

Retention & Transfer of Tacit Knowledge: Challenges & Case Studies



Eric Tsui

**Behavioural and Knowledge Engineering Research Centre
The Hong Kong Polytechnic University**



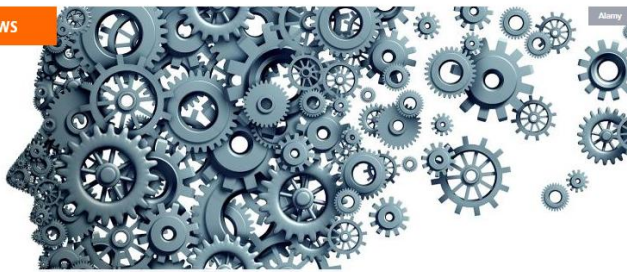
Nicole Sy

**East Asia Knowledge Manager
East Asia Arup University**

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Behaviour and Knowledge Engineering Research Centre

**THE HONG KONG
POLYTECHNIC UNIVERSITY**
香港理工大學

News



IT OPERATIONS AND MANAGEMENT

Organizational Knowledge Loss from Employee Turnover Concerns IT Leaders

The loss of corporate knowledge when employees leave their company is an issue at most organizations, so IT leaders need to prioritize knowledge management strategies.

Nathan Eddy | Sep 05, 2022

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Agenda

01

Tacit Knowledge



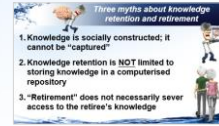
02

Knowledge blockades & leakages



03

Knowledge retention & transfer



04

Case Studies



05

Questions & Answers



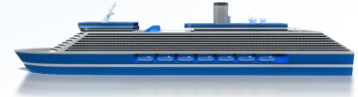
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Story of an old man.
Posted by Humans At Sea
17,890,928 Views



Tacit Vs Explicit Knowledge

Explicit Knowledge



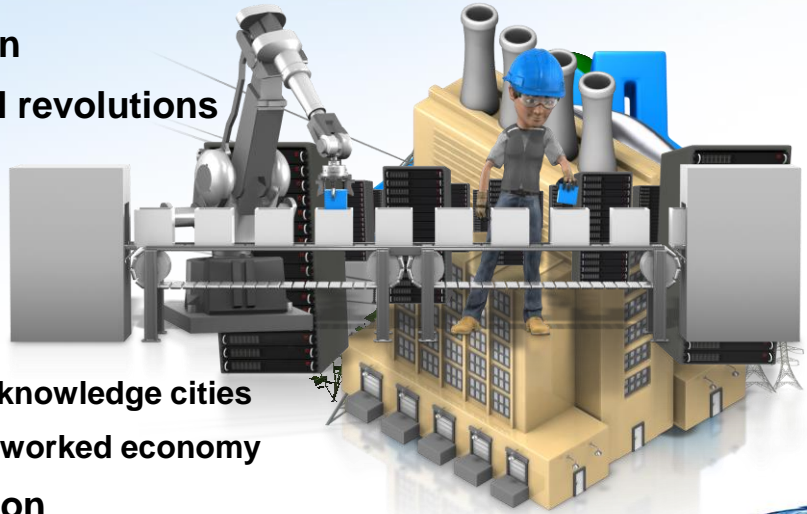
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*Why the
knowledge
advantage has
become even more
compelling?*



Industrial Revolutions & the different eras

- Agricultural revolution
- 1st, 2nd & 3rd Industrial revolutions
 - Manufacturing era
- Information era
- Knowledge era
 - Knowledge Economy
 - Knowledge societies, knowledge cities
 - Sharing economy, Networked economy
- 4th Industrial revolution



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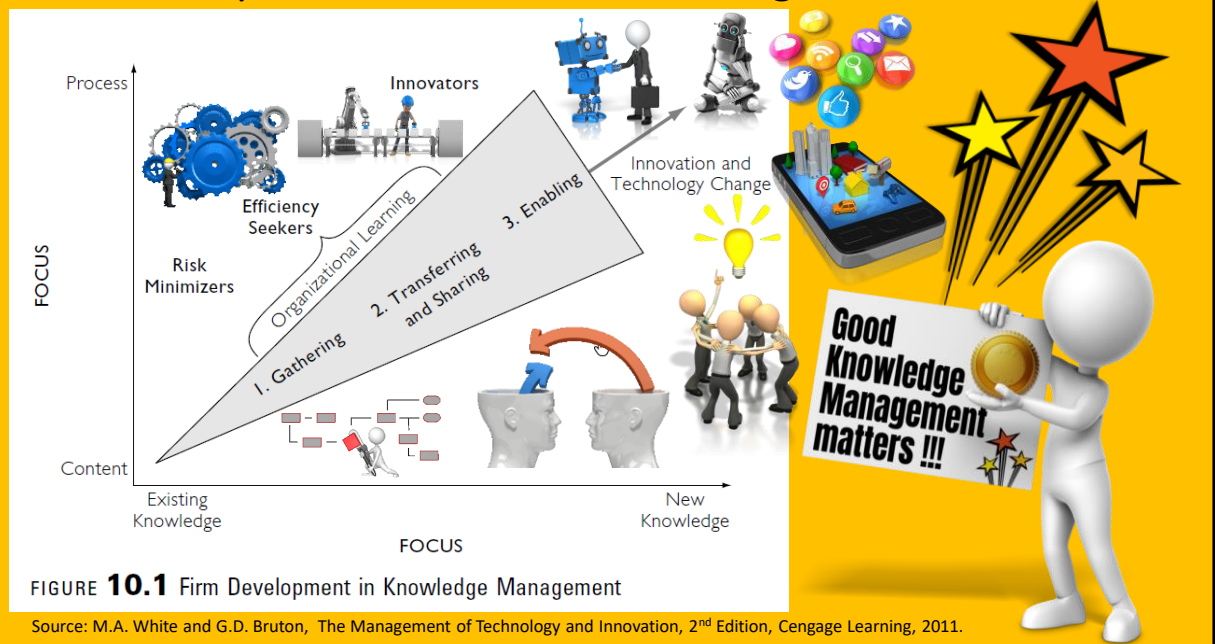
3 competing value disciplines



This type of organizational design favours task specialization, control and efficiency but inhibits cross flow of knowledge between units/divisions and innovation



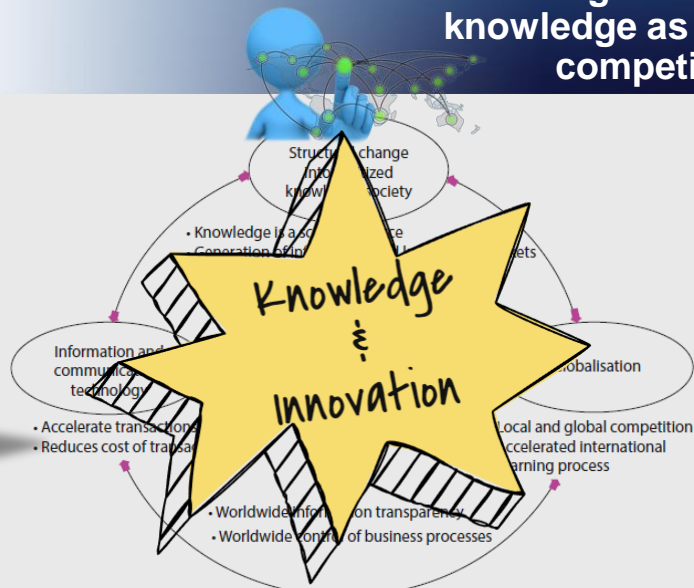
KM efforts spawn innovation & technological advancements



