Organizing Knowledge in Complex Environments

1 Emerging Community Systems

Need for large scale collaboration

Greater emphasis on social structure

Where is the complexity

2 Finding Modeling Methods

Organizing for sustainability

Identifying the concepts for communities

Modeling from different perspectives

3 Future Plans

Policy Modeling

Cloud as a utility

Typical kinds of emerging problems

Social Challenges

Disaster Management

Sustainability issues

Energy Planning

Difficult to specify precisely

Many multi-causal interdependencies

Have no clear solution

Require change of behaviour

No stopping rule

"Tackling Wicked Problems" A Public Policy Perspective

Business Challenges

Car design

Dynamic Supply Chains

Strategic planning

Requires holistic thinking and work across boundaries

Encourage collaboration and innovation through social structures

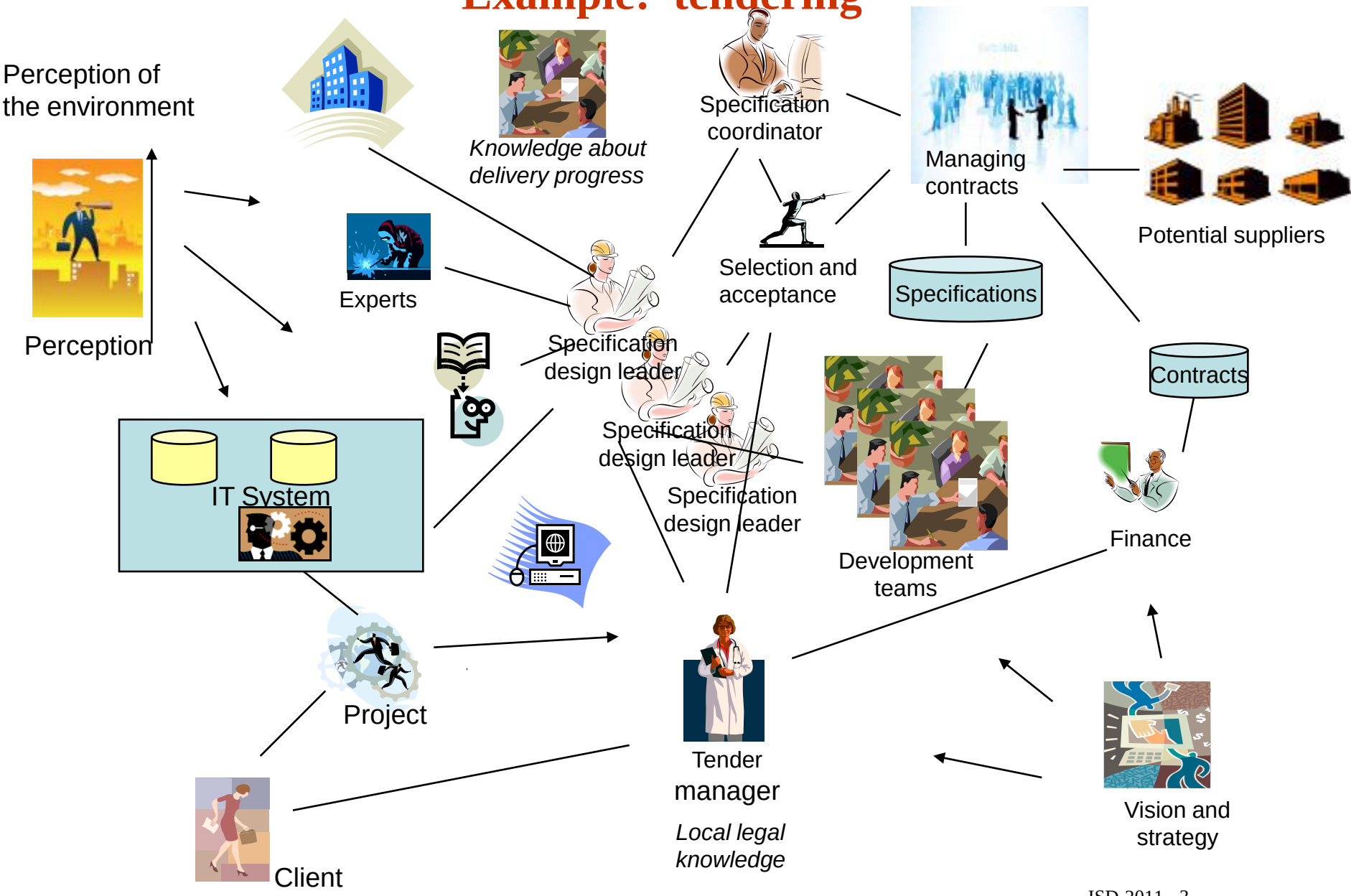
Facilitate information management and knowledge sharing

Innovation and Learning

Cammilus´- HBR May 2008 Stategy as a wicked problem"

