Lessons learnt from nearly two hundred cases of KM journeys by Hong Kong and Asian Enterprises

Professor Eric Tsui
Associate Director
Knowledge Management and Innovation Research Centre (KMIRC)
The Hong Kong Polytechnic University

Introduction to the nature of the Knowledge Management initiative and its specific objectives

The Knowledge Management and Innovation Research Centre (KMIRC) of The Hong Kong Polytechnic University has firmly established itself as one of the principal KM and Intellectual Capital (IC) consultancy and training service providers in Hong Kong and in Asia. Responding to an insatiable demand over the last decade for KM training and consultancy services, KMIRC has played a pivotal role in many KM projects (many of which have evolved into fully-fledged programs) in the private sector, non-profit social services organizations and government departments. Through expert advisory services and in many cases direct involvement, KMIRC has helped numerous organizations/companies to launch various KM projects, many of which have also taken on our students as interns or even our graduates to become members of their KM team. Over the years, close to 200 company-based senior undergraduate, research and consultancy projects have been carried out. The objectives of our centre's work are to

1. Raise the awareness and the importance of managing knowledge at the individual, organizational and societal levels.
2. Assist government departments, private organisations and non-government organisations (NGOs) to introduce and permeate various KM tactics/tools in daily operations to support knowledge-intensive business activities.
3. Perform Benchmarking among comparable organisations and industries to gauge the adoption, maturity and effectiveness of KM, identify good practices and derive lessons learnt to enhance continuous improvement.
4. Provide platforms for effective and regular disseminations of KM trends, good practices, lessons learnt, newly developed tools and techniques among KM researchers and practitioners. Typically, this is being done via seminars, conferences, workshops, webinars, site visits, supplemented by an online repository and various social media channels.

The types of project range from KM readiness assessments, knowledge audits, strategy formulation, taxonomy design and maintenance, cultural assessment and organizational change, knowledge retention from near-retirees, knowledge-enabled business process management, requirement elicitation and selection of collaboration tools, including portals, search engine assessments, configuration and continuous improvements, IC reporting and many more. Through implementing custom-developed solutions recommended by the KMIRC, the involved organizations have harnessed and benefited from, among others, the sharing of good practices,

minimized reinventing the wheel, cultivated new forms of collaborations, enhanced enterprise-wide awareness of information and knowledge, expedited the timely and pro-active delivery of relevant information to staff, customers and consumers, and realized process and productivity enhancements.

The infrastructure i.e. people, systems, hardware, software etc. required to launch an initiative

As mentioned above. KM initiatives and projects which have been introduced by KMIRC for organisations are wide-ranging. For example, typical people and process-oriented KM initiatives include