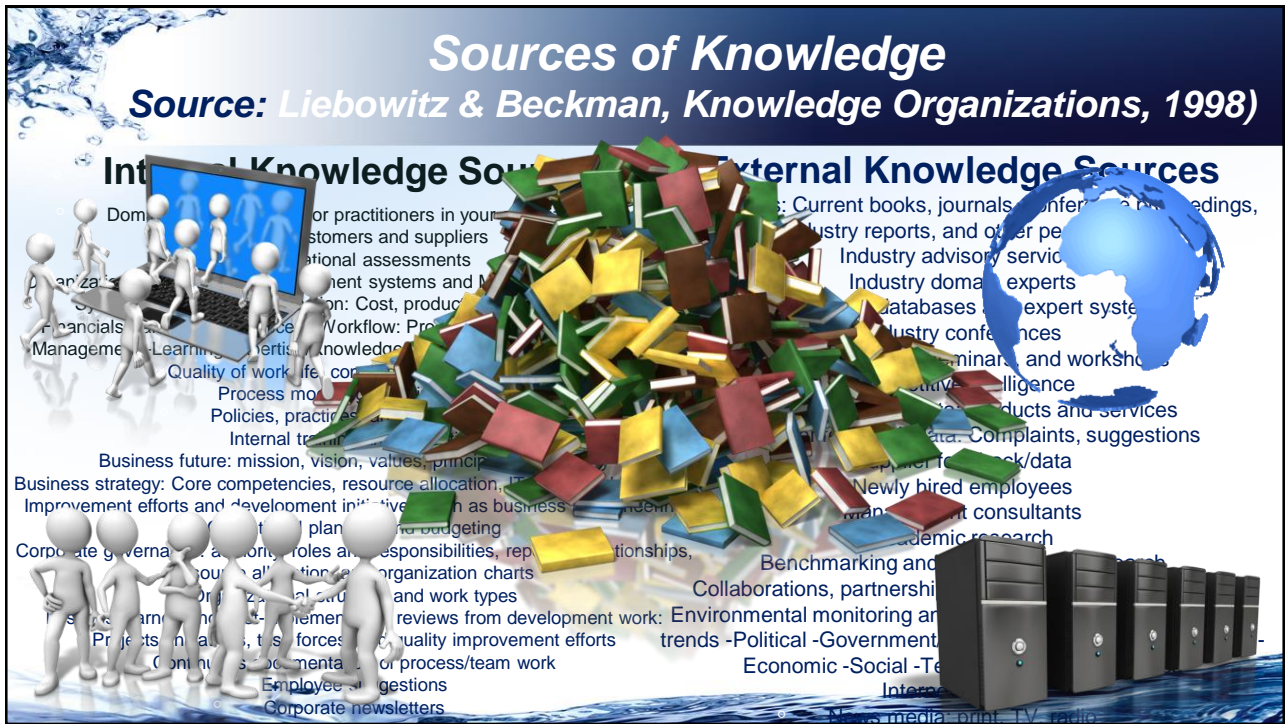




THREE driving forces that enhance knowledge as a factor of competition



Source: K. North and G. Kumta, Knowledge Management: Value Creation through Organizational Learning, 2nd edition, Springer, 2018.



Access to such information & knowledge is crucial for supporting innovations

- In-house research and development, including basic research
- Linkages to customers or other potential users of innovations
- Linkages to an external network of firms that may include competitors, complementors, and suppliers
- Linkages to other external sources of scientific and technical information, such as universities and government laboratories



Source: M.A. Schilling, Strategic Management of Technological Innovation, 6th Edition, McGraw Hill, New York, 2020.

Absorptive capacity

Absorptive capacity – a firm's ability to better assimilate and utilize information obtained externally. Absorptive capacity refers to the firm's ability to understand and use new information



The effects of absorptive capacity suggest that firms that develop new technologies ahead of others may have an advantage in staying ahead. Firms that forgo investment in technology development may find it very difficult or expensive to develop technology in a subsequent period.

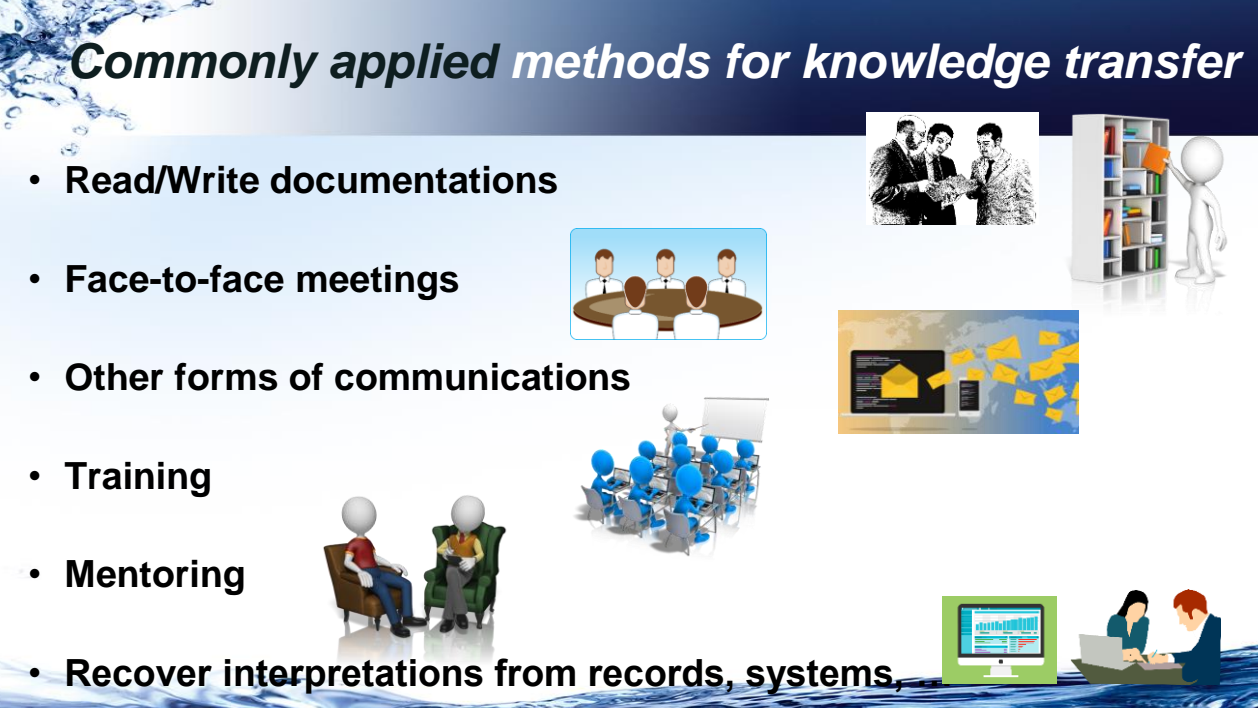
Source: M.A. Schilling, Strategic Management of Technological Innovation, 6th Edition, McGraw Hill, New York, 2020.

