

# THEORETICAL CONSTRUCTS FOR IS-CAPABILITY IN AEC

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# Goal

**Explain the challenge of improving the information system (IS) capability**

- **how individuals are co-operating and learning**
- **process capabilities and organisations**
- **what is IS-capability in AEC**

# Information

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Why is it that almost everyone still seems to agree that information is important, that we need it, and that more of it is better?

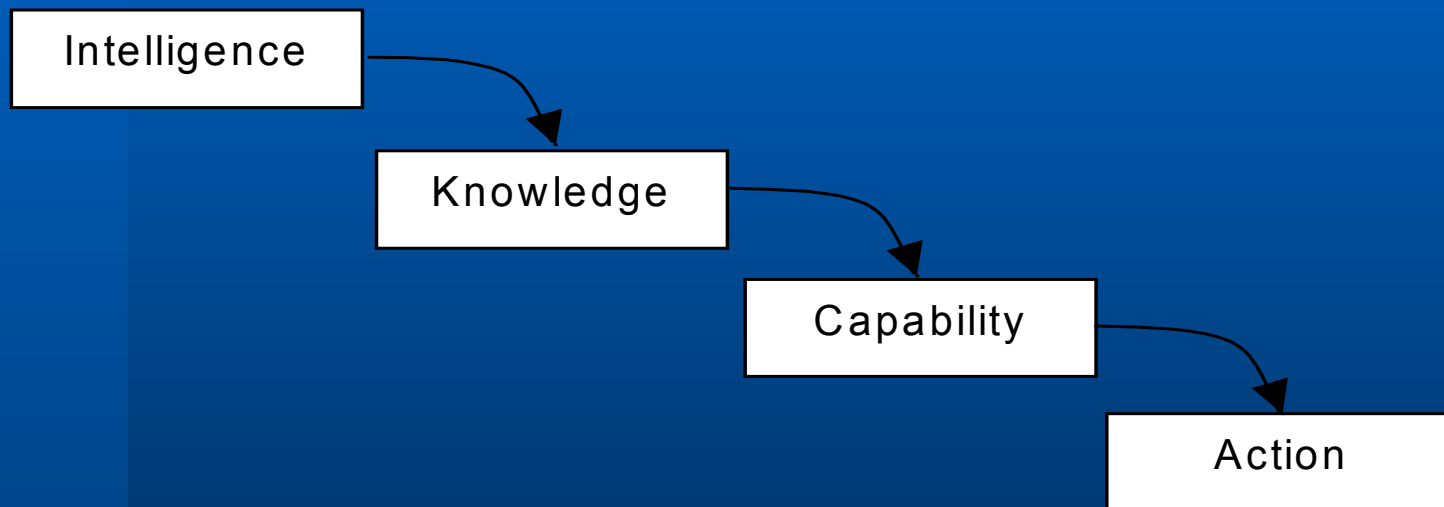
# Knowledge

Common sense asks how can we avoid the flow of unnecessary information.

also

Information on its own is not enough. Instead, information has to be transformed into knowledge.

# Intelligence as a generator for selective action



(Tuomi 1999, p. 122)

# Process capabilities and the individual

- **Individuals in isolation can utilise experience, conceptual thinking and imagination to learn**
- **Isolation limits the experiences and consequently restricts imagination and minimises conceptual thinking**

# Process capabilities and the individual

- **Generally, the subject that learns is human, not in isolation but in society**
- **The learner is an active organism not just responding to stimuli but seeking them out and grappling with them to make sense of the world**

# Process capabilities and the individual

- **Individuals-in-society can utilise training, experience, mental events, mental representations, beliefs, expectations, emotions and intentions, habit formations, skill acquisition of the environment and society as sources of knowledge leading to the development of intelligent individuals**



# Process capabilities and the individual

- **Interaction of intelligent individuals may result in the development of knowledge**
- **Knowledge may form the basis of capability**
- **Capability may manifest itself in action**

# Process capabilities and the individual

- **The intelligent learner is an active organism seeking out stimuli and grappling with them to make sense of the world**
- **Knowledge is generated internally**
- **New knowledge is created by the individual and is transformed into organisational knowledge**

# Process capabilities and the individual

- **The cognitive intervention approach to learning involves application of the latest learning theories**
- **The solution focused therapy should be concentrated on the learner and emphasise learner ownership to maximise the acquisition of knowledge**