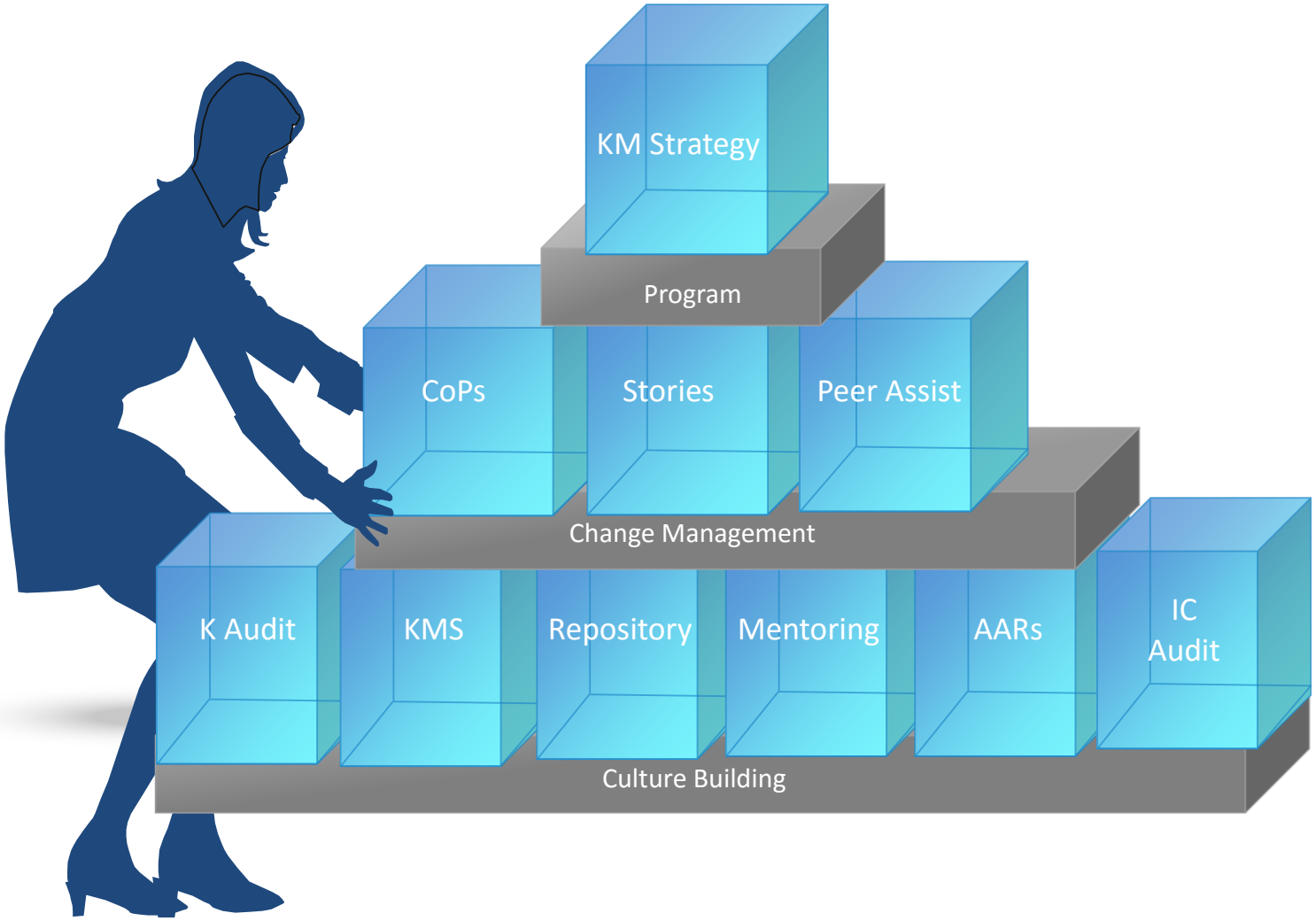
- Cultural and Readiness Assessment
- Formulation of a KM Strategy, Framework & Strategic Planning
- Knowledge Audit and Knowledge Management Audit
- Change Management
- KM Assessment including the definition of metrics and reporting of Intellectual Capital (IC)
- Community of Practices / Special Interest Groups (SIG)

On the other hand, examples of technology-oriented KM projects include

- Search Engine configuration, testing and deployment
- Taxonomy development, maintenance and governance
- Collaboration System(s)
- Enterprise Portal
- Electronic Document Management System (EDMS)
- Knowledge / Information Repositories
- Content Management System (CMS) and Applications (CMA)
- E-Learning
- Intelligent System(s)
- Blogging / Weblogs / RSS Readers / Wikis

Through our work, the involved organisations learnt that rarely is a KM project entirely technical or entire people/process-oriented. In fact, more likely than not, it is an appropriate combination of the above two categories of KM initiatives/systems plus good content management, which together forms the basis of a KM foundation for an organization. Secondly, KMIRC has also,

through a series of carefully devised deployments, demonstrated to organisations that it is highly preferable to commence a KM initiative at its small scale involving business input (e.g. a pilot), then reflect, modify and scale up and/or expand gradually. During the course of the journey, there is often the need for organisations to assess and re-formulate the knowledge strategy, to review progress and identify knowledge gaps, to re-assess critical knowledge and flow via knowledge audits and social network analysis respectively, for example. Through these efforts and more, participating organisations truly realise that KM is a journey that needs to start with a solid foundation/base and evolves from there with ongoing nurturing and support; it should never be viewed/treated as merely a project (see diagram below).



