Make a Product Line Engineering deployment for system engineering YOURS

IBM Symposium Systèmes & ALM
14 Septembre 2016 - IBM Client Center, Bois-Colombes

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Summary

- An history of variability modeling techniques as introduction
- Key principles
- What are real issues in deploying these techniques in system engineering?
- Roadmaps for PLE deployment (a vision for Model Based System Engineering)
  - Tooling
  - Techniques & methodology
  - Best practices & Shared concepts
An history of variability modeling techniques as introduction

- 1990: FODA
- 1998: FORM
- 2005: FM + Cardinality
- 2008?: OVM
- 2012: CVL
- 2015: VEL

Feature modeling
Orthogonality as paradigm
Software Engineering
System Engineering

ISO/IEC 26550
Software and systems engineering — Reference model for product line engineering and management
Key Principles

Variability Model

Variability elements

Product

Copy, Filtering, transformation, weaving,…

Variant

Project parameters

150% Model

Two levels of conceptualization

Evolutions

Impacts
What are real issues in deploying these techniques in system engineering?

- Capitalization rather than Variability
  - Process adaptation
  - Product organization mutation
- Knowledge oriented rather than Industrial oriented
  - Requirements
  - Analyses, Justifications and choices
  - …
- Terminological rather than Technological
  - Glossary
  - Examples
  - Workshops

Rather than in software engineering.
Roadmaps for PLE deployment
(a vision for Model Based System Engineering)

Methods & Techniques
- Project/Workspace Management
  - Change Management
  - Reuse/Reimpact Committees
- Modeling & Architecture Techniques to improve/streamline reuse capabilities
- Pre-sales configurator & Cost analyses

Practices & Concepts
- Model & Configuration Management Concepts
- Variability Management Concepts
- Advanced & Integrated Configuration Management Concepts

Tooling
- Version, Branch & Workspace management
- Derivation/Transformation management
- Advanced analysis tools and mechanisms

Business level

Must be powered

Must be consensual and diffused

Confidence needed

Maturity

Confidence needed

Must be powered

Confidence needed

Must be consensual and diffused

Confidence needed

Must be powered

Confidence needed

Must be consensual and diffused

Confidence needed

Must be powered

Confidence needed

Must be consensual and diffused

Confidence needed
Conclusion

- JAZZ Global Configurations and Pure::Variant bring the so long-awaited Confidence to allow an industrial PLE deployment in MBSE
- Build a long term workgroup to formalize the conceptual gap between tools and methods
  - Workshops
  - Community management
  - Training / communication materials
- Provide ad-hoc tools to bring the lean interface for end-users that integrates this conceptual gap
Localisation - Contact

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ADDITIONAL SLIDES

Concept models (Extract from DCNS workshops)
Model & Configuration Management Concepts