Collaboration on a large scale becomes important

Knowledge flows across many relationships
Example: tendering



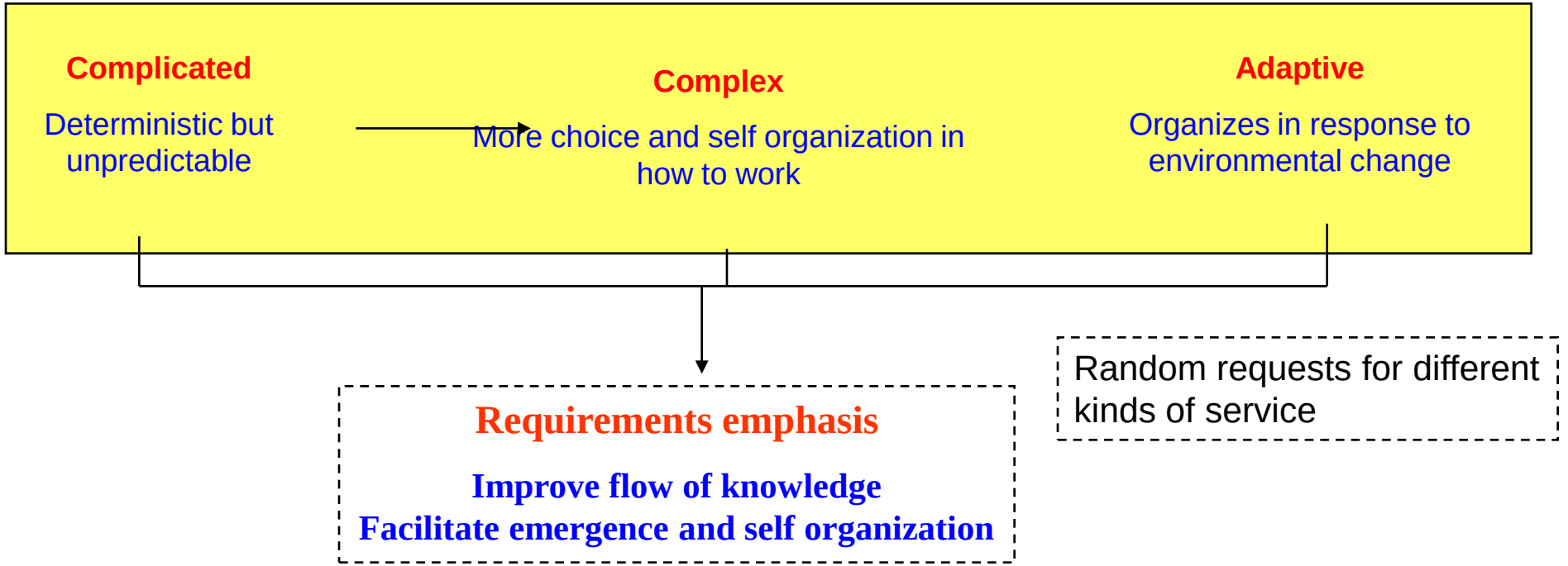
Some Challenges

How to quickly get knowledge needed for decisions

How to identify new knowledge needs

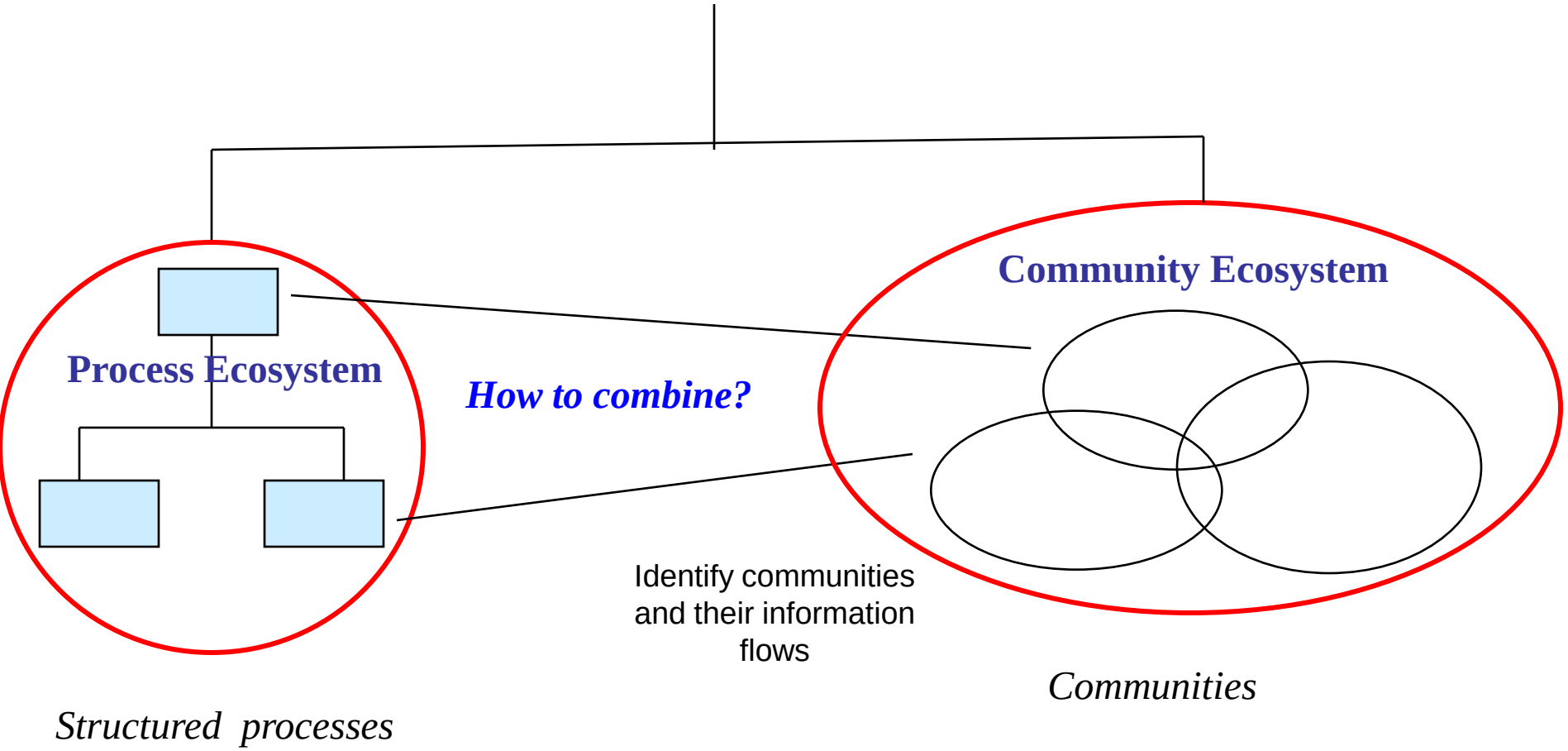
How to create the new knowledge

But in complex environments

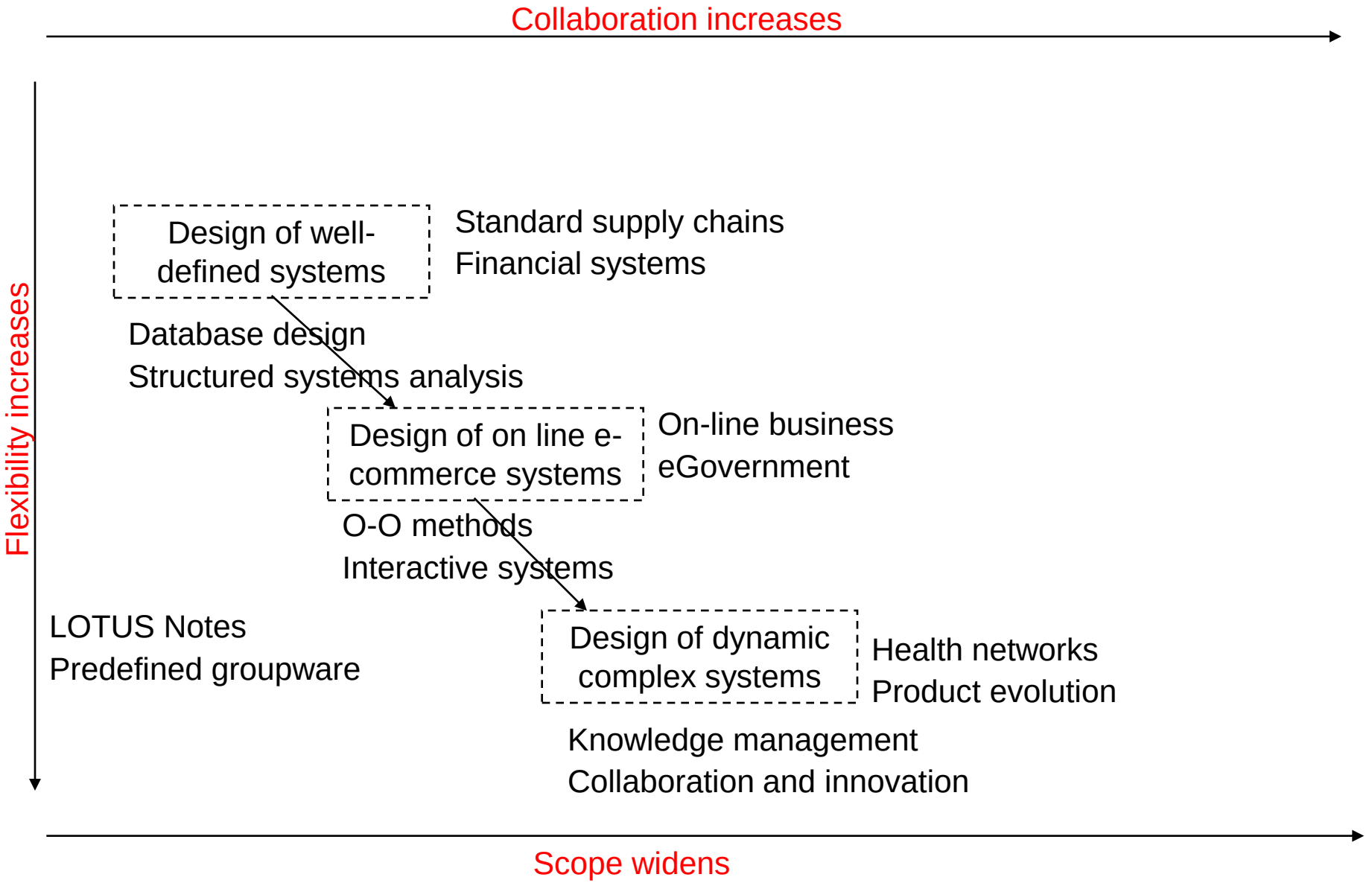


Extending the design process

to include collaboration

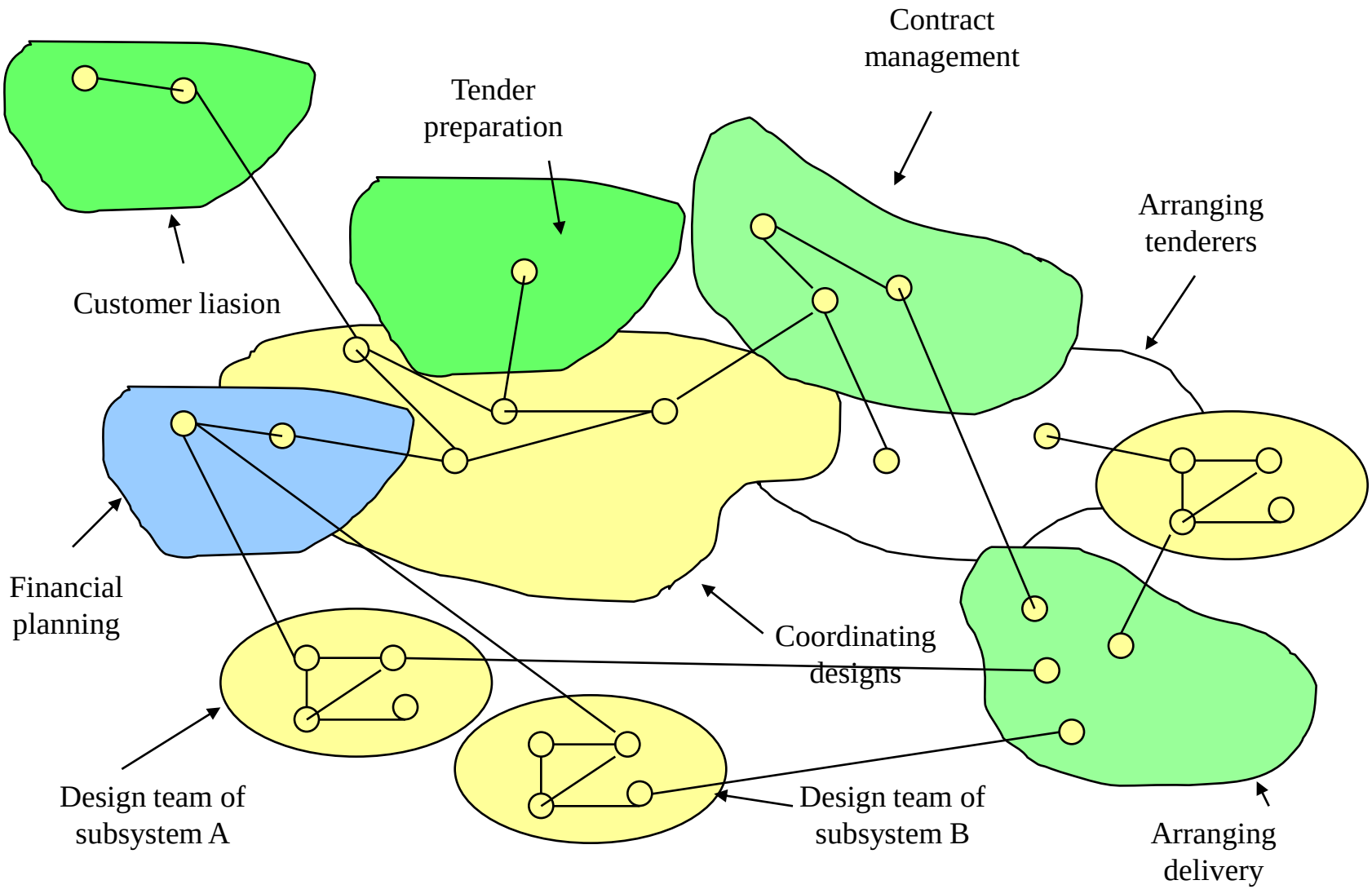


Methods trends



Community Ecosystem

Greater emphasis on Social Structure



Organizing for Sustainability

Knowledge communities

Develop models and evaluate and make proposals

Take local actions within global parameters

Respond to changes in environment