A phased approach to KM with some fundamental building blocks

We are proud to report that all of our client organisations are continuing with their KM journey ever since the KMIRC introduced and helped them to kick start their journey. Some organisations regularly seek advice from KMIRC at different stages of their KM journey. A third point to note is that KMIRC has also helped to correct many myths about KM including one which states that "KM often needs big investments"; indeed it is possible to start with a "0 budget KM" journey. Many

organisations have asked if they need to set aside a large sum for investments (primarily for IT systems/tools) in order to start their KM journey. KMIRC has demonstrated convincingly that there is no need to. For example, at the Hong Kong Police where KMIRC staff trained the Force with the technique of Storytelling (see picture below), Storytelling sessions are being held regularly among police officers to share knowledge and experience. At the Department of Health, another client of the KMIRC, a standard template for documenting meeting minutes, incorporating a section to record any lessons learnt since the date of the last meeting, is routinely being used. Both of the above demonstrate that the KM technique/process can be permeated into existing daily operations and no separate/additional investments in IT are needed.

Storytelling team at the Hong Kong Police

On resourcing, KMIRC only has 1 full time KM specialist in the team. In all of our projects, we always stress knowledge transfer with the client. We demand the client to assign resources to work and co-learn together with us; we co-develop and practice the techniques with them and operate with an aim that the organization can plot its own KM course in the medium to long term.

The challenges that were encountered, how they developed and how they were overcome.

Many challenges have been encountered and overcome in our 200 or so projects. Many of them are common difficulties that have been reported by other western organizations adopting KM. For example, they include difficulty in measuring the return on investments, lack of skills and resources to carry out KM projects, how to validate and ensure the quality of the harnessed knowledge, fear of not being able to sustain the KM journey etc., but some (e.g. power-distance culture, groupthink, bias on the reliance on people/processes over technology etc.) tend to be more specific challenges rooted in Asian culture.

Obviously, it is impossible to list all the challenges that we have confronted in the 200 or so projects but nevertheless I have singled out the following for further discussions:

Challenge	**Solution(s)**
The Business-IT divide – leads to insufficient end-users and Subject Matter Experts (SMEs) input	Create joint teams, group together stakeholders from different departments in a KM project, avoid any single department to be the sole "owner" of a project. Rotate members and expand the teams when opportunity exists
Technology is adopted before a strategy has been created e.g. a KM system was installed but it was later found out to be mis-aligned with user's needs	Insist on the formulation of a KM strategy at the early part of the journey. While not always necessary, a Knowledge Audit may be carried out to identify the critical knowledge, the knowledge gap, type of knowledge and the people who create and use this knowledge. Having such information greatly enhances the alignment of any KM tools with user needs. Manage the client's expectation that the strategy and the audit may need to be carried out routinely; they are not a one-off activity
Over-emphasis on KM systems (i.e. the containers), and insufficient focus on the knowledge content	Conduct knowledge audits; some knowledge may not be migrated to the new system. Identify critical knowledge assets and develop taxonomies to help categorise the assets in the KM systems
KM is treated/viewed as a project	Demonstrate and convince senior management that recurrent funding is important to support the KM journey as there are on-going needs (e.g. change in external/internal environment) to maintain the taxonomy, content, systems, and user learning of new techniques etc.
Poor configuration of the search engine and lack of user training – leads to the under-exploitation of a high power enterprise search engine which has been deployed	This is a common problem across many projects. Insist on having regular business input in the configuration, tuning and testing of the search engine; review the search engine log to identify improvement areas and set up a governance model to gather feedback, identify and action on improvements on a regular basis. Publishing of usage tips and conduct of user training can also help to raise awareness and usage of high power search engines.
Doing KM for the sake of KM	Some clients rush into a KM journey because they were somehow "told" to do KM. This is wrong. In these cases, we perform Readiness Assessment and if there is a strong resentment to adopt KM (for whatever reason), we actually recommended them NOT to proceed with a KM project/journey but to first focus on raising awareness and on a change program. It is important to cultivate and gain grassroots support, among other things, to enhance the chance of success in a KM journey
Skepticism about how to monitor	Advise organisations to adopt WIKI and RSS (rather than

and govern the use of Web 2.0 tools for bottom-up knowledge sharing	blogs) for trials inside the organization. WIKIs are used to foster inter-departmental collaboration on compiling complex, de-centralised documents for example. RSS is adopted to keep up information awareness on specific topics; feeds are calibrated to deliver new and relevant information to individuals, teams, groups, and the entire organization, usually via the Enterprise Knowledge Portal. As these two types of Web 2.0 tools can be easily aligned to support collaborative work and learning (and information awareness), they are seen as easy entry points for introducing Web 2.0 into the workplace. Once knowledge and confidence are gained, other Web 2.0 tools can be explored for adoption
Capture and share tacit knowledge in processes	With input from the Business and IT departments, KMIRC has helped organisations to customize their Electronic Document Management System (EDMS) or Business Process Management System (BPMS), thereby requiring users to codify and record the tacit knowledge behind their decisions into the system so that other users can better ascertain the chain of reasoning throughout the execution of a business process.

