

ACCELERATING CONSTRUCTION INDUSTRY DEVELOPMENT

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Presentation Outline:

- Construction Industry **Reform** Initiatives **Worldwide**
- **But still many shortfalls!**
SO we all still NEED:
 - Top-Down **and** Bottom-up Industry Development
 - Knowledge and Technology Exchange
 - to develop Small & Medium Contractors
 - **and** to Integrate above Developments – *How?*
 - Examples from **Physics** to **Chemistry**; & **Biology** to **Business**
 - Overall Models, Policies, Strategies and for Industry Improvements

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Construction Industry Reforms/ Improvements?

- Construction industries have undergone **intensive Reviews** in the past decade
- Also before: e.g. in UK from the 1940's, Sri Lanka – 1980's
- High-powered Reports in UK, Australia, Singapore, **Hong Kong**, Netherlands:
Egan, 1998; ISR, 1999, C21, 1999; CIRC, 2001; PSIB, 2004.
- Also, **Construction Industry Development Boards** - to co-ordinate industry improvements in South Africa and Malaysia.
- Others e.g. **BCA, S'pore; CIC, Hong Kong; ICTAD, Sri Lanka;** Indonesia

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BUT CONTINUING PROBLEMS in ALL our Construction Industries:
Low on quality, safety & productivity; **High** on costs, delays and disputes
Lack co-ordination, integration and teamworking.
- hence, wastage and low value
Cashflow difficulties and delayed payments down supply chains
Uncertainties of work volume continuity on one hand, and industry capacities on other hand.

SOME POSSIBLE CAUSES?

- fragmented industry, 'adversarial culture'
- purely price-based selection of contractors & even consultants
- Domestic construction industry can not develop e.g. **Local contractors** 'do not get **work** because of inadequate **experience**'.
But can not develop **experience**, because they do not get **work**!
- '**Chicken or Egg**' paradox!

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A TALE of THREE INITIATIVESand PLANS for TWO more – R&D initiatives

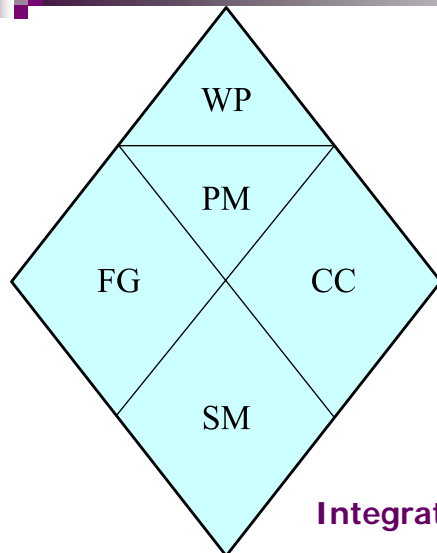
- Management Support System (MSS) for Large Clients (LCs)
- Technology & Knowledge Exchange
- Information and Knowledge Management System (IKMSs) for Small & Medium Contractors (SMCs)
- PROPOSAL for a Project-specific Project Information & Knowledge Management Platform (PIKMAP)
- PROPOSAL for a Technology & Knowledge Flows (TKF) Study – Euro-Asian links established

MSS - for Top-Down Improvements

Objectives: To develop **framework** and **sample modules** - to help provide decision support on assembling far better project Procurement and Delivery systems.

Sample modules:

- incorporate 'relational contracting' principles e.g. Joint Risk Management, for more sustainable co-operation/ partnering
- PPP procurement
- Contractor Selection
- 'Extension of Time' evaluations.

