Effective societal knowledge management

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Abstract

Purpose – The purpose of this paper is to suggest principles and framework for comprehensive societal knowledge management (SKM) for countries to provide acceptable conditions for their citizens and businesses and to participate equitable in the globalized knowledge economy.

Design/methodology/approach – Foundations for SKM principles and framework are based on requirements and practical experiences reported in literature and expanded by the author’s work and concepts.

Findings – Comprehensive SKM is not commonly pursued in spite of its importance for national survival. Many countries need SKM guidelines and concepts and will benefit by development of an acceptable and well-substantiated framework.

Research limitations/implications – Extensive research should be pursued in scientific, economic, social, and educational fields to identify good SKM options. Understanding must be developed of how best to undertake SKM.

Practical implications – Implications are that comprehensive SKM by nations promises to improve quality-of-life worldwide.

Originality/value – Notwithstanding the need for a comprehensive SKM framework, little work has been available until now.

Keywords Society, Knowledge management, Economic growth, Globalization, Quality-of-life, Literacy

Paper type Conceptual paper

Introduction

Most nations seek good conditions for their public and private institutions and citizens. Sustaining satisfactory levels of economic activities and development, personal and shared qualities of life (QoL) are particularly important. Strong societal intellectual capital[1] (IC) is required to create and maintain acceptable internal domestic and local conditions and to participate effectively in the global knowledge economy. Acceptable QoL is achieved when the society is capable, balanced, and just and when appropriate IC is possessed by citizens, public servants, and organizations and incorporated in their practices, systems, and procedures. Societal success rests on widespread knowledge, cities are major generators of ideas, and widespread knowledge is fostered by effective societal knowledge management (SKM) to build, maintain, and make the best use of IC assets.

In 1945, Hayek outlined the importance of knowledge for societal guidance and governance, albeit the importance of knowledge was not yet clear (Hayek, 1945). That became clearer in 1986 and 1990 when Romer provided the economic understanding that knowledge is the underlying factor that fuels performance, progress and economic growth, locally, nationally and globally (Romer, 1986, 1990; Warsh, 2006). From a more practical and operational view, Drucker introduced the understanding of the knowledge worker and this mode of work to the modern knowledge economy (Drucker, 1969).
This article explores knowledge-related possibilities for societal progress and success. In today’s global knowledge economy, new perspectives, approaches, and practices – as cultural drivers – are also drivers of societal advances, not only for developing nations but also for highly industrialized nations. The article emphasizes building competent people, profitable enterprises, effective cities, and desirable societies. Such developments result less from central planning and design – they primarily result from actions of people and organizations with detailed localized knowledge of needs and opportunities. Instead of specific prescriptions for how to build capabilities, the emphasis is on a knowledge-focused framework to foster environments, culture, and infrastructure.

Countries throughout the world struggle to meet the demands of the globalized knowledge economy. All have the requirement to build, manage, and utilize the knowledge needed to participate successfully in the global economy. Every nation needs to manage knowledge effectively. It is surprising that though societal knowledge management (SKM) is a fundamental necessity, few nations do it comprehensively (Malhotra, 2002; Ntoso, 2006; Riege and Lindsay, 2006). Many do not consider SKM at all. Even advanced countries like the USA allow literacy to decline (Gordon and Gordon, 2002). Secondary and college education are often inadequate for national needs. In the USA there are serious undersupplies of trained engineers, scientists, and healthcare professionals to serve expanding needs and to replace retiring professionals (Engardio, 2005; Rose, 2006). Literacy in developing nations is below levels required to support participation in the global economy and provide acceptable quality-of-life. In 2007 cities will be home to 50 percent of the world’s population with 20 percent living in city slums. In China, 400 million will move to cities by 2015. UN and WHO warns that urban poverty has severe economic and health impacts and states: “In 2005 there were more people in Mumbai’s slums than in all of Norway!” (UN-Habitat, 2006).