*Knowledge
blockades &
leakages are
everywhere*



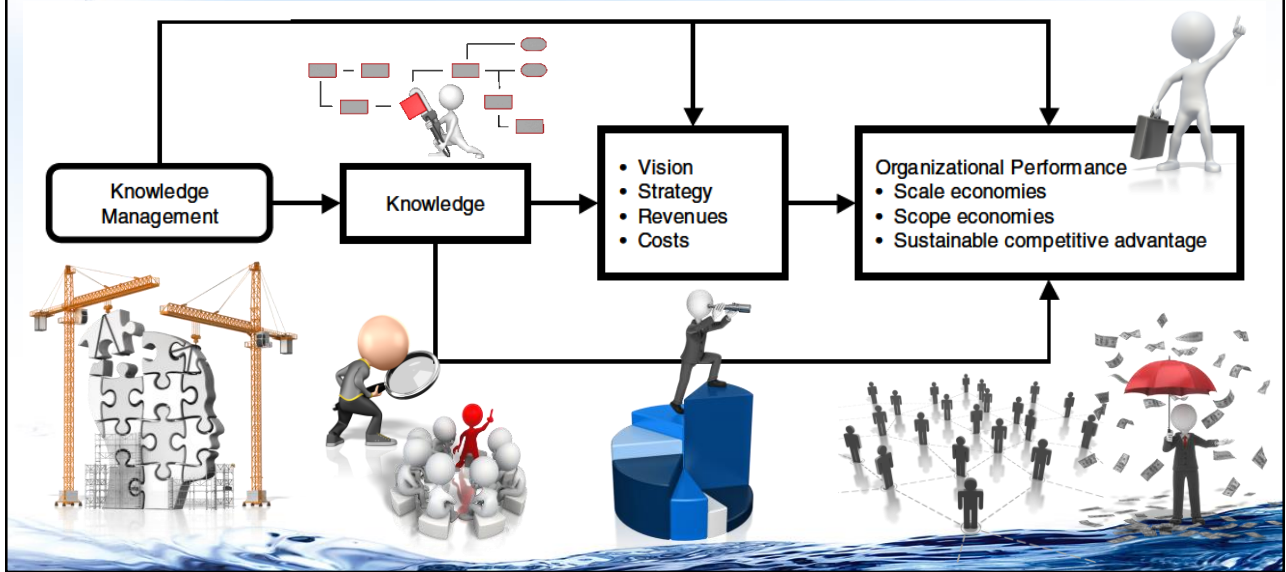
Commonly applied methods for knowledge transfer

- Read/Write documentations
- Face-to-face meetings
- Other forms of communications
- Training
- Mentoring
- Recover interpretations from records, systems,



KM impacts Organisational Performance

Source: I. Becerra-Fernandez and R. Sabgerwal, Knowledge Management Systems and Processes, 2nd edition, Routledge, 2015.



Codification and Personalisation strategies

CODIFICATION STRATEGY

Technology-led
Explicit knowledge
orientation
Codify knowledge
Use databases
High turnover



PERSONALISATION STRATEGY

People-led
Tacit knowledge
orientation
Engage in dialogue
Channel expertise
High profits



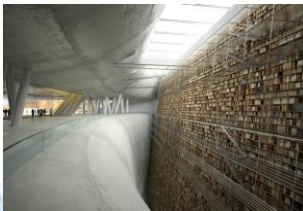
Source: A. Jashapara, Knowledge Management: An Integrated Approach, Prentice-Hall, 2011.

“Codification projects”

Digitisation of codified knowledge



Document/Knowledge Repository



Documenting Best Practices & LL



Search Engine & Navigation



The characteristics of knowledge

“We know a lot more than what we can say; we can say a lot more than what we can write.”



“Knowledge is socially constructed.”

Max Boisot's I-Space KM model (Codification, Abstraction & Diffusion)

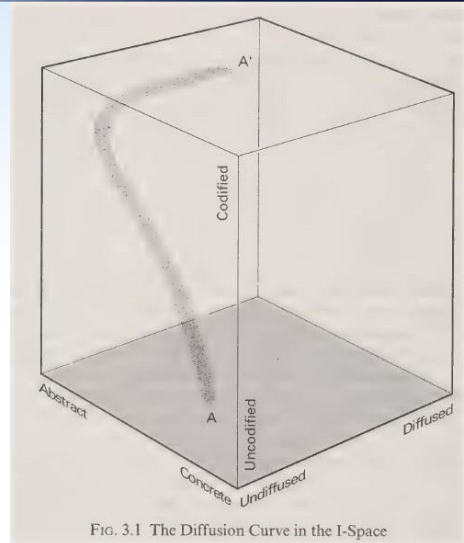
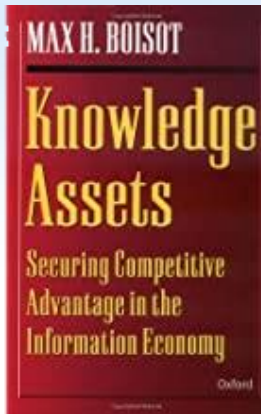


FIG. 3.1 The Diffusion Curve in the I-Space

Some common reasons for Search failures?

- Multiple search engines exist in an organisation
- Coverage of search space by each engine
- Frequency of update & synchronisation of the SE indices
- Effective search queries (choice, combination & operands)
- Lack of user training
- No or improper configuration of
 - Exactness of match
 - Matching position for the text
 - Meta-data
 - Weighting / Ranking
 - Dictionaries
 - User role & preferences
- Limitations of the search algorithm



[Replay a video on the future of Search](#)

Codification and Personalisation strategies

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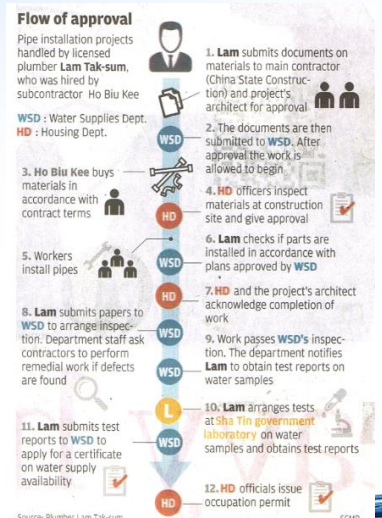


Source: A. Jashapara, Knowledge Management: An Integrated Approach, Prentice-Hall, 2011.

Collaboration

Activities

- Find right person(s)
- Coordinate
- Attend
- Discuss
- Co-design
- Co-decide
- Co-create
- Co-test
- Co-present
- ...





Sharing technical support knowledge (Source: Xerox Corp.)

