



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

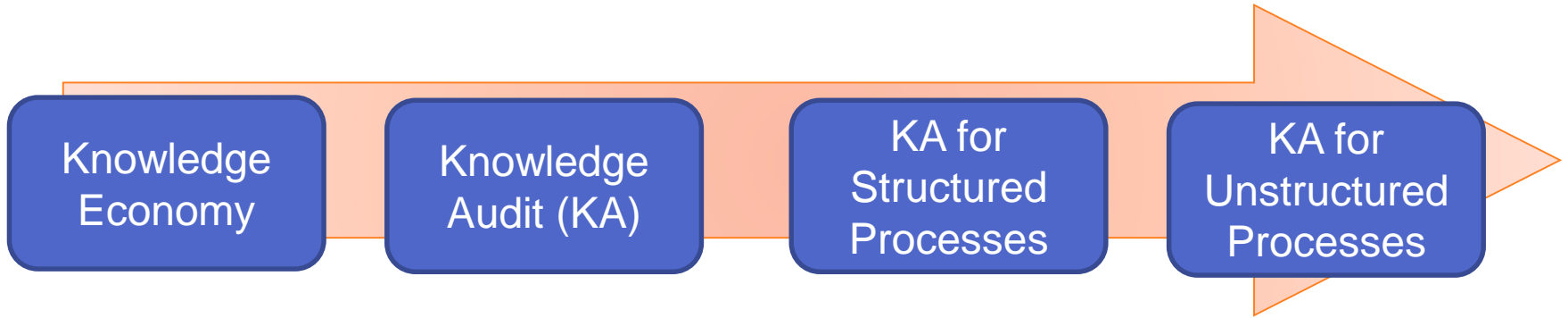
KMIRC 知識管理及創新研究中心
Knowledge Management and Innovation Research Centre

“A DESIGN BASED RESEARCH APPROACH TO CONDUCT **KNOWLEDGE AUDIT** FOR UNSTRUCTURED BUSINESS PROCESSES”

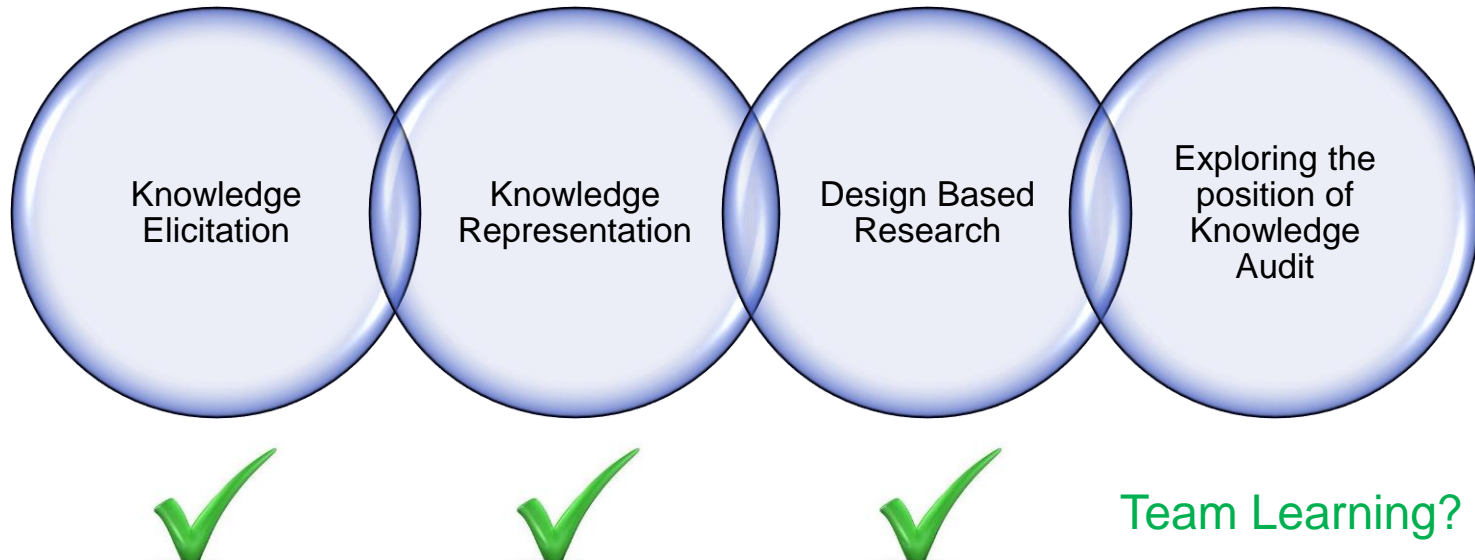
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3rd May, 2012