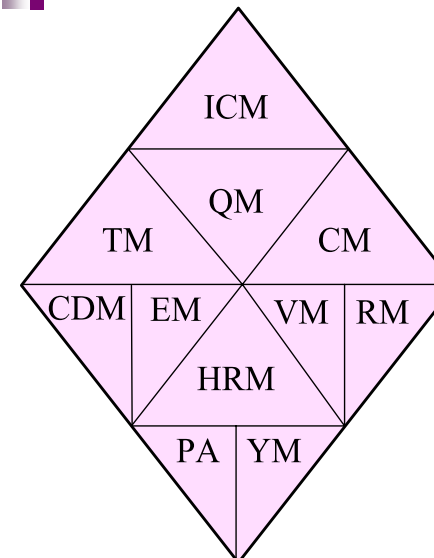


Procurement Sub-systems

- CC – Contract Conditions
- FG – Functional Groupings
- PM – Payment Methods
- SM – Selection Methods
- WP – Work Packaging

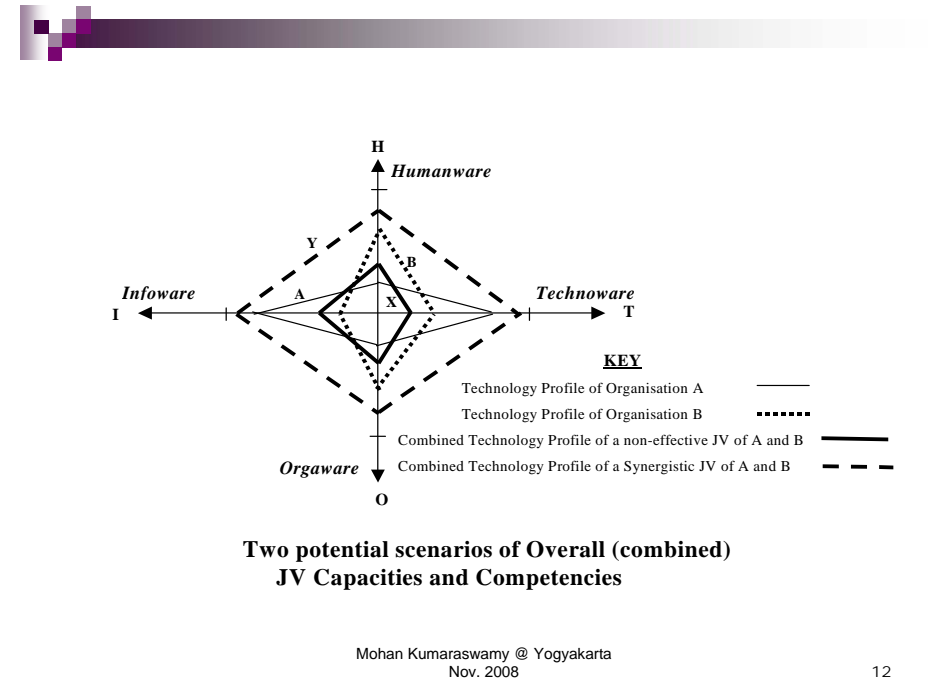
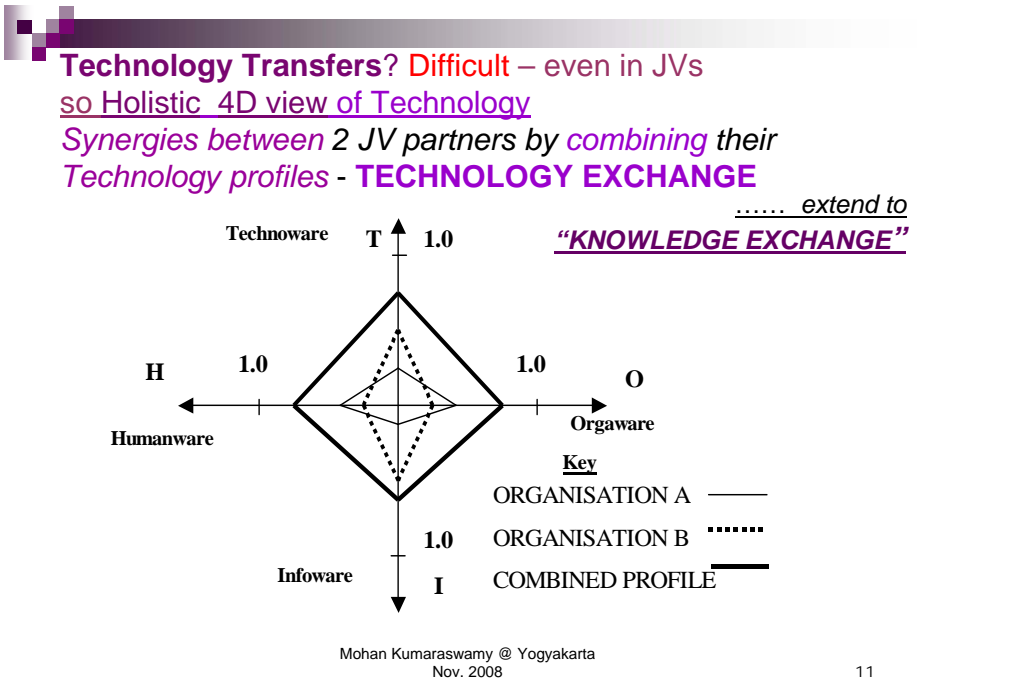
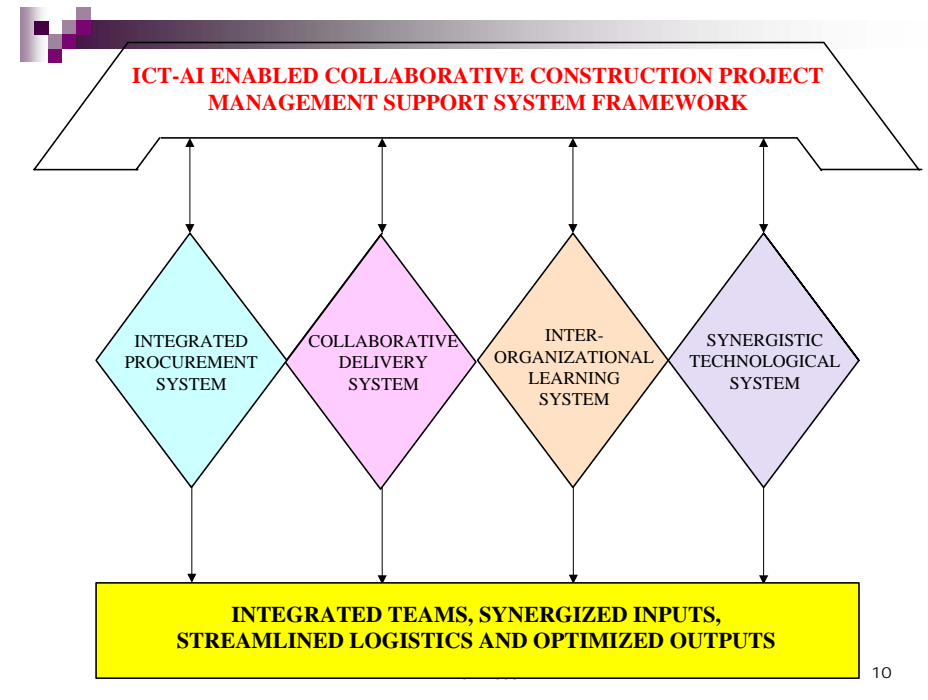
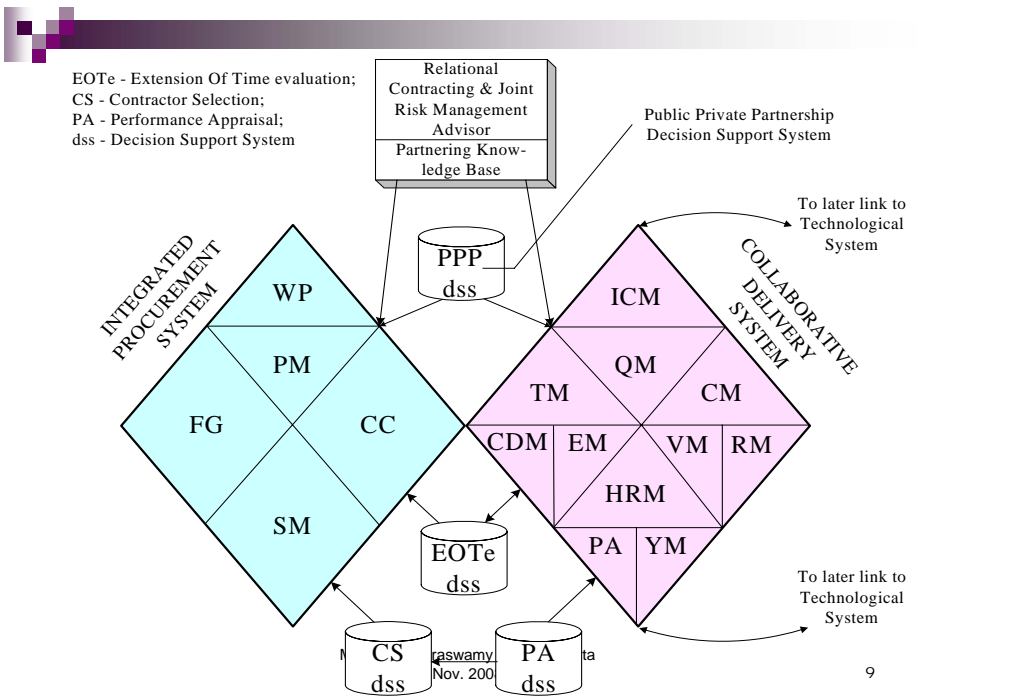
Integrated Procurement System

