

Towards an Enterprise Interoperability Science Base?

ICE Conference,
Leiden, 22d of June 2009



Vision of our Research Domain (Future Internet Enterprise Systems)

- Facilitating emergence of **future business forms** through research for **networked organisations**
- **Vision of tomorrow's businesses**: more competitive, innovative, agile, and value creating
- **Combining** tools
- **Service** platform service
- Diversity of continuously evolving **ecosystems** of enterprises in the future
- **Interoperability** fulfilling this vision, remains a **key issue** for the WYSIWYG enterprise

Science Base for EI that comprises a new set of concepts, theories and principles derived from established and emerging sciences, with a view to long-term problem solving as opposed to short-term solution provisioning



History of the initiative

- 31st of July 2006: the first EIRR and its fourth Grand Challenge envisions a science base for Enterprise Interoperability
- On the 11th of March 2008, we start an EISB Task Force composed of 4 cluster representatives to explore the required methodology to achieve a science base
- On the 3rd of June 2009 we launch the kick-off meeting of the EISB Expert Group in the European Commission



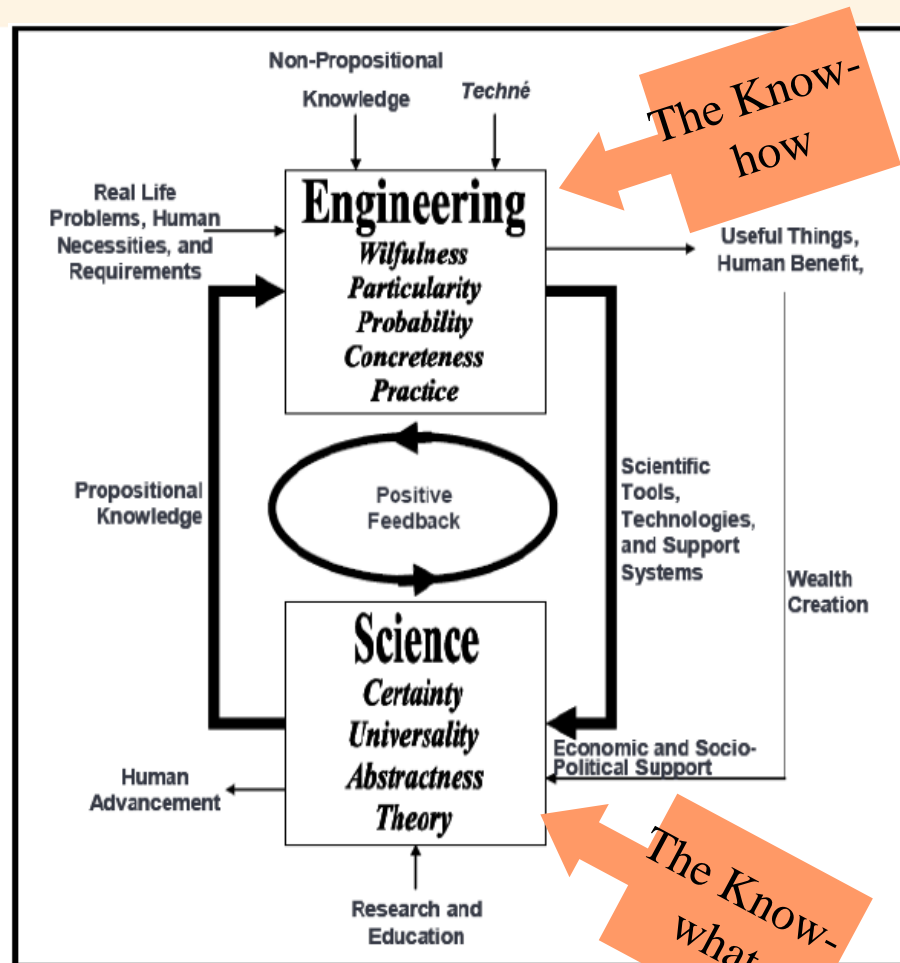
Why this initiative?

- Science and engineering relationship questions raised in various discussions
- European Research and Technology Development Projects trend
- As a result of 10 years of software architecture (degree of maturity)
- Strong business case
- Academic, Standardisation and Intelligence communities in other regions are pushing (eBusiness, NIST, NASA, ESA, JAPAN, IFIP, etc.), Software vendors are also supportive (SAP, ORACLE, MSFT, etc.).
- M. Leyton (Rutgers University) is founding the IIIS in the US



Why a Science Foundation?

- To **avoid past errors or double funding**
- To **decouple research from technology** and develop **fundamental knowledge** on complex environments integration
- Because **EI is not only a technology issue**, it contains semantics, organisational and business aspects also
- To **leverage (abstract) rigorous, formalised solutions** and apply them to other interoperability contexts
- Because new complex systems require **interdisciplinary approaches** rather than focused practices



Adapted from Nagib Callaos, "The essence of Engineering and Meta-Engineering: A work in progress"

EISB Current approach

- Primary reflection work should be supported by the cluster (horizontal issue) represented by a Task Force
- What kind of researchers are necessary to help us find an answer to our questions?
- Requires external advice (from prominent scientists knowledgeable of ICT issues) and strong coordination from the domain
 - The focus remains on the enterprise (but will contribute to the overall interoperability issue as well)
 - We look for concrete results > application to FInES



Current Plan

- EI Task Force created in 2008: 4 members reflecting on the approach, reporting to the community.
- EISB Expert Group:
 - Expert Group: 7 representatives from different scientific areas from Academia (e.g. mathematicians, physics, philosophy) and Standardisation/certification bodies
 - reputable scientists from different scientific horizons (physics, mathematics, economics, social science, etc.) to build a balanced scientific framework for Enterprise Interoperability (EI).
 - framework for "free-thinking" within a structured discussion in order to help the community progressing
 - Possibly 2 meetings in 2009.
- Discussions were necessary to
 - validate the problem statement and advise on the approach followed by the TF
 - Results show a strong interest, but uncertainty as to the approach
- Int'l cooperation is essential in this matter, as well as Industry and Standardisation bodies' support
- Provisions in the WP (Call 5)
- Future EU conference to present results?



Precautionary principle

- This is not an easy task!
 - New, exploratory work (so far, not existing elsewhere)
 - Requires understanding of the scientific process (epistemology, ontology definition, formalised concepts and approaches, etc.)
 - EI Task Force capacity to reflect on the methodology is limited by its essence (comes from the engineer/techno world!)
 - Might fail (e.g. problem statement is not appropriately defined, lack of comprehensiveness, incorrect approach to the problem, etc.)



Why a *Science Foundation* for EI?

- “Engineering is the application of science for human benefit”, Prausnitz, 1991
- Science needs engineering to demonstrate evidence, engineering needs science to develop, therefore, “although science and engineering are intertwined, engineering is not a subset of science” Sir Robert Malpas, 2000