Monitor external environment

Develop vision

Develop guidelines

Develop and monitor success factors

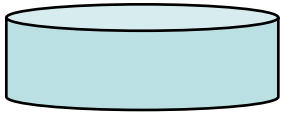
Coordinating group

Monitoring activities

Monitor community activity against guidelines and success factors

Report on problems

Ecosystem memory



Develop vision
Maintain guidelines

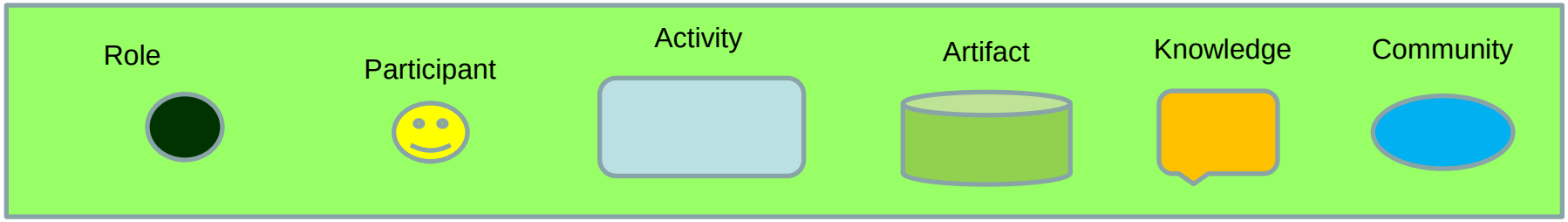
Energy
Housing
Health
Education

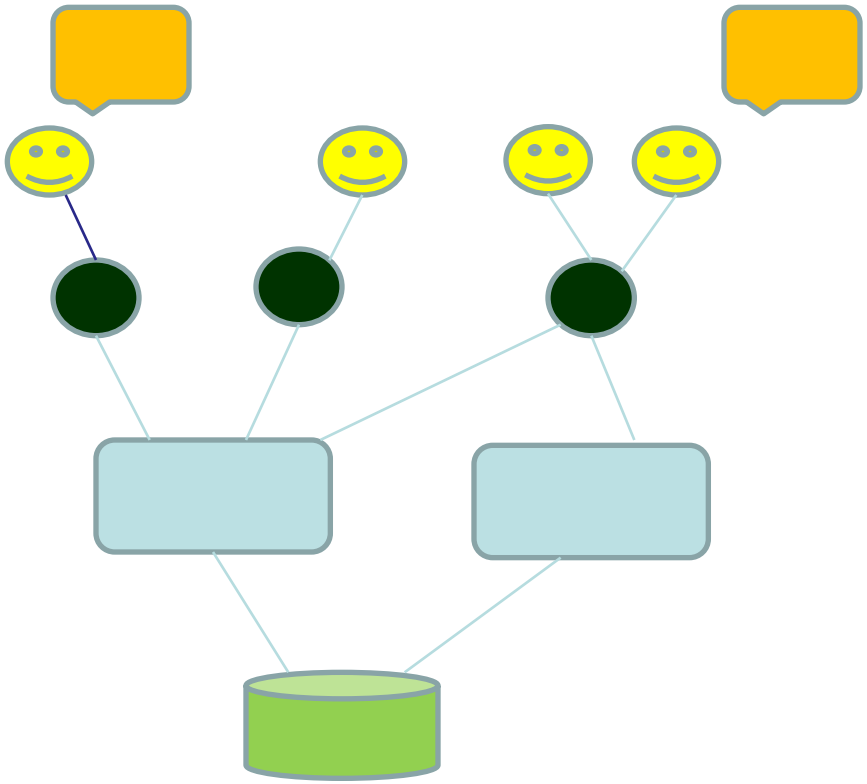
Feedback loop

Provision of assistance

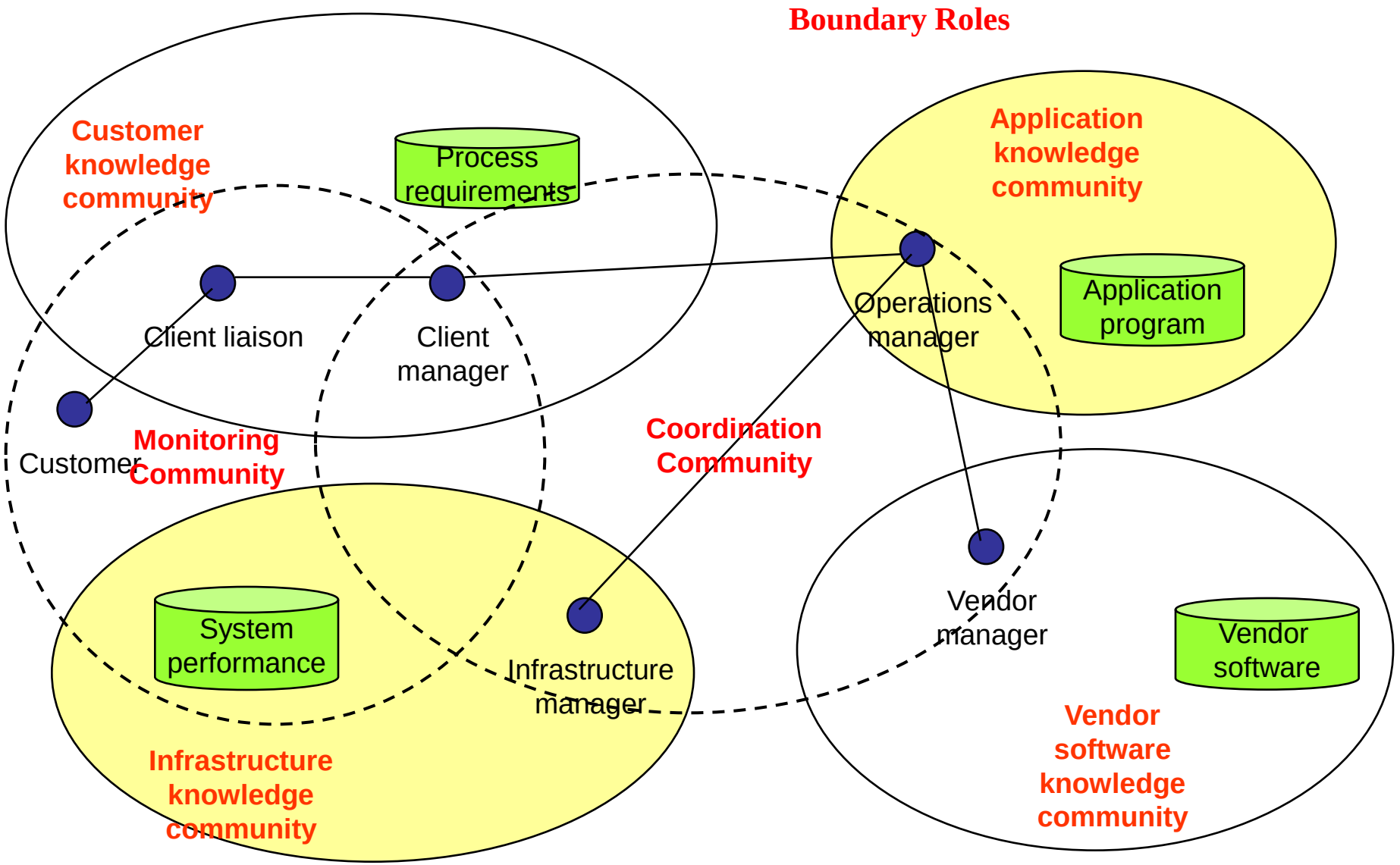
Analyze outstanding questions – prepare new expert groups needed – Reorganize communication to facilitate knowledge sharing. Setup and maintain knowledge brokering and facilitate transdisciplinary issues.