Supervised by
Prof. Eric Tsui & Prof. W.B. Lee

Introduction- Research Motivation

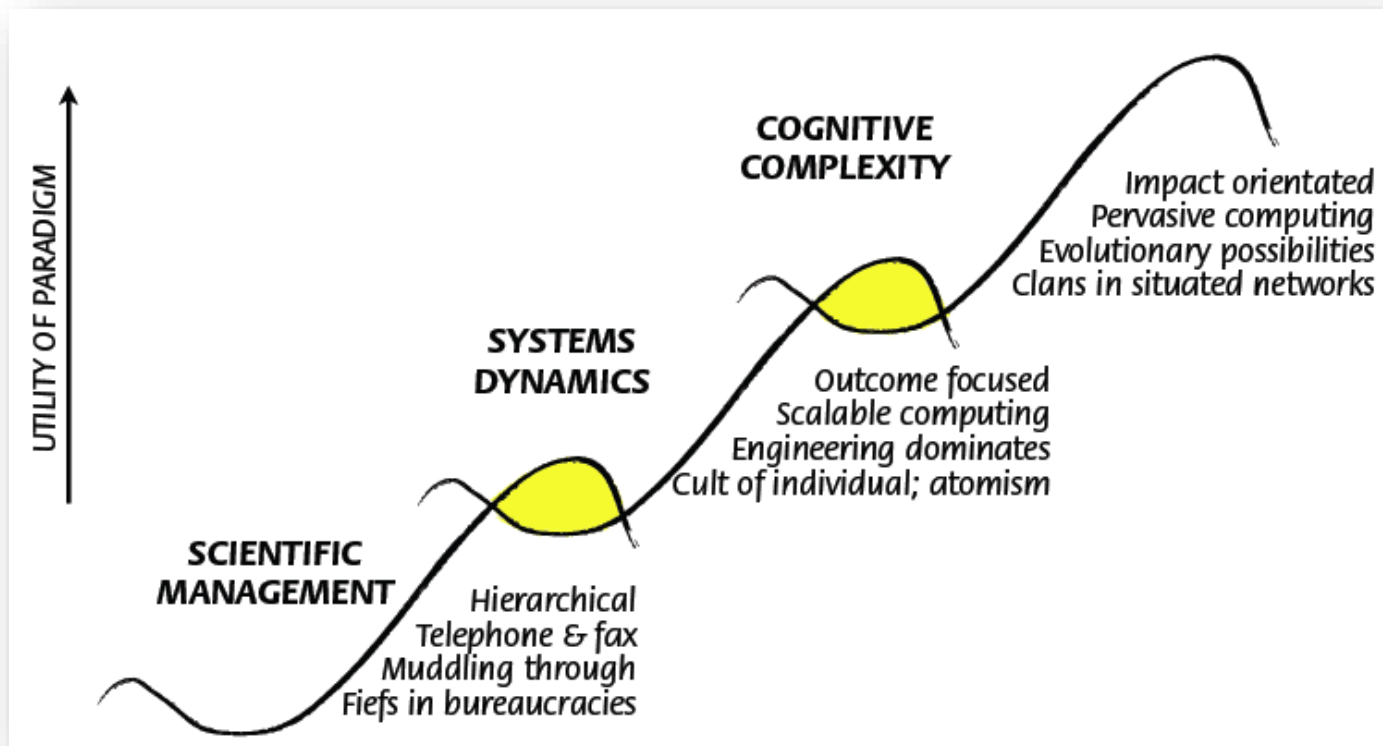


- Investigation Areas & Research Objectives



Literature Review - Shifting Paradigm of Knowledge Work

- The nature of work has undergone a paradigm shift from the **Taylor model of production and of scientific management based on the organization of structured work, industrialization and standardization, command and control, and strategic planning** to the
- **post-Taylor era** in which most physical work has been largely automated and computerized, and as
- **the work becomes more knowledge intensive the emphasis is on the skills, tacit knowledge and learning capability of front -line workers.**



Snowden (2011)

<http://www.cognitive-edge.com/presentationdetails.php?presentationid=76>

Literature Review: Definition of Knowledge Audit

Scholars	Definition of Knowledge Audit
(Debenham & Clark, 1994)	A knowledge audit is a planning document which provides a structural overview of a designated section of an organization's knowledge as well as details of the qualitative and quantitative characteristics of the individual chunks of knowledge within the designated section.
(Liebowitz et al., 2000)	A knowledge audit assesses potential stores of knowledge and is the first part of any knowledge management strategy
(Nicholas, 2000)	A complete knowledge audit will examine the existing knowledge systems within an organization and determine how these support its functions and its overall objectives.
(Stevens, 2000)	knowledge audit can be a precursor to a new knowledge management journey
(Eppler & Sukowski, 2000)	Team knowledge audit is to make the present team knowledge (skills, experiences, contacts, assumptions) transparent and discover knowledge deficits in the team for the tasks at hand. Specifically, the know-what, know-how, know-who, and know-why should be made explicit.
(Hylton, 2002b; Hylton, 2002c)	A knowledge audit is a systematic and scientific examination and evaluation of the explicit and implicit knowledge resources including what knowledge exists and where it is, where and how it is being created and who owns it in the company.
(Iazzolino & Pietrantonio, 2005)	To effectively design the KM systems both the organizational knowledge and the KM functions must be individuated by conducting the knowledge audit of the same organization, as these are needed to perform the business processes
(De Lusignan, Wells, Shaw, Rowlands, & Crilly, 2005, p. 69).	A knowledge audit identifies from within, the masses of information the knowledge requirements of a professional group or organization to enable implementation of an appropriately tailored knowledge management strategy
(Perez-Soltero, Sanchez-Schmitz)	A knowledge audit is the application of ontologies to represent the knowledge audit results, including

Definition of Knowledge Audit (KA) in this research”

KA is a systematic and scientific examination and evaluation of the explicit and implicit knowledge resources in a business processes. The KA result could be represented and visualized for the purpose of individual, team and organizational learning.

Knowledge Audit (KA)

Knowledge Elicitation

KA is a systematic and scientific examination and evaluation of the explicit and implicit knowledge resources in a business processes.