Learning has no boundaries. KMIRC has adopted the principle of treating the real world as an "Open KM Laboratory". The learnings from the consultancy and research projects in the KMIRC often become highly regarded teaching materials and industry case studies which are used throughout the Master of Science in Knowledge Management programme. Doing so substantially enhances the sharing of practice knowledge gained from the trenches.

How the initiative was received by the users or participants?

As mentioned above, once started, all of the clients of KMIRC have continued with their KM journey. This is strong evidence that KM is yielding good value/return in these organisations. For some organisations like the Hong Kong Police and CLP Power, they have been adopting KM for nearly a decade and are often seen as role models in the public and private sector in the region. MTR, the local train company, has been operating their KM and Innovation program for more than 6 years and has the largest (with around 10 full time staff) KM team in Hong Kong. These companies have great commitment in their KM efforts. Over the last decade, we can further derive the following observations on organisations in Hong Kong that have adopted KM:

For organizations which are *new* to KM, their focus is on

- Awareness raising / Readiness Assessment
- Strategy Formulation / Strategic Planning
- Identify, rank and pilot KM initiatives

- Knowledge Audit, Social Network Analysis
- EDMS, Search engine, portal deployment
- Taxonomy Creation and Maintenance

For organizations that have *already started* KM, their focus is principally on

- Sustainability of KM programs, culture building
- Strategy revisit, gap analysis
- Embodiment of knowledge in business processes
- Knowledge distillation and harnessing
- Soft KM tools/skills
- Health checks & Benchmarking

Additional independent evidence of user adoption, KM advancements and successes among organisations that KMIRC have helped include

- In the last 5 years, many Hong Kong organisations have been recipients of the MAKE award, a de facto industry award in KM at the city, regional and global levels. These organisations include Hong Kong Police, MTR Corporation, CLP Power, Towngas, Efficiency Unit of the HKSARG, Arup Ove, and others. Clearly, their achievements are being recognized and endorsed worldwide by independent and vigorous assessment.
- Leaders of the KM journey in the above organisations and more are highly sought after speakers in the Asia Pacific KM circuit for their sharing of success, good practices and lessons learnt from their KM program; many other organisations in the region are looking to these HK organisations as role models to follow
- A considerable number of staff from the above organisations and more come to KMIRC and PolyU for further training and learning in KM, either supported by the organization or at their own expenses. These people have shown genuine interest and passion in KM
- KMIRC has trained over 2000 professionals in industry and government sectors on KM in the past decade
- Over the years, various Commissioners and Assistant Commissioners of Police have publicly thanked the KMIRC for helping the Hong Kong Police in its KM pursuit
- The writer (Eric Tsui) was appointed a KM advisor to the Hong Kong Police College by the Commissioner of Police since May 2011 as well as a Community of Practice advisor to the Efficiency Unit (another HK government department) since May 2015.
- More than a dozen of the KM officers/managers/directors in Hong Kong are current students and graduates of PolyU's Master of Science in Knowledge Management program
- Many KM luminaries have noticed and asked "KM is always active and thriving in Hong Kong. What is the magic formula? Of course, full credit goes to the organisations that have committed resources and are patient about returns from KM. We like to think KMIRC also has a role in this, however. Patrick Lambe, twice past president of iKMS (Singapore)

summarized it nicely in one of his blog articles *"Even more interesting was the turnout at KMAP (a KMIRC-hosted event) last week. At its peak, there were close to 700 delegates in the conference hall during the keynotes day – this is a number unmatched in Asia for a straight KM conference as far as I know – and though it's got a steady and growing range of KM initiatives in both public and private sectors, Hong Kong is not generally noted for its KM enthusiasm. Previous KM conferences in Hong Kong have drifted around the 100 participants mark.*

Of this number perhaps a quarter were from public sector organisations in Hong Kong, demonstrating a growing interest there. But there were also delegates from private sector companies and delegates from mainland China, Malaysia, New Zealand, Iran, UK, USA, Finland, Sweden, Germany, and Australia. Some of this diversity is what you'd expect from an academic conference, it's what universities can contribute to the conference scene.

