

WHAT ROLE SHOULD KNOWLEDGE MANAGEMENT PLAY IN THE DEVELOPMENT MANAGEMENT OF REGIONAL GOVERNMENTS AND ADVANCED EDUCATIONAL INSTITUTIONS: AN EXPLORATORY PERSPECTIVE¹

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ABSTRAK

Artikel ini mengetengahkan kenyataan yang ada di dunia kita perihal meningkatnya manfaat dari penerapan/ implementasi program KM/ pengelolaan pengetahuan secara sistematis dan terpadu baik di sektor swasta/ bisnis maupun pemerintah. Penjabaran inti dari KM itu sendiri, komponen-komponen dalam proses KM, serta unsur yang penting dalam penerapan program KM, dilakukan secara seksama. Faktor pendorong penerapan program KM yang bersifat eksternal, internal, dan ongoing, juga disajikan guna melihat kemudahan-kemudahan serta kesulitan yang ditimbulkan proses tersebut. Namun, inti dari artikel ini adalah melihat prospek penggunaan KM di bidang pendidikan (knowledge centers), pemerintah daerah (regional governments), dan dalam proses penggalan dan pemanfaatan kearifan lokal (indigenous knowledge) oleh pemerintah regional dan pusat untuk memacu tumbuhkembangnya pembangunan yang berkelanjutan. Penerapan untuk memacu kualitas dan menganeekaragamkan produk dan jasa yang dihasilkan pusat pengetahuan dan pemerintah regional, serta pemanfaatan kearifan lokal untuk tujuan yang sama dibahas secara serius tetapi jauh dari membosankan. Untuk menempatkan penerapan KM di usaha swasta, maupun pemerintah dalam konteks sosial/ kultur/ ekonomis, permasalahan yang dihadapi dalam implementasi program KM disajikan sehingga menjadi pertimbangan bagi individu, organisasi, ataupun pemerintah yang berkeinginan memulai membangun program KM.

Kata Kunci: pengetahuan, kesenjangan pengetahuan, kearifan lokal, pembangunan regional

INTRODUCTION

Some time towards the end of 2004, Malaysia Palm Oil Board announced the conduction of a seminar on biodiesel developments on its website. Attempt to protect biodiesel technology propriety was evident, being the main driver behind biodiesel efforts to date. Those to attend had to be Malaysian nationals working for Malaysian Companies. Yet at about the same time one of the state owned enterprises in Indonesia was experimenting on using biodiesel a derivative of palm in trucks that traveled from Sumatra to Jakarta. The moral from the above story is though Malaysia may hold the latest formulation of biodiesel as its propriety, it can't stop other countries from knowing the basic finding that palm oil can be converted into some form of diesel which can be used to run engines. So important has knowledge become in today's business world. On the other side of the world, in Kalahari desert, Namibia, South Western Africa; one stout, climate hardened, crimson-skinned man, strapped in an animal hide man, produces clicking sounds as his small body is weighed down by almost half a day's drudgery. He tries to enjoy some respite in the shade of a cactus tree. His visage is all worries, for though armed with bow and arrow, much as his forefathers would have been, springboks, and other wild game are not as easily snares as in the times of yore. Perhaps they could smell presence, he daydreams. All that said and done, a cramp in his stomach that had begun as a small 'itch' develops into full blown hunger which is understandable since he last munched on something 7 hours earlier. Suddenly, he recalls what his father, and grandparents used to do under such circumstances. Just go to the Hoodia gordonii plant, brave the thorny but, fleshy leaves, and snap a chunk off, chew that down, and you will send that crumpling cramp, down your tummy to the rocks. He steadies himself for the 'pounce' on the plant. As he truncates a small, cactus-like plant, his eyes can hardly squint out the meaning of the bold lettered writing stuck on two metal pegs: No trespassing on Unilever property.³ Poor he, he

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3. The Hoodia gordonii plant grows naturally in the Kalahari desert. Bushmen used to chew the plant during long hunting hours, which is the 'value' that a multinational company, Unilever, is trying to cash in on in its obesity breaking drugs. Unilever has bought rights over the use of the product. By developing diet product with the Hoodia gordonii compound, the person extends his satiety feeling, thus reducing the quantity of food/carbohydrates / fats eaten (adopted from The

*doesn't know, let alone envisage a situation whereby the forces that made springboks and impalas as rare as Unicorns, can usurp the power he has over the thorny shrubs as well. It is a fate he shares with many in the developing world.*⁴

The art and science of knowledge management is about identifying, creating, transferring, dissipating and utilizing to the fullest extent possible, knowledge assets, business intelligence, and corporate knowledge, to ensure sustainable competitive advantage in business. Wiig (1999) defines knowledge management as "... practical, basic and directly aimed at supporting the firm's ultimate objectives," while Malhotra (2000) defines knowledge management as "catering to the critical issues of organizational adaptation, survival, and competence in face of discontinuous environmental change." Jarboe (2001) offers a more technical definition of knowledge management as a "...set of techniques and tools to uncover and utilize information and knowledge assets especially tacit knowledge," and according to Cindy Johnson, "Knowledge management is ...all about recognizing that regardless of what business you are in, you are competing based on knowledge of your employees."

