Towards the Unification of Software and Systems Engineering

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SEMAT INITIATIVE
(SOFTWARE ENGINEERING METHOD AND THEORY)
RICHARD SOLEY, BERTRAND MEYER AND IVAR JACOBSON

• Software Engineering suffers from:
  – The prevalence of fads more typical of fashion industry than of an engineering discipline.
  – The lack of a sound, widely accepted theoretical basis.
  – The huge number of methods and method variants, with differences little understood and artificially magnified.
  – The lack of credible experimental evaluation and validation.
  – The split between industry practice and academic research.

www.semat.org
Re-Founding of Software Engineering

• SEMAT Supports a Process To:
  – Include a kernel of widely-agreed elements, extensible for specific uses
  – Addresses both technology and people issues
  – Are supported by industry, academia, researchers and users
  – Support extension in the face of changing requirements and technology

RESULTED IN THE OBJECT MANAGEMENT GROUP (OMG) STANDARD ON THE ESSENCE KERNEL
THE CAST

Ilia Bider  Barry Boehm  Lindsey Brodie
Francois Coallier  Tom Gilb
Rich Hilliard  Ivar Jacobson
Harold “Bud” Lawson  Anatoly Levenchuk
Svante Lidman  Paul E. McMahon
Moacyr de Mello  Barry Myburgh
Pan-Wei Ng  Don O’Neill
June Sung Park  Sarah Sheard
Ian Sommerville  Ian Spence

A MUST READ FOR ALL SOFTWARE AND SYSTEMS ENGINEERS!!!
Essence Kernel
A Framework for Thinking and Acting

Chapter 2 – Ivar Jacobson, et al.

The Competencies Needed
Defining Practices and Work Products

Chapter 15 – June Sung Park
Practice and Method Independent
SCRUM – Defined in Essence

Chapter 15 – June Sung Park
Architecture Description (ISO/IEC/IEEE 42010)

Concerns cross-cut familiar entities

Architecture Description meta model

Chapter 10 - Rich Hilliard
Guiding Principles for Essence

**Principle One**: Common Ground Acceptance By Broad Community Without Poor Compromises.

**Principle Two**: Natural Naming. In developing the names of alphas, states, and in arriving at the words for checklists we were constantly attuned to choosing words that fit naturally with software practitioners.

**Principle Three**: The checklists have intentional ambiguity. Intentional because their role is to stimulate conversations and not to be prescriptive.

**Principle Four**: Keeping the model small at all cost. We did not dictate the number of states, nor the number of checklists, but we were always conscious of keeping it small enough so that practitioners could learn the model in a relatively short period of time, and start using it and gaining value without extensive training.

**Additional for a Systems Engineering Essence**

**Principle Five**: Reuse As Much As Possible. Since Essence is an existing standard the development team must motivate what has to be changed relative to this standard. In the search for an Essence kernel for System Engineering work should start from the existing standard.

Chapter 16 – Ivar Jacobson, Bud Lawson, Paul McMahon
A Call for Action
(Taking our own Medicine)

• There is a clear **Opportunity**.
• The **Stakeholders** are all System and Software Engineers and their surrounding community of interests.
• The **Requirements** have started to be identified in this book but need to be further developed.
• The **System of Interest** is the Essence Kernel for Systems Engineering.
• The **Team** should be seeded with people that participated in developing the current Essence, experts and users of ISO/IEC/IEEE 15288 and 42010 as well as CMMI.
• The goals of the **Work** are certainly clear.
• The **Way of Working** must be established by the team.

Chapter 16 – Ivar Jacobson, Bud Lawson, Paul McMahon
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SEMINAR:
Events that Changed the IT World - Experiences and Reflections of a Computer and Systems Engineering Pioneer

HAROLD “BUD” LAWSON
- Inventor of the Pointer Variable and Recipient of the prestigious IEEE Charles Babbage Computer Pioneer Award as well as the INCOSE Systems Engineering Pioneer Award

Date and time: APRIL 4, 15.00 - 17.00
Venue: SAL A, KTH ELEKTRUM, KISTA

Free, but please sign up at http://simplesignup.se/event/90789

The seminar will be held in English