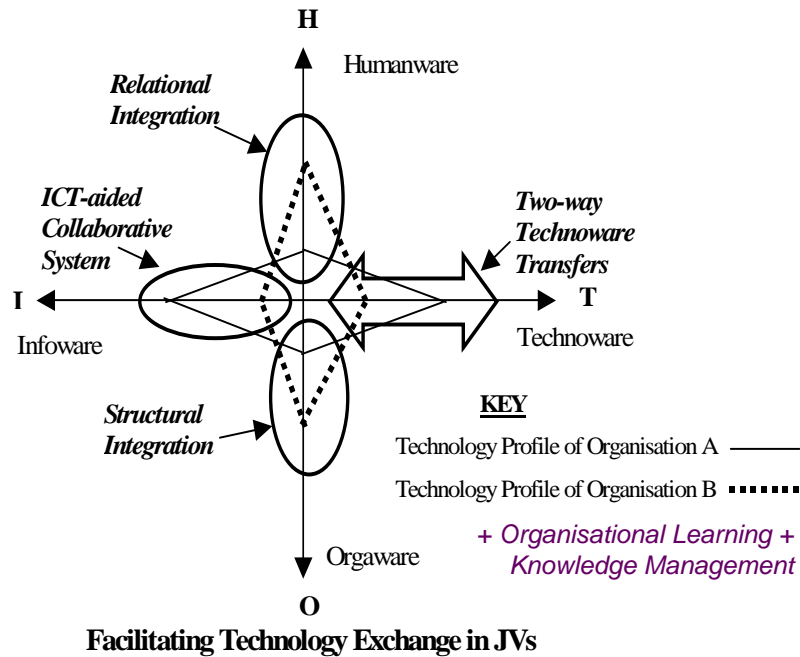
Delivery Sub-systems



- CDM – Claims & Disputes Management System
- CM – Cost Management
- EM – Environmental Management
- HRM – Human Resources Management
- ICM – Information & Communications Mgmt.
- PA – Performance Appraisal
- QM – Quality Management
- RM – Risk Management
- TM – Time Management
- VM – Value Management
- YM – Safety Management

