

MBSE Ecosystem



2017
annual **INCOSE**
International Workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Overview

What we seek in a
"Modern, better, Systems Engineering"
ecosystem

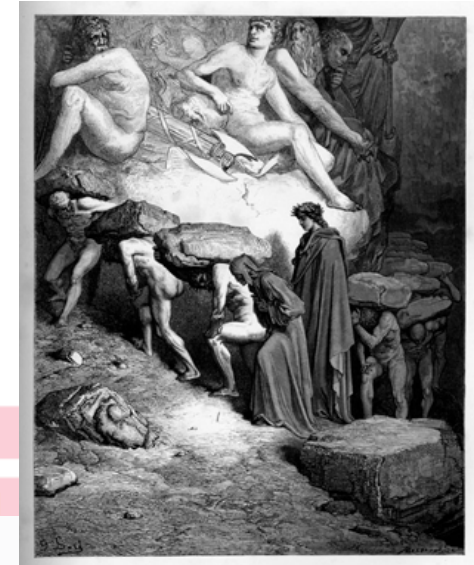
MLM Vision: Purgatory

We see:



2017
annual **INCOSE**
International Workshop
Los Angeles, CA, USA
January 28 - 31, 2017

“a community of Systems (and discipline-specific) Engineers struggling to persist and to reference the artifacts of engineering over the lifecycle of each enterprise;
a community of Stakeholders and Decision-makers forced to make decisions irrationally and intuitively due to a lack of access to the defensible arguments that both legacy documentary and innovative model-based systems engineering should provide.”



www.incose.org/iw2017

Doré, Gustave, 1868, Dante purgatorio

MLM Vision: Paradise

We see:

"a day when engineers use distributed systems that automatically persist artifacts in compact, modular form along with the provenance of each modification;

a day when engineers can reference the current and the historical representation of both individual artifacts and collections thereof along with the relational graphs between artifacts;

a day when stakeholders make rational decisions using the Systems Engineers' explicit sound dialectical and rhetorical arguments based on the provenance of content and change."

www.incose.org/iw2017

Doré, Gustave, 1868, Dante e Beatrice



2017
annual **INCOSÉ**
International Workshop
Los Angeles, CA, USA
October 30 - 31, 2017



Management?



2017
annual **INCOSE**
International Workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Paraphrasing Charlton and Adras, **management** is a process by which managers reflectively model and share a representation of their own processes to **enable themselves to perform** their eponymous information-processing activities of **monitoring, evaluating, predicting, and controlling** their enterprise and its systems. [@Charlton2003]

Furthermore, managers manage for particular purposes. Purpose-driven, they **acquire systems** to **address the needs** of the enterprise and they manage their stakeholders,

engineering lifecycle tools, and artifacts during the acquisition processes **to attain certain**

www.incose.org/iw2017
goals. [@VanZandt2016]

Collaboration?



2017
annual **INCOSE**
International workshop
Los Angeles, CA, USA
January 28 - 31, 2017

In “Mob Programming, A Whole Team Approach”, the authors describe, “mob programming”, an evolution of pair programming as, “all the brilliant minds working together on the same thing, at the same time, in the same space, and at the same computer” [@Zuill2016].

The TIMLMWG intends the term "Collaborative Engineering" to be a variation of this mob programming concept. Blending in Sun Microsystems' John Gage's marketing campaign that “the network is the computer” and allowing the “same space” to be the “same virtual space”, the www.incose.org/iw2017 TIMLMWG describes collaborative engineering as: ...