Societies seek progress and success

The world inside and outside a country is in constant flux – economically, environmentally, technically, socially, and politically. There is constant progress with growth of technology and scientific understanding, of wealth, of quality-of-life, and in many other areas. In these processes, knowledge is the driver of growth (Romer, 2007). Many developing nations need to initiate and accelerate growth of both knowledge and the economy, as indicated in the simple model presented in Figure 1. This model portrays the dual positive feedback process that contributes to knowledge growth when seed funding is provided for financial aid for educating individuals to be competent workers, and for enterprises to expand and provide employment opportunities. As people become proficient and obtain employment, they are able to seek further education. Similarly, as enterprises improve their capabilities, they generate both funds for expansion and better knowledge for increased productivity and improvements.

To deal with societal flux, governments have two general purposes. One is to manage change and guide progress as local and global conditions, capabilities, people, and perspectives change. The second is to ascertain that laws and regulations are followed and enforced, often in new contextual situations when they fall outside the initial intents. Both of these purposes require knowledgeable judgment, not only within the legislative, executive, and judicial branches but also by public servants down to the lowest levels. Contextual interpretation requires better knowledge to support timely and competent handling of work, often involving novel challenges that require innovation.
Other factors are also important, as indicated by these examples: The ability to obtain title for ownership of property in a timely and non-bureaucratic fashion strongly affects economic growth and progress and is made more efficient with more knowledgeable public servants (de Soto, 2000). Similarly, personal outlook for opportunities – influenced by being more knowledgeable – affects motivation and ability to pursue better conditions, be they business or personal improvements (Harrison, 2000).

The balanced knowledge society

The global knowledge economy changes the rules for national progress. Taylorism’s command-and-control top-down models and other single-focus government systems have limited success. Instead, distributed and delegated public planning and decision making are needed in a balanced society to provide understandings, decisions and actions that address local contexts and opportunities to fulfill shared objectives (Galbraith, 1996).

Any analysis of how knowledge may improve society is based on reference models, perspectives, and understandings. This article is no exception and the underlying model is a balanced, just, and democratic society. A balanced society has goals such as a peaceful, stable, prosperous, and durable future for its citizens and enterprises. It also seeks to be a responsible international partner. Several factors influence desired societal balance. Mintzberg proposed three main sectors of society as often being out of balance with one another: the political, social, and economic sectors (Mintzberg, 2001, 2002; Skapinker, 2003).

This article broadens Mintzberg’s societal balance concepts to four major sectors: Governance, Economy, Quality of Life (QoL), and Culture, as indicated in Table I. The performance of each factor and the degree to which societal goals are reached relies on knowledge. All benefit from deliberate SKM to build better knowledge. Reaching balanced society goals requires that citizens are knowledgeable to participate intelligently in public affairs and government (Wiig, 2002). Once a society determines which knowledge-related factors will affect its goals and intents, it can set priorities for SKM and pursue initiatives. However, one caveat must be considered. Practical knowledge is very important. Theoretical academic knowledge does not ensure good governance. Nor does knowledge by itself ensure ethical behavior and governmental transparency.
Successful participation in the global knowledge economy

Every nation wishes to participate equitably in the global knowledge economy by having domestic enterprises that serve international customers. International trade provides profits for private and public enterprises, good incomes for employees, and balance of payment contributions to the nation. However, building acceptable international trade requires domestic conditions that favor economic activities. Long-term widespread economic success relies on societal stability and good intellectual capital. Stability depends on citizen satisfaction, their wellbeing, and the resulting social sentiment and culture. Dissatisfied citizens create problems of social unrest, corruption and crime, and lack of motivation to participate in the economy.

A significant result of worldwide progress is that work in general has become more complex. There are many reasons and the pressure to tackle more difficult challenges are felt almost everywhere. In advanced organizations, including governmental functions, routine work is increasingly automated and people are asked to address more challenging and important tasks that previously were not addressed. Handling these new situations competently requires more and better knowledge than was required for “past work.” In addition, to compete successfully the need is to provide more sophisticated goods and services which are harder to make but provide greater acceptance and value to customers.