Knowledge as the 'ability of people and organizations to understand and act effectively' Wiig (1999), is growing in importance to individuals, enterprises, governments, and other organizations in today's increasingly competitive, knowledge-based economy. From the Ancient Greece Pythagoras, Socrates, Aristotle, Plato, to The Reuter News Service's Paul Julius Reuter, to Acer's Stan Shih (Einhorn, 2000), knowledge has been recognized as vital for individual and organizational development and success.

Shifting trends in business management, customer tastes and preferences, organizational restructuring, changing workers' predispositions, among others, have increased the demand for a shift from considering knowledge merely as an 'artifact' that can be acquired and stored, to leveraging it to achieve and sustain competitive advantage. The market for Knowledge management reached US\$3.5 billion in 2004 from US\$ 515 million, while the market for knowledge services already above US\$8.8 billion. In that backdrop, there is little doubt that knowledge management has taken on greater importance in organizations in general and resource management in particular, in today's increasingly global organization. However, the importance of knowledge management in other areas such as local governments, which are playing enhanced roles following implementation of political and fiscal decentralization policies, increasing privatization, and state-private sector partnership in producing goods and services, and in the management of educational institutions (knowledge centers), has yet to receive sufficient attention.

In light of the foregoing, this article has two intertwined objectives: an attempt to explore the drivers of knowledge management in general, which should help in unraveling the

4. It is in order to avert such a scenario whereby the local population are prevented / forbidden to benefit from local natural assets taking forms of biodiversity in their midst, that efforts to develop indigenous knowledge management have been given top priority. The current trend shows increasing use of organic substances as foodstuffs, palliatives and therapeutics, as well as mediums used in the conduction of rituals, which ensure the perpetuation of ethnic and national identities (GMU, 2005).

second objective of this research: identifying key areas in which leverage of knowledge management programs can enhance competitiveness of local governments and knowledge centers. The article is organized as follows: section two presents principal drivers of knowledge management, while section three discusses the role knowledge management plays or can play in the regional and national development management. Section four explores key areas where knowledge management has played and will continue to play, an important role in the management of institutions of higher learning, and section concludes the article.

DRIVERS OF KNOWLEDGE MANAGEMENT (KM)

Knowledge management has been driven by external and internal drivers, as well as a host of ongoing developments. External drivers have taken a path that is as variegated as internal drivers of (KM). External drivers of KM, which range from rising demand for quality products and services by customers and clientele that require better knowledge of tastes and preferences of both local and foreign customers. The importance of having a good understanding of research and development efforts, process technology, distribution, and marketing strategies employed by local competitors has never been greater.

Equally important is globalization and the advent of the world trade organization with the attendant rules and obligations, which organizations in member countries must abide by in areas of investment, intellectual property rights, trade in agricultural and manufacturing goods, procurement, customs, and provisions on trade in services leading ever stiffer local and international competition; increasingly sophistication of suppliers, which has made knowledge management imperative for market leaders; increasingly dynamic and volatile business environment, which has induced companies to adopt knowledge management as a vital component of business strategies.

Noteworthy as well, is information technology and telecommunications, which has increased material resource mobility thereby reducing gains derived from sheer resource abundance, in preference for resource quality and management (Yang, undated).

Meanwhile, internal factors are a varied package as well. Factors in this category range from the emergence of a new type of worker, with different predispositions from the 'old', with respect to their demand for working conditions, risk-taking is orientation, and demanding high involvement in decision making, requiring a flexible working environment, and demand performance based remuneration.

Additionally, demand for a new lean, efficient enterprise, with reorganized functions and relationships, within as well as with suppliers, enterprises and professional organizations among others (Hall, 2003); and the need to strengthen internal networks, and capabilities through the 'building and exploiting intellectual capital effectively and gainfully'⁵ have been as vital.

~~... I couldn't fail to recall an incident that occurred some four years ago. Another story retells an event that~~

~~... in August, 2002. I met one male and one female student: the former was a student of Sebelas Maret University (Solo (Sebelas Maret, University) to study Batik making, while the Czech national was ecstatic for being given the opportunity to study 'local wisdom' in Denpasar (Udayana University). The great enthusiasm was partially attributed to the fact that both had been given scholarships by the Indonesian government. The Slovak's ambition was to concentrate on Batik crafting as her career on returning home, and the Czech wasn't as open as his former national in the now defunct Czechoslovakia about his future. Wasn't local knowledge (one anthropologist, an admirer of mine, calls it local wisdom; being passed on to potential competitors persuaded by hefty incentives to acquire such knowledge, and most likely received enthusiastic welcome from the locals, regarding the exercise as their greatest opportunity to share their unique heritage to the young, inquisitive, highly motivated, diligent, and dedicated student from the developed North?⁶~~

Knowledge is characterized by non-excludability, non-rivalrous consumption, and externalities. This means that it is difficult for the private provider to prevent other economic agents from access to it, which in turn serves as a disincentive for private investors. It is not only difficult to prevent other rivals from taking advantage of one company's costly investment outcomes in research and development, but is very hard for companies to prevent consumers who don't have the capacity to pay for the services from access to them. Thus, the private return on such investment is very small, while social return is high: perfect no go area for private investors.