Xerox's Eureka system



Using CoPs to retain & publish knowledge

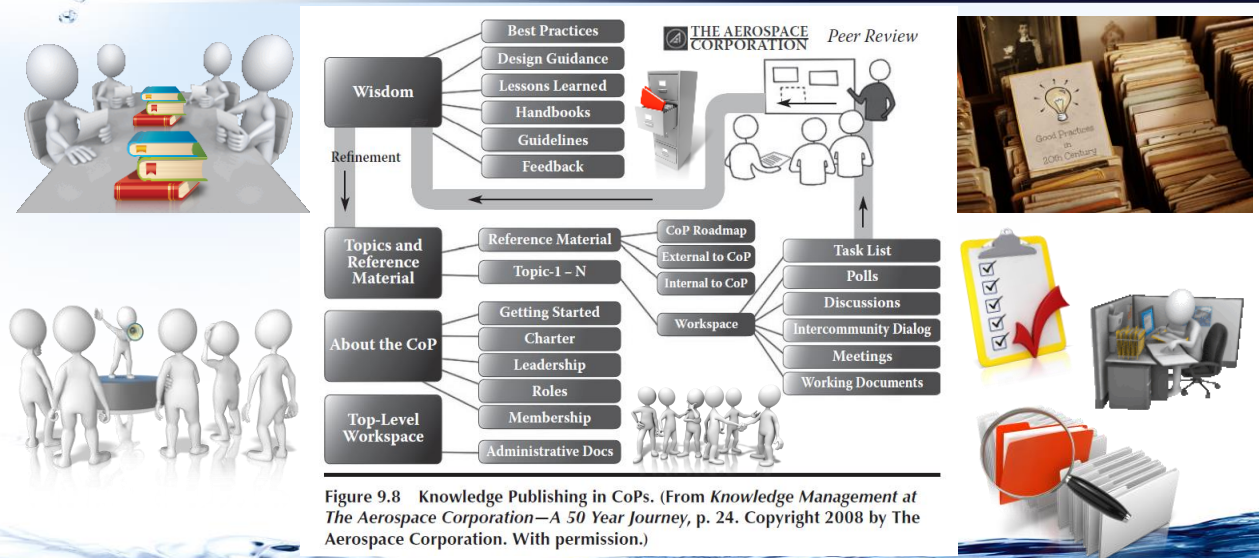


Figure 9.8 Knowledge Publishing in CoPs. (From *Knowledge Management at The Aerospace Corporation—A 50 Year Journey*, p. 24. Copyright 2008 by The Aerospace Corporation. With permission.)



A Forum on Communities of Practice in Hong Kong

connect • share • learn • grow

Would you like to find out what a CoP is and how you can use it to enhance knowledge sharing, learning and other purposes?
Five Communities of Practice (CoPs) drawing like-minded people with common goals have been established to support teaching and learning at PolyU.

This knowledge exchange forum features short presentations by representatives from organisations in Hong Kong and China which are operating CoPs. Presenters from **MTR Corporation, China Light & Power (CLP), Hong Kong Police, Huawei, and PolyU** will meet to share their experiences.

A light lunch will be provided from 1:30 pm.

Go to the PolyU CoP website at www.polyu.edu.hk/CoP and find out more.

Registration:
contact Tirzah Wu of EDC at 2766 4237, or register online at: <http://edc.polyu.edu.hk/regform>

Educational Development Centre

Striking the right balance

Explicit knowledge

Generic & wide applicability

Same/similar context

Little/no change in context

Tacit knowledge

Highly individualized/customised

Highly dependent on context

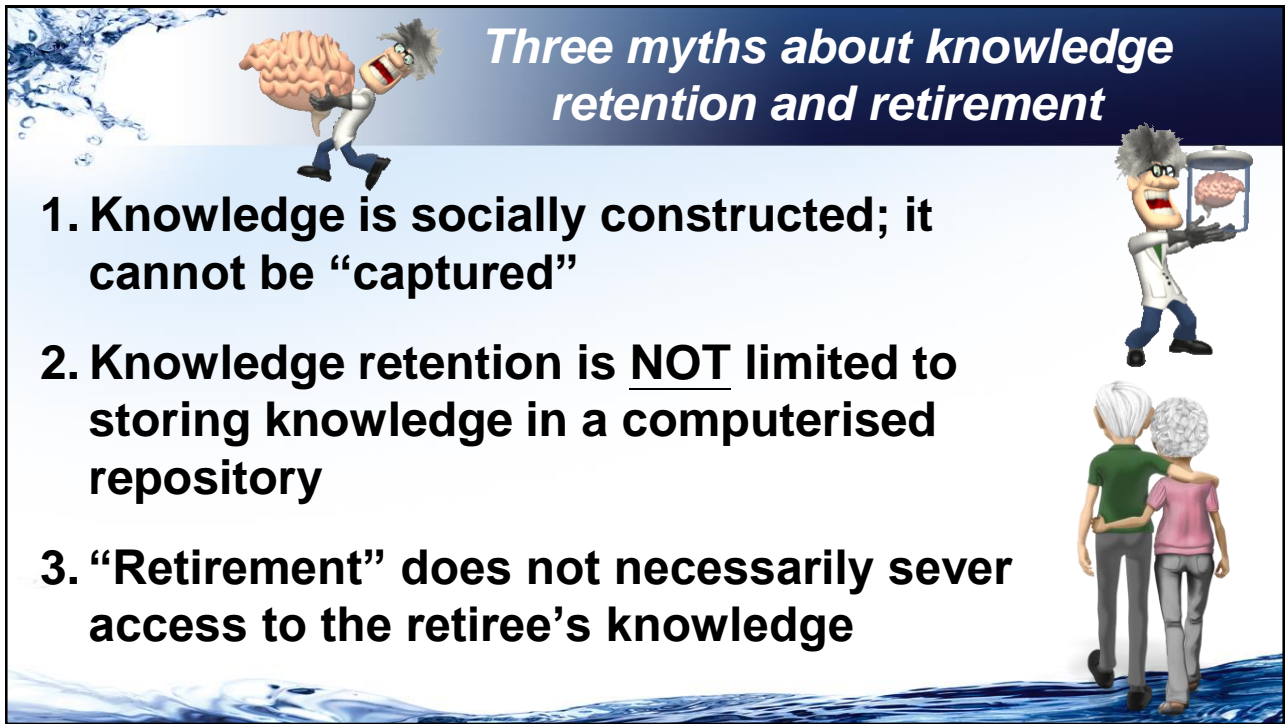
Highly volatile context



CODIFICATION **PERSONALISATION**

Three myths about knowledge retention and retirement

1. Knowledge is socially constructed; it cannot be “captured”
2. Knowledge retention is NOT limited to storing knowledge in a computerised repository
3. “Retirement” does not necessarily sever access to the retiree’s knowledge



Ways to retain and share tacit knowledge

0. Identify critical knowledge
1. Codify the knowledge
2. Carry out Knowledge Transfer
3. Provide a cosy knowledge sharing environment



Common methods for knowledge transfer

- Read/Write documentations
- Face-to-face meetings
- Other forms of communications
- Training
- Recover interpretations from records, systems, ...

The characteristics of knowledge

“We know a lot more than what we can say; we can say a lot more than what we can write.”