In non-traded economic sectors, such as healthcare and local services, the situation is different but still affected by globalization. As people throughout the world are better informed through media and the Internet, they become more discriminating and demand better services as part of improving their QoL. Hence, indirect globalization pressures are felt in local services and for example, innovation in local health care becomes an important issue.

Small and medium-sized enterprises (SMEs) are pressured to be more effective and innovative to compete. Often competition is felt in local markets invaded by efficient external competitors with a wider range of goods and services that also may be less expensive. From one perspective this is progress on a global scale. From another perspective this is unwelcome intrusion with unwanted changes that threaten the livelihood of those who are unprepared.

The public sector is similarly affected. Comprehensive information and communication technologies (ICT) provide new capabilities and practices that change much of the nature of public service and interactions with the public-at-large. As citizens learn from television, internet, and other sources about what happens elsewhere in the world, they become more discriminating and demand better and more transparent public services. The new work requires greater knowledge – targeted task knowledge, broad enterprise knowledge with understanding of operations, local navigational knowledge, and reliable world knowledge (Wiig, 2002).

| Table I | Examples of factors that contribute to a balanced society |
|-----------------------------------------------|
| Governance sector | Economic sector | Quality of life sector | Cultural sector |
| Representative and knowledgeable legislature | Personal wealth and livelihood | Personal welfare | Ethics and social values |
| Executive government | R&D and industrial activities | Health care | Religious freedom |
| Impartial justice system | Domestic and international commerce | Social services | Respect for the individual |
| Defense/public order | Financial system | Availability of quality education | Civil behaviors |
| Fiscal governance | Global competitiveness | Just security for all | Tolerance |
| Infrastructure | | Freedom of action | |
| International relations | | Sense of opportunities | |
| Ethical governance | | | |

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The importance of broad literacy

The ability to perform well in the twenty-first century requires broad literacy and that is important in the modern world (Katz, 2000). Literacy normally means to have knowledge to read, write and perform mathematics at certain levels. Workers must understand written instructions, make notations, perform simple calculations, and so on. However, literacy is also required in other generic areas such as finance, computer use, world understanding, science, and geography (NEFE, 2002; Hazen, 2002).

Unfortunately, reading-writing-arithmetic literacy is inequitably distributed throughout the world (UNESCO, 2001, 2002):

- 26 percent of the world’s adult population is illiterate;
- 98 percent of non-literates live in developing countries;
- in the least developed countries, the overall illiteracy rate is 49 percent;
- 52 percent of all non-literates live in India and China, which have one-third of world population;
- less than 60 percent of adults are literate in Africa; and
- women make up two-thirds of all non-literates.

With a large portion of the world’s population being illiterate, the lack of literacy knowledge severely affects societal success. The economic impact of illiteracy is immense and hampers developing nations in their efforts to provide for their citizens and to participate equitably in the global economy. Over 100 countries are severely affected. The opportunity is significant. Long-term effects of improved knowledge indicate that an increase of 1 percent literacy score leads to a 2.5 percent personal productivity increase and to a 1.5 percent increase in GDP (Coulombe et al., 2004).

The relationship between average personal annual income and national literacy rate is indicated in Figure 2 for representative nations. Clearly, the potential economic return to a nation will be large by increasing literacy. However, in some nations autocratic regimes benefit from illiteracy since that makes it easier to govern and manipulate the public without opposition.