But the particular strategy and role of the HKPolyU also played a significant role, I believe. HKPolyU (more precisely the Dept of Industrial and Systems Engineering) is unusual among universities with KM on their agendas. They do research, and they have a Master's in KM course, to be sure, as do other universities. More than that, however, their KM group has been aggressively building a strong KM consulting practice in both private and public sectors – not as sidelines for their professors and teachers, but as a kind of action research learning experience for both the clients and the KM group itself.

This is interesting. Most KM consulting work is done, to be frank, in secret. Organisations are frequently uncertain about their KM pathways, and often reluctant to share until they have some results. Similarly, private sector consultants tend not to want to share until their assignments are complete and they are confident of keeping competitors at bay. This means that in novice KM markets, KM activity is opaque, and it's hard for beginners to see many visible examples of KM in action. This multiplies the initial uncertainties and hesitancies. In an action research kind of context with a university, the picture – at least in Hong Kong – seems to have shifted. KM work becomes more visible, so onlookers are encouraged to explore and experiment. This is a major factor, I believe, behind the strong turnout at KMAP – there are now sufficient visible projects associated with HKPU to become, in themselves attractors for attention and networking."

(Source: http://www.greenchameleon.com/gc/blog_detail/universities_and_km_practice/)

The efficiency, effectiveness or competitive advantage outcomes that were achieved and how they were measured and evaluated.

Overall speaking, KM initiatives help to accomplish some/all of the following. In terms of enhancements and improvements, good KM leads to increase in

- Sales
- Customers
- Quality of decision making
- Consistency in process executions

- Organisational Memory
- Social and Professional Networks
- Response time
- Flexibility in time and delivery channels
- Knowledge about customers, partners, markets

and reductions in

- Time to search for information
- Time/Effort needed to locate/connect with knowledge experts
- Time to carry out "knowledge-intensive" tasks
- Time/Effort needed to resolve a problem
- Printing and mailing costs
- Travel cost and time
- Costs of providing training and learning programs

As the number of projects/journeys is close to 200, it is impossible to list out all the details. Nevertheless, the following table provides a subset of the various KM initiatives that have been introduced in organisations, together with the outcomes, measurements and evaluations

Initiative/Technique /Tool/System	**Outcomes**	**Method of measurement/evaluation**
Taxonomy creation and Search Engine customization	Improved schema for storing information; common consensus among staff on where to save/find information; enabled faceted search and enhanced the ranking of search results in the display	Complexity of the taxonomy in terms of levels, no of branches, levels and the size of the controlled vocabularies Reduced time to search for information, both for the navigation method and keyword searching More intelligent search engine that identifies synonyms and, recovers from incorrectly typed words Monitor and analyse search engine log for entered keywords with no matches; reviewing this on a regular basis can provide valuable information to fine tune the taxonomy as well as the search

		engine configurations
Near-miss reporting database	Overcome people's reluctance to report nearly occurred accidents in hospitals. Culture change. Design and development of a database capturing near-miss cases reported from and shared among 10 hospitals	The steadily growing size of the database Frequency of access and download of these cases from the site Survey on the rise in awareness and usefulness of the database for accident preventions A culture among staff to willingly report near-miss cases without fear of reprisals
Revamp of a Knowledge Portal	Re-design of the user interface, the layout and content of the portal, introduction of Web 2.0 tools (Wiki and RSS) to enhance collaboration and information awareness, change management to help users adopt the portal	User-adoption statistics Reduced time on the retrieval of information and documents from the portal Refined and more accurate search results from the search engine Monitoring and review of the search engine log to identify abnormal search queries and common keywords encountered but not adopted in the taxonomy Governance model established to review and discuss feedback on a regular basis and action on improvements
Scenario-based E-Learning tool	Developed a platform for rapid authoring of scenarios to support learning using open source tools	Successful adoption of this tool by MTR Corporation and the Langham Place Hotel for internal training purposes Both organisations continue to develop and update the learning content over the years. This is evidence of sustained usage of the tool MTR Corporation also uses this tool to provide videos to help drive change in their KM journey. More specifically, the tool is used to produce videos showcasing why