Investment in infrastructure which increases access to knowledge such as telecommunications that connects regions to the cyber highway, enabling access to dial-up or better still broadband internet, enhancing knowledge creation capabilities, such as funding basic research, software applications technology, and development and training of human resources with the requisite skills and capabilities to generate ideas, innovate, and utilize knowledge in line with the organizational requirements, should be the responsibility of the government, local and national. Local and national governments focus being social return, as opposed to short run financial return, enables them to factor in the long run development impact of the investment, which private agents can't do.

Regions or local governments that provide the requisite information technology infrastructure, which should be an integral part of a good transport and communication system, should be able to attract organizations and personnel that utilize large quantities of up to date data and information in the conduct of their operations. This includes computer programming firms, research institutes, knowledge centers (educational institutions), and so on. It should also be conducive for organizations that require fast access

⁶ Apparently touching stories of the loss suffered by Bali Silversmiths and Ironsmiths attributed to perhaps their homely, hospitable, and savvy at teaching guests all that they could (transferring knowledge to many societies is considered an obligation and calling to which there is no shortage of enthusiasts), only to realize later, much to their consternation virtually 'palpable' in their minds, that many of what to them are age old motifs/designs created over time through incredible ingenuity, patience and endurance, today belong to some individuals or entities to whom, to the best of their knowledge and understanding, they have never signed any MOUs to either relinquish or transfer their rights ownership or authority to collect royalty for the use of their invaluable intellectual rights (The Jakarta Post, Wednesday August 20, 2008). Recreating such designs today requires permission and obviously hefty payment from purported 'owners', which is very disturbing but real.

Equally crucial is the need to reduce internal bottlenecks to organizational effectiveness acquired through improvements in work and information flow thanks to technological breakthroughs. Investments in technology and logistics, personnel working harder and longer, organized work flows and tasks, better information flow and decision making. Moreover enhanced technological capabilities have increased the capacity of enterprises to maximize benefits from knowledge management programs, which has increased investment return. Advances in information management and technology as well as artificial intelligence have quickened the pace of organizational processes thereby enhancing effectiveness, competitiveness and profitability.

Advances in other disciplines such as psychology have also contributed to KM by increasing understanding of human cognitive functions through 'better professional understanding of how knowledge, mental models, and associations, affect decision making and performing knowledge intensive work when deciding how to conduct knowledge management' (Wiig, 1999:9).

Besides, KM evolution has benefited substantially from various areas which have contributed to lowering the cost of establishing and managing comprehensive KM programs substantially (Wiig, 1999). Such factors encompass economics of ideas, which relate to the emergence of new ideas and innovations that have induced knowledge driven changes, information management and technology which has transformed the running of organizations thanks to Information related practices and capabilities that have induced better understanding of factors underlying people's function through breakthroughs in cognitive science, ever decreasing bottlenecks thanks to technology developments and increasing emphasis on involvement and participation, taking challenges from sophisticated customers as benchmarks in increasing competitiveness, which have increased organizational capacity, adeptness, flexibility, and globalization, which has offered challenges for organizations to prepare for changes in international business environment create opportunities and threats which must be understood to be managed.

KNOWLEDGE MANAGEMENT AND NATIONAL AND SUB-NATIONAL DEVELOPMENT

There is better way to potential for KM in national and regional development than use a flash back that points the grim picture of two Indonesian assets that are rooted in the rich archipelago heritage. It was sometime during the first half of 2006, when a documentary on Batik prospects was featured on one national TV station. Locations cited included Malang, Solo, and Pekalongan. Batik traders in all three cities, as if in Unison, expressed their dire situation their trade was in; someone called it irrevocably damaging, and a pundit sounded and painted an even gloomier picture, saying that with Malaysia claiming to own the Batik craft, Indonesia is likely to pay fees to her negeri jerani serumpun for developing, and if all goes according to plan, for selling Batik. Just like Bill Gates expects all users of Windows operating system to pay him for owning Windows operating system and applications

5. Fernando Simores defines the goal of knowledge management to build and exploit intellectual capital effectively and gainfully in Wiig (1999:4)