Figure 2 The relationship between literacy and annual personal income

![Graph showing the relationship between literacy and annual personal income](image_url)
Personal and shared quality of life

Securing a progressive and viable society requires an environment that promotes citizen QoL or wellbeing by providing security through just law and order, a safe future, equitable economic order, and so on (Polanyi Levitt, 2006; Prescott-Allen, 2001). Perceived QoL contributes strongly to personal wellbeing through adequacy of food, shelter, security, sense of opportunities, and freedom of self-determination. It also affects people's motivation and capability to improve their situation (Harrison, 2000). Personal QoL refers to an individual's condition and is partly determined by personal life choices and behavior. Shared QoL is mostly under societal control and results from available natural, industrial, and human resources and society's past and present choices. Hence, shared QoL relies on collective decisions about priorities and resource commitments and agreements for governing as determined by constitution, laws, and regulation. Although personal QoL is heavily influenced by natural conditions and societal actions, people have freedom to influence their QoL by decisions about education, employment, and where to live.

Societal success relies on different kinds of knowledge

People, private enterprises, agencies that provide educational, health, social, law and order, infrastructure and other services, cities, districts, and regions, and the society's governing institutions are all interconnected and dynamically coupled. The quality, availability, and applicability of personal and organizational knowledge determine their individual and combined effectiveness. Different knowledge is required to tackle tasks and challenges and all parties must innovate and collaborate to create and renew knowledge. Major roles of knowledge are (Wiig, 2004):

- **Awareness creation** – uses knowledge to observe circumstances, i.e. situations, contexts, ideas, etc. from one or more perspectives.
- **Sense making** – uses knowledge to assess, analyze and understand what the circumstances mean.
- **Problem solving** – uses knowledge to evaluate, problem solve, innovate and decide to determine how to handle the circumstances.
- **Decision implementation** – uses knowledge to execute the chosen decisions and implement the decisions through actions.
- **Governance** – uses knowledge to monitor and judge appropriateness of deliberations, considerations and actions.

Knowledge consists of the tacit and explicit actionable capabilities required to reason and deal intelligently and effectively with situations. Knowledge of different kinds cannot be treated the same and that influences its use and management. When associated with individuals, organizations, cities and societies, knowledge serves different functions and has different forms. Knowledge may be personal, shared among people, embedded in artefacts, or be part of an organization's or society's makeup and culture. Knowledge possessed by people is mostly in their minds but it can also be external, as in personal documents. We distinguish between the following forms:

Knowledge-as-object (KaO) is explicit, regularly observable and inspectable. It is regularly communicated as information. KaO is a small part of the total body of knowledge that is created and used by individuals, organizations and society. Explicable KaO can be possessed in a person's mind as recallable mental models, specific episodic memories, and other mental objects that can be communicated on demand. Organizational KaO is included in narratives and stories, books, documents, or embedded computer software and hardware, etc.

Implicit knowledge is not made explicit and may only be available through analysis of documents, stories, and the like. It can be implicit in stories, practices, software, systems, and procedures. It is also included in the collection of cases in case-based reasoning (CBR) systems and embedded in trained neural nets where it is difficult to explicate.
Knowledge-as-process (KaP) results when individuals, groups or entire organizations tackle challenges that fall outside routine experiences. Individuals apply tacit knowledge to explore, engage in conceptual blending (Fauconnier and Turner, 2003), and seek explicit knowledge from available sources to handle challenges and by doing so learn from the evolving process. To address challenges, groups of people collaborate, help each other, and pool understanding to co-create while guided by shared goals. Organizations engage their people, systems, procedures, traditions, and culture to find and execute solutions. New knowledge often consists of innovative approaches that address the challenge. However, it may be ephemeral and tacit, result in personal learning, or be captured for further use.

Tacit knowledge is embedded and may be impossible or difficult to make explicit. Some tacit knowledge can be made explicit over time. In people, tacit knowledge is generally inaccessible to conscious recall and reasoning when it is not well understood or highly automatized and has transgressed the recall barrier (Gazzaniga, 2004). In organizations, tacit knowledge is part of traditions, practices, reasons, and motivations behind networking.

