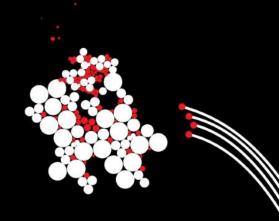
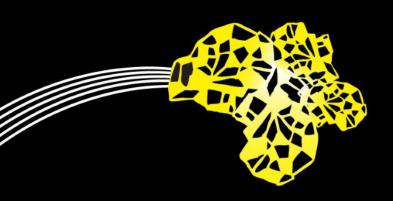
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# A3 Architecture Overviews (A3AO) Goal, History, Adjacent Research

Maarten Bonnema







### The Goal of A3AO's

Tacit knowledge versus Explicit knowledge

### Explicit:

Well handled by many (formal) models

#### Tacit:

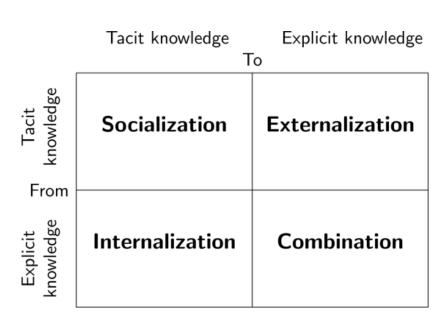
By definition not well handled by (formal) models

In the context of complex systems architecting

### With A3AO's, we Create Knowledge!

"...the key to knowledge creation lies in the mobilization and conversion of tacit knowledge."

"[knowledge] conversion is a "social" process **between** individuals and not confined within an individual."



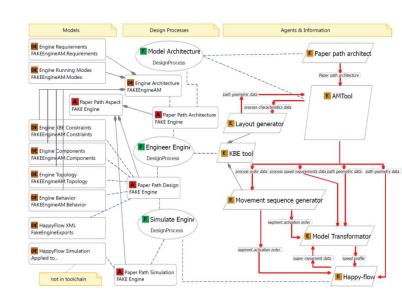
Nonaka, I. and H. Takeuchi (1995). <u>The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation, Oxford University Press.</u>

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#### History of A3AO's A3 Architecture Overviews for Systems-of-Systems R. Kooistra, M. Bonnema, J. Skowronek (UTwente ism. Thales) A3 Architecture Overviews - Focusing architectural knowledge to support evolution of complex systems D. Borches, M. Bonnema (UTwente ism. Philips Medical Systems) System Design Communications tool M. Melching (UTwente) Architecting Diesel Engine Control System using A3AO B. Wiulsrød, G. Muller (Buskerud University College ism. Kongsberg Maritime) 2010 2011 2012 2013 2014 2009 2015 A3AO consolidation experiences (TNO-ESI) A3AO over "The Cleaning Robot" Interactive A3 Architecture Overviews R. Kauw-A-Tjoe (UTwente) A3 Architectural Overview A3AO over "Balancing start-up and Stand-by time of a digital camera" Knowledge capture, cross-boundary communication and early validation with dynamic A3 Architectures P. van der Laar (ESI) V. Singh, G. Muller (Buskerud University College ism. Kongsberg)

## **Adjacent Research**

- Architecture Modelling
  - PhD work by Krijn Woestenenk, Defended on 6 March 2014
  - Modelling Architectures with a limited set of concepts
  - Allowing integration with existing tooling
  - May be used as formal backbone to A3AO's
- Systems Thinking
  - What are useful thinking patterns in systems design



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