		new joiners and junior staff should actively ask questions and share in the Community of Practice forums
Knowledge Audit	Identified a ranked list of important explicit assets. Knowledge flow in the audited processes showing the creator/owner/originator/ user of a knowledge asset. Social networks revealing connections among people involved in the audited processes and any major knowledge centres (people and repositories, where others approach for information) in the network	Verified list of critical knowledge revealed by the Knowledge Audit by Subject Matter Experts in the organization Follow-up interviews with stakeholders, especially to validate some unusual findings in the Knowledge Audit Adopt different methodologies for Knowledge Audit to benchmark findings and identify variations Carry out Knowledge Audit periodically to obtain updated information to support decision making on KM strategies, systems and processes
Formulation of a KM Strategy	SWOT analysis from a knowledge perspective The balance between the use of codification and personalization approach Identification of appropriate soft and technical KM tools to support the set KM objectives Recommendation of pilot projects with timeframes and as part of a multi-phased approach to KM	Organisations proceeded with the pilot projects; start small to embark on their KM journey Depending on the KM initiative, for Community of Practice, measurements are based on the number of members, rate of membership growth, number of assets uploaded/downloaded. For discussions, measurements are often based on threads posted, number of replies and time lag for the reply, the nature of the reply etc. Revisit the strategy to determine its on-going appropriateness and effectiveness; gap analysis to determine if the strategy and its implementation need to be re-aligned
Stories database	Elicited stories about a given theme/topic are transcribed into a database.	Stories are verified by the tellers before they are finalized. Measurements include the number

	Indices and keywords are created to tag these stories for easy and fast retrieval	of stories elicited, the percentage of stories deemed to be admissible to the story database (for its completeness, integrity and perceived usefulness), organization continuing efforts to adopt storytelling and stories as knowledge harnessing and knowledge sharing methods Anecdotal feedback on the usefulness of the collected stories; comparison of the revealed knowledge with existing training materials; also monitor the access/retrieval of the stories for training and learning purposes

Gap between KM in the books and in practice

Have done close to 200 KM projects, one can clearly identify several major areas where KM theories (as covered in most KM books) and practice differ, as well as those practical issues that are not commonly addressed but are nevertheless important. We have again summarized the discussions into the following areas:

Knowledge Audit and Knowledge Strategy: Which one comes first?

It does sound like a "chicken-egg" situation. Our experience is that either one can come first, depending on the situation. For example, a century old engineering organization wants to harness and better retain and share their critical knowledge. In that case, almost certainly the team of experienced engineers would know about their core area(s) of expertise and how these are related to the achievement of corporate objectives. However, a Knowledge Audit may not only reinforce what the engineers believe but also provide evidence-based support for specific additional critical knowledge areas/assets that should also be harnessed, retained and shared. The knowledge strategy can come second after the identification of critical knowledge assets. On the other hand, for an organization that is entirely new to KM, it is sensible to first derive a KM strategy then proceed to carry out pilot projects so identified in the strategy. There is no definitive right or wrong decision on choosing which one to proceed with first; it is determined on the needs and priority of the client organization.

KM journeys are rarely started from scratch

Organisations and societies evolve all the time. Therefore, it is rarely the case that an organization truly begins its KM journey from a "clean sheet of paper". This starting point is often ignored in books as KM strategies and operational steps outlined in books tend to assume the journey starts from scratch. The reality is that the organization may be already doing something related to managing knowledge but not calling it KM. Worse, an organization may have introduced KM before but, due to whatever reason, the journey failed and had poor ramifications among staff. Whatever the case, an organisation's past efforts on KM need to be understood and factored into the strategy for implementation. Our experience is that, more likely than not, there are knowledge assets to filter out and migrate, methods and/or processes to fine tune, culture building among staff, sceptics to deal with, among others, before a journey can move forward. In other words, all organisations have "baggage" that needs to be dealt with and cannot be ignored when enacting change.

