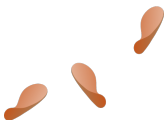
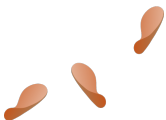


System Architecture Modelling with SysML and MagicDraw – 5 days Training agenda

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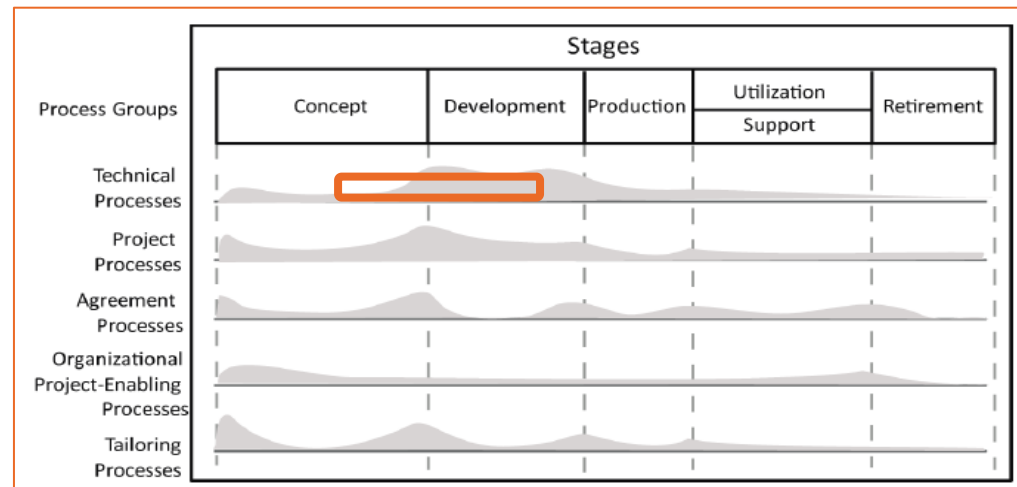


- **Understand modeling benefits for SE**
 - Feedback from industry
- **Learn practical modeling approach for SE**
 - Introduction to SysML notation for system architecture/design and understanding of links with other languages for detailed design and analysis models
 - Sample case to illustrate modeling concepts : Automated Teller Machine (ATM)
 - Case study with Magic Draw tool for practice



- **Target projects**

- All projects in concept or development stage concerning industrial systems (including safety critical avionic systems)



- **Target people**

- “System” teams and supporting specialists
 - Safety, Security
 - HW expert
 - SW architect
 - ...

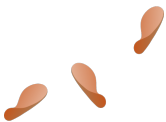


- **First day - Morning**
 - Introduction
 - Modelling benefits (captured from industry) , model and diagrams
 - Creation of first modelling project
 - Overview of MagicDraw
 - SysML overview: Foundations (UML), main diagrams

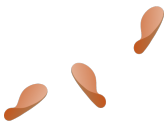
- **First day – Afternoon**
 - Scope of SysML in System Engineering development process
 - Overview of suggested modelling approach
 - Exercise: use of package diagram to structure model
 - Choice of case study and presentation : purpose, mission, objectives
 - Use cases and actors with Use case diagram



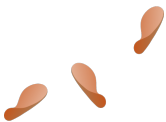
- **2nd day – Morning**
 - Detailed description of a use case
 - Definition and application of a stereotype to describe a use case
 - Capture of operational scenarios with sequence diagrams
 - Life cycle and operational states with State machine diagram
- **2nd day - Afternoon**
 - Domain modelling with block definition diagram
 - Capture of physical context with Internal Block Diagram
 - Creation of SysML requirements with Requirement diagram
 - Creation of requirement traceability links



- **3rd day – Morning**
 - Characterizing of interfaces with state machines and allocations
 - Special focus on HMI
 - System behaviour and scenarios of functions with activity diagram
 - Linking functions with operational states
- **3rd day – Afternoon**
 - Allocation of performance requirements on system functions
 - Identification of “system level” requirements + textual translation
 - Model based testing
 - Functional validation with simulation



- **4th day – Morning**
 - Initialization of physical architecture (reuse) with BDD and IBD
 - Refinement of functions and reuse
 - Design of logical architecture with activities, blocs and allocations
 - Description of constraints and equations with parametric diagram
- **4th day - Afternoon**
 - Comparison of architecture trades with parametric diagram
 - Complement of physical architecture: blocs and allocations
 - Identification of system elements requirements
 - Identification of structural and behavioural system element IF



- **5th day - Morning**
 - Model verification with OCL rules
 - Model versioning and baselines
 - Concurrent work on models
 - From system to software

- **5th day - Afternoon**
 - Document generation
 - From system to safety analysis
 - Incremental modelling strategies with benefits and efforts
 - Summary – remaining questions / answers