*intellectual property! I couldn't fail to recall an incident that occurred some four years ago. Another story retells an event that happened some time in August, 2002. I met one male and one female student; the former was a Czech national, while the latter, according to her owed her national allegiance to Slovakia. They were full of excitement. The Slovak was heading to Solo (Sebelas Maret, University) to study Batik making, while the Czech national was ecstatic for being given the opportunity to study 'ke-Dalanga-an' in Denpasar (Udayana University). The great enthusiasm was partially attributed to the fact that both had been given scholarships by the Indonesian government. The Slovak's ambition was to concentrate on Batik crafting as her career on returning home, and the Czech wasn't as open as his former national in the now defunct Czechoslovakia about his future. Wasn't local knowledge (one anthropologist, an admirer of mine, calls it local wisdom; being passed on to potential competitors persuaded by hefty incentives to acquire such knowledge, and most likely received enthusiastic welcome from the locals, regarding the exercise as their greatest opportunity to share their unique heritage to the young, inquisitive, highly motivated, diligent, and dedicated students from the developed North?'*⁶

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telecommunications mediums as an indispensable component of their businesses for instance document handling agencies and couriers.

Local governments should increase their capacity to attract new investments by aligning their development strategies in making available a highly educated labor force ready for use by companies that establish their operations there. This should 'sharpen' the edge any local government that wields such advantages has over others that continue to provide the conventional investment incentives such as tax holidays, custom free zones, accelerated depreciation and so on. Such incentives can be additional to knowledge creating and utilization capacity an area has, if the competitive advantage that the region has over others is to last. Any region can provide tax holidays, accelerated depreciation regimes, and easier profits repatriation regimes to investors, because it is easy to do so, which isn't the case however, with developing a comprehensive program that puts in-place knowledge creation, storage, and sharing capabilities. There no more befitting example than Pueblo-Durango internet partnership (USA) that conducts a web fair to train small businesses in the region on all aspects of internet marketing , by providing grants of between US \$500-US\$1000 which were used to build web sites, training in advanced marketing activities , and integrating internet activities into the business processes. A similar development is discernible in Ely Nevada, where a program to help small businesses improve marketing and selling expertise on internet. Rural areas in USA also have access to Ebay.com which links them to buyers of unique products via its portal (Jarboe, 2001).

Indigenous knowledge, which is *'the knowledge that people in a given community have developed over time, and continue to develop. It is based on experience, often tested over centuries of use, adapted to local culture and environment, dynamic and changing'* (<http://www.unesco.org>), can be identified and enhanced by regional governments in fostering regional development. Local knowledge exists in many areas manifested in local people's eking a living out of, and harnessing the environment⁷; time tested land use patterns that area based on communalism, hence inclusive; age-old financial mobilization mechanisms, administration and dispute resolution mechanisms within and across communities; health care; education; food preparation, among

7. Silvia (2001) gives an in-depth insight into how the incorporation of indigenous knowledge in development projects (such as for instance in nature conservation), 'captured' through participatory rural appraisal(entails carrying out semi-structured interviews, participant observations, timelines, trends, changes, ranking, transect walks, and sketch maps); continuous rural appraisal (involves the participation of project workers in village life during the entire project period); participatory mapping(local people indicate boundaries, current land use/ownership, and through participatory decision making process, evaluate capability of their lands, zone lands for various agricultural, common use areas, traditional zones, and conservation approaches; scientific vegetation mapping; participatory inventory of natural resources(wherby communities identify species of plants, animals, mushrooms, within their customary land, estimate available quantity and quality of those resources and describe their different uses) enhance project acceptability, effectiveness, and sustainability. Such success is attributed to the vital feeling by local people that the project isn't imposed from some higher tier national /international level)but from conception to completion involves them through the integration of their social, economic, biological and cultural perspectives (traditional knowledge) into project conception, planning, execution, and monitoring, their perspectives on the environment which enriches project implementers understanding of the local ecology, averting the danger of adopting projects that are based on scientific and economic feasibility but unsustainable from an ecological point of view ; and basically allowing local culture and beliefs to 'direct the way information is collected and used' in the project.

others. Since indigenous knowledge is local knowledge, its exploitation in the formulation, development, and implementation of social welfare enhancing policies, strategies, programs and projects by regional and national governments improves program cost effectiveness, acceptability, and sustainability.

The exploration and exploitation of local knowledge can be used by local governments to develop locally relevant manpower, tapping of financial resources, telecommunications infrastructure, leadership, and connections wielded by local public and private, and Non organizations; sustainable exploitation of physical resources that range from physiological scenery, picturesque mountains, awe-inspiring corral reefs, white sand beaches, virgin forests, to zoology, among others; and economic resources comprising land, labor, population, and entrepreneurship, among others. Knowledge derived from such resources can be identified by local governments, incorporated into the formulation, designing, implementation, evaluation and monitoring of regional development programs, which being participatory, and locally relevant, enhance their chances of success and sustainability.