Metastrategic knowledge is part of metacognitive knowledge. It provides metacognitive perspectives that govern the attitude by which a person or an organization approaches complex challenges. Metastrategic knowledge generates the mentality for how challenges may be approached from a conceptual level given prior experiences with challenges in general. Metastrategic knowledge leads some people or organizations to be reluctant and risk averse while others are confident and action oriented (Johnson-Laird, 2006; Kuhn, 2000). A major SKM function is transfer of knowledge. Table II provides examples of various knowledge transfer modes and how some activities and knowledge-containing artefacts contribute to the different forms of knowledge.

On education

People are society’s basic knowledge agents and their knowledge growth through formal and informal education are required for competence to tackle challenges in the private and public sectors and are central for society to function and progress. Advanced tertiary and life-long-learning environments must be created. Modern primary and secondary school curricula such as the International Baccalaureate (IB) curriculum (Wikipedia, 2007) must be introduced along with specialized curricula for people with different intelligences and aspirations such as crafts people and others (Gardner, 1993, 2006, 2007). In addition, for many, the informal daily education obtained in rich cultures and work environments can be as important as formal schooling.

Given the complex work environments that modern technology and general sophistication foster, people must be able to engage in contextual judgments and higher order and complex reasoning that provide proficiency for work and success in daily life (Adley and Shayer, 1994; Johnson-Laird, 2006; Kuhn, 2000; O’Brien, 2000). In general, people must possess schema and metaknowledge to innovate and to handle situations with dilemmas and trade-offs in multi-objective situations, long-term event chains, uncertainties, and missing information.

Realistic participative learning environments must be developed and deployed. Conventional and technology-based interactive educational games and simulators must be created for selected knowledge areas and challenges. Examples include computer-based simulators to educate people to start and operate SMEs and prepare for pursuing job opportunities. Such capabilities will help people of all ages internalize libraries
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<th>Knowledge transfer mode</th>
<th>Knowledge-as-object obtained from</th>
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of mental reference models (Wiig, 2004) and should cover science, job-specific, and world-understanding knowledge domains with practical routines, scripts, schema, and metastrategic knowledge.

**Effective cities and districts**

The contribution of cities and districts to societal success is crucial. Cities are where people from the region come to find work, education, social and cultural life, and improved QoL. Cities are where industries come to find workforces and suppliers. Cities are where economic and commercial establishments come to find customers and other opportunities. Cities are where institutions of all kinds congregate to exchange ideas and learn what others do. Cities, in other words, are where all kinds of modern economic and societal activities come together, often congregating in specialized neighborhoods. Extensive networking in cities with good infrastructure make them become major generators of ideas – of new understandings, knowledge, and innovations. For cities to be effective, they must be diversified with a variety of complementary establishments that foster outsourcing, learning, and provide business opportunities. Diversity drives the city’s industries and commercial establishments in new directions when to deal with changes in technology and the economy. Cities provide the capabilities and resources that make it possible for societies to grow and progress – socially, economically, industrially, and scientifically (Jacobs, 1970, 1985; Komninos, 2002).

Cities must be attractive to draw people and institutions. They need a variety of highly competent people. They need ubiquitously available infrastructures – technical ICT, logistics and transportation, and municipal services. They must provide environments for exchange of ideas through networks of practice (NoP) that allow professionals from many areas to socialize and meet professionally (Brown and Duguid, 2000). They need advanced educational and research institutions to collaborate with local enterprises. City dwellers must be motivated to seek education, on-the-job learning opportunities, and collaboration. They must participate in communities-of-practice (CoP) to exchange experiences, personal knowledge, and knowledge-as-objects (Wenger, 1998). Unfortunately, most cities attract more people than can be employed and that infrastructures can handle, with the result that large slums develop.