Collaborative Delivery System





3rd Initiative:  **SMILE-SMC**
 for Bottom-Up Improvements

- Small & Medium Contractors (SMCs) constitute **98.6 %** of registered Construction Organisations in Hong Kongand are estimated to carry out **over 90%** of actual work
- SMCs need help to improve their **Information & Knowledge Management**
 - for improving both **internal processes** and interface management
 - SMILE-SMC will help in such **Capacity Building**

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SMILE-SMC AIMS:

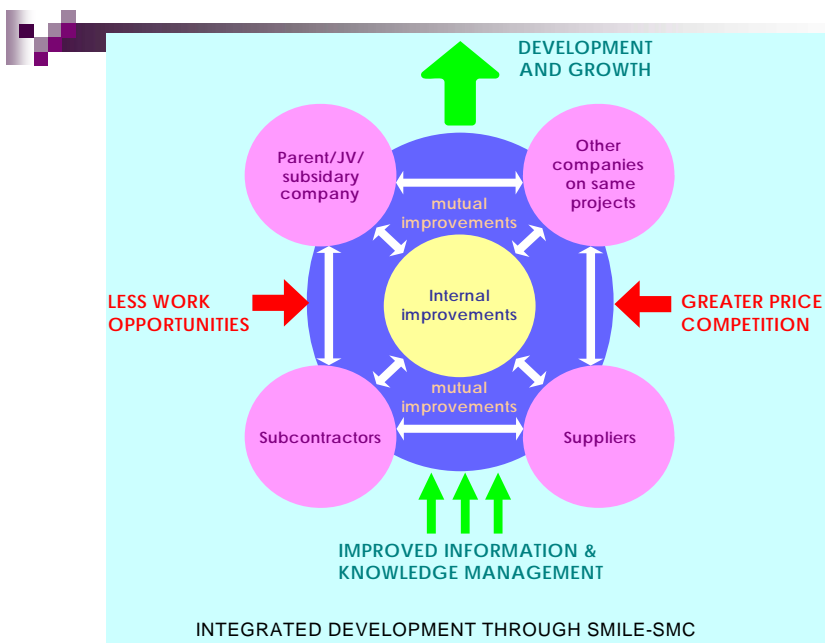
- To empower **continuous improvement** of SMCs through
 - user-friendly framework
 - innovative tools for boosting productivity, quality and image
 - strategic information management
 - useful knowledge management
 e.g. to increase business opportunities, streamline workflows & save on wastage

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SMILE-SMC - Main Objectives

- **Identify** information & knowledge gaps, co-ordination barriers, etc.
- **Identify, consolidate and develop**
 - good practices, critical success factors, appropriate benchmarks etc.
- **Develop**
 - a framework & innovative tools
 - a SMC-friendly web-based '**strategic information & knowledge manager**' to improve performance & increase competitiveness

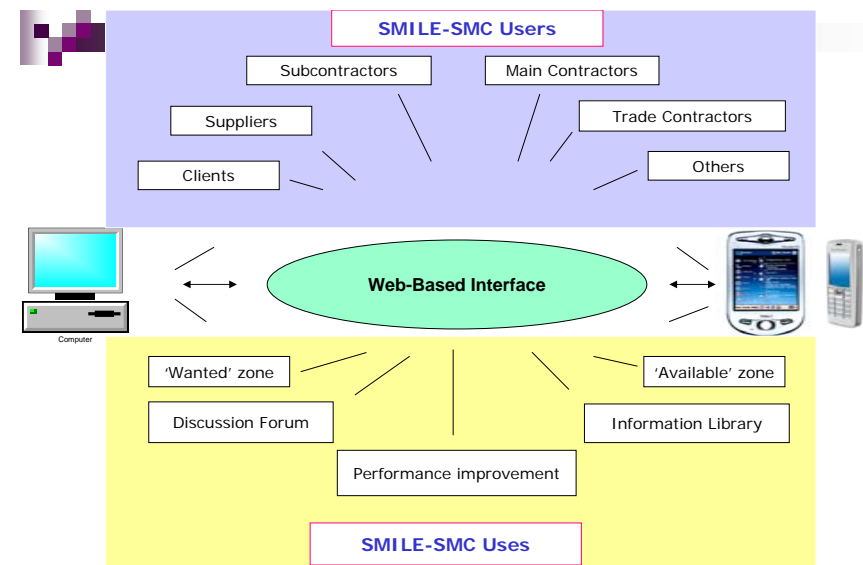
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INTEGRATED DEVELOPMENT THROUGH SMILE-SMC