To complement this, regions can prioritize the identification, development, and if possible patenting of indigenous knowledge. Indigenous knowledge is abundant in customs, norms, values, basically in the way of life of people in a certain community. Indigenous knowledge fosters the creation of unique products that are difficult if not impossible, to imitate by other regions. Local knowledge is manifested in the unique products produced by the locals basing, in the main, on local wisdom (indigenous knowledge), which encompass preventive and curative handling of diseases basing on inherited knowledge and better knowledge of local herbs; skills in embroidery, weaving, for instance Batik making in Pekalongan, Yogyakarta, Surakarta, and Malang; as well as other 'genres' in Jambi, Riau, South Sumatra, other regions of Indonesia; sculpture and engraving in Bali, Yogyakarta, and Jepara regions; pottery in Kasongan-Bantul regency, Yogyakarta; local customs such as dances (for instance renowned Bali dance, *lompat batu* (stone jumping) in Nias; and *Karapan sapi* in Madura, among others, to cite just a few.

It is thus, the onus of local and national governments to ensure that indigenous knowledge inventory is made; mechanisms are then put in place to ensure sustainable development and preservation and if possible packaging into products and services that can enhance the social welfare of the inhabitants. This means that the local government should identify the best way to ensure the perpetuation and enrichment, and development of tacit knowledge by establishing knowledge capturing and storing techniques and mechanisms. This can be in forms of mentoring, drama, local competitions, formal and informal learning, and discussion forums and so on. This is important to ensure that indigenous knowledge is transferred from the older to the younger generation to posterity. Cases whereby vitally important indigenous knowledge is licensed away to Multinational corporations at virtually no

cost at all, after which the latter demand exclusive rights through patenting it, thereby depriving the locals from benefiting from their resources, will be history (Jarboe, 2001:16).

Local governments can promote social and economic development by providing opportunities to voluntary associations in their political structure. Voluntary associations have been associated with enhancing trust among individuals, thereby cementing interpersonal relationships, which in turn reduces the possibility of conflict; lowers transactional cost, through the intensification of networking and exchange, which in turn promotes efficiency and economic development; strong social capital fosters local government effectiveness as strong voluntary associations monitor local government performance, hence making them socially accountable. Local government can tap this resource by nurturing social capital development. Local voluntary associations manifested in local economic and social-cultural groups, which are a vital source of social capital⁸ are important in efforts by regional governments to mobilize manpower, materials and money for regional development. Activist regional government endeavors to identify the level of voluntary associations in the region through 'research, monitoring, and data collection', foster the emergence and intensification of voluntary associations by providing openings for civil society participation in local decision making and issues; availing 'facilities and infrastructure for such associations to carry out their activities'; extend financial assistance, 'advice and training' to voluntary associations; provide the coordinating role of service delivery of agencies, voluntary associations and firms to ensure it is line with local needs; and give voice and legitimacy to community concerns in cases where services are delivered by the central government (Walis and Dollery, 2002).

What is true for constituent parts, regional governments, should obviously carry the same weight for the whole: national governments. Knowledge has long been recognized as the most important asset of a company, which should also be true for a national government. Development economists have long recognized the fallacy of injecting immense capital resources in societies with material conditions that lack complementary factors such as appropriate human resource skills, economic and social infrastructure, and pertinent mindset, among others. The level of development of a country can be linked to the extent to which it invests in knowledge creation activities such as investment in research and development, education, human resource development, and protection of intellectual property rights (Worldbank, 2006). Countries that did their homework well and injected immensely and ingenuously in absorptive capacity lead those that didn't by a very wide margin, and will continue to do due to the nature of knowledge capital that has increasing returns. And since the level of development affects investment in knowledge creation as well as affected by it, developing nations lag industrial nations in knowledge development. This explains the ever

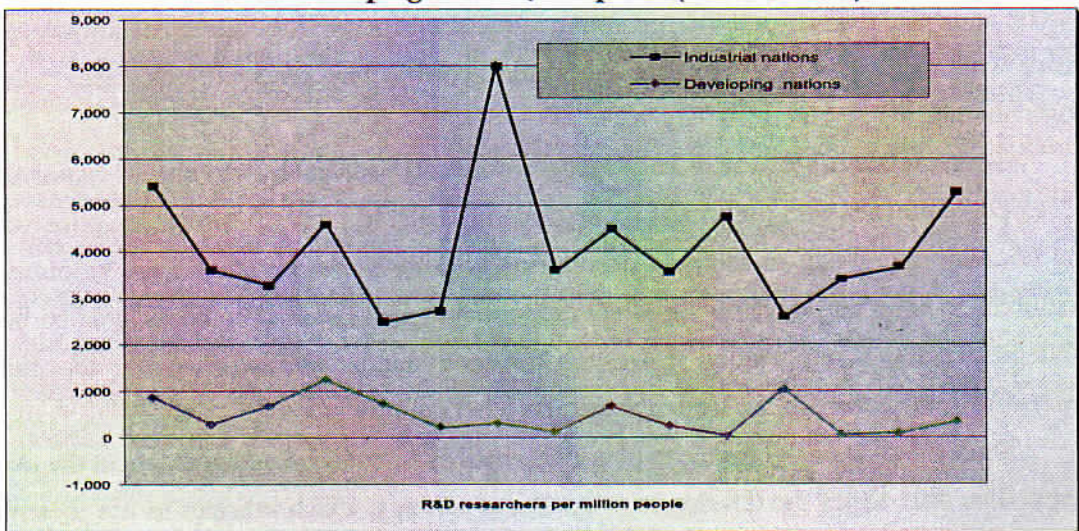
8. Social capital according to Putman (1993) as "those features of social life that enable participants to act together more effectively to pursue shared objectives."

