Bi-Monthly KM Practitioner's Gathering

Sharing on knowledge risk and its management

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Research Objectives

1. To develop an assessment for knowledge risk factors
2. To evaluate the proposed assessment in reference sites

Background and Motivation - Missions of KM

- There are two major missions of KM
  - Maximizing the intellectual assets of an organization
  - Connecting knowledge generators, holders, and users to facilitate the flow of knowledge

- *These two missions may fail if ....*

Background and Motivation – What is risk?

- According to Oxford Dictionaries, risk is:
  - A situation involving exposure to danger
  - The possibility that something unpleasant or unwelcome will happen
  - The possibility of financial loss

- Billington (1997) proposes three dimensions of a risk:
  - A hazard that must be minimized or eliminated
  - An uncertainty about which path should be taken
  - An opportunity for growth or improvement

Background and Motivation – Risk Management

1. Identification of risks

2. Assessment of risks

3. Control of risks

4. Monitoring and Review

(Curtis & Carey, 2012; Hallikas, Karvonen, Pulkkinen, Virolainen & Tuominen, 2004; Van der Oost, Beyer, and Vermeulen, 2003; Zhi, 1995)

Background and Motivation - Current Situation of KM

- Most KM processes at present focus on **eliciting, capturing, recording, organizing, retaining and sharing** knowledge in organizations.

- The benefits these activities bring to an organization
  - often cannot be realised in the short term and
  - are difficult to be converted into financial values.

- KM as a whole still needs a lot of momentum to be put into the main-stream of business and professional practice.

(Clark and Soliman, 1999, Davenport et al., 1998, Wong, 2005)

Assessment on Knowledge Risk Factors

Knowledge leakage risk

Knowledge loss risk

Knowledge obsolescence risk

Knowledge shortage risk

(Ahmad et al., 2014, Annansingh, 2005, Frishammar et al., 2015, Jiang et al., 2013, Perrott, 2007)