Some Concepts

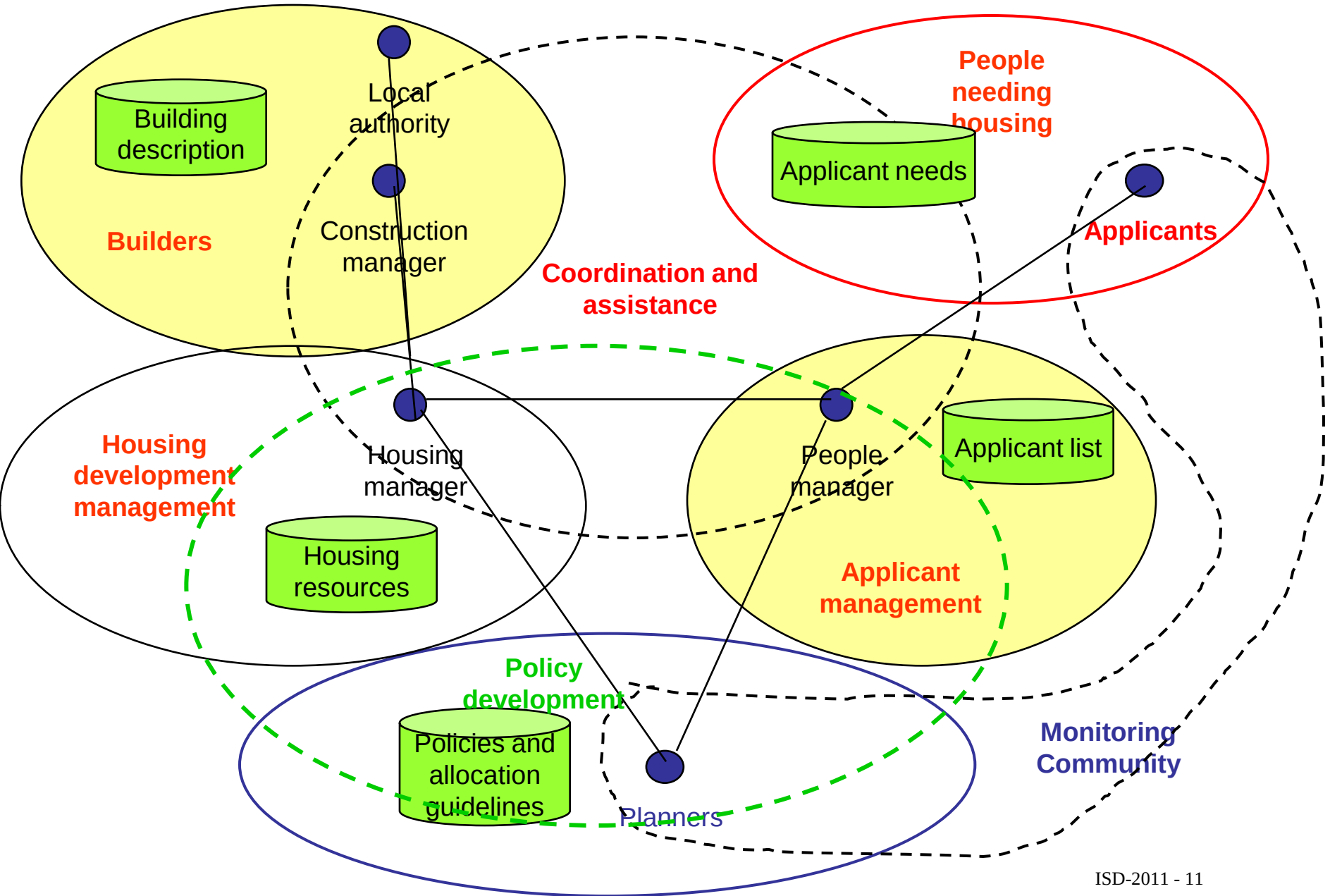




Example of Communities in Process Outsourcing



Example of Housing Allocation



Multiple views to make sense of complexity

value-network-overheads.pdf - Adobe Reader

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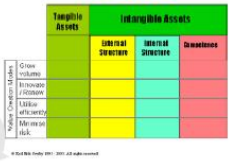
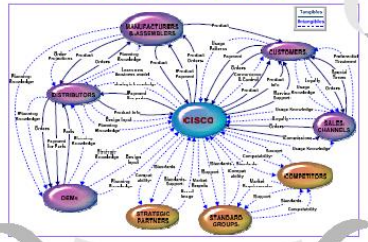
Multiple Views of Enterprise

Assets



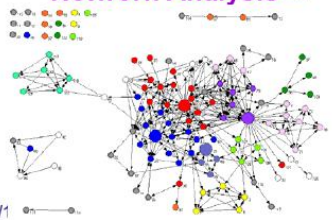
Value Network Analysis



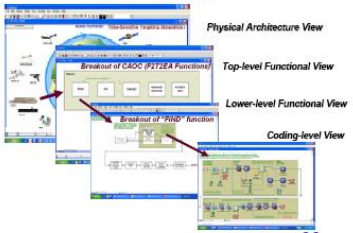
How well does the *Knowledge Network* match the Business *Transaction Network*?

How well do *processes* perform in relation to the Business *Transaction Network*?

Social/Organizational Network Analysis --



Process Modeling -- Workflow



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start | overheads | trial-overheads | references | value-network-o... | Search with Goo... | 10:33 PM Sunday 17/07/2011