widening knowledge gap. Combining abundant cheap labor with scarce capital did not catapult poor countries from underdevelopment right into wealthy nations, rather drove them deeper into poverty by accumulating huge debt overhangs. Knowledge embodied in machines (capital), personnel (human resource with relevant skills), a legal, and business environment that is conducive to knowledge creation, fosters innovation, and paves the way for changes in social-cultural attitudes to be in consonance with the demands of a modern economy.

New economic development theory has emerged, which explains the existing differences in development levels among countries to be not only due to differences in capital and natural resources availability, but the capacity of countries to combine factors of production and make improvements in efficiency and effectiveness, which has a lot to do with knowledge creation and absorption capacity (Figure 1). The endogenous economic theory model established the fact that knowledge creating, absorbing, and utilizing capabilities within a country play a significant role in determining the level of development a country attains. Capital does not move from countries where it is abundant, and theoretically low returns, to countries where it is scarce, because of high returns, as was originally thought. This is because the efficiency and effectiveness of capital use doesn't only depend on its scarcity, but the existence of complementary factors, the most important of which is requisite knowledgeable manpower. The role of the state in promoting economic development in developing countries has never been greater. Good governance has been identified by Annan as "the single most important factor in eradicating poverty and promoting development". The lack of it breeds corruption, low quality education and health, incompetent administration, slow, costly justice, little state accountability, and overall weak development performance (Keefer (2006)) in Court (2006).

It isn't farfetched to state that good governance is synonymous with good knowledge management. Governments have to formulate goals and objectives basing on the vision they

Figure 1.
R& D Researchers per million persons in Industrialized and Developing nations , compared (1996-and 2004)



have of what they want the countries they lead to be in future. The goals should then be translated into objectives, the realization of which should be well laid out in development strategies.

Implicit in the drivers of development, is the capacity the government has to identify knowledge needs society requires, ways of fulfilling that need from either existing sources or create it, document that knowledge in easily accessible formats, disseminate it to those who need it using right ways and at time needed, and update it to avert becoming outdated. The corollary of that is that state legitimacy and effectiveness calls for governments to base their governance on principles of good governance *inter alia*: participation, fairness, decency, accountability, transparency, responsiveness, predictability and efficiency. As the most important resource today is knowledge, governments have the responsibility to establish educational institutions and research facilities that generate, capture, and transfer knowledge in the economy. By doing so, governments enhance the capability and capacity of their countries to identify knowledge needs, design mechanisms to generate and share it, and ensure the balanced development in all sectors of the economy.

It is governments that must invest the necessary huge amounts required to fund basic research, telecommunications infrastructure such as broadband Internet, huge knowledge storage facilities such as data banks, and so on. Malaysia's goal of becoming a developed nation by 2020 is underpinned by creating a knowledge society through investment in knowledge generating and disseminating infrastructure such as the education, Human resources development, Research and Development, and Multimedia Super Corridor. Investment may take a long time to bring in returns, yet once returns start streaming in it is difficult for an investor to prevent others from benefiting from the outcome of the investment. This is because of the non-rivalrous consumption, immense externalities, and non-excludability features that characterize investment in knowledge (Stiglitz, 2003). This serves as disincentives for the private sector to undertake such projects, unless the state can guarantee its monopoly over the knowledge use through patenting it. Knowledge is one of the most difficult assets to patent, and even if that is possible, patenting reduces the speed of the spread of knowledge to those who need it, which hampers economic growth. The onus in such cases falls on governments.

Government can invest in knowledge acquisition projects by sending its nationals to developed countries with the aim of increasing the available stock of knowledge pool, which the country can utilize to increase productivity. South Korea invested huge amounts of resources to train and develop sufficient personnel in fields that were considered to be of strategic economic importance. China has followed suit by sending many of its brilliant citizens to study abroad in the United States and other countries.

Thus, the state has a big role to play in the field of knowledge management at the macro level. The state states the development goals and strategy, which it hopes to use to achieve

development basing on the analysis of a country's internal strength and weaknesses, in relation to external opportunities and threats. It must then identify the knowledge needs by carrying out an analysis of the existing knowledge, the personnel and regions that generate it, where knowledge is stored, the existing knowledge processes and methods, knowledge communication and utilization.