Existing KA employs questionnaire, interviews and focus group to identify and evaluate knowledge items

Knowledge requires context to be shared, created and utilized

New Knowledge Elicitation Approaches

Knowledge Representation

The KA result shall be represented and visualized...

Existing KA depicts knowledge flow on knowledge map, tabulate identified knowledge items in knowledge map

Complex activities, agents and knowledge item relation can hardly be visualized in a knowledge map

New Knowledge Representation Approaches

Exploration of KA in Team Learning

...for the purpose of individual, team and organizational learning.

Methodology-Design-based research (DBR)

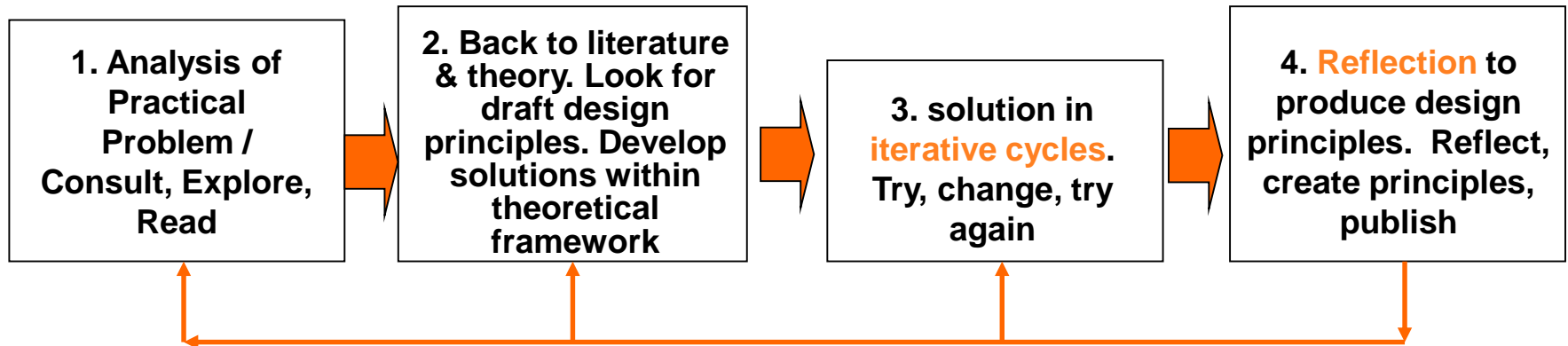
“A **systematic but flexible methodology** aimed to **improve educational practices** through **iterative analysis, design, development, and implementation**, based on **collaboration among researchers and practitioners in real-world settings**, and leading to **contextually-sensitive design principles and theories**”

Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development*, 53(4), 5-23.

Commonly used terms for the approach

- Design experiments (Brown, 1992; Collins, 1992; Reeves, 2000)
- Development research (Van den Akker, cited in Reeves, 2000)
- Design experiments (Brown, 1992; Collins, 1992; Reeves, 2000)
- Development research (Van den Akker, cited in Reeves, 2000)

Design logic of DBR (adapted from Reeves, 2000)



1.

- Consult with those experiencing the problem (students & lecturers)
- Explore / Read about the problem (literature)
- Engage with theory

2.

- Back to literature & theory
- Compile draft design principles

3.

- Test solution in iterative cycles
 - Try solution
 - Change it
 - Try again

4.

- Reflection to produce design principles
- Reflection to enhance solution implementation
 - Reflect on findings
 - Create design principles
 - Publish

Research Iterations



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First Iteration
Program
Management of *ISE*

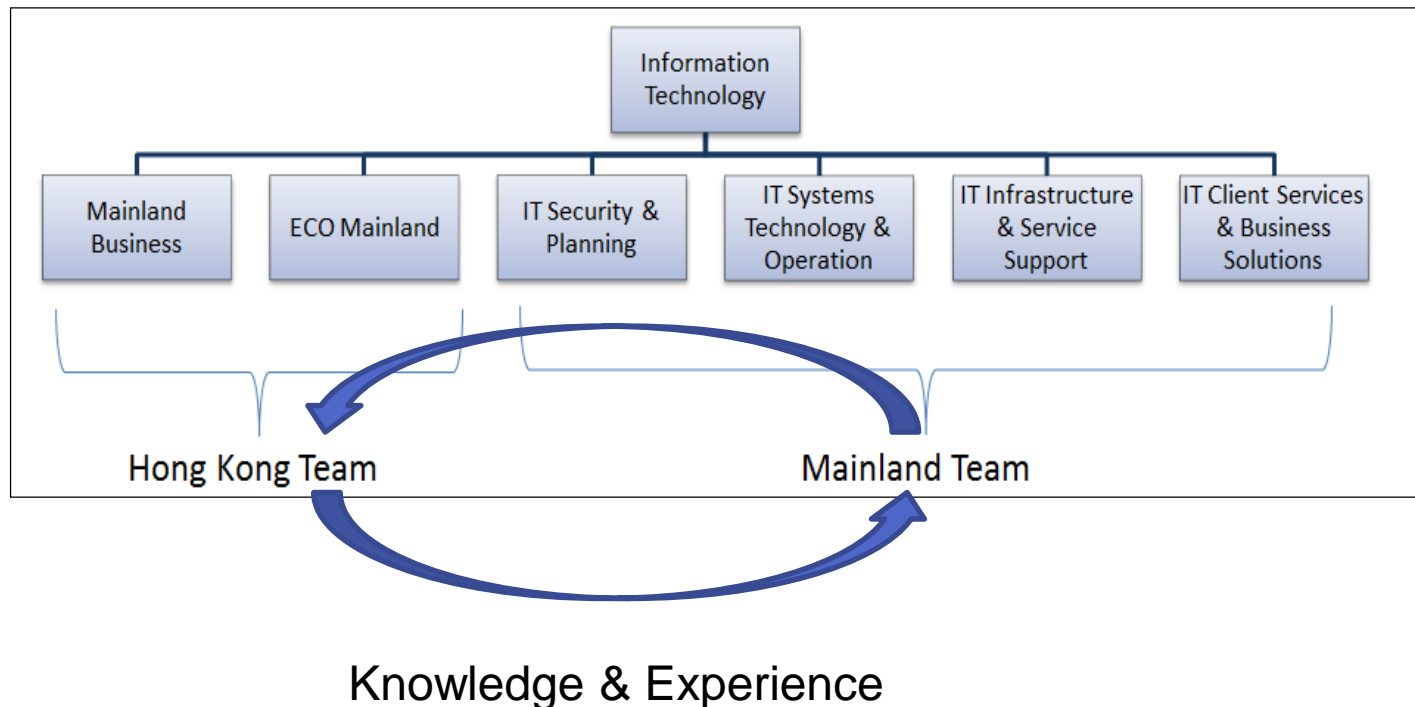
Second Iteration
Project Management
of KMIRC

