterative process of inquiry and the Cynefin Framework, guaranteeing a holistic view on the organization and its environment.

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This chapter spotlights Malaysia's New Economic Model (NEM), which aims to create a sustainable and robust economy through increased productivity and innovation. An innovation-driven business environment is to transform the Malaysian economy into one of high income and quality growth. Innovation is fueled by knowledge in organizations, and knowledge resides within individual employees. Thus, firms need to bring about knowledge exchange among employees to build on its innovative capability. Specific strategies can be utilized to encourage employees to acquire, share, and apply knowledge to create organizational value. The field of Human Resource Management (HRM) therefore becomes relevant in understanding organizational innovation in Malaysia. However, a comprehensive framework bridging HRM and organizational innovation has yet to be developed. This chapter fills in the gap by proposing a human resource management framework for innovative capability development in organizations for Malaysia's New Economic Model.

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*Camelia Iuliana Lungu, Bucharest University of Economic Studies, Romania*

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This chapter introduces and defines the concept of sustainable intellectual capital and proposes an assessment model designed on the base of the key performance indicators required by the Global Reporting Initiative (GRI). The research results presented in this paragraph are debated in relation to companies' practice. They refer to possible ways of including the information on Intellectual Capital (IC) and Corporate Social Responsibility (CSR) reporting requirements within their corporate strategy. The conclusions enhance the need for companies to be ready to support the integration of information on intellectual capital and corporate social responsibility in the transfer of knowledge in order to develop competitive advantage in the market. This research can contribute in many different ways, such as the extensive development of literatures and studies on relationships between corporate social responsibility and intellectual capital, the development of the new concept: the sustainable intellectual capital, or the projection of corporate strategy. The findings can enlighten organizations that intellectual capital can be an important asset, which is beneficial in conducting corporate social responsibility.

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Managing Nonprofit Organizations (NPOs) has become much more complex, particularly under the influence of New Public Management (NPM). Like their for-profit and public sector counterparts, NPOs need to utilize their Intellectual Capital (IC) for maintaining humanistic and social values that traditionally characterized the nonprofit sector and yet remain innovative and sustainable in the competitive environment. Today, more research has been conducted to understand the management of IC as a conceptually robust framework for NPOs. Very little research has been done to examine what constitutes the development of IC for innovation in the organizations. Through an analysis of the IC and HRM literature, this chapter argues that human resource strategies and practices play an important role in the IC development in the nonprofit context. A theoretical framework is proposed to illustrate the connections between IC and human resource strategies and practices. Finally, the chapter suggests directions for future research.

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*Graziella Sicoli, Università della Calabria, Italy*

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The purpose of this chapter is to analyze the level and the quality of voluntary disclosures of Intellectual Capital (IC) in the sustainability reports on a sample of Italian listed companies. The authors conducted an analysis of twelve sustainability reports for two years (2009-2010). These are related to six firms selected among the most capitalized 37 Italian listed companies. To investigate the "level of disclosure," the authors identified the presence of IC information, while to evaluate the "IC quality," they constructed

a voluntary disclosure index based on content analysis. IC information disclosure is more likely present in sustainability reports of firms with a higher levels of application of the Global Reporting Initiative framework. The results confirm that the sustainability report can adequately represent the intellectual capital, especially in order to understand its role in the firm and the interaction with other variables present in the firm.

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<i>Anna Szopa, Jagiellonian University, Poland</i>	

University spin-off companies are under many competitive pressures that necessitate ongoing innovation and new product development. Technological and managerial knowledge endowed to spin-offs at start-up largely determine their potential for success, since exploiting this knowledge is their main activity. This chapter discusses the issue of university spin-off companies with particular emphasis on the role of intellectual capital, as the new engine of corporate development and one of the great clichés of recent years. In addition, the study also analyzes the relationships between intellectual capital and the company's performance. It highlights how various types of intellectual capital (human capital, structural capital, relational capital) are strategically important for innovative start-up firms.

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Historically, Intellectual Capital (IC) has drawn the attention of researchers and practitioners as a new framework to assess the new competitiveness of firms and organizations in the knowledge economy. The enthusiasm dies down gradually as either the method is considered to be too general as compared with other performance measurement tools or non-mandatory as compared to other orthodox accounting methods that are already in place. This chapter links the professional IC management practices to a framework of Knowledge Management (KM) process to identify new methods and approaches. An intellectual capital management reference model is put forward to link the practice of intellectual capital and primary knowledge management functions. Three examples are selected to enrich the methodological scope and applications of IC practices. These include open elicitation of IC value tree and IC strategy map, mapping value, activity, and knowledge of unstructured business process and knowledge mining, and discovery of intellectual capital from unstructured information.

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<i>Noor Hazlina Ahmad, Universiti Sains Malaysia, Malaysia</i>	
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For the past decade, Malaysia has transformed considerably in its landscape, politics, outlook, economics, and social progress. It has developed from a country that focused on mining and agriculture towards an industrialized country, particularly in the manufacturing and service sectors. According to Prime Minister Datuk Seri Najib Tun Razak, as proliferated in the New Economic Model Agenda, moving

towards this economy is fundamental especially in efforts to integrate the economy with the global economic network. Malaysia needs to continue to bring changes to the economy in order to move towards innovation-centred economy. The three main features are creativity, innovation value, and high skills. To achieve such a noble endeavour, Malaysia has no option but to nurture and configure the innovative human capital—simply put, Malaysia is in dire need of human capital that is innovative, creative, and proactive. In tandem with this scenario, the National Economic Advisory 2010 has outlined several strategic plans to transform Malaysia's economy by focusing on strengthening and intensifying human capital development. Human capital needs to be equipped with necessary competencies and entrepreneurial activities to ensure that the private sector is the vanguard of economic development. Therefore, human capital approach could be leveraged by certain dimensions that could create new knowledge and information. Although human capital may be the origin of all knowledge, learning requires that individuals exchange and share insights and knowledge, which represent social embeddedness. Additionally, organisational architecture that is pro-innovativeness should be designed in promoting the development of human capital. The dimensions such as management support, work discretion, rewards, time availability, and risk taking could foster human capital to induce innovativeness. As such, it is imperative to understand the ingredients that could form and shape the innovative human capital by leveraging the social embeddedness and pro-innovativeness organisational architecture that lead to innovative performance and excellent organisational performance.