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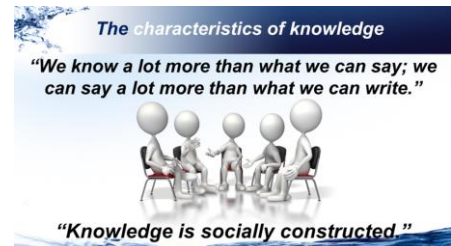
Ways to retain and share tacit knowledge

0. Identify critical knowledge

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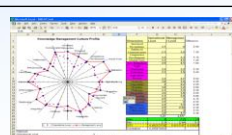

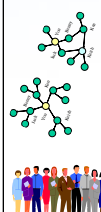


3. Provide a cosy knowledge sharing environment



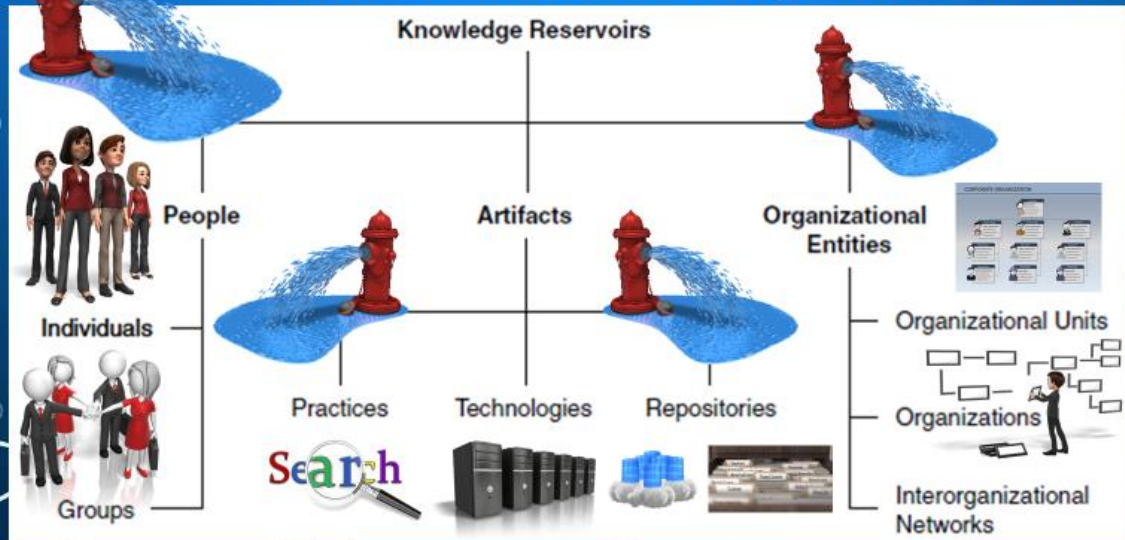
Critical (or "At-risk") knowledge



Knowledge Audit

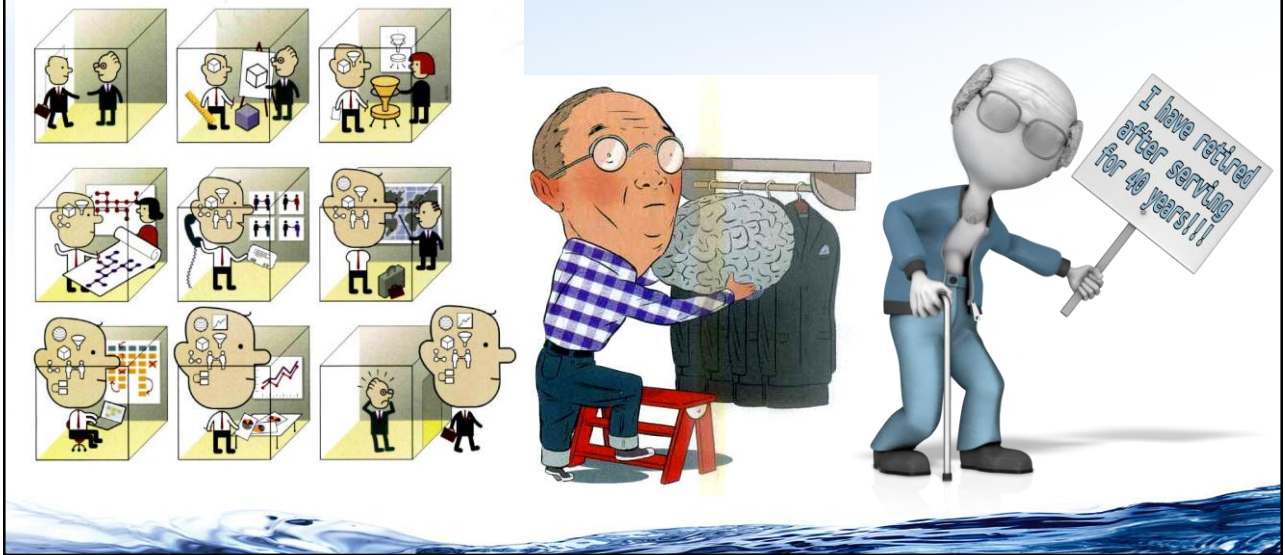
Task	Method(s) / Tool(s)	Deliverable(s)
 Readiness Assessment	Culture Survey KM Quick Scan Interviews Questionnaires	
 Knowledge Flow Analysis	STOCKS Process Survey Social Network Analysis (SNA) Knowledge Network Analysis Knowledge Mapping	
 Analysis of findings & recommendations	Critical tacit & explicit knowledge Prioritisation of KM initiatives	Knowledge Strategy 

The reservoirs of Knowledge in organisations



Adapted from I. Becerra-Fernandez and R. Sabherwal, Knowledge Management Systems and Processes, 2nd edition, Routledge, 2015.

Babyboomers retirement syndrome (People who were born 1945-60 have nearly all retired)



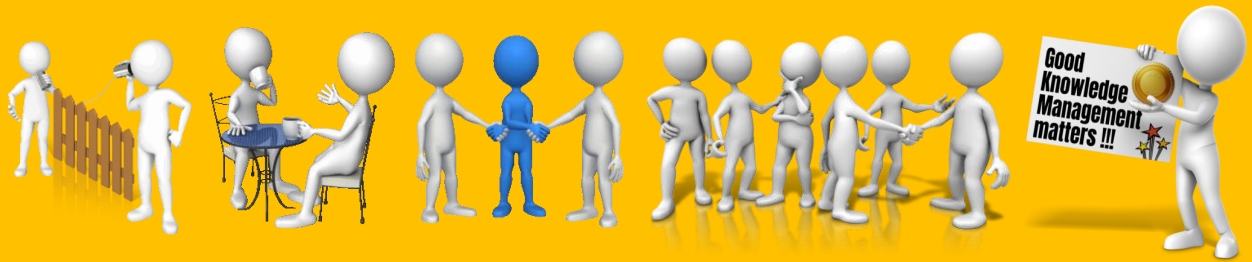
Relevant strategies & methods for knowledge retention, sharing & transfer