Collaboration



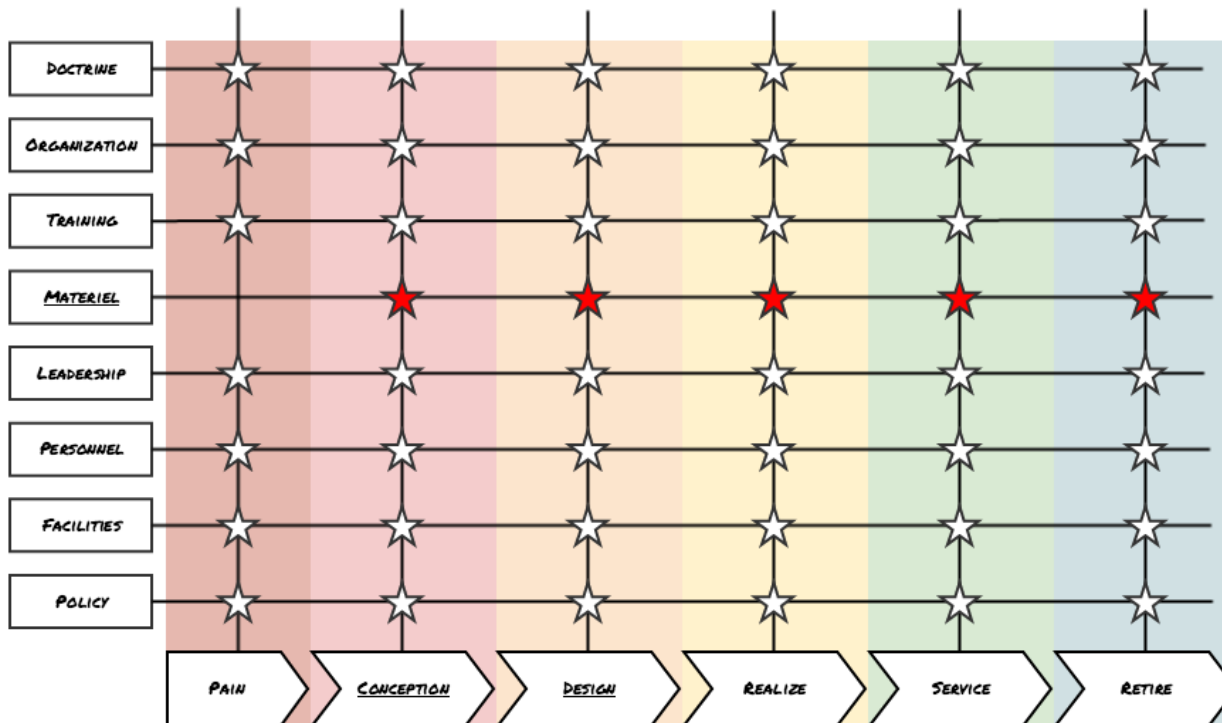
2017
annual **INCOSE**
International workshop
Los Angeles, CA, USA
January 28 - 31, 2017

"All the brilliant minds **working together** on the **same thing**, at the **same time**, in the **same virtual space**, and on the **same worldwide network**."

Lifecycle Management



2017
annual **INCOSE**
International Workshop
Los Angeles, CA, USA
January 28 - 31, 2017



- **DOCTRINE:**
THE CODIFICATION OF BELIEFS OR A BODY OF TEACHINGS OR INSTRUCTIONS, TAUGHT PRINCIPLES OR POSITIONS CONCERNING HOW THE ORGANIZATION OPERATES
- **ORGANIZATION:**
HOW THE ORGANIZATION FORMS INTO TEAMS, UNITS, DIVISIONS
- **TRAINING:**
HOW THE ORGANIZATION PREPARES TO PERFORM TACTICALLY
- **MATERIEL:**
SYSTEMS, TOOLS, RESOURCES, MODELS, FILES, ETC.
- **LEADERSHIP:**
HOW THE ORGANIZATION PREPARES ITS LEADERS
- **PERSONNEL:**
STAFF AND USERS
- **FACILITIES:**
REAL PROPERTY, INSTALLATIONS, AND INDUSTRIAL FACILITIES
- **POLICY:**
INTERNAL, JOINT VENTURE, NATIONAL, SUPRA-NATIONAL LAWS, TREATIES, CONVENTIONS, ETC.



2017
annual **INCOSE**
international workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Intention

Decisions

Provenance

Governance



2017
annual **INCOSE**
international workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Identity

Identification

Trust

Roles

Rights

Access-Control



2017
annual **INCOSE**
international workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Incrementalism

Partial Information

Open-World

Inferences

Implication

Fine-Grained State Updates

Diff / Merge



2017
annual **INCOSE**
international workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Ideation

Concept Maps

Business Vocabularies

Ontologies

Subjectivity

Curation



2017
annual **INCOSE**
international workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Illustration

Graphics

Diff / Merge

Presentation Documents

Verifications

Simulations

Argumentation



2017
annual **INCOSE**
international workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Interoperability

Integration

Composability

Export / Transform / Load

Sync

Semantic Translation

Grammar Evolution

Now we Need Some:



2017
annual **INCOSE**
international workshop
Los Angeles, CA, USA
January 28 - 31, 2017

Inspiration! Innovation!

Presenter Info



2017
annual **INCOSE**
International Workshop
Los Angeles, CA, USA
January 28 - 31, 2017

- Enterprise Architect, Sodius
- (ex) Chief Architect, No Magic
- (ex) UPDM Co-chair
- INCOSE Tools WG Co-chair
- OMG BPMN2 Certified
- OSLC Developer
- IBM Jazz CLM Integration Partner
- PTC Windchill Integration Partner
- Tasktop Sync Partner
- ~30 years Software and Systems Engineering
- 17 years Consulting
- Hobby Ontologist