Third Iteration
Development and
Launch of Guideline
and Policy

- Narrative Circles & Sense-making & Individual Activity Map for knowledge elicitation
- Activity –Knowledge map for knowledge representation

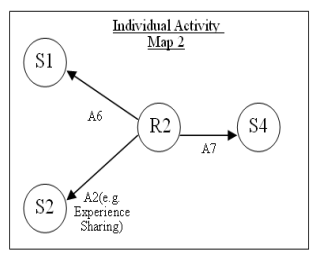
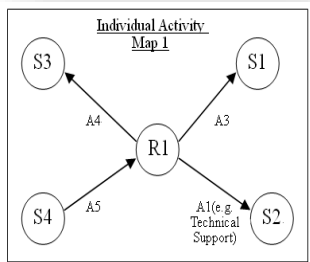
Third Iteration

- Audited Unit:
Information Technology Department, the Hong Kong and China Gas Company Limited
- Scope:
The Process of Development, Launch and Revision of Policy, Guideline and Methodology

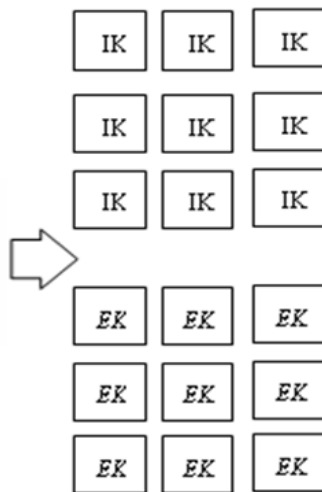


Knowledge Elicitation Workshop

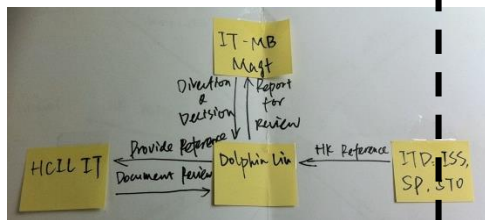
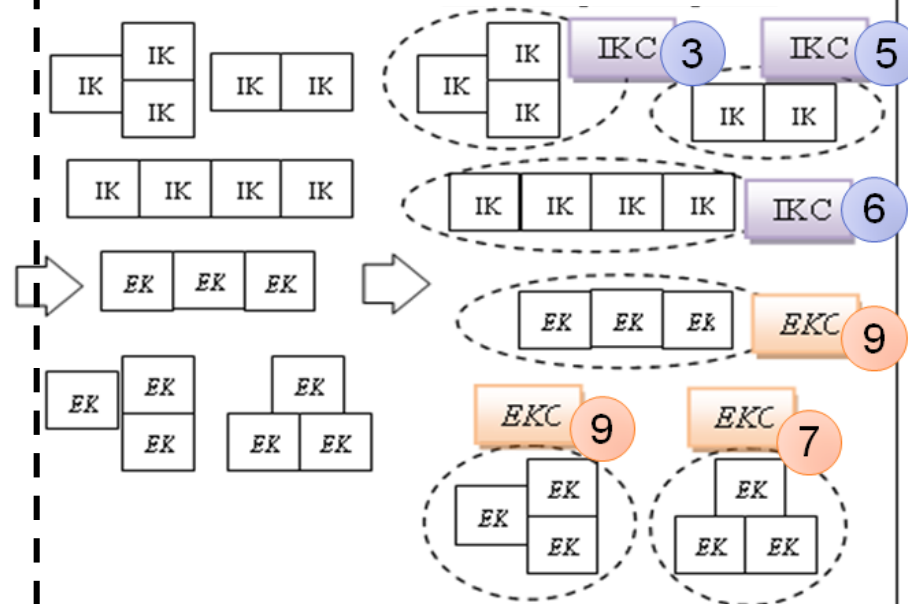
Individual Activity Map