**A multi-tier societal knowledge-focused framework**

Effective strategies are required to build the broadly distributed knowledge and focus needed to drive society forward. Numerous areas warrant attention to build capabilities to participate successfully in the global knowledge economy. Societal, enterprise, and personal activities must be supported. Many educational systems are based on hundred-year-old models and practices and need to be changed (Benner and English, 2006). The fundamental role of knowledge and KM for growth and progress is foreign to most, both ordinary individuals and leaders of enterprises, but must be understood. The understanding of how knowledge and SKM affect personal, enterprise, and societal functions is emerging but is in its infancy and focused more on discussions and plans than on actions.

Targeted actions are required for societies to pursue participative global roles. Actions include direct investment in capabilities and services to provide incentives and reference models for society-wide, local, and personal actions. In most societies, the areas that need central and top-down knowledge-focused intervention include:

1. **National plans.** Long-term plans with short-term action-candidates are needed to strengthen IC for support of societal growth and progress. Many nations have already created such plans (Science, 2007).

2. **Broad-based knowledge awareness.** Enterprise managers and the general public need to understand and appreciate the role of knowledge and its active management for personal, institutional and societal success. Public initiatives like media campaigns and general informational efforts need to generate widespread insights.
3. **Societal incentives.** Knowledge building must be priority for organizations and individuals. Incentives need to accelerate these activities by introducing tax incentives for educational activities and grants. Other incentives include certifications of craft competence and other proofs of proficiency.

4. **Reference role models and best practices.** Targeted SKM must be shaped to support new contexts. Specific reference examples, stories, role models, and benefit illustrations help organizations and individuals determine how to proceed and act. Representative examples must be assembled in easy-to-access repositories and publications. Materials must cover applications and advantages for society, organizations, and individuals.

5. **Infrastructures.** Knowledge-empowered societies require knowledge-related infrastructures ranging from technology-based communications capabilities, to educational institutions, to legal mechanisms to protect intellectual property and promote intellectual freedom. Infrastructure capabilities motivate and facilitate enterprises to adopt effective business practices and operations and help individuals engage in knowledge-building activities otherwise not possible (Komninos, 2002; Reinslau, 2006).

6. **Public services.** Society cannot rely on local or private initiatives to provide every knowledge-related capability required. Long-term needs require investments for decades. Examples of initiatives are:

   - Public R&D programs. Most enterprises have limited capabilities to undertake R&D with long-term, industry-wide or national implications. Public funding and institutions are needed to provide scientific foundations and spawn smaller, often private, enterprises.

   - Public educational system. A durable society needs continuous development of its competent workforce. Strong systems maximize individual learning from young age to late life. Educational opportunities must provide people with capabilities to pursue areas of personal strengths and interests (Gardner, 1993, 2006). Educational principles vary greatly, even within cities, and many are outdated. New curricula, modern technology and advanced practices are increasingly available and require infrastructure support and educator reeducation.

In addition, conventional public functions such as national governance, national defense, social services and health care, local law and order, and local infrastructure management functions are needed.

**Societal knowledge management**

Effective SKM is required to build, maintain, and make the best use of the country’s broad knowledge assets. SKM helps to foster knowledge-related initiatives at all levels of society. SKM employs a mix of proactive and voluntary actions governed by personal and local contexts and knowledge-related infrastructures like apprenticeships, public education, basic research programs, and efficient ICT. SKM needs long planning horizons, consider broad implications, and pursue different approaches while also focusing deliberately on short-term results (Wiig, 2006).

Management of knowledge from societal perspectives is not new. It has been a concern for societal progress for several thousand years – in China, India, Egypt, the Middle East, and in early societies in the Americas. Recent developments of practical approaches provide effective deliberate, systematic, and practical SKM. These approaches are based on
understanding of human and social mechanisms and make SKM practices able to provide good results in the short and long term. Many countries have extensive experiences with SKM, broadly within their nations, districts and cities, targeted for industry and commerce, and detailed for individuals (Nordic Council of Ministers, 1998; Reinslau, 2006).

SKM’s purpose is to build, safeguard, and utilize all important knowledge and other intellectual capital assets in every area of society to support and advance societal and private intents and objectives.

