Welcome
Welcome to the first issue of STAND-INN News, a newsletter for those who are involved in construction and FM in Europe. STAND-INN is a network of private companies and public organisations from across the EU, sharing a common vision to create sustainable value for our customers over the entire life-cycle of their buildings.

Things are changing in the building and construction industry. Buildings are no longer seen simply as capital assets, building products are not just physical objects. All of us, all along the supply chain, are part of a "service storm" in this sense, we are contributing to the life-cycle performance and sustainability of the building so that the end-value of the product is increased for the customer and productivity and opportunities are increased in the industry. Construction is a major industry in Europe. Annual 26 million workers in 15 EU countries.

STAND-INN is supported by the European Commission under the Europe INNOVA initiative.

Vision/mission

ประหยัด: 
- Sustainable Value creation for customers over the life-cycle of buildings using information models.

Mission:
- To provide guidance on how standardisation supports innovation and "Building Smart".
- To disseminate information about sustainability - and IFC/BIM standards.

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The Consortium

- 2 partners from China and 1 from Australia
- 5 European (World) wide networks providers
  - IAI (18 chapters), CIB, ECCREDI, ENBRI, CEN
  - Entailing major stakeholders from
- Industry including SMEs, users, R&D and national Standardisation organisations
- 30 members from 11 European countries
  - Norway, Finland, France, UK, Sweden, Italy, Lithuania, Spain, Portugal, Germany, Belgium

Construction industry is:

- **the 40% industry (environmental)**
  - 40% of all emissions
  - 40% of material & energy consumption
  - Needs to become "sustainable"
- **the 30/30 Industry**
  - 30% of any Country's GDP is "construction" related (26 million EU)
  - 30% is waste (non-value transactions)
- **Lack of Communication (interoperability) is a key problem**
    Facilitates Industry costs Approximately $15.8 billion annually
    representing 2% of industry revenue.
  - Needs to "change-transform".
Today's "document-centric" model:

- The same information is re-entered on average 7 times in different systems.
- Significant communication errors and loss of project information, building damages (5% of investment).
- 25-30% of the construction cost is caused by splitting up of processes and lousy communication.

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ICF-BIM = buildingSmart

Tomorrow's "information centric" model:

Driven by IA!
IFC is all about exchange and sharing of information

Series of ISO standards:
• IFC – HOW to share data
• IFD – WHAT you are sharing
• IDM – WHICH data and WHEN to share it
• SME – WHY...

IFC + IFD product development process

Knowledge databases
- Best practice knowledge
- Own policies

Briefing
- Functional reqs
- Calibrates
- Conditions
- Requirements

Demolition, refurbishment
- Rebuild
- Recondition
- Restoration

Facility management
- Letting, sale, operations
- Maintenance
- Guarantees

Construction management
- Scheduling
- Legislation, ID

Specifications
- Specification sheets
- Classification standards
- Estimates, accounting

Procurement
- Product databases
- Price databases

Illustrations: Lars Bjørkhaug, Norwegian Building Research Institute, Oda Granland, MIT, University of California, Stanford University
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• IFC has capabilities to support sustainability
  - Service life planning according to ISO 15666
  - Objective (measured) and subjective (viewed) condition assessment
  - Lifecycle and whole life costing
  - Environmental impact
  - Energy performance declaration (labelling according to EU directive)

• STAND-INN will refine and extend capabilities

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Work Package Structure

WP6
Guidance IFC & sustainability in business processes
WP Leader: 1-SBI
C:1-3,5,7,11,13,15,18,21-23,25,27-31

WP7
Guidance IFC & sustainability in products & services
WP Leader: 2-InTést
C:1-3,5,7,11,13,15,18,21-23,25,27-31

WP8
Guidance IFC & sustainability in housing
WP Leader: 3-VTT
C:1-3,5,7,11,13,15,18,21-23,25,27-31

WP9
Guidance IFC & sustainability in public procurement
WP Leader: 31-LABERN
C:1-3,5,7,11,13,15,18,21-23,25,27-31

WP1
Mapping & analysis of IFC and sus. standards and their capabilities
WP Leader: 1-SBI
C:1-3,5,7,11,13,15,18,21-23,25,27-31

WP2
Guidance IFC & sustainability in business processes
WP Leader: 25-TKtuin
C:1-3,5,7,11,13,15,18,21-23,25,27-31

WP3
Guidance IFC & sustainability in products & services
WP Leader: 7-VTT
C:1-3,5,7,11,13,15,18,21-23,25,27-31

WP4
Guidance IFC & sustainability in housing
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WP5
Guidance IFC & sustainability in public procurement
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WP10
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WP11
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WP12
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WP13
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WP14
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WP15
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WP16
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WP17
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WP18
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WP20
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Looking at BIM/IFC use of standards/guideline