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# Foreword

## IC IN GLOBAL PROGRESS: SOME ASPECTS FOR IC STRATEGY FOR KM-BASED ORGANIZATIONS

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### Introductory Quizzics

*Do you sense the new NIC map? Are you connected? Are you uploading your IC? Have you tried the Crowd Sourcing? Where is the space for value creation emerging? What learning can we get from the Eurozone crises? What about the National IC for Spain?*

These are some quizzics (i.e. the Art and Science of questioning) that are becoming more and more prudent in wealth creating world.

### IC 21

When I started to work on the subject of service and intangibles more than 21 years ago, the taxonomy and methods were very rudimentary. This called for practical experimentation with me as Director of IC at Skandia.

Therefore, I developed some of the standard IC taxonomy of today to capture and navigate the Intellectual Capital. It was the IC tree, the Skandia Navigator, and the IC scheme, among others.

The challenge of today is still the Minds, the thinking of the enterprise leaders, the society leaders, as well as the media leaders. This might also be a generational issue. For example, the senior generation X is looking for downloading from the net, while Generation Y is looking for uploading on the net. Two different knowledge-sharing logics with impact for the future of IC!

### IC Ecosystem

A part of the taxonomy was the usage of images to share the same perspectives. One of the most familiar ones became the IC Tree, turned upside-down.

It highlights the importance of the roots for the fruits as well as the flows. This is also about the cultivation of various aspects, a kind of cultivation of the microclimate to get fruit tomorrow.

This also highlights that timeline for nourishing the intangibles of today for the benefit of tomorrow.

Most of the traditional economy with an asset focus tends to miss this dynamic value modeling. The IC ecosystem is about the drivers/roots for the future earnings capabilities. In line with IRL-international

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reporting language, it might be seen as an opportunity space or a liability towards the stakeholders if not addressed properly. This liability has to be paid by future generations. The IC leader has to cultivate and leverage the IC of today for the benefits of tomorrow.

This ecosystem might also be described as something beyond the Triple Helix, and more of Penta Helix, with its extended stakeholders, such as volunteers and cross-generational co-creations.

## INCAS AND TRIPLE BOTTOM LINE

One of the milestones in describing IC development in a dynamic way is refined and applied, especially in Germany, under the leadership of BWMI – Bundesministerium für Wirtschaft und Innovation, (see [www.wissensbilanz.org](http://www.wissensbilanz.org)), as well as in Japan, with METI. This approach is going from reporting of IC as a position to a process view of non-hierarchical interactions and interdependencies between the IC components in the IC Tree that is shaping value. See more on [www.incas-europe.org](http://www.incas-europe.org).

This approach is highlighting the interdependencies of IC components in a dynamic modeling based on Jay Forrester's work at MIT. Recently, there have been a number of PhD theses published about this, among others by Markus Will, Kay Alwert, and Ai Yu.

In Germany, there is also the Wissenskapital Schnelltest ([www.wissensbilanz-schnelltest.de](http://www.wissensbilanz-schnelltest.de)) and recently a group has been formed to exchange learning ([www.bvwb.de](http://www.bvwb.de)). In Hong Kong, the Department of IP has prototyped a very successful project on ICR with about 600 SMEs (see [www.ipd.gov.hk/eng/icm.htm](http://www.ipd.gov.hk/eng/icm.htm)).

In Sweden, there has also been both research and applied experimentation of new bottom line thinking called Triple Bottom Line. It is a model to highlight the often hidden value spaces of health and culture in addition to the economics. It is also a kind of triangulation to visualize the 3 perspectives for the board, for the executive team, and for the staff.

## CONNECTIVITY

These interdependencies are being amplified in the so-called Networked Economy by Social Media. The question arises whether you are connected or not? What are your circles in G+?

Beyond the connectivity comes contactivity, together called C&C. It is about how you relate on more of a personal and values viewpoint. It is a kind of microclimate or culture of interpersonal behavior. The core of it is in IC taxonomy the Relational Capital, and in the Chinese culture referred to as Guaxi.

C&C becomes then part of the IC strategy aspects for both enterprise development as well as space developments of cities, i.e. urban design for IC of Knowledge Cities.

## Macro IC: NIC

Before any governance and policymaking of nations, regions and cities might take place there is a need for better maps. This need has become so evident in the financial Euro zone crises.

Therefore, within New Club of Paris (see [www.new-club-of-paris.org](http://www.new-club-of-paris.org)) a database has been initiated for National IC based on the prototyping work that we started in Sweden at the end of 1990s. It was together with prototyping students as well as the governmental Invest Agency Invest in Sweden. Later on, this kind of mapping was applied for Israel, Finland, Poland, etc.



Today, the database has 48 indicators in the 4 categories of IC (human capital, market capital, process capital, and renewal capital) with a time perspective of 17 years for 48 countries. This impressive database is also supplemented by research work of Sten Stahle and Pirjo Stahle in Finland.