This scope includes management of personal, industrial, commercial, and public and national knowledge assets. Intents and objectives are aimed to achieve durable long-term viability and success by fostering balanced, stable, and capable societies with good conditions for its enterprises and citizens. Goals include society's overall welfare with effective cities, districts and regions and their institutions, profitable commercial and industrial enterprises, and personal success.

Principles for effective SKM are that it must:
- Provide societal leadership to promote local and private KM initiatives without autocratic bureaucracy.
- Govern and facilitate building, maintaining, safeguarding, and utilization of IC assets to support broad societal goals and intents.
- Provide societal resources and support priority setting to achieve desired goals.
- Pursue initiatives and practices that employ technology and rely on human and social mechanisms, which must be understood for initiatives and practices to be effective.
- Rely extensively on educational institutions and infrastructure support such as ICT.
- Obtain support by public opinion and voluntary action for best effectiveness.
- Support development of higher-order learning and reasoning in addition to widespread literacy as fundamental goals for effective behaviors.

Premises for SKM include:
1. Citizens throughout society must be knowledgeable and responsible partners who can understand and judge societal issues independently to participate objectively in the public process.
2. An effective society requires competent public administration to perform normal work and with additional insights and perspectives to apply contextual judgment in non-routine situations.
3. A globally competitive society requires a variety of quality IC assets to build:
   - Competent and well-educated workforces.
   - State-of-the-art government and industrial programs for basic and applied R&D.
   - Effective and innovative industrial and commercial establishments.
   - Effective and justly enforced laws and regulations.
4. Modern technology continually changes society’s culture, systems, procedures, and infrastructures. The changes affect personal proficiencies and how organizations and citizens interact with public services, enterprises, and other citizens. Widespread understandings must be built to work with and navigate the new environment.

In general, SKM shares the same foundation as private sector KM. Hence SKM uses approaches developed and perfected in the private sector. Most management, organizational, and operational principles are similar. KM-related technology is also the same. Beyond private sector KM, SKM introduces additional objectives that require different approaches. For example, SKM’s broader scope includes helping people of all ages learn and reason at world-class levels. As part of their SKM some nations support pre-natal and infant care to increase children's learning capabilities with the intent to facilitate their
educational achievements through school and college (Coffey and McCain, 2002; Saugstad, 1999).

The nature of SKM is multifaceted. Some initiatives require management of publicly-funded programs such as support for R&D. Others set standards and policies for educational contents, achievement test principles, and how to deal with patents and intellectual property. Yet others involve international treaties and different approaches to safeguard and exploit ICs globally. Some involve creating public awareness of how to navigate, prepare for, and survive best possibly as their world changes by building awareness, shaping public opinion, citizen attitudes, and the general culture. Still others assist individual citizens understand how to manage personal knowledge-initiatives and help family members, children, and students make effective decisions.

Table III provides examples of SKM activities as they relate to selected strategic and operational purposes.

Final thoughts

The global knowledge economy places requirements on countries to build competent people, profitable enterprises, effective cities and regions, and desirable societies. These requirements are important and they are not simple and lead to significant challenges. Some of these challenges are:

- Fostering the political and public resolve to pursue successful knowledge-driven participation in the global knowledge economy require major efforts.
- Building a multi-tier knowledge-focused planning and action framework and the associated culture involves many new perspectives and professional areas – but needs to transcend the whole society and be undertaken swiftly with long-term perspectives.
- Upgrading cities and districts to become national growth-node knowledge cities with competitive enterprises, competent workforces, technical, educational, and social infrastructures requires political will, extensive – but rapid – planning, and considerable public and private resources.
- Creating national R&D programs and facilities that complement and support industrial and national economic directions requires significant advanced professional resources.
- Educating competent knowledge workers for all levels – professionals, paraprofessionals, craft workers will for most nations require significant changes in educational systems and practices. In many cases it will also require changes in educational philosophy and principles.
- As observed by Peter Drucker: “The productivity of the newly dominant groups in the workforce, knowledge workers and service workers, will be the biggest and toughest challenge facing managers in the developed countries for decades to come. And serious work on this daunting task has only begun” (Drucker, 1992).