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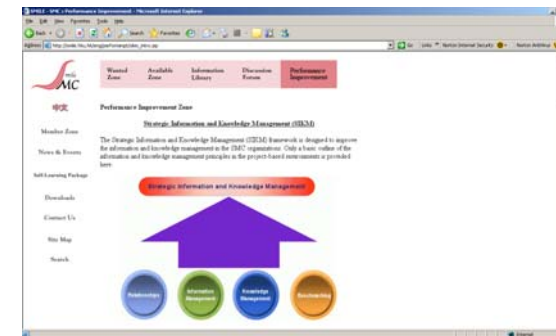


Potential Users and Uses of SMILE-SMC System

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- ### SMILE-SMC Performance Improvement Zone Overview of the SIKM solutions
1. Web-based SIKM (e.g. Materials & Supplier Management application)
 2. Mobile SIKM – Pocket PC applications (e.g. Site Diary)



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Sample screenshots from Mobile SIKM

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SMILE
**Strategic Management
 with Information
 Leveraged Excellence
 for Small and Medium
 Contractors**
 Strategic Information and Knowledge
 Management (SIKM) - Pocket PC
 version 1.0 (Beta)

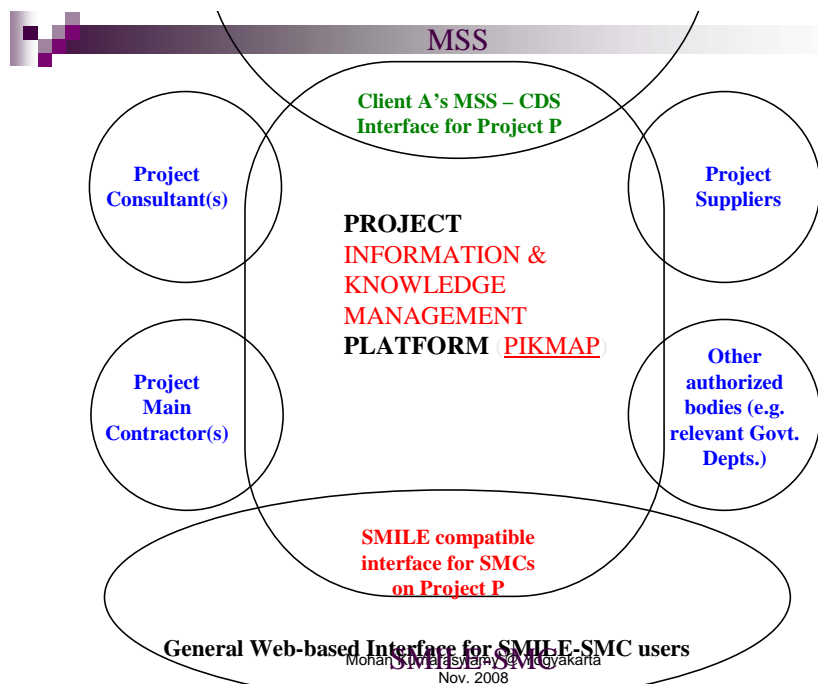
Database
 XML
 Spreadsheet
 etc.