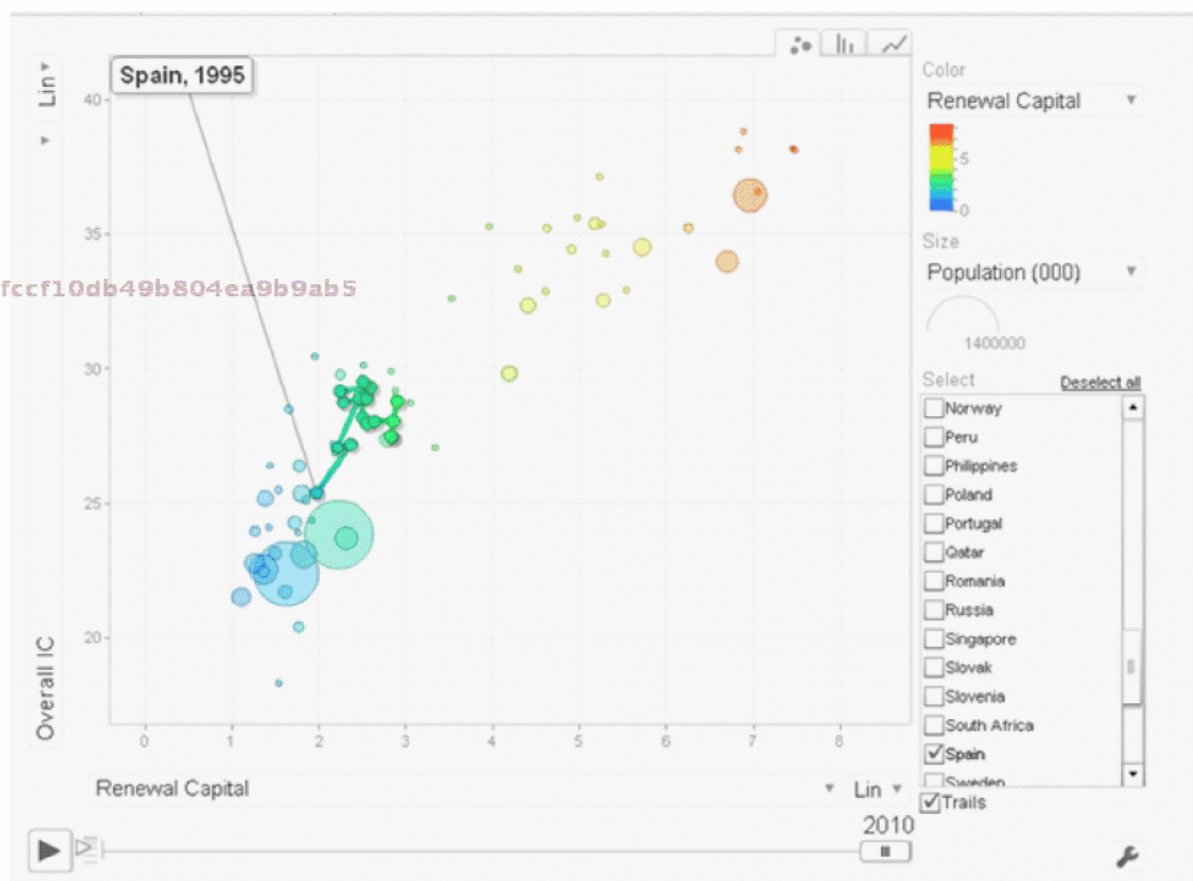
Top ranked NIC countries are especially Singapore and the Nordic ones, Finland, Sweden, Norway, and Denmark (see more in [www.NIC40.org](http://www.NIC40.org)).

The situation for Spain can be visualized as Figure 1, based on the NIC database and the work of Dr. Carol Lin. NIC of Spain was good, even if not in a top position, between 1995 and 2000, when NIC started to decline, reflecting very early warning signs for the 2008 financial crises. However, the lack of the Renewal Capital improvement may not support the capabilities of a future knowledge and innovation driven economy. So, deeper understanding of the NIC might support the future IC leadership and well-being of Spain.

OECD initiated a supplementary mapping approach and now has an index for Better Life. The top ranked nations are Australia, Norway, USA, Sweden, and Denmark. If the economical indicators are treated as a residual then the top ranking will be Australia, Norway, Denmark, Sweden, and New Zealand. The pattern is very close to the top NIC countries.

Cyprus is another interesting illustration of NIC. An island burdened by financial debt, but with a special geopolitical position in the Mediterranean. Consequently, they now leverage that geopolitical position to get financial funding both from Russia as well as China.

Figure 1. Situation for Spain



From the IC strategy, the leadership approach is to leverage the IC dimensions of both the enterprise as well as the nation, and in doing this, the focus is very much on the process productivity, the networking and relational capital, and most important is the Renewal and Innovation Capital.

## IC CURRENCY IN PROGRESS

What currency will be the safe one for the future? Is it USD, RMB, SDR or...? Could it be that the evolution of the recent Greece Financial drama as well as the Crowd Funding highlights that we are heading for another currency. This will be a currency based on the core of IC perhaps called IC units. In the taxonomy of IC, it will be based on Relational Capital. This is also what we see with the emergence of Crowd Funding, and enterprises such as Kick Starter and the new electronic wallet systems launched as a hybrid of mobile phones and Internet banking.

## FINAL THOUGHTS

Based on these NIC maps, the KM-based organizations as well as society leaders can navigate the IC dimensions with the InCaS tool box. The outlook for the enterprise of tomorrow is very much to break out of the box of the industrial mindset and learn to live in networked smart alliance on a small scale with continuous renewal thru the activated relational capital.

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**Leif Edvinsson** was the world's first Director of Intellectual Capital at Skandia, the world's first Professor of Intellectual Capital, Lund University and The Hong Kong Polytechnic University, and was awarded Brain of the Year 1998 from Brain Trust Foundation, UK. His research interests include intellectual capital and intellectual capital management. He currently works in the School of Economics and Management at Lund University, Sweden.



## Preface

### INTRODUCTION

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Strategy management addresses the forces and causes that explain performance differences between organizations. One approach studies industry structures as external determinants of organizational performance. An alternative approach focuses on internal resources and capabilities as sources of sustained competitive advantage. This is the resource and capabilities theory of the firm. On the other hand, the knowledge-based view of the firm considers the firm as a repository of knowledge-based resources and capabilities. To the extent that these resources and capabilities are unique, rare, difficult to imitate, and non-substitutable; they confer sustained competitive advantage on the firm. Organizational performance differences are a result of different stocks of knowledge-based resources and capabilities.