The world’s challenges are formidable, as can be seen by examining the map of world literacy rates presented in Figure 3. The challenges must be confronted and tackled by any country that intends to be successful – that wishes to provide its citizens good conditions, its industries and commercial establishments success and growth opportunities, its cities and regions viability, and its society stability and security while changing gradually to adapt to...
### Table III: Examples of SKM activities for some knowledge-related purposes

<table>
<thead>
<tr>
<th>Examples of purposes for managing knowledge</th>
<th>Examples of governance activities</th>
<th>Examples of knowledge-related activity areas</th>
<th>Examples of general SKM activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assure effective public service</td>
<td>Create societal vision</td>
<td>Build SKM infrastructures</td>
<td>Collaborate extensively</td>
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<td></td>
<td>Survey and map current state of</td>
<td>Build communities of practice</td>
<td>Practice “always use best</td>
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<td></td>
<td>knowledge and IC</td>
<td>Build SKM core staff of KM professionals</td>
<td>knowledge”</td>
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<td></td>
<td>Provide incentives, guidelines</td>
<td></td>
<td>Allow public servants to use</td>
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<td></td>
<td>and policies to upgrade knowledge</td>
<td></td>
<td>their expertise</td>
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<td></td>
<td>Create visions for how knowledge</td>
<td></td>
<td>Engage citizens and interest</td>
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<td>can assist better government</td>
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<td>Obtain fundings and legislative</td>
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<td>Obtain feedback to understand</td>
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<td>support</td>
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<td>Encourage citizen participation in</td>
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<td></td>
<td>Govern SKM</td>
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<td>public decision making</td>
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<tr>
<td>Prepare effective policy partners</td>
<td>Create strategy, tactics, and</td>
<td>Conduct extensive education – infants to</td>
<td>Export products and services</td>
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<td></td>
<td>short-term plans</td>
<td>adult LLL</td>
<td>from high technology firms</td>
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<td></td>
<td>Obtain legislative support and</td>
<td>Build public R&amp;D, technology and innovation</td>
<td>Export basic industry products</td>
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<td></td>
<td>funding</td>
<td>parks</td>
<td>with maximum value-added by</td>
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<tr>
<td></td>
<td>Govern</td>
<td>Build libraries and knowledge</td>
<td>using world-class expertise</td>
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<td>repositories</td>
<td>Support industry growth by</td>
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<td>Build and leverage public and private</td>
<td>Create vision for workforce</td>
<td>Conduct knowledge exchanging conferences</td>
<td>developing competent workforce</td>
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<tr>
<td>knowledge</td>
<td>development</td>
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<td>Deliver world-competitive</td>
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<td>Develop guidelines and standards</td>
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<td>for mainstream educational tracks</td>
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<td>Obtain legislative support and</td>
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<td>Support exports by</td>
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<td>Develop capable workforce</td>
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<td>economic development</td>
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</tbody>
</table>

Note: Table continued...
the rest of the world. That does not only apply to the developing world but equally to advanced industrialized nations that plan to continue to thrive.

Note

1. In this article, knowledge is considered to be part of the broader concept of intellectual capital. The two terms will be used interchangeably.

References


Further reading


About the author

Karl M. Wiig is chairman and CEO of Knowledge Research Institute, Inc. and Knowledge Management Adjunct Professor at The Hong Kong Polytechnic University. As technical and management consultant for more than 45 years, he helps organizations develop systematic approaches to manage intellectual capital and effective decision making. His present concerns are societal knowledge management and people-focused knowledge management. He has international reputation for his work in Knowledge Management, applied artificial intelligence and management science and has published over 70 textbook chapters and research articles and five KM books.

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