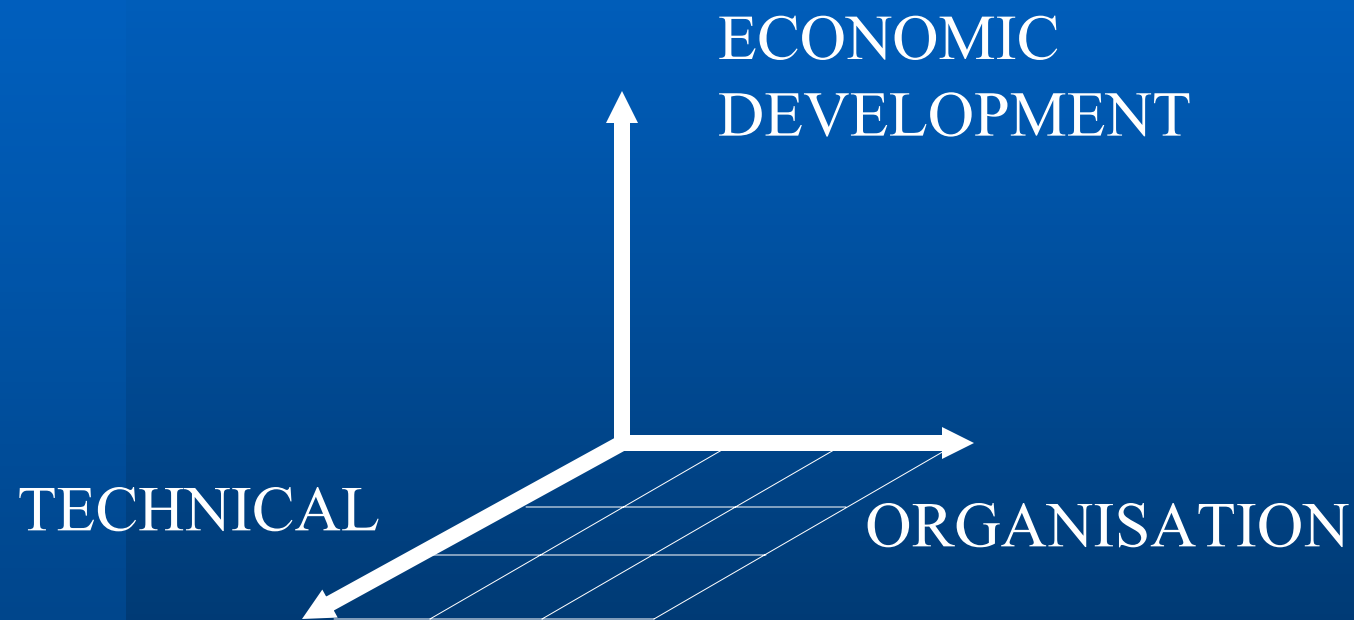
# Process capabilities and the individual

- **Cognitive intervention, solution focused therapy or coaching is about fostering human being' ability to grow, to generate new, adaptive and successful actions**

# Process capabilities and the organisation

- **Process capability features in SPICE**
- **Features in TIMI-barometer**
- **Views in organisations**
- **Individual capability**
- **Knowledge capital**

# IS CAPABILITY DIMENSIONS



# ECONOMIC DEVELOPMENT DIMENSION OF IS-CAPABILITY

## Processes

Quality of processes  
Evaluation of processes  
Improvement plans and priorities

## Strategies

Business strategy (where and why)  
IS-strategy (what is required)  
IT-strategy (how can it be delivered)

## Economical situation

Ability to invest  
Ability to carry the risks

## Customers and Suppliers

Requirements of the customers  
Types of customers  
Collaboration with suppliers

# ORGANISATION DIMENSION OF IS-CAPABILITY

## Knowledge capital

human capital

competence

attitude

intellectual agility

## Commitment

structural capital

institutional factors  
internal structure

attitude of the business field  
renewal capability

attitudes in the human network  
external structure

administrative factors

communication and collaboration



# TECHNICAL DIMENSION OF IS-CAPABILITY

Current IS  
infrastructure

Age of computers, local network, Email, Internet, shared databases, windows environment, etc.

Current IS software

Used software: bookkeeping integrated or not with operative and/or service tools ?

Current data  
structure

Form of data paper documents/digital /shared databases used by staff; customers; collaborators

Benefits and costs of  
the current IS

Does IS help to make good decisions?  
Efficiency  
Effectiveness  
Performance

# Conclusion

- **The capability development should happen at the individual, company and network level**
- **IS capability dimensions (economic development, organisation, and technical dimensions) need to be improved even-handed**

# Focus of future research

- **Individual's ability to generalise newly acquired knowledge**
- **Organisation's ability to select the IS tools**
- **What different types of IS-capabilities in AEC may exist and their connections with the success of utilisation of IS.**
- **The linkage between the formation of IS-implementation teams and implementation success.**