On the other hand, intellectual capital literature focuses on the measurement of knowledge stocks in companies and regions. It also deals with building guidelines for the development of “intellectual capital accounts,” a corporate report to inform about firms’ stock of knowledge-based resources.

### OBJECTIVES OF THE BOOK

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The topics of Knowledge Management and Intellectual Capital and Organizational Learning are receiving increased interest both from the academic community and companies because of the influence of innovation and learning on the achievement of a competitive advantage for companies, institutions, and economies. Literature on knowledge management and intellectual capital suggests that competitive advantage flows from the creation, storage use, and protection of certain knowledge-based resources. Superior organizational performance depends on firms’, organizations’, and economies’ ability to be good at innovation, learning, protecting, deploying, amplifying, and measuring these strategic resources.

The objective of the book is to bring together a selection of new perspectives that collectively articulate a knowledge-based view of strategy management. It adopts a knowledge-based view that considers the role companies, organizations, and nations in the nurturing, deployment, storage, and measurement of their knowledge.

The book aims to understand how policies and strategies for the management of knowledge-based resources (human capital, relational capital, structural capital) can contribute to the creation of a competitive advantage not only for companies and institutions but also for nations and economic regions.

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## TOPICS OF INTEREST FOR THE BOOK

Topics include, but are not limited to, the following:

- Cases studies on human resource management.
- Economic development of nations and regions.
- Knowledge management theory.
- Knowledge creation.
- Knowledge-based resources.
- Human resource policies.
- “Make”/”Buy” human resource systems.
- Human capital.
- Relation capital.
- Structural capital.
- Innovation.
- Organizational learning.
- Organizational unlearning.

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# Chapter 1

## Managing Informal Learning in Workplaces: The Practice of China

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### ABSTRACT

*There has been increasing interest in informal learning in recent years and interest in managing informal learning, especially in workplaces. This study selects sample companies and surveys in informal learning in work environments and presents the current situation and problems of informal learning in workplaces. The study establishes the mode of informal learning in the work environment and develops the conceptual framework of managing informal learning. This is done based on the theories of knowledge management and social constructionism.*

### INTRODUCTION

Informal learning is a kind of kind occurring in a random context. It can be seen everywhere in the workplace where learners can obtain work-related resources at any time. In an organization, employees rarely have the time to participate in formal learning; even if it is e-learning, informal learning usually takes a very short time. It is not expensive because it does not need to hire teachers, provide catering and employees do not need

to leave their post. Moreover, the information facilities in an organization provide technical support for the implementation of informal learning in fact, communities of practice, e-Coaching, BBS based on the organizational network facility informal learning.

From the perspective of the individual learner, informal learning essentially emphasizes a personalized, random learning philosophy. Learning is no longer a single, fixed form of organizational behavior but the growth process of self-realization and self-pursuit of learners (Yuan & Xu, 2009). This learning concept deviates from the traditional

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worship of scientific knowledge. Instead, it emphasizes the effectiveness value of knowledge. It has a practical significance for individuals in a particular social context, especially in the actual work situation of problem-solving orientation. Therefore, there has been increasing interest in informal learning in recent years as well as interest in managing informal learning in workplaces. Boud and Middleton (2003) claim that an informal information exchange between peers in the workplace is the main learning mode. Relatively speaking, the role of formal training activities is relatively weak. To pay attention to informal learning, integrate learning resources in an organization, and manage informal learning in the work environment would be of great significance.

In an era of ongoing change, workplace learning has taken on an increasingly popular role as a vehicle through which organizations can achieve not only their short-term goals but also their long-term, strategic visions (Cofer, 2000). In recent years, the research on social networks has opened a new vision for informal learning in workplaces. A growing number of scholars have found that a network in an organization can affect the emergence and development of informal learning because in the interaction among people, a lot of information and resources are exchanged and transferred. Web 2.0 technologies provide the tools for the establishment of interpersonal networks and the expansion of exchanges among people. This study focuses on informal learning in workplaces and develops a framework to manage informal learning in workplaces so that individuals can learn faster and more effectively in their daily work.

## RESEARCH BASE

### The Concept

Livingston (2006) refined his definition of informal learning to include all forms of intentional or tacit learning in which we engage, either individu-

ally or collectively, without direct reliance on a teacher or an externally organized curriculum. He referred to these forms of learning as self-directed or collective informal learning and highlighted the fact that unintentional or tacit informal learning has been relatively underestimated or ignored. La Belle (1982), Mocker and Spear (1982), Livestone (1999), Bagnall (1990), Marsick and Watkins (1999), Bransford et al. (2006), Rossett and Hoffman (2007) define informal learning respectively from the perspective of comparison between informal learning and formal learning. The learning is divided into Formal Education/Learning, Non-Formal Education/Learning, and Informal Learning. The former two are collectively referred to as formal learning. Informal learning is all learning that occurs outside the formal education and non-formal education institutions. Marsick and Watkins (1990) defined informal and incidental learning by their very contrast with their formal learning counterparts. Formal learning is typically institutionally sponsored, classroom-based, and highly structured. Informal learning, a category that includes incidental learning, may occur in institutions but it is not typically classroom-based or highly structured and control of learning rests primarily in the hands of the learner. Formal and informal learning are only a conceptual framework. The two actually are without boundaries, which means that the learning time and the institutions are not the defining feature of the informal learning. In fact, informal learning can also occur in formal learning (Sawyer, 2006). Additionally, the definition of informal learning itself is a type of study. Once the informal learning is objectified, classified, and measured, in a way, its role has been diminished (Garrick, 1998). Another thing to note is how to distinguish the relationship among informal learning, workplace learning, workflow learning, and work-based learning. Hewlett Packard (HP) uses work-based learning instead of informal learning because this can show learning's personalization, authenticity, activity and integrity with work (Rossett & Hoffman, 2007).