Making sense of complex systems

DESIGN "CHECK-LIST" FROM COMPLEXITY THEORY

Knowledge sharing

Learning

Perception of environment

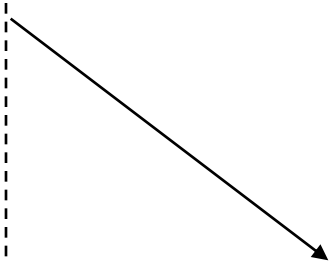
Self-organizing and reorganizing

Emergence

Responding to change

Changing work activity

Process coordination



Enterprise views

Enterprise view

Knowledge

Community

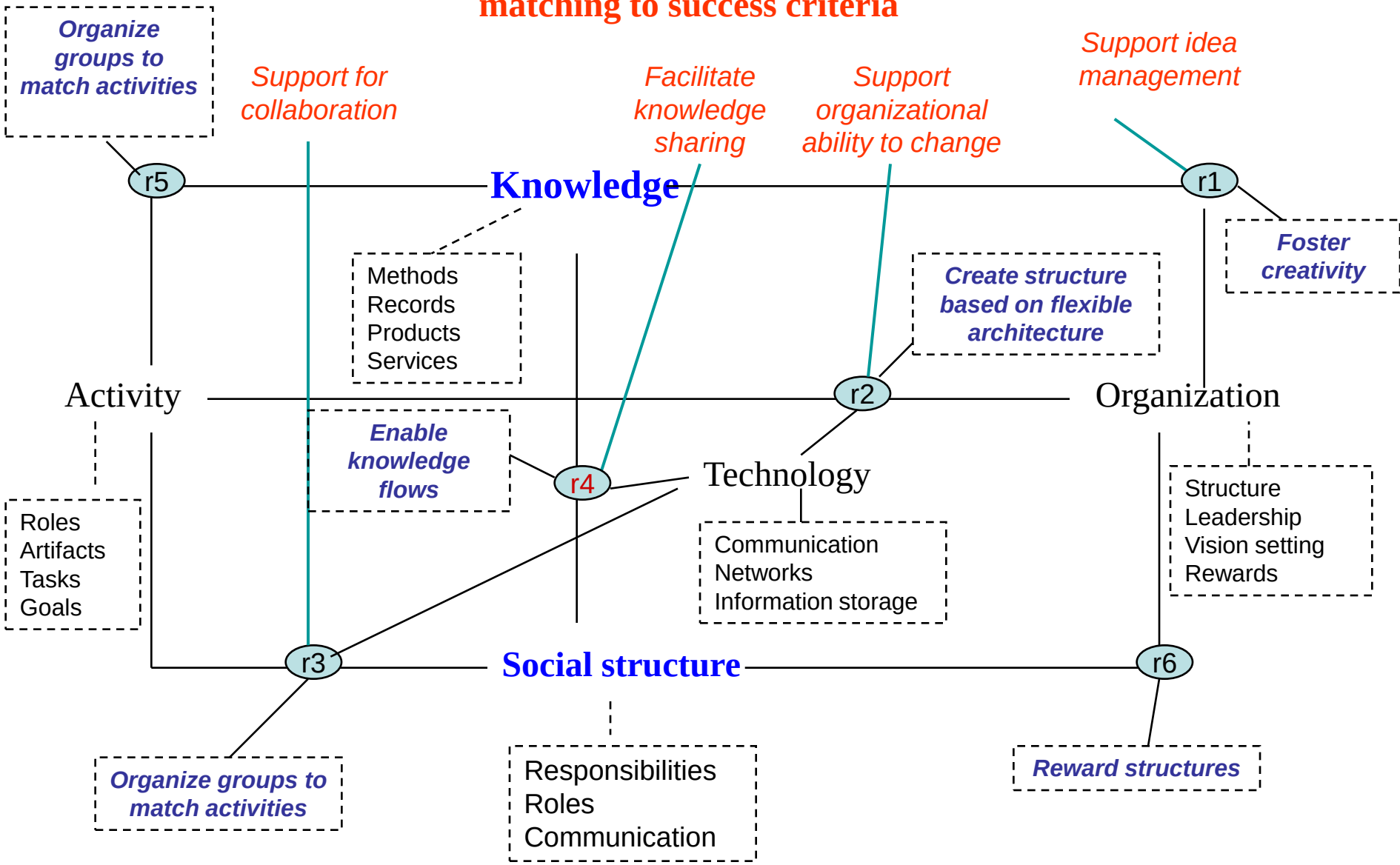
Social Structure

Activity

Technology

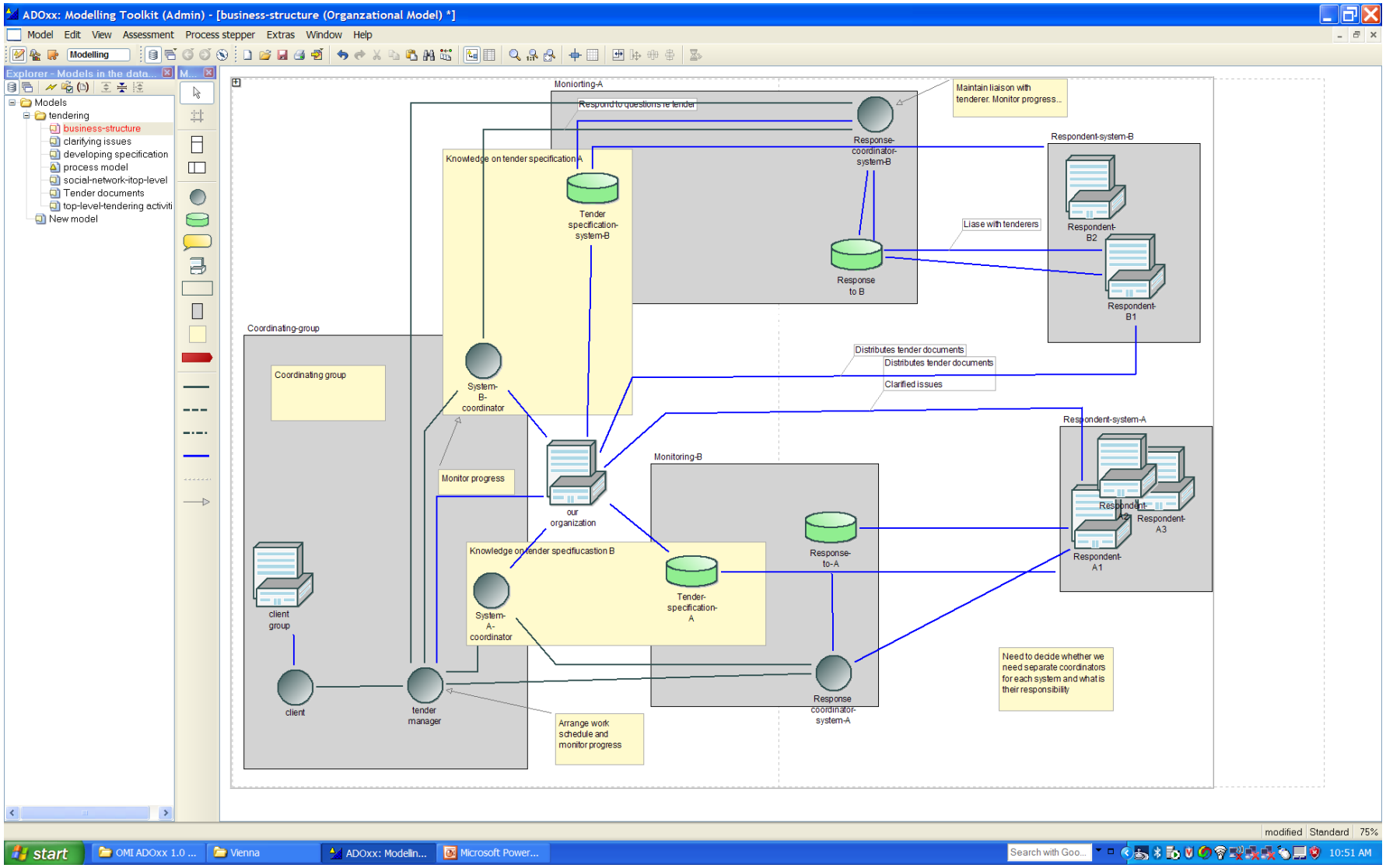
Perspectives to be considered in open modeling