1. Bring back retirees, ex-workers
2. Delay the age of retirement
3. Mentoring, Job Shadowing, Job Rotation
4. Peer Assist Scheme
5. Knowledge Audit including SNA
6. Narratives, Stories & Storytelling
7. Knowledge Maps & Knowledge Mapping
8. After Action Reviews (AARs), Lessons Learnt (LL) Database
9. Learn before, Learn during, Learn after
10. Communities of Interest/Practice (CoI/CoP), Thematic Groups
11. Expert Directory
12. Knowledge Repository
13. Collaboration systems, Knowledge Portals
14. Employee lifecycle approach
15. Redesign of exit interviews
16. Videotaping



Knowledge

Factors that affect the success of knowledge transfer



Proximity and interaction can directly influence firms' ability and willingness to exchange knowledge. First, *knowledge that is complex or tacit* may require frequent and close interaction to be meaningfully exchanged. Firms may need to interact frequently to develop common ways of understanding and articulating the knowledge before they are able to transfer it. Second, *closeness and frequency of interaction* can influence a firm's willingness to exchange knowledge. When firms interact frequently, they can develop *trust* and reciprocity norms. Firms that interact over time develop greater knowledge of each other, and their repeated interactions give them information as to the likelihood of their partner's behaving opportunistically. A shared understanding of the rules of engagement emerges, wherein each partner understands its obligations with respect to how much knowledge is exchanged, how that knowledge can be used, and how the firms are expected to reciprocate.

Firms that are proximate thus have an advantage in sharing information that can lead to greater innovation productivity.

Source: M.A. Schilling, Strategic Management of Technological Innovation, 6th Edition, McGraw Hill, New York, 2020.




Five types of Knowledge Transfer (Source: Nancy M. Dixon)

1. **Serial transfer** – The same team does *another* task in a similar context
2. **Near transfer** - The receiving team does a task similar to that of the source team and in a similar context
3. **Far transfer** - The receiving team does a task similar to that of the source team but in a different context
4. **Expert transfer** - The receiving team does a different task from that of the source team but in a similar context
5. **Strategic transfer** - The receiving team does a task that impacts the whole organization in a context different from that of the source team

Lost Knowledge

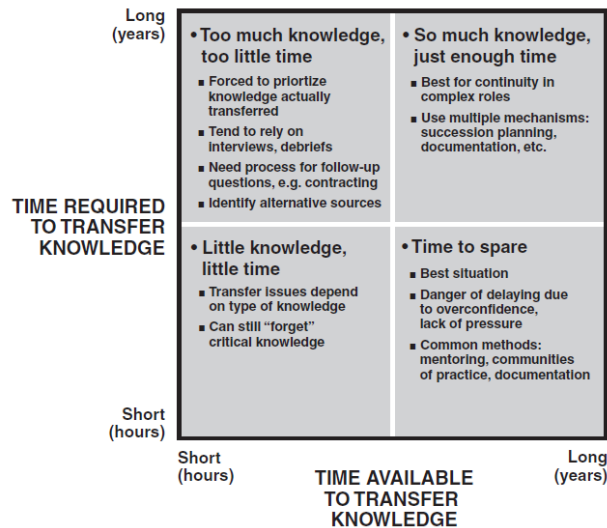
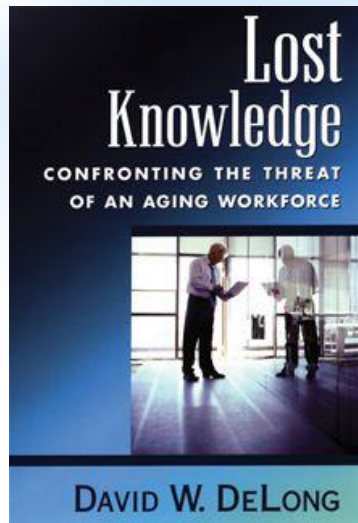
CONFRONTING THE THREAT
OF AN AGING WORKFORCE



DAVID W. DELONG

24

Time required Vs time available for Knowledge Transfer (Source: DW DeLong, 2004)



Knowledge retention & transfer at Chevron



Table 8.1 Knowledge Retention Processes and Tools

Nature of Expertise	Competent Performers		Experts	
	Weeks	Months, Years	Weeks	Months, Years
Explicit	Documentation, interviews	Best-Practices, Training Courses, Embed in Processes and Tools	<p>The Knowledge Management Toolbox</p>	
Tacit	Outsource, Retiree Program, Knowledge Harvesting	Peer Reviews, Communities Mentoring/Coaching, Knowledge Harvesting, Expert Systems, Job Shadowing, Rotational Assignments		

Source: J. Liebowitz, Knowledge Retention Strategies & Solutions, CRC Press, 2009.

Commonly applied methods for knowledge transfer

- Read/Write documentations
- Face-to-face meetings
- Other forms of communications
- Training
- Recover interpretations from records, systems, ...

• ...



KM Case- A Battery Manufacturing Company in Hong Kong

Ways to retain and share tacit knowledge

- A
- M
- R
- I

0. Identify critical knowledge

1. Codify the knowledge

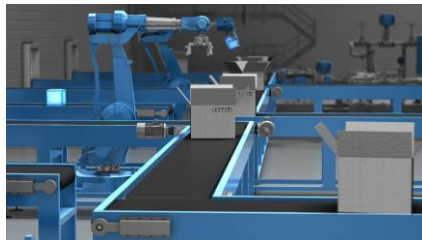
2. Carry out Knowledge Transfer

3. Provide a cosy knowledge

sharing environment




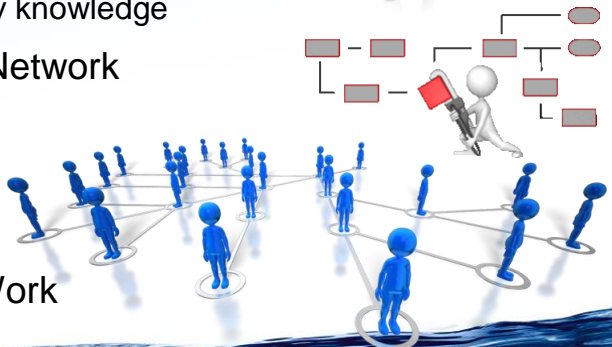
- High turnover for employees in the age range of 25-40
- Lay offs due to automation and facilities moved to China
- Retirement
- Emigration



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- Technical Knowledge/ Subject Matter Expertise
 - R&D Knowledge
 - Manufacturing/Process technology knowledge
 - Knowledge of Relationships and Network
 - Supplier Knowledge
 - Customer Knowledge
 - Regulatory Knowledge
 - Administrative and Operational Work
- 



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KM Case- How to retain the Critical Knowledge of departing employees

A register of the profile of departing employees

- Keep a list of people who will be leaving the company either due to retirement or turnover etc. and prioritize according to the expected time of departure
- Once an employee is identified for knowledge transfer, focus on
 - Projects he/she has worked on
 - Key competencies of the employee (as listed on the previous slide)
 - Relevance of these competencies (extent of usefulness for the organisation?)
 - No. of replacements available and/or any succession plan for the employee ?
- Answers to the above help to determine the criticality of the departing employee
- Formulate a knowledge retention strategy

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The current issue and full text archive of this journal is available on Emerald Insight at
<https://www.emerald.com/insight/2059-5891.htm>

A framework to retain the knowledge of departing knowledge workers in the manufacturing industry

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*Department of Industrial and Systems Engineering,
Hong Kong Polytechnic University, Kowloon, Hong Kong*

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School of Business, University of Skövde, Skövde, Sweden

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The University of Hong Kong, Hong Kong, Hong Kong*

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National University of Sciences and Technology (NUST), Islamabad, Pakistan, and*

Syed Muhammad Ali
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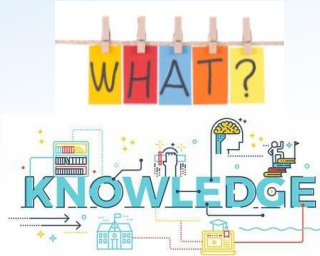
Manufacturing industry

such cases competitor
se critical

Critical Elements on Knowledge Capturing

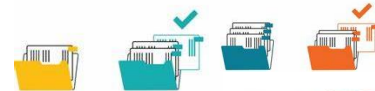
WHEN?