## **Managing Informal Learning in Workplaces**

Therefore, informal learning is relative to formal education or training. It is a form of learning by which people obtain new knowledge in an informal time and place during work, life and social activities. For example, people achieve learning by sharing, reading, gathering, games, etc. The informal learning plays a crucial role in learning how to do the job.

### **The Theory**

#### **Knowledge Management**

Knowledge management is a kind of management and knowledge is the core of management. It is a process for an organization to manage knowledge acquisition, storage, learning, sharing, application and innovation on the whole (Zhao & Ordóñez de Pablos, 2009; Zhao, 2010). The idea of knowledge management is based on the distinction of explicit knowledge and tacit knowledge. Informal learning practices are directly guided by knowledge management theory, namely the division and mutual transformation of explicit knowledge and tacit knowledge is the core. Nonaka and Takeuchi (1995) put forward the SECI model, which includes four transition processes from explicit knowledge into tacit knowledge: Socialization, Externalization, Combination, and Internalization. In fact, non-formal learning process itself is an implementation process of knowledge management. It is a process about how to change the experience of others into their own experience, how to change personal experience, inspiration and tacit knowledge into expressed, understandable explicit knowledge, how to socialize personal knowledge and apply it in practice and how to learn the tacit knowledge from others (Zhang & Ma, 2007; Li, 2009).

Although this model is sure about the existence of tacit knowledge in inter-organization and its meaning to organizational innovation, but in practice, because tacit knowledge is tacit, informal, in addition to the limit of development stages of

knowledge management, we have no more successful management strategies in current knowledge management practices. In other words, currently, knowledge management focuses on managing structural and quasi-structural knowledge. In fact, this knowledge obtained by informal learning such as learning by observing or learning by asking for help from others through interpersonal networking is very important for the construction of individual knowledge. Informal learning is a wide dispersion in the interpersonal network of organizations and workplaces. Accordingly, ubiquitous learning (u-learning) is possible anywhere and anytime. It is necessary to integrate informal learning into organizational knowledge management to improve the ecological chain of knowledge and to build an organizational knowledge ecosystem.

#### **Social Constructionism**

Informal learning is achieved in the social interaction of non-teaching. It is directly impacted by social constructionism and social constructivism.

Social constructivists think that knowledge is constructed in the range of human society. Knowledge is not only constructed in the interaction between the individual and the physical environment, social interaction is equally important possibly even more important. The development of human mental function is a result of social interactions. In this process, language and other symbols have a very important significance. Social constructivists put the relationship between people first. They focus on the social interdependence of action at a microeconomic level such as consultation, collaboration, conflict, rituals, roles, and social scene. These paradigms are then explained from the perspective of internal mental processes.

Knowledge is not passively received but rather is built up actively by the individual. Cognition has an adaptive function. As learners adapt to new information from their environment, they attempt to make the most viable fit (Glaserfeld, 1995). Humans are constructed not only through

individual processes but through meaningful interactions with others (Gergen, 1995). Gergen (1995) claims that the authenticity is constructed relying on our conversation as ordinary people. This approach exists in our daily communication with each other. Conversation should be the key where we pay attention. These talks are composed from our experience.

The social construction theory is debatable in view of the objectivity of knowledge but it gives us a vision. The basic view of human development in social interaction provides theoretical support to informal learning practices.

## THE SURVEY

We carried out questionnaires and interviews for the study of informal learning in workplaces. The investigation period is from June to August 2010. 108 questionnaires were issued and five managers were interviewed. This survey aimed at understanding the situation of informal learning in workplaces in the Web 2.0 era. 108 employees are from eight enterprises and organizations including three high-tech enterprises, two cultural enterprises, two consulting firms, a government agency. We select Flickr, Delicious, 43Things.com as web-site representatives of Web 2.0 technologies, and select blog; tag such as label, classification; SNS, such as renren, QQ space, my space; RSS, such as Google Reader, rss.sina; wiki, such as Baidu Encyclopedia, Wikipedia as software applications of network social. The total number of questionnaires returned is 93. The degree distribution of surveyed employees is people with undergraduate degree account for 54.5%, graduate and doctoral degree account for 43.5%, below undergraduate account for 2%. Their profession distribution is Humanities account for 41.6%, science account for 46.5%, the others account for 11.9%.

Informal learning in the work environment as an emerging approach to learning is not yet mature

from both the theory and practice. By means of analysis on the results of survey, we find some problems in the informal learning in the work environment as follows.

The survey shows that the majority of learners know informal learning as an assistant learning way of formal learning, people understanding informal learning partly account for 58.9%, understanding it better or very well account for 43.1%. We can see from the above statistics, the learners understand the concept of informal learning to a certain extent, but the understanding is not very thorough, and they have not given sufficient attention to informal learning. It is also possible some learners do not know the concept of informal learning, but in virtually Web 2.0 technologies are applied to carry out a number of informal learning activities.

In addition, according to the statistics on online learning communities or groups, 81.2% respondents have participated in online learning communities and groups. The participation in online learning community or group shows active interaction with the outside information, and is one of the main forms of informal learning in Web 2.0 environment. From the survey, we can see that although the majority of learners are involved in online learning communities or groups, the frequency of involvement is not high, the sense of participation is not strong, and did not take full advantage of Web2.0 technologies to the informal learning.

Learning effect is a true reflection of learning situation; it has a wide variety of evaluation methods. We combine the characteristics of informal learning, and allow learners to evaluate learning effect through self-evaluations according to their learning experience under Web 2.0 environment. 2.3% of the respondents think the informal learning in the Web 2.0 environment is very good; 19.2% of them think it is ok; 29.3% of them think it so so; 39.2% of people think it is not very good, 9.0% of people think it is very bad. Of the above statistics



## Managing Informal Learning in Workplaces

and informal learning experiences in the Web 2.0 environment, we find that although the learners under the Web 2.0 environment take a positive and optimistic attitude, but overall the learning effect is unsatisfactory.