matching to success criteria

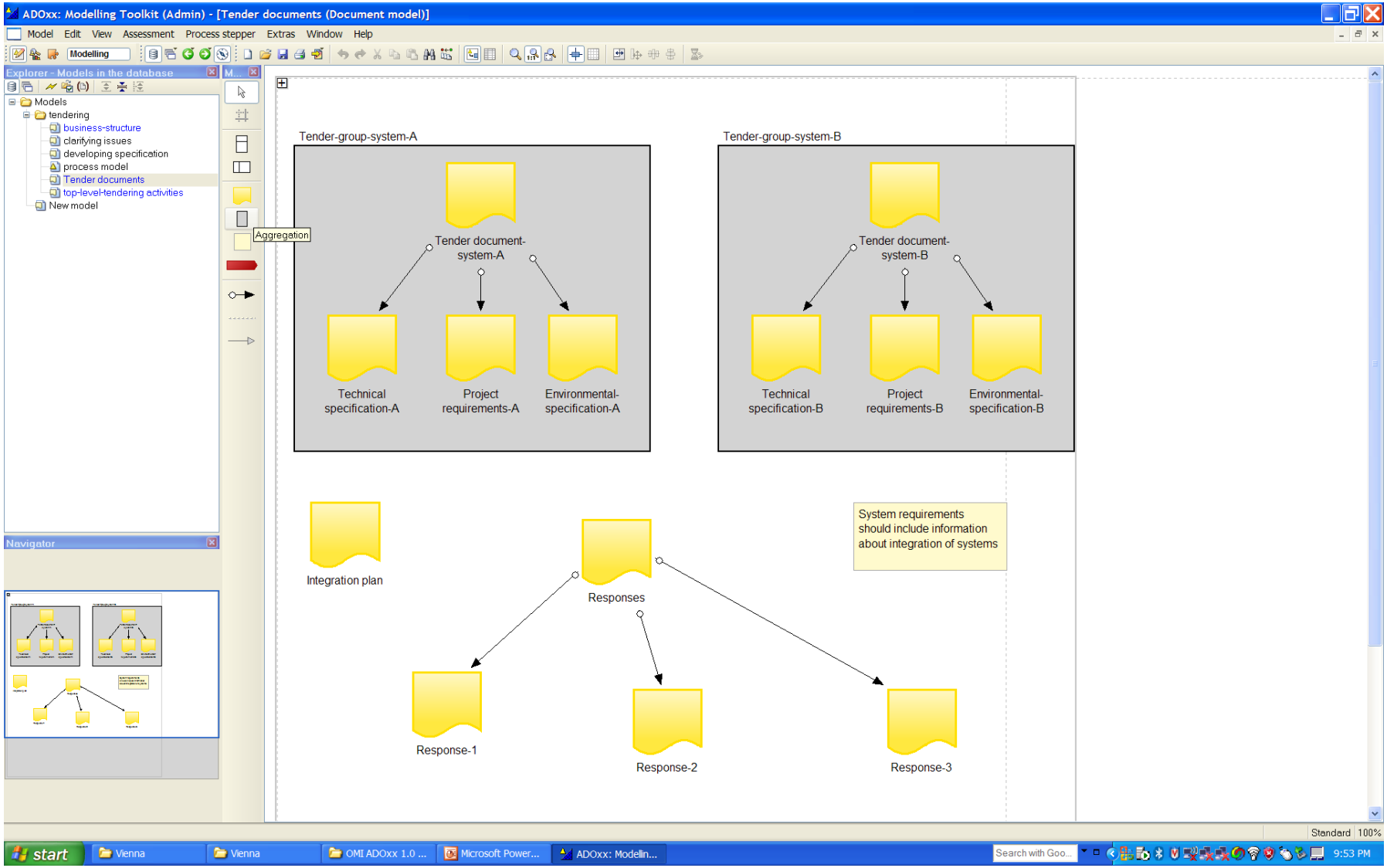


Looking at systematic ways – starting with a perspective

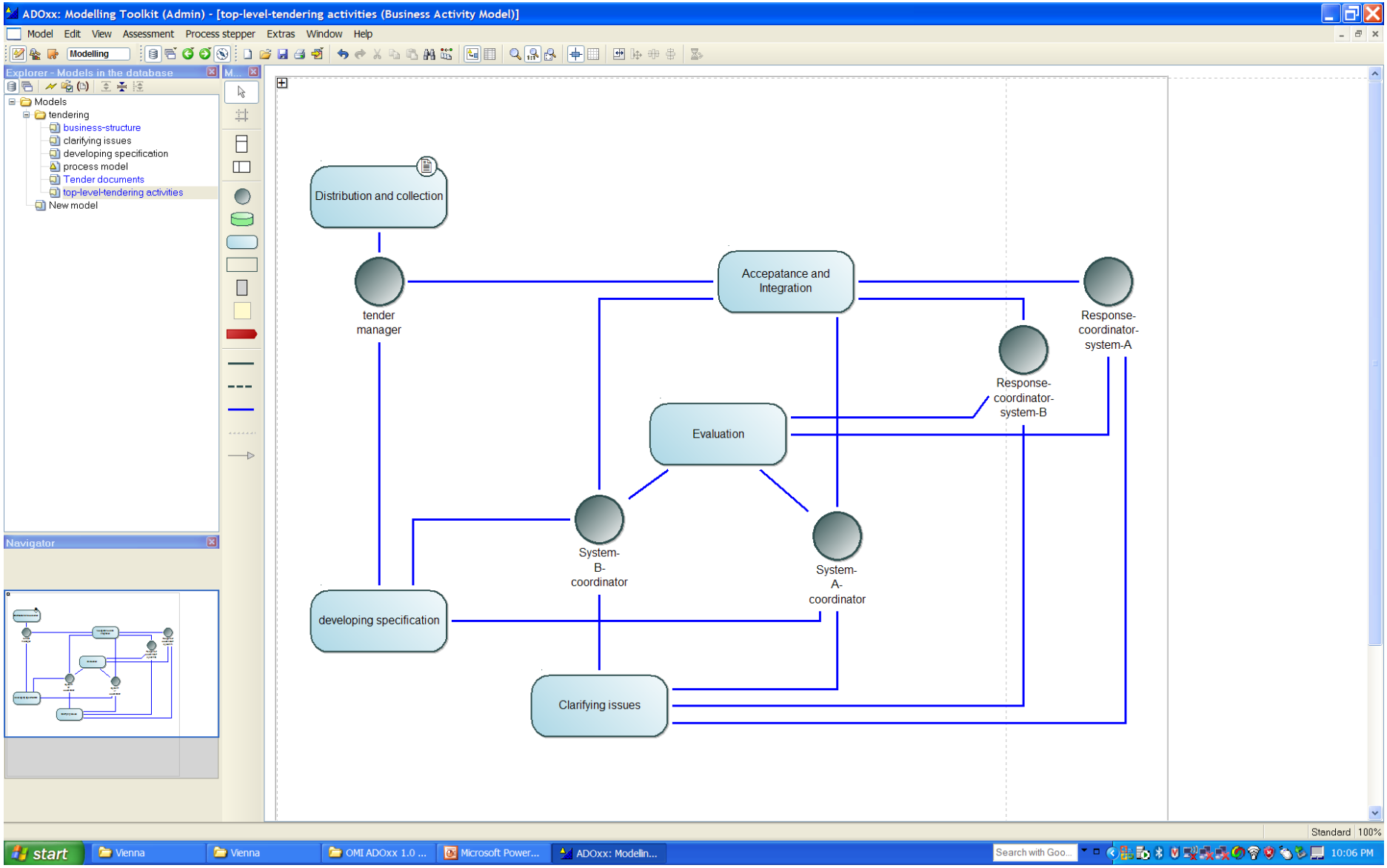
Showing community structure



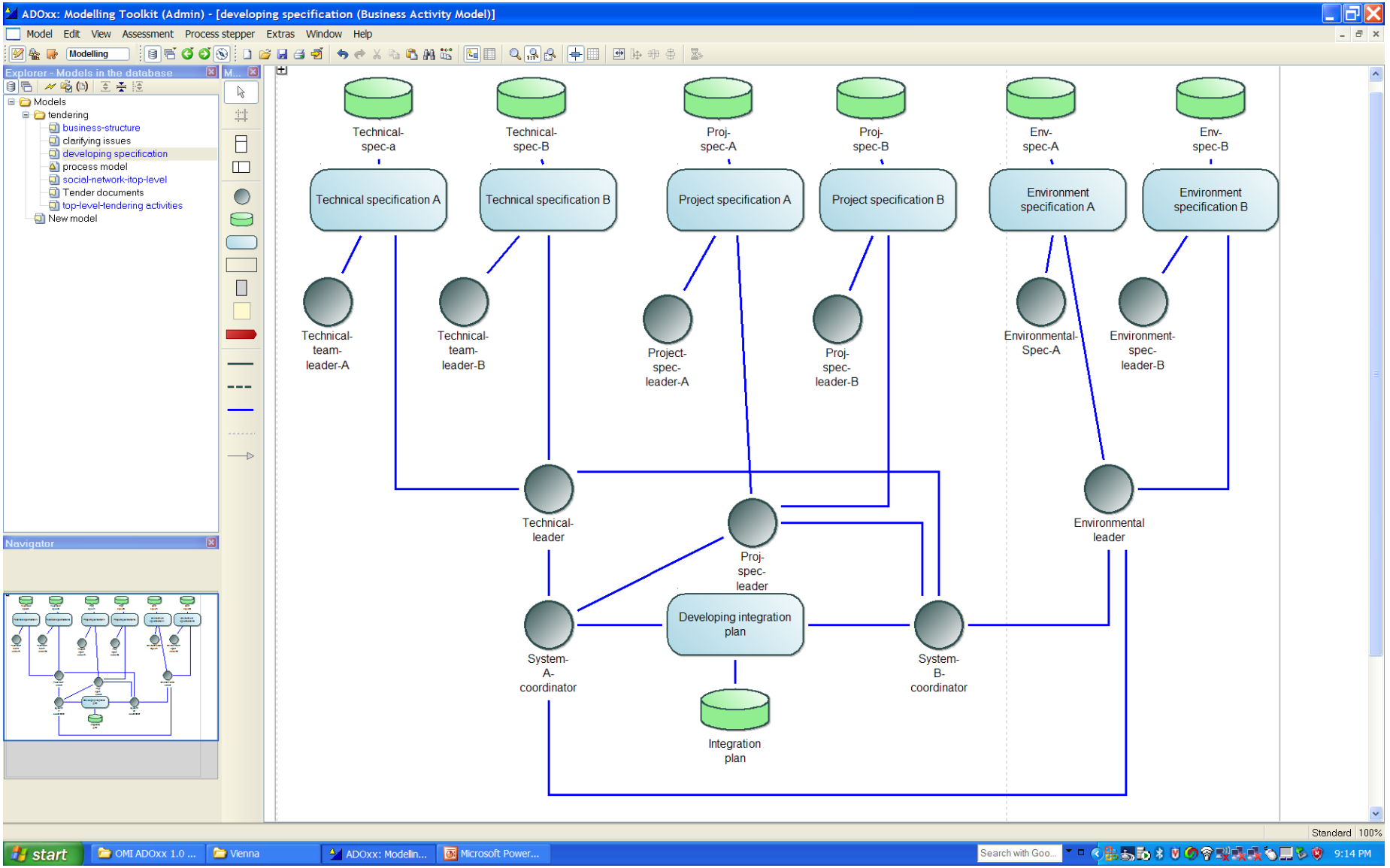
Document Structure - Tendering



Top level activities - Tendering



Specification activity - Tendering



What we have learned

Constraining views to some concepts inhibits modeling

Better to have unconstrained model and then generate view
or provide an option to aggregate views