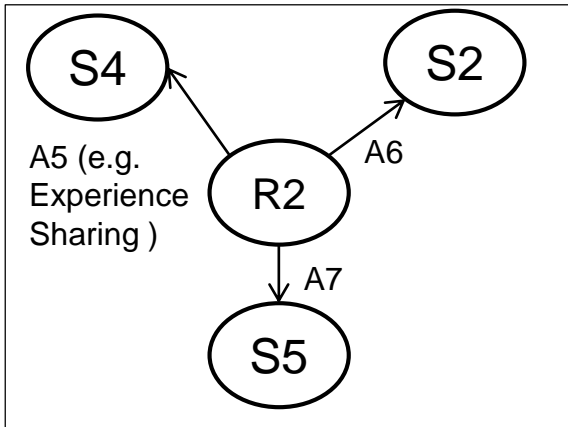
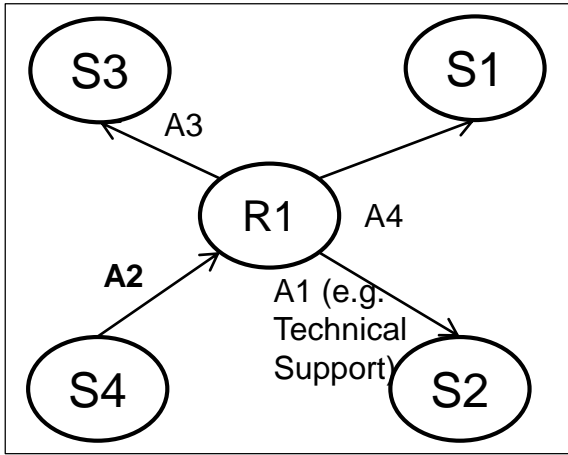
Anecdote Circle



Sense making

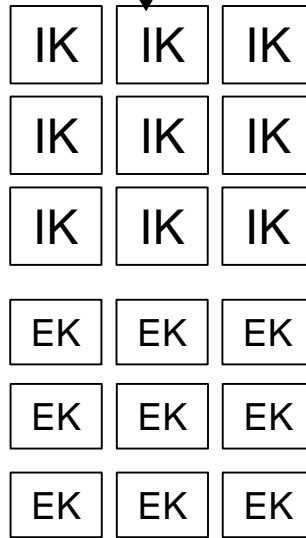


Individual Activity Maps



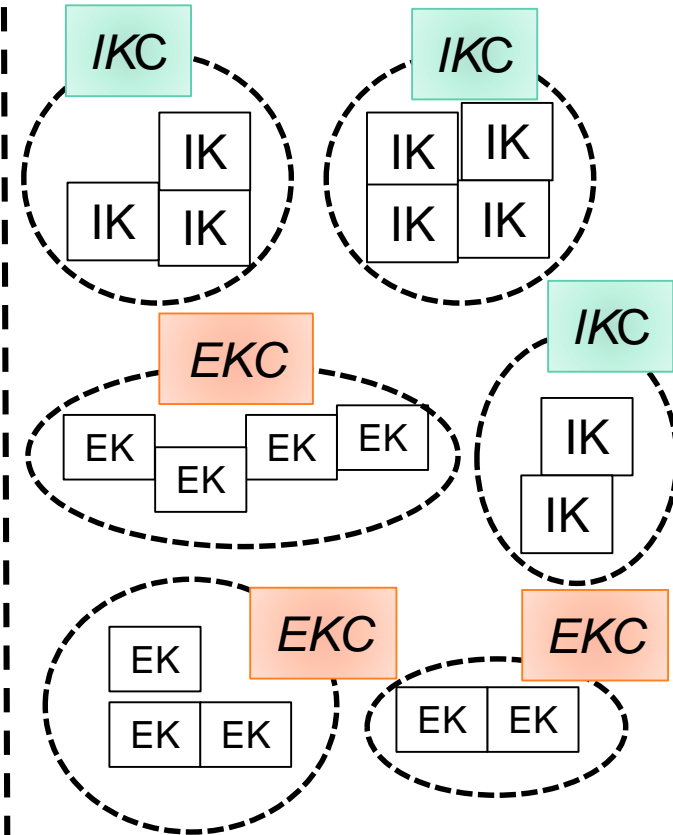
Knowledge Workers' job activities are visualized in maps.

Anecdote Circle

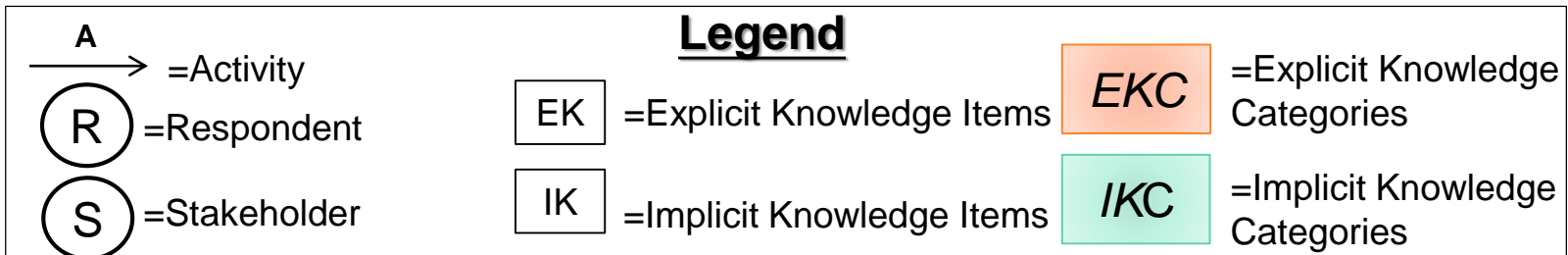


Knowledge mentioned in the anecdotes were jotted down on post-it memos.