- Life Cycle Assessment (LCA)
- Environment prod Declaration (EPD)
- Life Cycle Costing (LCC)
- Energy Performance Declaration
- Environmental Impact
- Adaptability to change in use
- Reusability / Recycling
- Service Life Planning
- Social Impact
- Energy Efficiency

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IIFC can improve energy performance assessment according to national calculation methods (NCM) implementing the European Building Performance Directive

**Designer options:**
- Use a thermal analysis software application
- Use the basic SBEM (simple Building Energy Evaluation method)
- Interface to SBEM from a BIM application using IFC

Requirement at April 2009 is that the carbon cost of the building, assessed in kgCO2/m2 shall be at least 5% lower than the equivalent real building.

Application developed by the IAI UK / BREEAM Part L2 Working party including Nick Nisbet (ARCO Ltd), Brendan MacParland (DDS UK Ltd), Christoph Mörbitzer (HLM Architects) February-March 2008

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**Building Monthly Energy by End Use (kWh/m2)**

- Classrooms
- Laboratories
- Atrium
- Other
- Staffroom
- WC's

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SBEM BRUKL Output Document: Compliance with ADL2A

- Date: 16/03/08
- Project Details: Two-storey Building Type: Adaptable
- Certification Tool: Interface to Calculation Engine
- Compliance checker

**Criterion 1 – Predictive**
- Calculated CO2 emission
- Improvement factor
- LCC benchmark
- Target CO2 Emissions Rating
- Building CO2 Emissions Rating
- Are emissions from building as designed?
- Building CO2 Emissions Rating (BERR)
- Are emissions from building as constructed?
- Is (BERR > LCC benchmark) (BERR > TER) ie "Does exceed"

**Criterion 2 – The performance of the building fabric and the building services systems should be no worse than the design limits.**
- Ceiling U-values
- Are the U-values better than the design limits? “Not better than design limits”

More criteria ...

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WP3 Guidance report

Possibilities for innovative sustainable housing using IFC and sustainability standards

**Objectives**

- Analyse possibilities to improve the innovative sustainable housing with use of the existing sustainability standards.
- Find and document good practise examples of using the standards.
- Check that the IFC use is optimal, reflects the wanted level for the user on description level of product and meet these advanced users needs on requirements. Study the feasibility of IFC and its use for innovative sustainable housing as described in the examples.
- Check the relevance of IFD for these examples, in regard to relevance for different markets, how time consuming the work will be, and impact on market penetration.

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D9 Good practice examples
Innovative sustainable housing

Released for QA process 16 March
- 17 examples from eight countries (Austria 1, China 1, Finland 4, Norway 2, Portugal 2, Spain 1, United Kingdom 1)
- covers well different dimensions and aspects
  - North vs. South + Central
  - new vs. refurbished
  - detached houses vs. blocks of flats
  - individual building vs. neighbourhood
  - ownership from rented to tenant right and owner occupied
  - performance + environmental (& social) impacts
  - standards & guidelines, concepts
- slightly smaller number of cases than desired (< 20)
- difficulties to obtain all requested information, especially in time

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D9 Good practice examples
Innovative sustainable housing

Conclusion
- **Substantial improvements** can be achieved by use of
  existing/best technologies, and standards/guidelines
  - down to 15% of today's energy consumption with 1-2% increase
    in cost/3-5 years payback time
- **There is no market demand** just pilot projects!

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D9 Good practice examples
Innovative sustainable housing

Recommendations
1. Create standards (and adapt to meet local needs)
2. Raise awareness (disseminate information)
3. Clarify the concept (sustainability, terminology)
4. Influence in market mechanisms (new business models)
5. Quantify the benefits (life cycle costing, value)
6. Develop methods and tools (requirement mgmt, operation)
7. Study the human behaviour (decision mechanisms)
8. Education for all (customers, professionals)
9. Attention to impacts at a large scale (refurbishment, neighbourhood, mainstream practice – in addition to individual showcases)
10. Develop models for sustainable value creation (see 1…9)

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Conclusion on Role of Government

Key drivers for change/innovation
- As "adopters"
- As "influencers"
- As "implementers"
- Become "educated buyers" (what, when and how to buy)

Governments mandate IFC/BIM
- Norwegian Government (Bygningsteknik Etat and Stalsbygg) mandated IFC in
- Singapore Government deployed CORENET e-Plan Check System in 2006.
- US: Public Building Services* requires GSA to use IFC by 2006
  - New York City will run a Singapore e-PlanCheck Prototype
  - Shanghai plan for a "Singapore Prototype" in 2007
  - Denmark and Finland from 1.09.2007
  - Etc

When will we see EU requiring IFC/BIM & sustainability standards in building projects?

Thank you for listening!