Natural KM "entry points" in organisations

Although it is never easy to convince someone to adopt KM let alone embarking on a KM journey, nevertheless, we found that there are natural "entry points" for organizations to take up KM. These entry points are so natural and almost need no further substantiation. One entry point is when organisations realise their staff are wasting substantial time every day in finding/searching for things but to no avail; a taxonomy project can help here. Another one is the global phenomenon of the Babyboomer Retirement Syndrome which refers to the over-proportion of retirement from organisations since 10 years ago that will continue over the next 5 years. No organization is immune to this exodus of staff and no doubt leaders would be receptive to adopting any KM method that can help to reduce some of the lost knowledge by retaining it in knowledge repositories, as well as in the heads of the remaining staff.

KM strategies vary among MNCs, local companies & SMBs

We also found that there are substantial differences among the adoption of KM in MNC (multi-national corporations), local companies and SMBs (small to medium sized businesses). Especially for those MNCs where their headquarters are in USA or Europe, deployment of KM in local regions/offices is typically a rollout or extension of a KM program (including strategy, system, blueprint, operational groups, communities etc.) that was being handed down from their headquarters; the local team's responsibility is basically to operationalize the program with some minor fine tuning or variation. For local (large) organisations, their adoption of KM has, in most cases, a good alignment with the typical KM journey as prescribed in books and literature. For SMBs, due to a low budget, multi-skilling of staff, and the proprietor's dominance in decision making, their KM journeys need the most vigorous ROI (return on investment) and the course of the KM journey can change radically due to, among others, staff departure, change of decision by the proprietor, market volatility, business performance, skills and competencies of staff and their ability to learn new things.

Factors for sustaining the use of KMS different from factors that affect adoption

KM books and research papers extensively cover the topic of KMS adoption and are the factors that influence users to take up and start using a KM system. While knowing these factors is no doubt very useful for planning and the deployment of a KM system, it is even more important to know the factors that lead users to continue their use of the KM system in a sustained way. Our own research, as well as knowledge gained from working with these 200 projects, lead us to believe that the two sets of factors (i.e. pre-adoption and post-adoption) are different, For example, peer influence, demonstrated usefulness, personal experience and personalisation are among the factors that lead users to continue their use of KM system in a sustained way.

IC is much harder than KM to sell

Among the 200 or so projects conducted, a small number of these projects are Intellectual Capital-related projects. Overall speaking, we found that compared to KM, it is more difficult to convince directors to adopt an IC project possibly because IC is very new (many organisations are only just starting to use the Balanced Scorecard for reporting and tracking performance) and that the benefits of IC are not immediately realizable. There are, however, a few major organisations leveraging IC for value creation, reporting and business planning. More time is needed to determine whether IC will lift-off in Hong Kong or not.

(An earlier version of the author's presentation on this topic is available for replay at http://158.132.103.175/temp/eric/KM%20developments%20in%20HK%20-%20over%20100%20projects/)

Biography

Eric Tsui spent 16 years in industry with the Computer Sciences Corporation (CSC) in Australia in various capacities including Chief Research Officer and Innovation Manager. During this period, he made significant contributions to the company's expert systems products, applied research and innovation programmes.

In 2002, he was appointed Professor of Knowledge Management at the Hong Kong Polytechnic University under the President's Distinguished Professionals Scheme; he joined the university full time in 2005. His speciality areas are Knowledge technologies, including Search Engines, Portals, Personal Knowledge Management, and Personal Learning Environments, and Cloud services.

He has also consulted for many government departments and private organizations in Australia, Hong Kong, Thailand, Singapore, Malaysia, and Brunei. He leads the E-Learning Advisory Committee, one Community of Practice as well as spearheads the PolyU's journey into Massive Open Online Courses (MOOCs). A Vice President of the Hong Kong Knowledge Management Society, he is also honorary advisor to the Hong Kong Police College and the Efficiency Unit, and a member of the IT Technical Advisory Sub-Committee in the Hospital Authority in the HKSARG. He

is also an expert group member of the Jockey Club Design Institute on Social Innovation. In 2014, he received the Knowledge Management Leadership Award and is a Shortlisted Finalist of UGC Teaching Award in Hong Kong.

Currently, Professor Eric is leading ISE101x Knowledge Management and Big Data in Business, a Massive Open Online Course delivered on the MIT's edX platform. The course has attracted more than 20,000 students worldwide.