By the further interviews with managers, we find that external factors such as learning atmosphere, network conditions, learning platforms, learning partners have impact on learning effect. Although some objective problems only partly affect the effect of informal learning, but if those problems are not solved, and they will directly affect the learning enthusiasm of the learners in Web 2.0 environment. It is not conducive to the promotion of new learning concept and the improvement of integrated learning ability. For example, some learners hold positive and optimistic attitude of informal learning in Web 2.0 environment, but due to poor learning environment in which their potential desire to learn can not be fully stimulated in order to better put into learning; good learning terminal and network communication supporting the learning process is blocked; the right Web 2.0 informal learning platform is lacking, knowledge obtained is fragmented and non-systematical;

mutual aid between learning partners is lacking so that learners are isolated, and learning emotion is greatly frustrated.

## MODE OF INFORMAL LEARNING

### Networking Channels of Informal Learning

Informal learning is increasingly valued by organizations, especially when Internet applications are popular, a growing number of informal learning are transmitted through network. Therefore, in the planning of e-Learning, informal learning is an indispensable part; moreover, its importance is growing. Online learning community and online knowledge base is the core part of the current networking informal learning, see Table 1.

Online learning community is a networking space of informal learning. From the perspective of learning mode, it provides a collaborative learning among people; from the perspective of knowledge management, online learning community is an important place to promote the

Table 1. Networking channels of informal learning

Networking space	Channels	Applications in informal learning
Online learning community	BBS	<ul style="list-style-type: none"> <li>Develop or integrate an independent BBS forum system to meet the planning needs of the learning community.</li> <li>Introduce external open industry professional forums and learning community, and automatically import into the module of the learning system through standard technologies, such as XML, RRS.</li> </ul>
	Blogs etc.	<ul style="list-style-type: none"> <li>Develop Web 2.0 application taking learners as core, such as blog, podcast, public bookmarks.</li> <li>Import automatically external open content such as industry expert blog, podcast, public bookmarks into the relevant module of the learning system through standard technologies, such as XML, RRS.</li> </ul>
Online knowledge base	Document management system	<ul style="list-style-type: none"> <li>Develop or integrate an independent documentation system to meet the planning need of knowledge base.</li> </ul>
	Wikipedia	<ul style="list-style-type: none"> <li>Develop or integrate Wiki knowledgebase system, and the content is the core of system.</li> </ul>
	Question answering system	<ul style="list-style-type: none"> <li>Develop or integrate question answering system in a learning system, which core is knowledge points.</li> </ul>
	Introduction of external knowledge base	<ul style="list-style-type: none"> <li>Import automatically external open industry expertise knowledgebase, question-answering base into the relevant module of the learning system through standard technologies, such as XML, RRS.</li> </ul>

generation of knowledge. BBS forum is a traditional form of learning community; when Web 2.0 technologies are popular, blogs, bookmarks, podcasts, etc. can be integrated into the learning community as Web 2.0 applications.

Online knowledge base is another important networking space of informal learning. From the perspective of learning mode, the online knowledge base provides a function of fast instant learning; from the perspective of knowledge management, online learning knowledge base is an important place to promote the precipitation of knowledge. OA or document management system are traditional online knowledge base; due to the popularity of Web 2.0 applications, some forms of Web 2.0 applications such as Wikipedia, question answering etc. can be integrated into online knowledge base so as to form more abundant knowledge resources.

## Informal Learning Based on Web 2.0

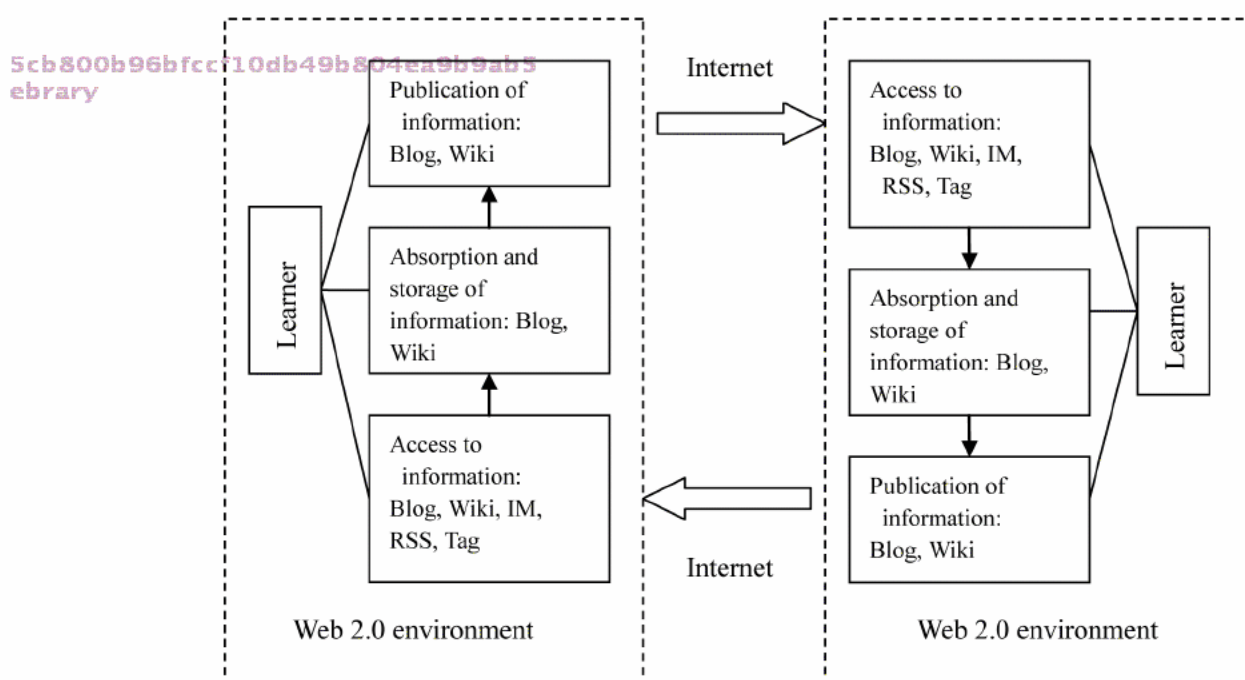
The characteristics of informal learning is sporadic and random, the problems encountered in infor-

mal learning, information obtained, knowledge points learned, inspiration prompted are often fragmented. The establishment of informal learning mode based on Web 2.0 enables it possible for learners to quickly acquire knowledge, effectively communicate and orderly store knowledge, so as to combine knowledge fragments, collaboratively exchange, build and store tacit knowledge.