Sense making

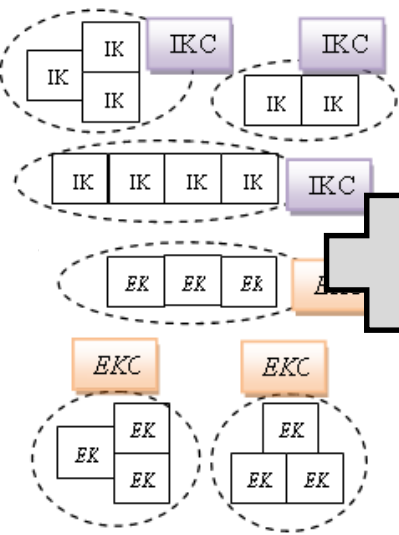


Coherent knowledge items are clustered and named.

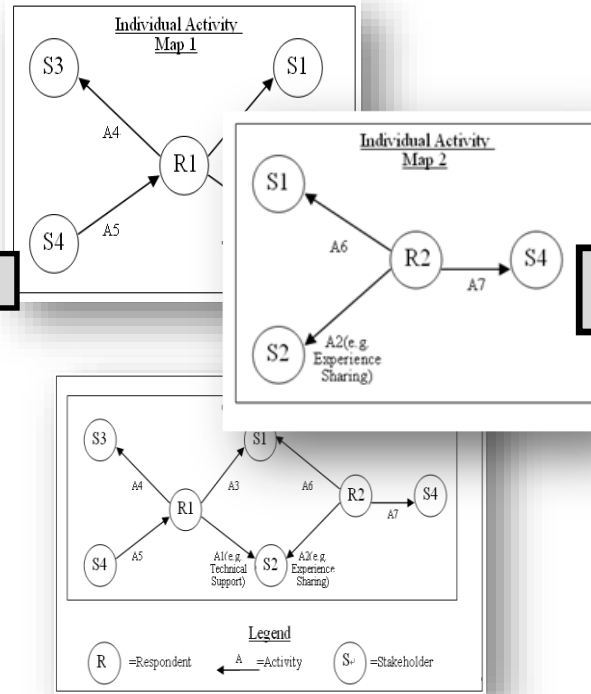


Knowledge Representation Workshop

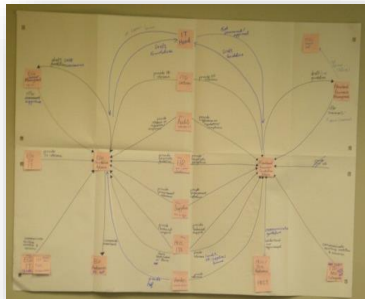
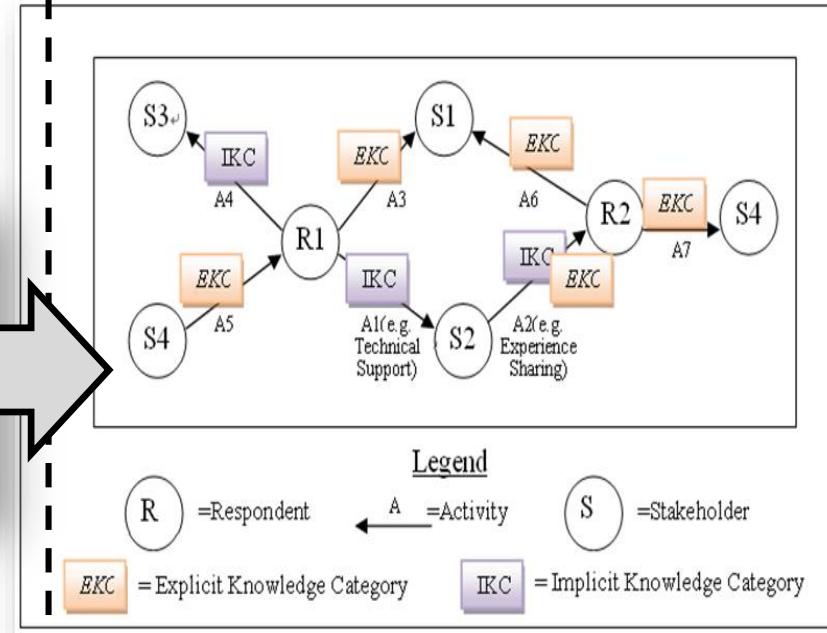
Knowledge Category (from Knowledge Elicitation Workshop)



Individual Activity Maps (from Knowledge Elicitation Workshop)