Embed KM in working process



WHERE?

Knowledge Categorization for knowledge retrieval



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KM Case - Capturing Knowledge in different stages of working life

3 E Interviews



E_{ntry}



E_{xpert}



E_{xit}

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KM Case – Aligning knowledge with corporate strategy

Environmental Scan



STEP Analysis

Social Cultural Issue



Political / Legal Issues



Technology



Economic Factors



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KM Case – Aligning knowledge with corporate strategy

Social Cultural Issue



Political / Legal Issues



Technology



Economic Factors



INSIGHT

Knowledge gap

KM strategy

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Critical Elements on Knowledge Capturing

WHEN?

Embed KM in working process



WHAT?

KNOWLEDGE

WHERE?

Knowledge Categorization for knowledge retrieval



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KM Case – Institutionalizing the Knowledge Sharing

Customer Service Hotlines

10-min sharing session -- “快閃黨”

Define the Theme



Sharing

How to answer those inquiries

Good / bad experience

Reapply the knowledge



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KM Case – Exploration of new way of working with captured knowledge



**Monthly Skill
Network**

Sharing & Reflection

If we do this project again,
how do we do it differently?
(Take 2)

Technology



People Skill



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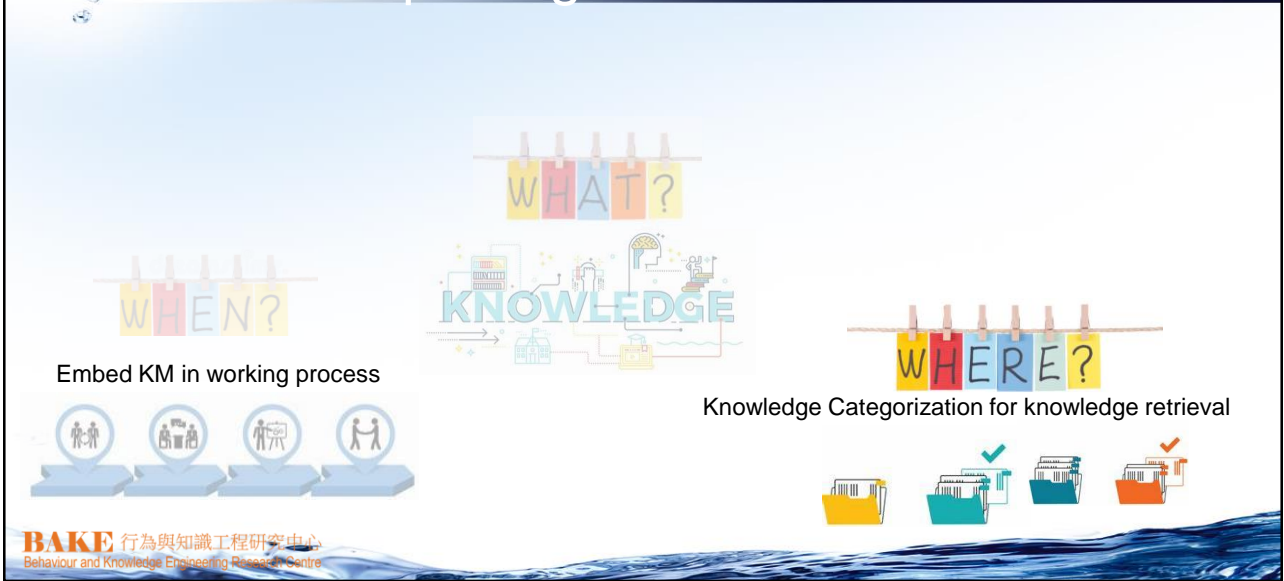
KM Case – Exploration of new way of working with captured knowledge

Technology People Skill



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Critical Elements on Knowledge Capturing

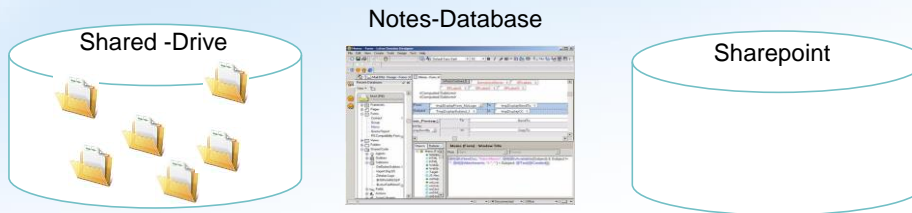


Knowledge Retrieval with aligned categorization model



Knowledge Retrieval with aligned categorization model

Sharepoint



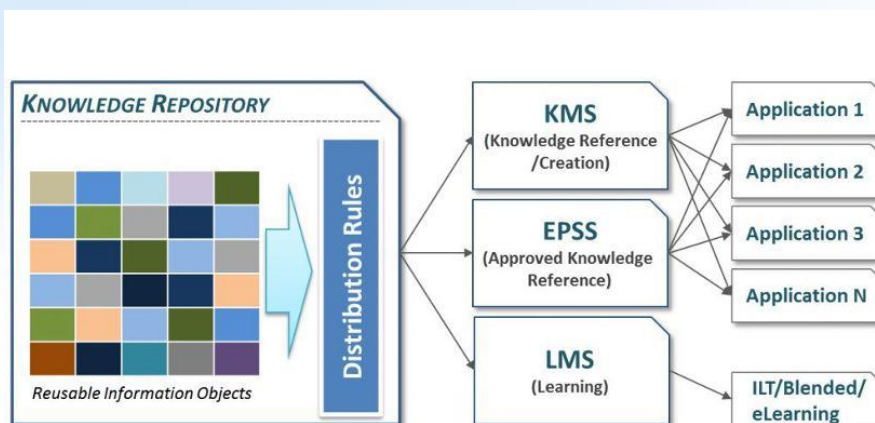
No Guideline on Folder Structure, Naming,

FREE FORMAT



Difficult to retrieve document
= Inhibitor to Knowledge Sharing

Knowledge Retrieval with aligned categorization model



Positioning of different repositories

Develop a draft categorization model



Nursing on implementation of new model



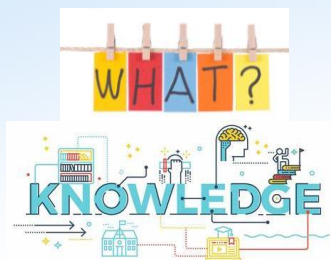
Validating the draft categorization model



How to realize your KM plan?