High level enterprise view showing how organizations interact

Need quick transitions between views

More natural notation

Some future possibilities

Community collaboration through dynamic policy management contributing to an FP7 European Project on Formation of Government Policy

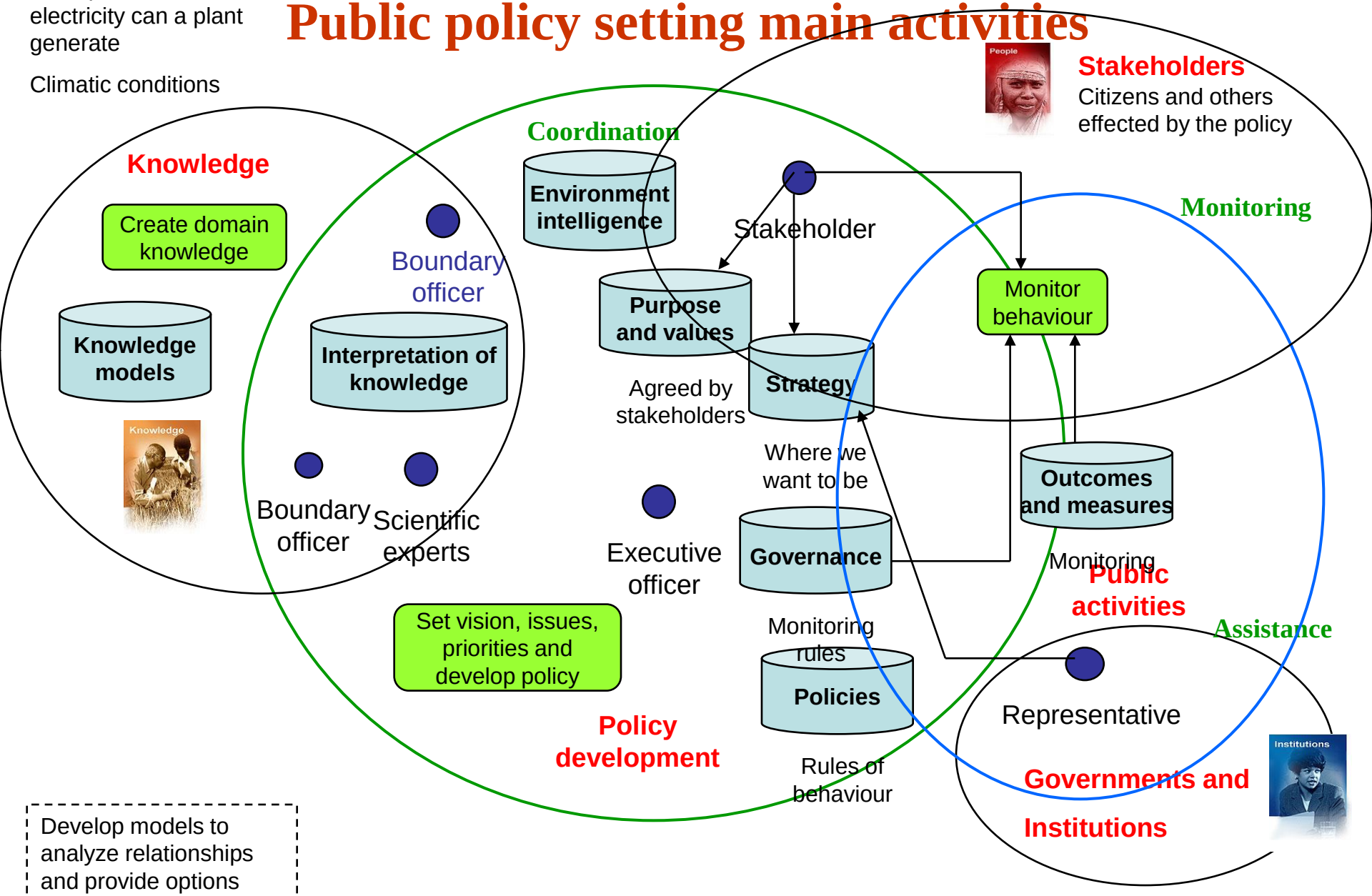
Developing project management structures for aligning businesses to dynamic environments

Building a community cloud – combining cloud and social media

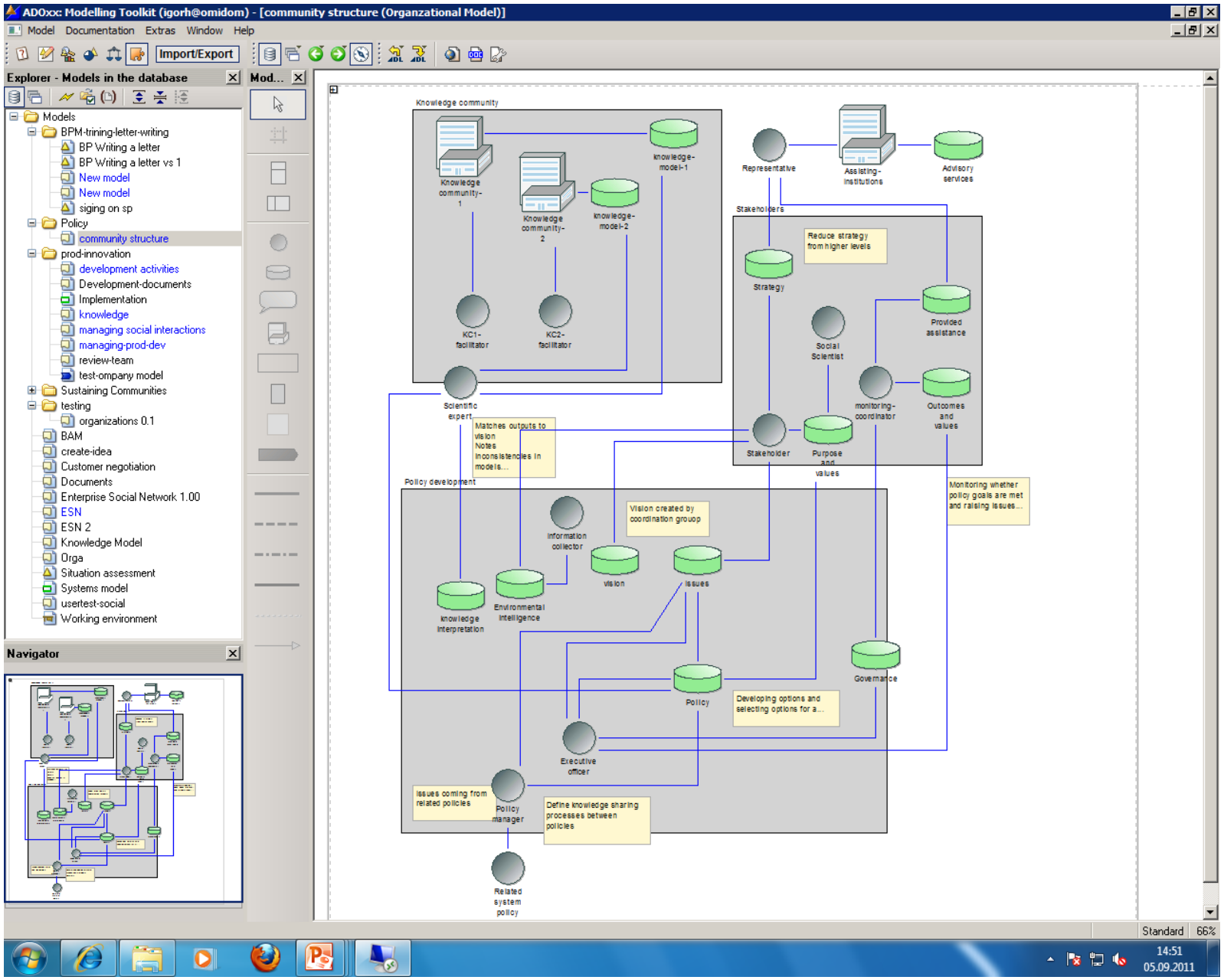
Example how much electricity can a plant generate