The shortcomings or gaps in existing national knowledge maps provide inputs for defining the scope of activities that must be done to drive the economy from underdevelopment to prosperity. The sources of national and international knowledge are identified to fill those knowledge gaps and hurdles. Developing countries that have done knowledge management well, have led their countries fast out of poverty to prosperity; those that have failed or faltered continue to lead their citizenry on the seemingly endless and bumpy poverty road. Malaysia has in place the mission of becoming a developed nation in 2020, considers the development of communication and information technology as key to achieve the developed status, which is why it embarked on developing the cyberspace corridor high-speed internet communication will be available for enterprises. Singapore's future focus is to become biotechnology and pharmaceutical center, which has been underpinned by establishing state of the art research laboratories in biotechnology, training manpower in requisite skills as well as attracting multinational companies to establish their regional headquarters there.

The emphasis that developed countries put on extending knowledge to lagging regions is worth emulating by developing countries. United states spent US\$190 million on plans to enable rural areas have access to broadband internet (www.usda.com), the European Union gives subsidies to enterprises in economically lagging areas that adopt technology in running their operations as well as helping regional governments improve technology accessibility. The importance knowledge management can be is equally important, an issue to which the article now turns.

KNOWLEDGE MANAGEMENT AND KNOWLEDGE CENTERS

It is apparent from the literature on knowledge management that centers that are providers of knowledge must not only attract knowledge seekers to come and get imbibed with knowledge through the pull mode, but must go out to places where the knowledge seekers are located to provide it (push mode). Centers that attain excellence are those that customize the knowledge tools and techniques to business strategies of clients, link their information technology to those of the customers to ensure easier provision of the latest breakthroughs in innovations on product research and development, production process, sales and marketing, communications and outreach. Knowledge centers in other words must sell themselves to stay in the lead of the pack.

To be able to achieve the aforementioned feat knowledge centers adopt flexible knowledge processes, customize knowledge products, and carry out consistent market intelligence on the current and potential requirements of their clients. Such demands keeping in touch with clients all the time right from product conception, design, development, to sales performance evaluation. This is vital for getting ideas on how to maintain good performance, once achieved, and conduct real time remedy once signs of slugging performance emerge.

Transformation leadership, which offers opportunities for employees, especially those that are identified as knowledge sources to 'dream', suggest solutions to outstanding problems, and share with fellow staff and management. Such leadership occurs in lean organizational structures, where work teams, learning communities, have the independence to air out their views on outstanding issues as well as future outlook, which they share with others in the organization and beyond. Transformational leadership facilitates knowledge acquisition and sharing not only from within the knowledge center but also outside the organization. This is possible through the provision of access to sources of new ideas such as the Internet, belonging to professional associations, collaborating with key clients on major projects where vital lessons are encountered, captured, learnt and stored for future retrieval.

Knowledge centers that excel over others consider knowledge to be dynamic, with the implication that they adopt continuous identification of need for new knowledge, versatile tools and techniques to create, store, and share it in the organization to ensure that whoever requires knowledge in support of his/her activities obtains it at the time the right time. Additionally, knowledge centers should be maintain long term contact with industry and business community to identify opportunities for new products /services, and possibly areas for improvement in production and delivery processes products. This ensures that products/innovations that developed by the knowledge center receive funding from business and government agencies, and immediately become operational on release. University of California, San Diego, embarked on developing Wireless internet technology with funding from the state, federal and business community. Wireless internet is forecast to contribute to more jobs, research efforts, and reputation of the University as a leader in technology development (Burns, 2001). Harvard, and Massachusetts institute of technology (MIT), have earned reputation partly from their close relationship with manufacturing and business environment of North-east England where innovations developed on Campuses receive funding, and application in real world. So is Stanford in California, having close proximity Information technology nerve center, Silicon Valley has close links with enterprises in developing innovations and applying them.

Knowledge centers must have grips of who holds what knowledge in the organization. This is important to prevent situations of 'gridlock' where an activity stalls just because the knowledgeable person on the specific item is not known. Timeliness of knowledge

accessibility determines the speed at which the service demanded by the client is finished in time to beat rivals.

Leadership must communicate the strategic business objectives of the knowledge center, the means to achieve the, the benefits of achieving such targets to the organization and the employees. This serves as the launching pad for the full-fledged involvement of all staff, management and stakeholders in activities are aimed at making the knowledge center an excellent provider of knowledge services, beating rivals by far wide margins.

Employees of knowledge centers apart from being provided with mechanisms to generate, acquire, store, and share knowledge in the organization, must receive compensation commensurate with their performance in contributing to knowledge creation and sharing. This is done through the linkage of incentives to the level of knowledge creation and sharing among fellow employees in the organization. In other words, employee performance must be linked to knowledge creation, storage, and sharing in the knowledge center. It is such an environment that stimulates innovations and inventions in production process and product development.