The reason why Web 2.0-based informal learning is suit to most of learners is it brings together a variety of learning software, including Blog, IM, Wiki, RSS, Tag, etc. Some of them have a single feature, while others have a variety of functions. For example, Tag and RSS can only be used to obtain information, Blog, Wiki has access to information, and also has functions on the storage, integration and publication of information. In informal learning, the social software plays different functional roles, informal learning mode based on Web 2.0 coordinately use its multiple functions.

See Figure 1, the informal learning mode based on Web 2.0 is presented by an example of two learners.

Figure 1. Mode of informal learning in web 2.0 environment



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In this learning mode, the two learners stay in their own Web 2.0 learning environment as a leader, controlling a variety of social software of Web 2.0 technologies, mastering their own learning themes and learning content so as to have a high level of interest for their own learning. At the same time, informal learning mode based on Web 2.0 enables learners to easily access, absorb and store, release information through integrated powerful social software with a variety of features (Sun & Zhao, 2010; Wang & Liu, 2010).

In Web 2.0-based mode of learning, learners not only can be able to subscribe channels through RSS technology according to their own needs, and directly know whether resources are updated at any time, but also can enjoy the released learning resources by other members from many other topics or communities of practice group, such as Blog group, Wiki collaborative group, and Tag classification, etc. Blog and Wiki have the function of information filtering; learners can directly obtain the latest, most valuable, and the most professional knowledge combination from Blog group connection and Wiki collaborative team. The fast and convenient access to information reduces the trouble of a lot of unnecessary information filtering for learners, also avoids the interference of redundant information, it greatly improves learning efficiency of learners.

The absorption and storage of information is the same important as the access to information. To change obtained information into own knowledge is a very complex process, blogs and IM software based on Web 2.0 make the process of absorption and storage of knowledge simple. First of all, the access to external information requires learners to think independently and exchange so as to integrate the information into their own internal knowledge systems. Blogs and IM as a social exchange tools enable learners express their views freely, and form own knowledge based on their consensus. Second, the information obtained temporarily does not mean a long-term memory, especially in informal learning, some knowledge

is occasional, it is possible to forget if it is not recorded timely, hence timely record of new information and writing of learning experience is particularly important. Blog is a form for learners to record recent study proceeds as well as their own understanding of knowledge, and construct their own knowledge base system.

In traditional networks, learners are passive recipients of information; the emergence of Web 2.0 enables learners to publish their own information conveniently. People can build their own blog on the Internet and participate in the wiki writing, recommend books, and diffuse personalized information. RSS, Blogs, Search engines and other social software provide learners with timely access and filtration of information. A lot of accumulation of information will inevitably bring about the release of information, Blog publishing platform plays an essential role for the learner to release information.

To sum up, Web 2.0-based informal learning is characterized by people-oriented, active construction, innovation and openness, collaboration and interaction, convergence and sharing, which cater to network learning and meet the learning needs of learners.

## **Mode of Informal Learning in Workplaces**

Marsick and Watkins (1997) point out that informal learning can be planned, and overall learning is enhanced by planning, either before the fact or in retrospect to learn from past experience. Learning opportunities that extend beyond the barriers of an employee's job description may offer exposure to knowledge, skills, and abilities required for future assignments, and/or opportunity for promotion. As long as people have demands, motive and opportunities to learn, informal and occasional learning will occur. Marsick (2006)'s research greatly affected the field of management and human resources development. His research focused on how to promote informal learning and

incidental learning, taking action-reflection-action as the core of informal learning when establishing informal and incidental learning mode.

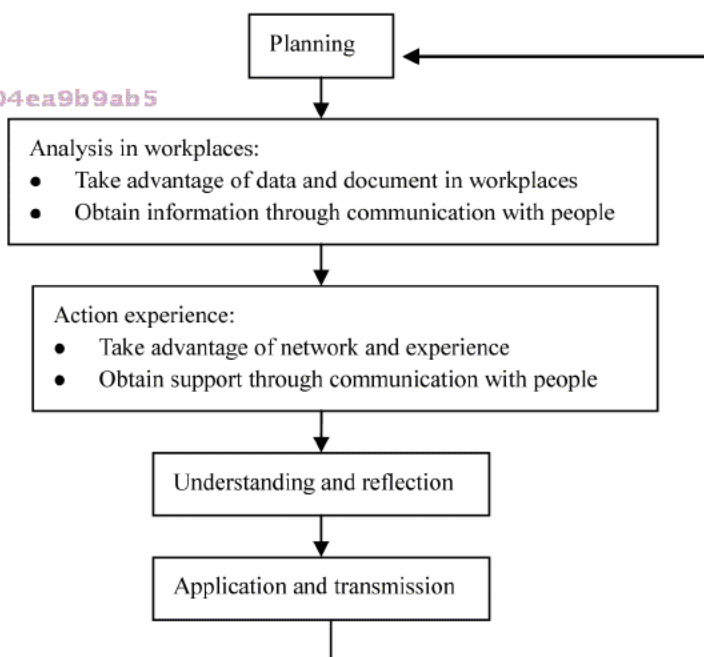
Before people take different measures or actions in the face of new problems, new challenges, firstly the cognition and interpretation on the situation or background in a workplace is necessary. Information can be obtained through data and document in workplaces, and also exchange with people, see Figure 2. Then on the basis of understanding the situation or background, the final program of action is chosen, action experience is conducted, in the process, network and experience can be used, support can be received through communication with people. Once people take solution, people can assess the results of action, and confirm its consistence with the intended goal and effect. From the judgment of the results, some lessons are achieved, lessons and experience are transmitted through communication for future action, these results will be a framework by which people understand new things in a new context, so as to return to the starting point of the cycle.