Potential for an Integrated Project Management Platform

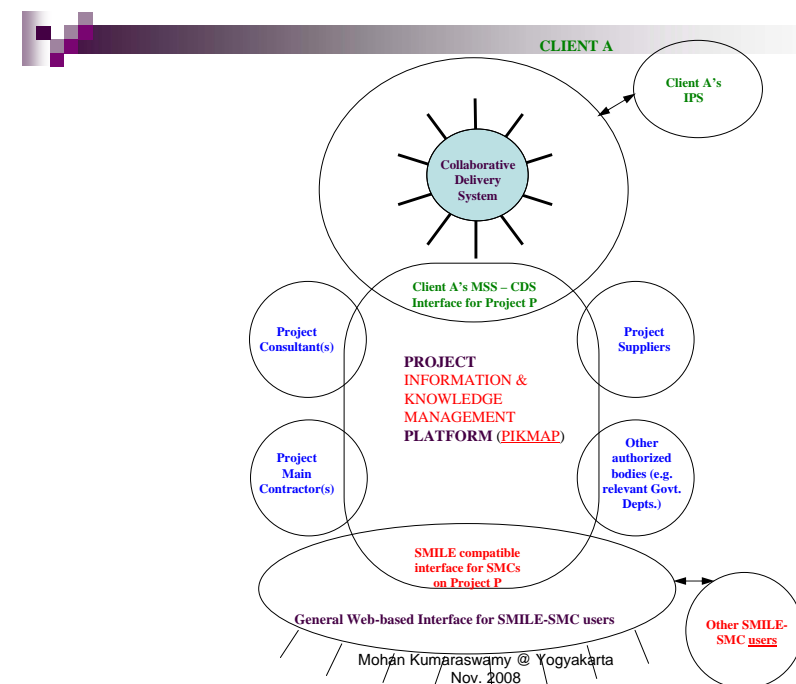
- Many previous exercise on Integrated Project Management Systems
- But (a) most are not truly integrated and (b) many commercially available systems are glorified Document Management Systems
- So an over-arching 'PIKMAP' is conceptualised – to link and apply the MSS and SMILE-SMC systems on a specific project – to cover critical parts of the entire Supply Chain/ Value Network

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CONCLUDING OBSERVATIONS

- Frameworks for Collaborative IKMSs and DSSs were developed in two independent R&D projects – for **Large Clients** and **SMCs**
- 2nd phase of SMILE-SMC is at **SMILE-NET** – see <http://www.smile-net.hk/>
- A new Project Platform –can extend coverage to **Project Supply Chain/ Value Network**
- A “Technology & Knowledge Exchange” proposal is being pursued with an Euro-Asian group (last meeting at Surabaya, Jan. 2008)
- Ideal for **better teamworking / RIVANS**
- **What else must we do to develop our Industry?**

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from **PHYSICS** to **CHEMISTRY**

Physical Integration - Network Structures?

- necessary, but not enough.

- D&B, DBO, PPP – only Integrates Functions –
Structural Integration

Still need **RELATIONAL INTEGRATION**

Catalysed by a **VALUE FOCUS**

To trigger ‘better Chemistry’ - chemical mixing/
integration & chain reactions ... down supply chain

Can help in ‘Cultural Revolutions’ too!

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from **BIOLOGY**

from **Synergy** to **Symbiosis**

SYMBIOSIS:

- (a) living together (in more or less intimate association or close union) of two dissimilar organisms
 - (b) close and often long-term interactions between different species
- 1 **Parasitism:** an organism of one species benefits from a prolonged, close association with another, the host, which is harmed
 - 2 **Commensalism:** one organism benefits and the other is not significantly harmed or helped (e.g. bird in a tree)
 - 3 **Mutualism:** biological interaction between individuals of two different species where both derive benefits

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..... to **BUSINESS**

CO-OPETITION i.e. **Co-operation + Competition** -
Co-operating to be more Competitive together - through
integrated networks and common objectives?

See - http://www.hku.hk/cicid/3_events/63/63_summary.pdf

... Back to Business?

Back to Basics

GOOD RELATIONSHIPS,

BETTER NETWORKS,

BEST VALUE

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***Your Opinions please?
Critical Industry Issues &
potential long and short-term
Solutions and Strategies ?***

Also see <http://www.hku.hk/cicid/> (at The University of Hong Kong)

email: cicid@hkucc.hku.hk