Embed KM in working process



Knowledge Categorization for knowledge retrieval



Arup Knowledge Management Method Card



Develop why we do KM



Identify critical knowledge



Benchmark the best KM practice

KM Card Sets have three themes

Drivers Of Changes



Help to identify the driving force of doing KM

Tools & Approaches



Help to develop the implementation plan

Industry Best Practices



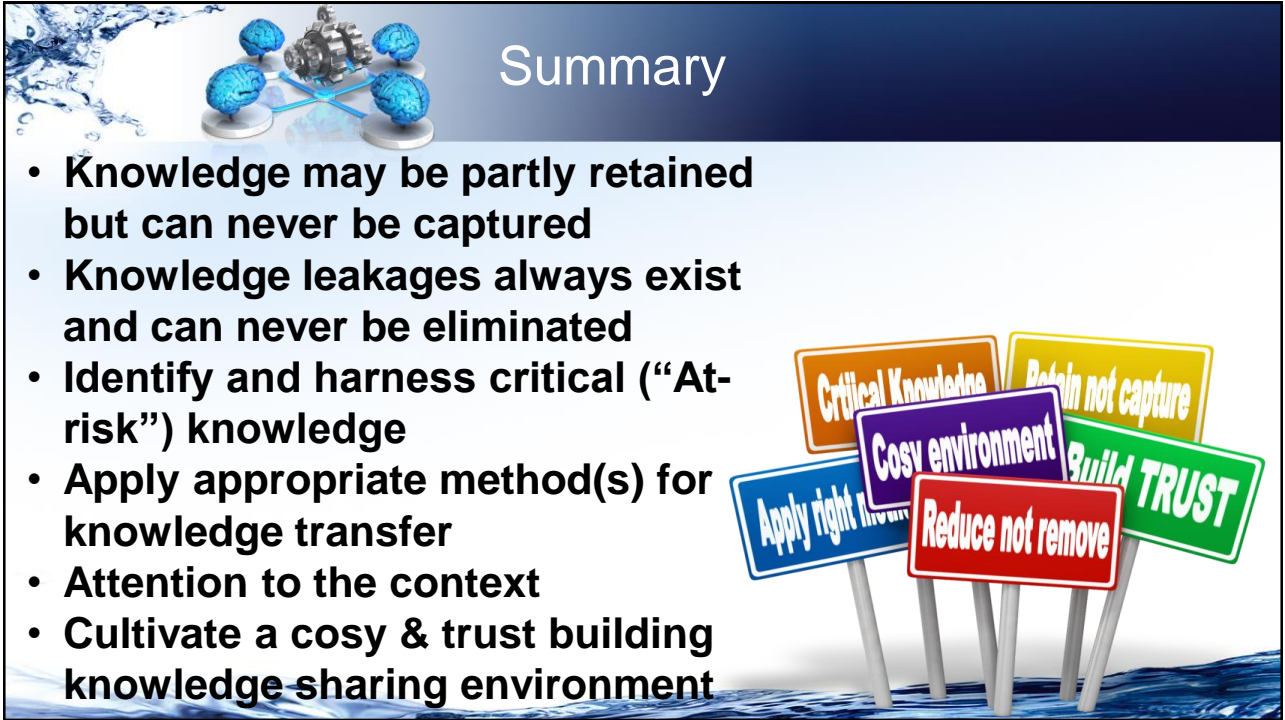
Help to learn from the industry best

KM Strategy planning for Singapore KM Partitioner




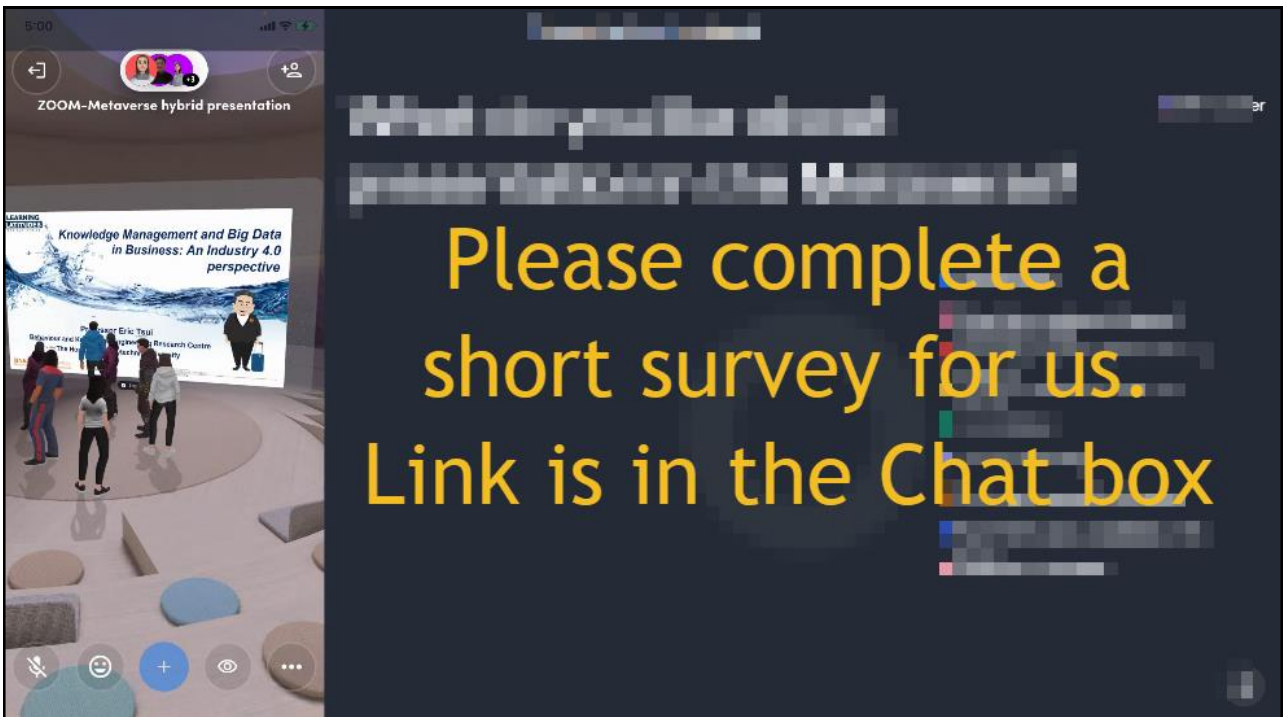
ZOOM-Metaverse Hybrid presentation





Summary

- Knowledge may be partly retained but can never be captured
- Knowledge leakages always exist and can never be eliminated
- Identify and harness critical (“At-risk”) knowledge
- Apply appropriate method(s) for knowledge transfer
- Attention to the context
- Cultivate a cosy & trust building knowledge sharing environment

5:00

Zoom-Metaverse hybrid presentation

Knowledge Management and Big Data in Business: An Industry 4.0 perspective

Please complete a short survey for us. Link is in the Chat box

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