The Norwegian strategy to develop sustainable production in the construction sector

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I would argue...

- without e-business there will be no real sustainable production

and

- without open ICT-solutions there will be no e-business in the value chains

Therefore

- policies to stimulate open ICT-solutions will stimulate e-business and sustainable production
Agenda

• The challenge of the construction sector
• The Norwegian strategy
• Lessons learned
No productivity growth in the last 20 years

Europe's slow productivity growth stems mostly from under-performing service sectors

Contribution to overall EU-15 and US productivity growth by sector, 1995-2005

Note: Numbers may not sum due to rounding.

SOURCE: EU KLEMS; McKinsey Global Institute analysis
We produce buildings as we always did it

If you do what you did, you get what you got
Low sustainability of buildings

• Half of the energy used
• 40% of greenhouse gasses
• 50% of the materials
• 25% of all waste
• 10% of building materials ends up as waste on the construction site
Costs escalating due to new sustainable regulations
Value chain with many actors and interests

- Tenants
- Building owner
- Technical entrepreneurs
- Suppliers & Whole sale
- Building products
- Construction company
- Consulting Engineers
- Architects
Complicated information flow

- Building products manufacturer
- Building owner
- Architect
- Civil engineer
- Technical Entrepreneurs
- Construction company
- Authorities and regulations
- Property manager
- Suppliers
What is smart to do?

- Insulation? – Where, how much?
- New windows?
- Lower inside temperature?
- Heat pump?
- Renewable energy?
- Move to Spain?

We miss the tools. If you cannot calculate the effect and the cost, how can you make a wise decision?
We need to do it smarter!
The Norwegian strategy

• Information is a driver for good decisions
• Open (international) standards make co-creation possible
• Actors from all parts of the value chain must be included and co-create the best solutions
• The digital information model should be used in all processes, from idea to demolition
• Increased productivity will fuel the transformation
• Must be able to calculate and simulate different solutions
• International co-operation
Building Information Model

- Building products manufacturer
- Building owner
- Architect
- Civil engineer
- Property manager
- Technical Entrepreneurs
- Construction company
- Authorities and regulations

BIM
Policies

- Regulations for sustainability (energy consumption, materials to use, social responsibility)
- Funding schemes for open ICT development and implementation
  - BIT programme
  - Industrial and Public sector R&D contracts
  - GreenConServe
- Public procurement
BIT-programme

- Grants for development of open ICT solutions
- Network project with all actors in the value chain, branch association project leader
- Process and organisational guidelines, contract structures
BuildingSMART in Norway

• 1997-2001: Development of ICT industry solutions (horizontal) for increased productivity

• 2002-2005: Development of Building Information Model, used for the planning and visualization of the building

• 2005-2009: Development of digital library for building products, used by building material producers and planners

• 2010: Development of the sustainable digital building process, used by all actors in the value chain including labor
R&D contracts

Grants for joint Research and Development projects between a large private or public company and a SME

Norway's EPM Technologies is engineering and commercializing a new generation of "model server" technology, that lets users manage and share all forms of project model data created using BIM systems throughout the life of a facility.
• Service innovation in the construction sector
• Motivation and training of SMEs
• Two step innovation vouchers, for technology and business development.
• France, Germany, Norway + Poland
• In Norway used for technical entrepreneurs
• Project management: Greenovate!, Brussels
Public procurement

Must create demand in the market – first comple
”Lessons learned” from Norway

• Must have common vision
• «Step by step» strategy
• Expect no economic effects from the first steps (rather opposite), The results are coming when all in the value chain starts co-creating
• Public funding secures open solutions, ensure good organisation, involvement of SMEs, and keeps the development rolling.
• Co-operation with demanding larger public and private companies and industry associations are crucial
• House lease in sustainable buildings are higher
«The proof of the pudding»

Norwegian Defense Estates Agency – SJKE building

Thank you