Assessment on Knowledge Risk Factors

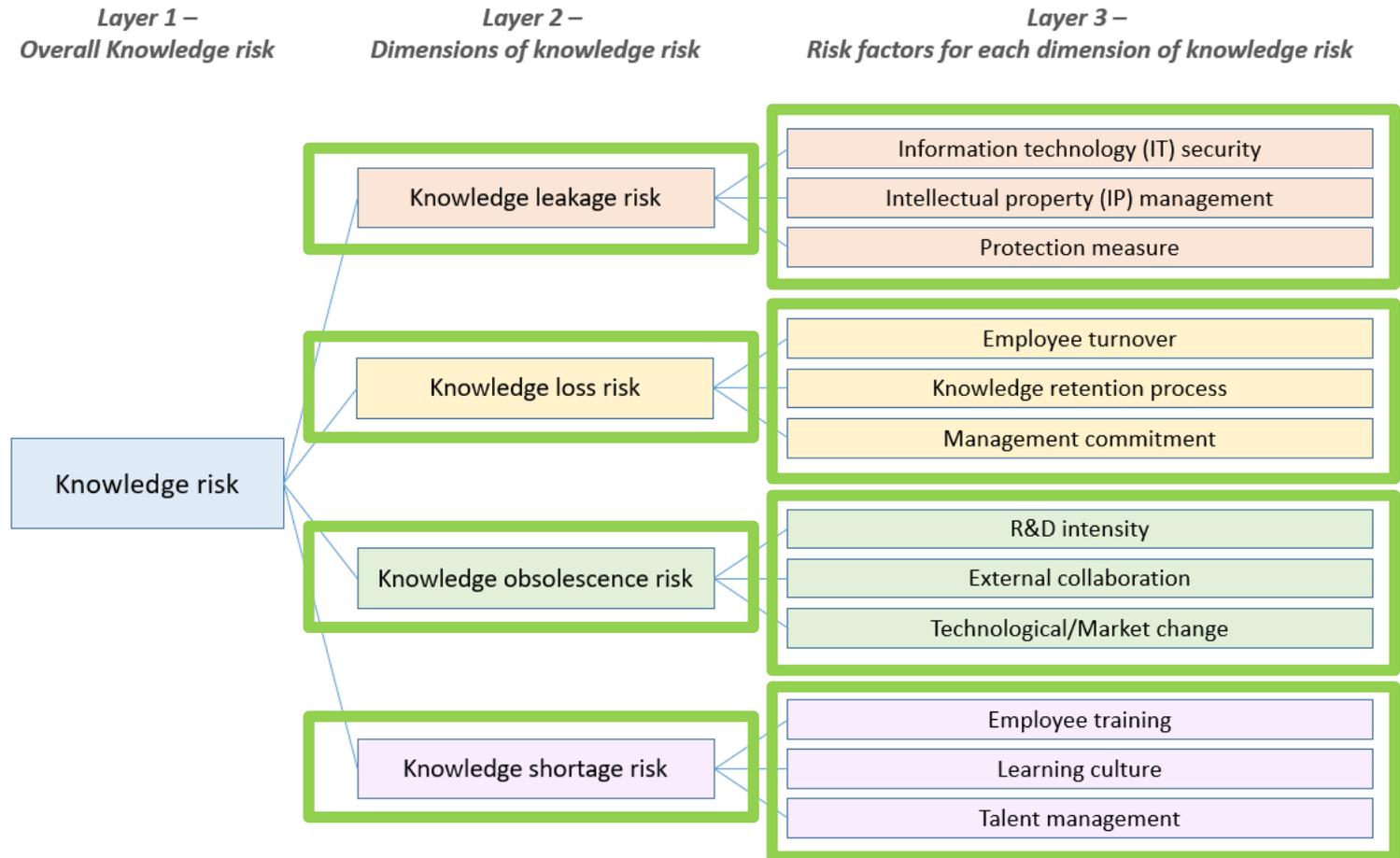Level 1 Assessment Checklist

Level 2 Evidence-based Validation

Research Methods

- ✓ Research methods:
  - ✓ Level 1 Assessment Checklist:
    - Survey approach
    - Principal Component Analysis and Cronbach's Alpha
  - ✓ Level 2 Evidence-based Validation:
    - Structured interview

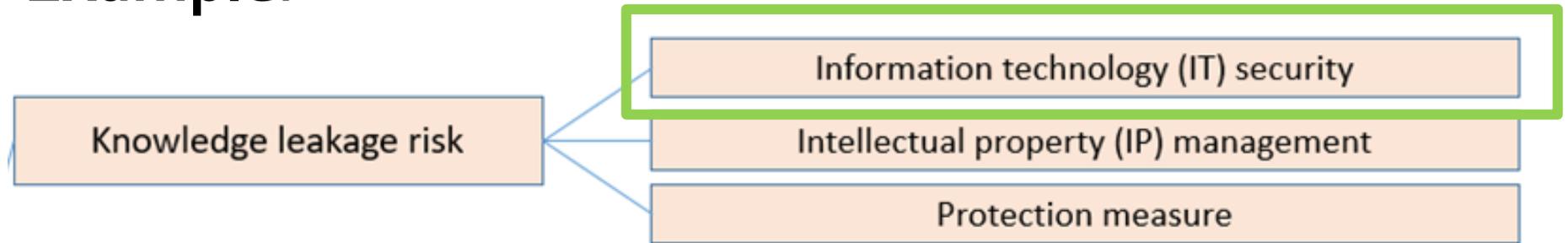# Assessment on Knowledge Risk Factors

Level 1 Assessment Checklist

Layer 1 – Overall Knowledge risk

Layer 2 – Dimensions of knowledge risk

Layer 3 – Risk factors for each dimension of knowledge risk

Knowledge risk

Knowledge leakage risk
- Information technology (IT) security
- Intellectual property (IP) management
- Protection measure

Knowledge loss risk
- Employee turnover
- Knowledge retention process
- Management commitment

Knowledge obsolescence risk
- R&D intensity
- External collaboration
- Technological/Market change

Knowledge shortage risk
- Employee training
- Learning culture
- Talent management

Assessment on Knowledge Risk Factors

Level 1 Assessment Checklist

- The design of questions for assessing the risk factors was based on the **outcomes of literature review** and the **semi-structured interview** with KM professionals.

- Each question item used **a 6-point Likert scale** (1 indicates strongly disagreeing and 6 indicates strongly agreeing).

- A 6-point scale has the advantage of **avoiding respondents opting for a mid-range position** (Amabile et al., 1996).

Assessment on Knowledge Risk Factors

Example:

Level 1 Assessment Checklist	Knowledge leakage risk → Information technology (IT) security / Intellectual property (IP) management / Protection measure

➢ High risk factor score = 5 out of 6

➢ Low IT security

➢ High knowledge leakage risk factor level

Assessment on Knowledge Risk Factors

Level 2 Evidence-based Validation

➢ A list of questions was prepared to ask respondents to give **more facts, examples or evidence** to justify the rating they provided.

➢ About half of these questions were adapted from the submission report for the Hong Kong Most Admired Knowledge Enterprise (MAKE) Award (SME) (MAKE, 2014) and the rest were developed specifically for this validation interview.

Assessment on Knowledge Risk Factors

For example, for risk factor "IT security":

➢ Risk factor score = 4 (out of 6)

➢ Questions are set to **elicit evidences** that support the risk factor score given, like, "Can you describe the features of the IT security system installed to prevent hacking or theft of knowledge in your company?".

➢ Based on the given evidences, the assessor is asked to provide a **belief degree**.