Knowledge Activity Map



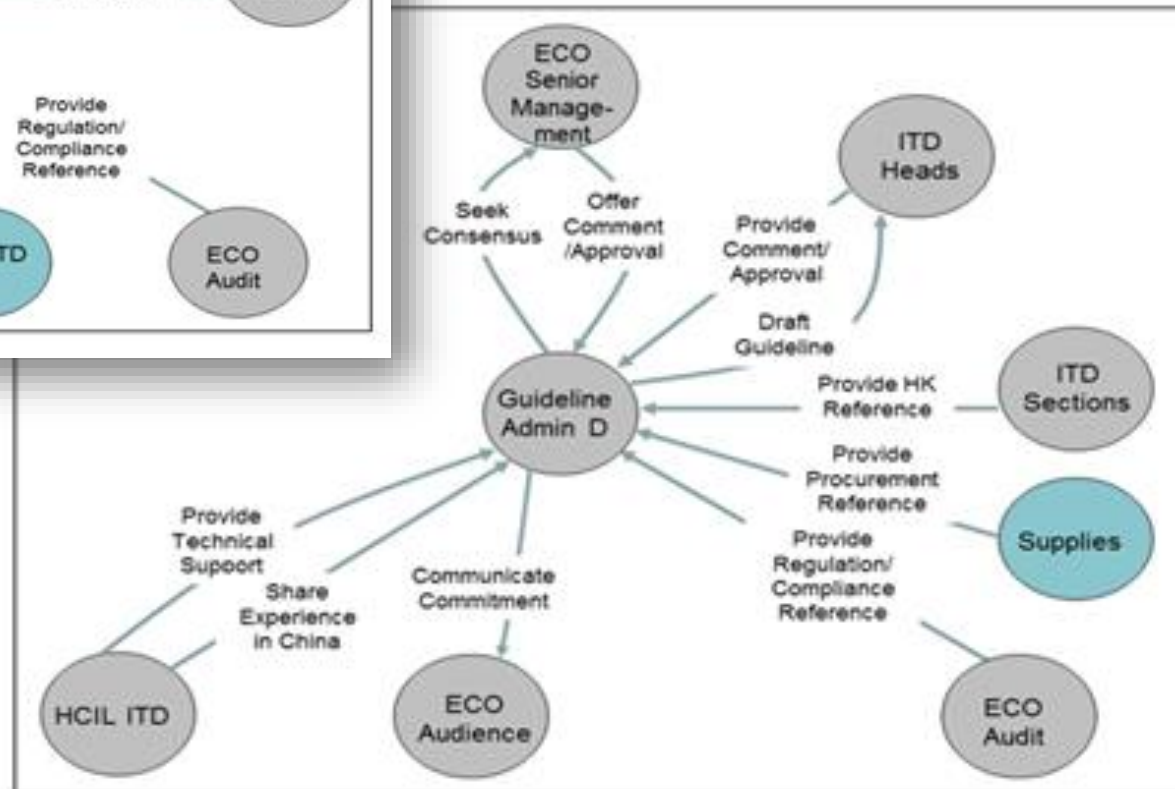
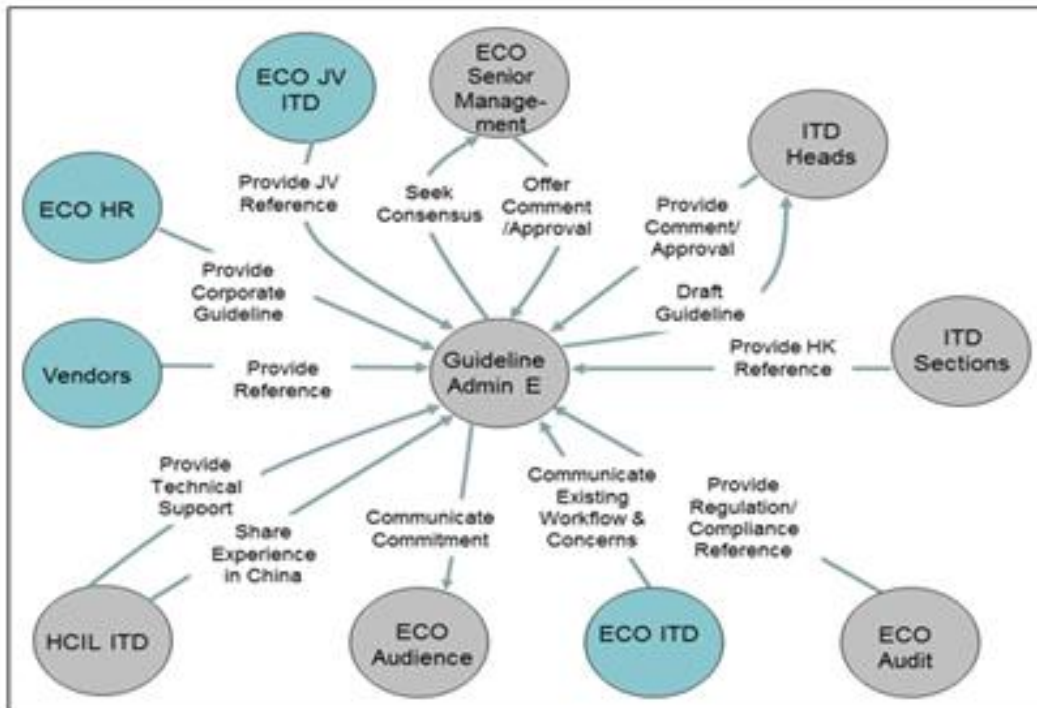
Traditional KA Results

1. Implicit-Explicit Knowledge Category Ratio
2. Critical Implicit Knowledge Categories
3. Critical Explicit Knowledge Categories
4. Knowledge Categories comparison
5. Critical Knowledge Owners
6. Critical Knowledge Customers
7. Desired Implicit and Explicit Knowledge