## IMPLICATION FOR MANAGING INFORMAL LEARNING

Informal learning is the spontaneous behavior of learners; therefore, the focus of management and planning is on creating a networking environment, which is conducive to informal learning. In the context of e-Learning, the key is to manage and promote informal learning in an organization through a learning management system. We construct a framework of managing informal learning, shown in Figure 3.

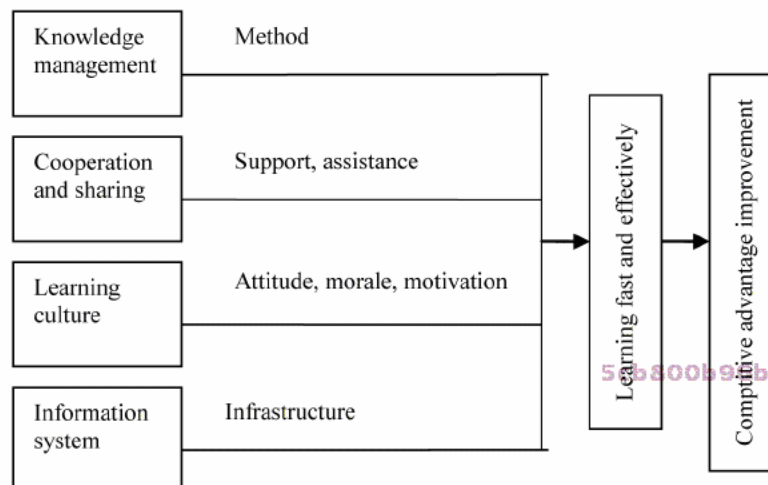
The implementation of informal learning within an organization requires objective support, the infrastructure is very important to promote informal learning and optimize the process of informal learning, and make informal learning routine and carry out effectively (Yu & Mao, 2005). The objective support includes budget for informal learning; guidance, consultants and expert support for 24 hours; gathering and learning place, such as room of books, newspapers, electronic reading room, seminar rooms etc.; practical, efficient and

Figure 2. The mode of informal learning in workplaces



## Managing Informal Learning in Workplaces

Figure 3. The framework of managing informal learning



timely updated FAQ (Frequently Asked Questions), group knowledge base, and knowledge management systems; opportunity of inter-departmental communication and gathering; organizational e-learning system; online virtual exchange community, such as groups blog based on Web 2.0 technologies while informal learning activities can increase use of Web 2.0 technologies by informal learners (Clough, et al., 2008).

A positive and innovative corporate culture is helpful to create an atmosphere to promote informal learning. As evidenced by the findings of the Education Development Center's study, the formidable advantages of informal learning cannot be denied. However, this is not to suggest that every corporation rush off to implement strategies for facilitating informal learning. Informal learning is merely one intervention that, with its known successes, may be the solution to an organization's problems. Consideration must be given to organizational context and culture. A combination of the right environment and mix of strategies are a great foundation for an organization's workplace learning efforts. A positive learning and innovation-orientated corporate culture is the soul of this enterprise, it is the faith of each employee.

Informal learning depends mainly on the initiative of the learner, a good learning atmosphere is very important to carry out informal learning. Then an atmosphere with active talk, exchange, and cooperation is meaningful to promote informal learning. The social network refers to the collection by a number of points (social actors) and links (relationships between the actors). An internal social networks having more than one levels and rigorous structure plays an important catalytic for informal learning among employees (Gao & Liu, 2010).

Under a normal condition, about 9% of tacit knowledge gained in informal learning can be changed into explicit knowledge, and then transmitted through informal learning (Yuan & Xu, 2009). To create tacit knowledge is a learning process of knowledge accumulation and innovation. Employees collate and analyze obtained tacit knowledge and make it become systematic explicit knowledge, it is a process of knowledge innovation. By means of incentives, we encourage employees to conduct knowledge innovation, and directly promote informal learning among employees; it is helpful to form a corporate culture of respect for learning and innovation.



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## Chapter 2

# Intangible Capital Management Method as Dynamic Knowledge Wisdom

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### ABSTRACT

*We are now in the age of various capitals like money, facility, real estate, movable property, structure, system, information, relations, human resource, intellectual property, knowledge, intelligence, and dynamic knowledge wisdom, which will have much influence in production, sales, management, economy, society, country, and the world. Some of them are tangible and the others are intangible. According to the tangible capitals, we have been developing the management methods here and there in real usages, but according to the intangible capitals, it is very hard to say that we are able to treat and manage the intangible capitals in an appropriate method by a proper intention. It is just because they are themselves quite ambiguous to understand and treat. Therefore, the present situations of the capitals, a treating method in principle, and a future direction of the capitals are studied by introducing the basic idea of "Intangible Capital Management Method as Dynamic Knowledge Wisdom."*

### PRESENT SITUATION

Here, it mentions about the present situation of Tangible Property and Intellectual Property for treat and usage with company, university, and institutions, in general.

Compared with 20 years ago in Japan, we have now more Intellectual Property (Patents) from Universities, and have now more Intellectual Property transfers from Universities to companies for real

usages. In addition, there are now more collaboration among three sectors (Academy: University, Private: Company, and Public: Government) in terms of Intellectual Property for creations and usages as innovations than decades ago.

If we look at the world in terms of an innovation and a technology transfer, there are now so many innovations and technology transfers in all over the world. However, it is also true to say that some of them are not on this stage about twenty years ago of Japan yet, and that others do not even have so distinguished movements on this matter in industrial and economic situations. However,

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