Climatic conditions

Public policy setting main activities



Develop models to analyze relationships and provide options (may itself require decision)


ADOxx: Modelling Toolkit (igorh@omidom) - [community structure (Organzational Model)]
Model Documentation Extras Window Help
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Development-documents
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organizations 0.1
BAM
create-idea
Customer negotiation
Documents
Enterprise Social Network 1.00
ESN
ESN 2
Knowledge Model
Orga
Situation assessment
Systems model
usertest-social
Working environment
Navigator
Knowledge community
Knowledge community-1
Knowledge community-2
knowledge-model-1
knowledge-model-2
KC1-facilitator
KC2-facilitator
Scientific expert
Matches outputs to vision
Notes inconsistencies in models...
Representative
Assisting-institutions
Advisory services
Stakeholders
Reduce strategy from higher levels
Strategy
Social Scientist
Provided assistance
monitoring-coordinator
Outcomes and values
Stakeholder
Purpose and values
Monitoring whether policy goals are met and raising issues...
Policy development
Information collector
Vision created by coordination grouop
vision
issues
knowledge interpretation
Environmental intelligence
Governance
Policy
Developing options and selecting options for a...
Executive officer
Issues coming from related policies
Policy manager
Define knowledge sharing processes between policies
Related system policy
Standard
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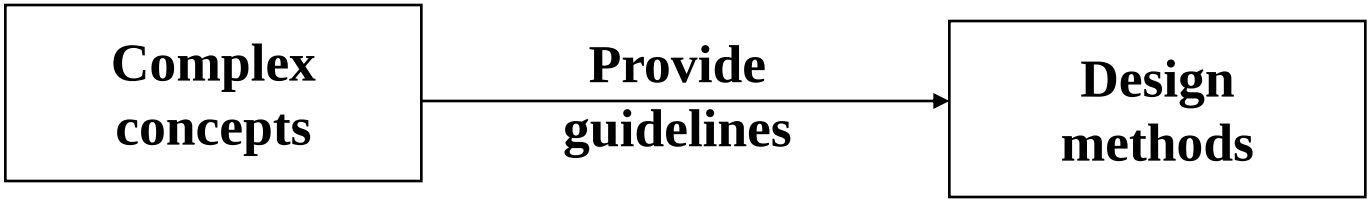
Impact of Complexity on Project Management



Self-organizing → Role flexibility

Learning → Experience capture

Pattern identification → Reusing known methods

Emergence → Addressing new issues

Perception → Identifying emerging issues and making sense of them

Preparing for change

Supporting dynamic change trends to scrum

Perception

s1

Product owner

Analyst

s3, s4

(Evolving) system Architecture as a guide

s5 Learning

Architect

Issues

Project manager

Product

Sprints

s8

Scrum master

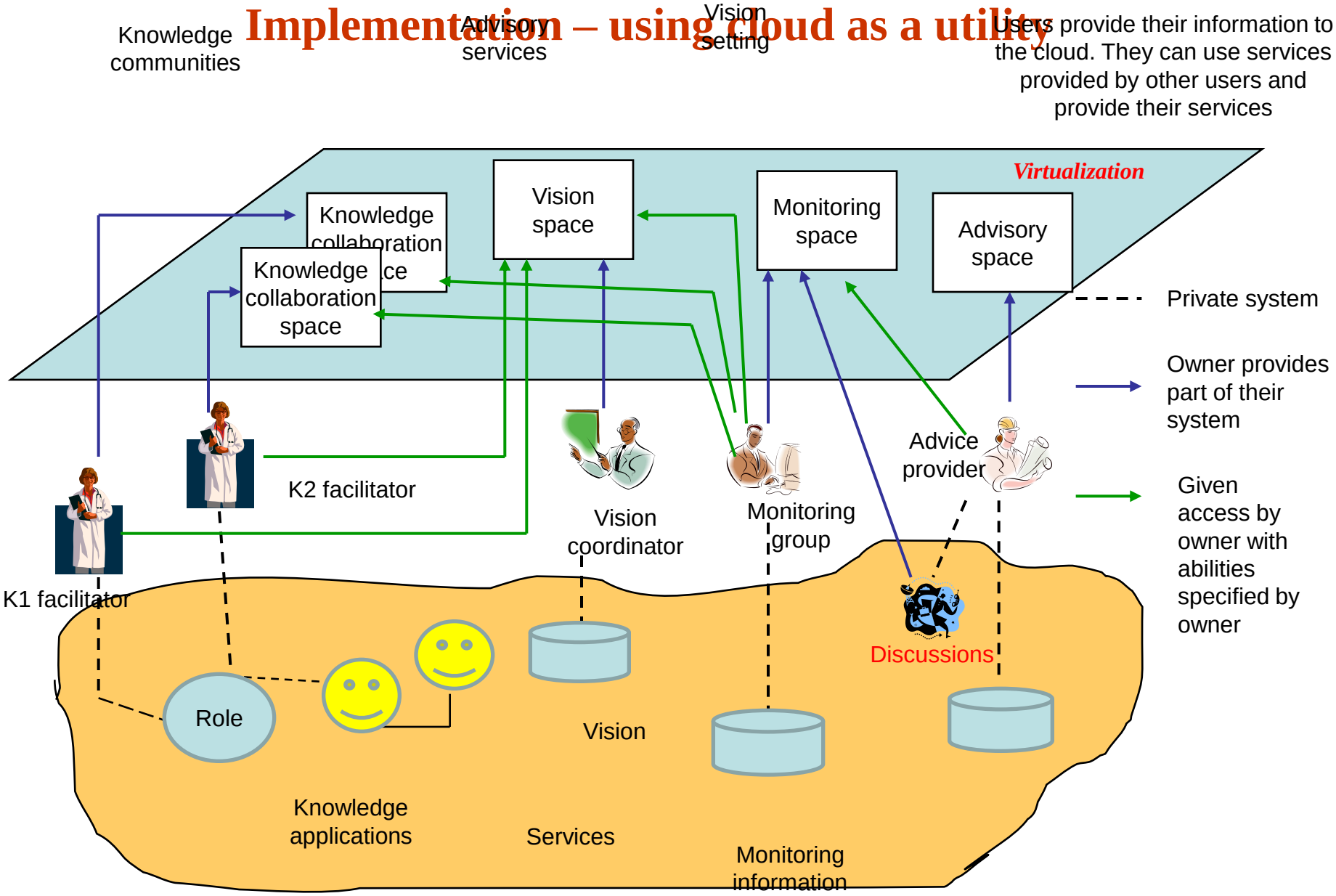
Team

S7. Select team – to address emergence

s6, s7

Self-organization for new requirement

Implementation – using cloud as a utility



Ultimate Goal

Will knowledge management using information technology become a utility

If so, then the ultimate goal is to totally open system with open concepts where prople define their needs in terms of their own models and concepts

Questions?