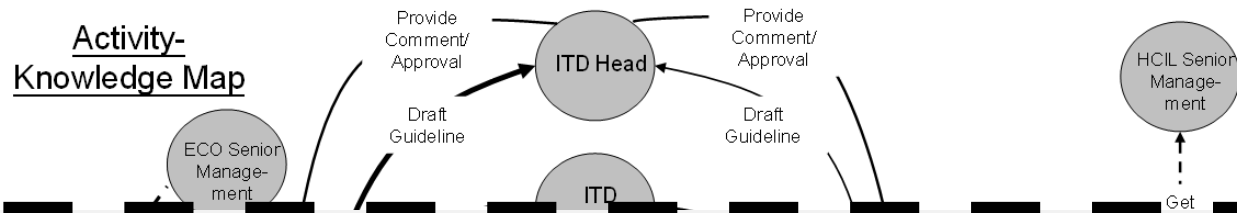
Knowledge Activity Map Analysis

1. Individual Activity Map Analysis
2. Knowledge Activity Map Analysis

Individual Activity Map Analysis

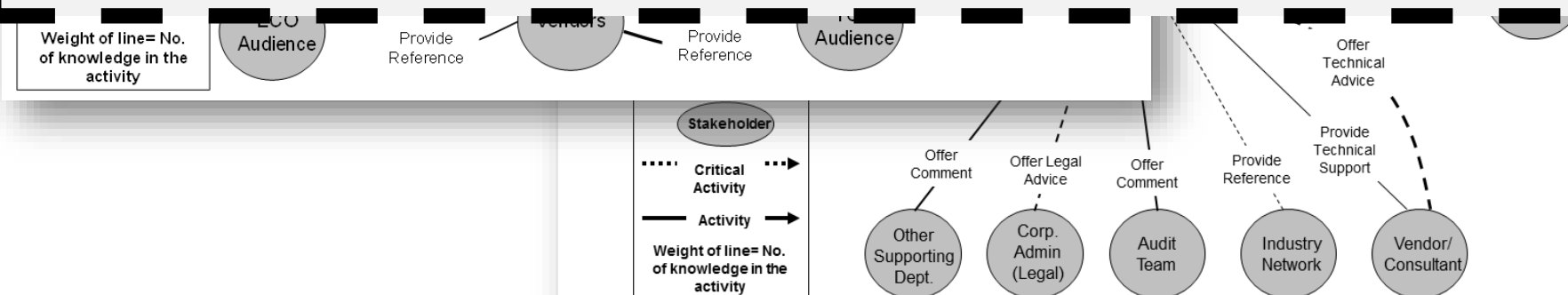


Knowledge Activity Map Analysis



Significance of Knowledge Activity Map

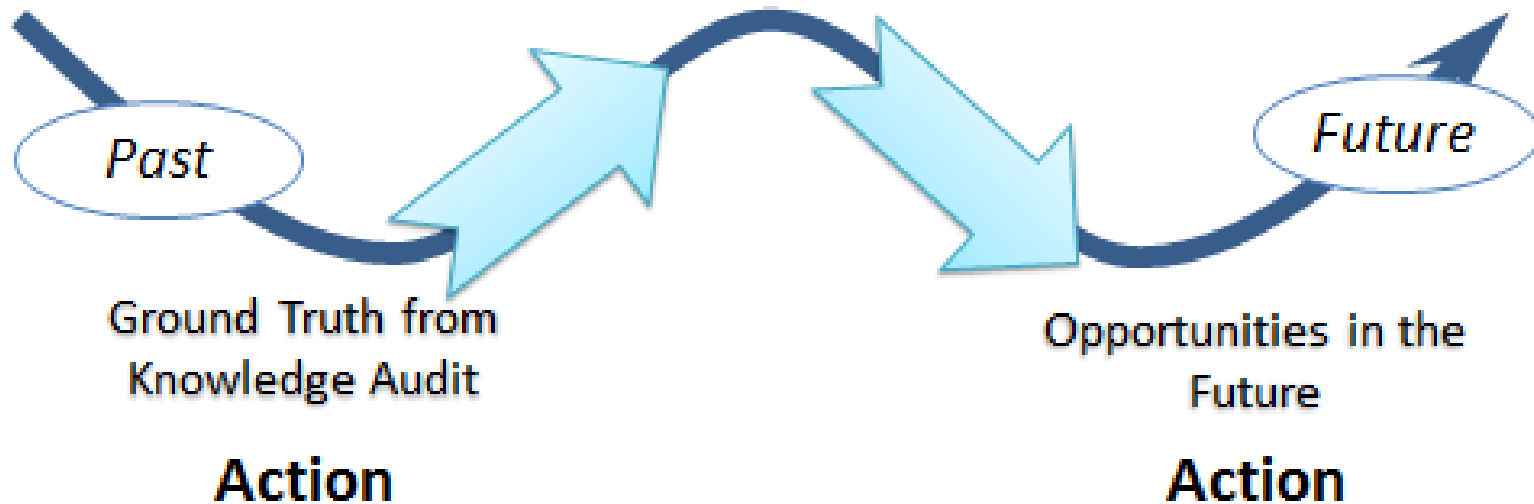
1. Pattern Emergence for learning
2. Collaborative Exploration
3. Complex Relationship



The New Design

Reflection

Insights & Hypothesis
about Future



Paradigm Shift
from Researcher/ Auditor to Facilitator

THE END
THANK YOU!

Q&A