Belief structure

➢ $S(IT\ security) = \{(4,0.9)\}$

Subjective rating   Belief degree

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Findings and Discussion

Background of companies

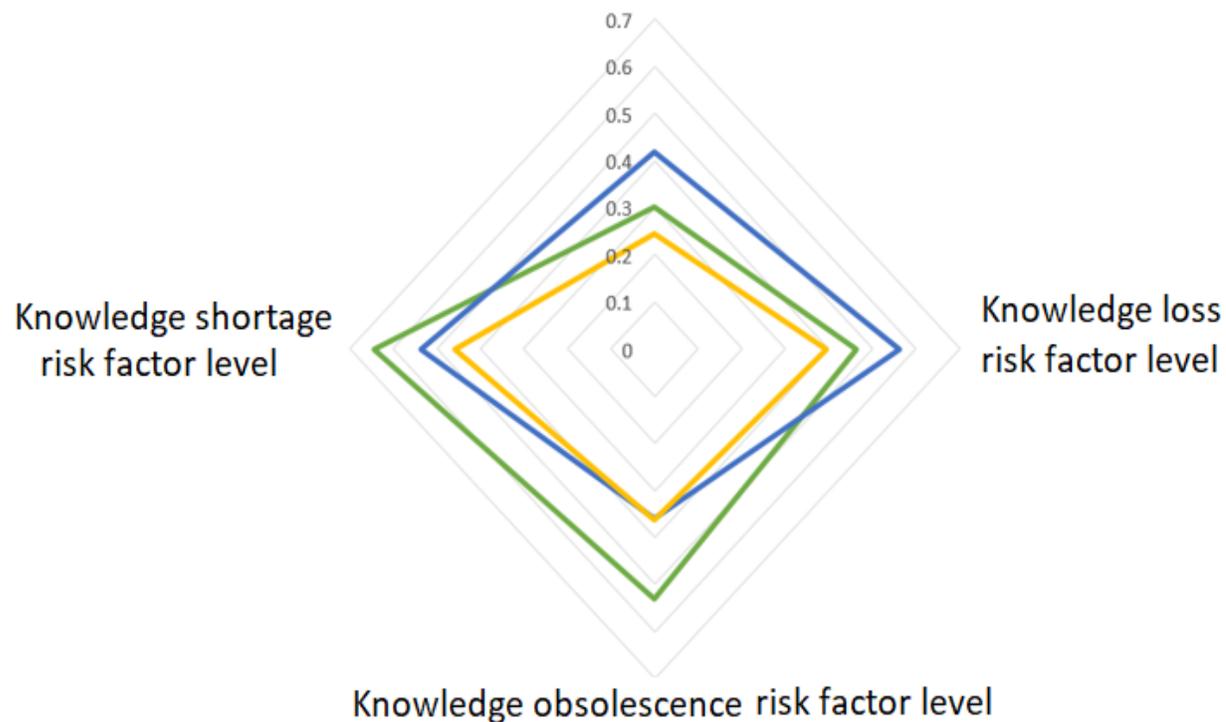| Company A	Company B	Company C
- Listed company - Manufactures consumer products - Not knowledge-intensive or highly dependent on tangible assets - No KM practice	- Listed property developer company - Heavily dependent on tangible assets (e.g. land, property) - Little attention to KM processes	- Listed public utility company - Knowledge-intensive - Winner of "Most Admired Knowledge Enterprise" award

Findings and Discussion

Company A   Company B   Company C

Knowledge leakage risk factor level

risk factor level	Company		
	A	**B**	**C**
Knowledge leakage risk factor level	0.300	0.417	0.246
Knowledge loss risk factor level	0.462	0.561	0.394
Knowledge obsolescence risk factor level	0.529	0.359	0.364
Knowledge shortage risk factor level	0.645	0.535	0.459
Overall knowledge risk factor level	0.484	0.468	0.360

Findings and Discussion

➤ Company A is a **traditional** manufacturing company and **KM activities are very few**, thus facing the greatest challenge in knowledge risk.

➤ Activities that can be considered related to KM are **ad-hoc** with no guidelines to follow.

➤ The company has not considered common KM technologies like e-learning, a knowledge portal or community of practice.

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Findings and Discussion

➢ Company B is a well-known property developer in Hong Kong and its main business is run on a per building project basis, **without any formal KM practice**.

➢ **Investment in KM is far less likely than in building sites** because the latter bring in nearly all the profits.

➢ There is **no KM system** and no one is assigned knowledge management specific tasks.

Findings and Discussion

➢ Company C, a large power utility corporation and a winner of MAKE award, has a strong KM capability, making it achieve the **lowest adjusted overall knowledge risk factor level**.

➢ The company has deployed an **effective KM system** throughout the corporation which is taken care of by a team of specialised knowledge management staff.

➢ Knowledge leakage or loss is reduced because the staff are required to comply with information access, security and sharing policies and a corporate information classification system.

Findings and Discussion

- Feedback obtained from case studies:
  - The interview question set is comprehensive.
  - The interview helps them to validate the ratings given in assessment survey.

Proposed Ways for Mitigating Knowledge Risks

- IC Charting: To Identify strategic intangible assets

- Knowledge Audit: To identify critical knowledge inventory

- Knowledge Capture: To codify, store and share critical knowledge

Thank you