To facilitate the creation of a knowledge center that is conducive to knowledge creation and sharing, the existence of lean, flexible organizational structure is an imperative. The use of expert circles, expert networks, learning communities and communities of practice, are essential ingredients of an assemblage of tools that not only create a learning organization but ensure the recognition of the importance that knowledge that emanates from each function is beneficial to other functions in the organization. This augurs well for a knowledge center that is internally interdependent, and ready for identifying and making advantage of opportunities that emerge in the external environment.

Knowledge centers must have long term relationships with key clients, supply chains, and customers (Hall, 2003:22), which provide vital knowledge that clients have, and set the stage for maintaining strong confidence and loyalty from them. Strong confidence in the knowledge center by the client increases the likelihood that the former can ask for a premium price for the superb work done, which should improve on the knowledge center's bottom line. Knowledge centers get to know how the knowledge created is translated into products and services that are in accord with the demands of the customers, which enables it to put up mechanisms to monitor such trends. This puts the knowledge center at a great advantage compared to rivals for it is able to know the "sources of clients profits and risks involved in attaining such, has the chance to cooperate in the development of solutions which enhance the performance of the client and the knowledge center.

Developing the state of the art knowledge services requires knowledge centers to maintain constant and consistent contacts with professional associations at the national and international level. This enables the knowledge center to establish standards of service delivery

that are internationally acceptable, which definitely increases the chance of widening the coterie of clientele and supply chain.

Moreover, belonging to professional associations, such as Rectors' forum, Inter-University Council, East Asian Universities Network, UNESCO, and other forums, enables the knowledge center to benchmark its service delivery process, package, and evaluation, which in the end enhances quality, speed, and substance of services. This is what is known as benchmarking. The knowledge center can tap into databases belonging to members of the consortium as long as the principal of reciprocity underlies the relationship. This does not only shorten the 'product' development phase from conception to the market by avoiding 'reinventing the wheel', but enhances the knowledge center's position in the eyes of its clientele, as it will be known to associate with nationally and internationally reputable knowledge centers.

It is apparent that before becoming a member of any professional association, the knowledge center must establish itself as the thought leader in the provision of knowledge in the location, and if possible country. With such a status it becomes easy for other providers of similar services to accept it as an equal partner rather than a member likely to take more than it gives.

Moreover, the confidence of the customers and suppliers is easy to get thanks to the good track record. Thought leaders are able to know the 'trajectory' of the market for the service they provide thanks to their mastery of the dynamics, lessons learnt through experiences, projects, and contracts carried out, the outcome of which is meticulously captured and recorded by the knowledge officers (Hall, 2003:49).

What is also worth noting is the imperative to recognize the importance of concentrating the financial, material, and technical resources in fields of study where they have the best competence. Like enterprises, knowledge centers can not be 'jack of all trades but a master of none', have to identify existing core competencies, improve and enhance core business processes that underlie such competencies. The most effective and sustainable means of staying ahead of competitors is to differentiate the knowledge services provided, ways of delivering them, customize services in accordance with tastes and preferences of clients, allow sufficient feedback from clients on design, packaging, quality, and timeliness.

CONCLUDING REMARKS

Knowledge management is relatively a new discipline. However, its importance in business operations has long been recognized and is an established fact. Nonetheless, the same can hardly be said about the role knowledge management now plays in government administration, at the local and central level, and in institutions of higher learning. Knowledge management programs can enhance the capacity of regional and national governments to

management of human, and natural alike. Boosting knowledge acquisition, transmission and dissemination capabilities through investing in the necessary integrated information technology and communications systems, identifying and development requisite human resources, identifying and harnessing, even developing specializations in indigenous knowledge which is later patented for the benefit of the communities and future generation. Knowledge centers have a lot to gain by implementing knowledge management programs. Mastering knowledge processes, customizing knowledge products, and carrying out consistent market intelligence on the current and potential requirements of their clients, are some of the benefits. Maintaining long term contact with industry, business community, and the general public, which is made easier if knowledge management programs are in place to identify need for new knowledge, versatile tools and techniques to create store, and share it, and updating it to take stock of latest developments in clients tastes and preferences, track developments in competitor products and services. It is also onus on knowledge centers to maintain long term real time contacts with professional associations which provide latest data and information on drivers of performance, leaders in various disciplines to serve as benchmarks for improvement, and keep track of challenges ahead. The major challenge lies in ushering in transformation leadership at both the local and central government level, and as heads of institutions of higher learning if conducive conditions such as flexible organizational structure, flawless flow of information, unfettered communication, sufficient funding and commitment to cultural and institutional changes necessary for implementing effective knowledge management programs to generate the benefits. It is a challenge that may pale the vital importance of knowledge management programs into insignificance, hence deserves sufficient attention at the very inception if such programs are not end in stalemates hence becoming multimillion misfits.

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