The Challenges of Deploying MBSE Solutions

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Objective

Synthesize the key factors accelerating / hindering the deployment of MBSE solutions in a variety of domains, organizations and countries

How

• Present Thales experience: 10 years large-scale MBSE rollout
• Collect lessons learned from attendees on the use of MBSE in their organization:
  o Accelerators
  o Brakes
• Thales MBSE deployment experience – 20 min

• Lessons learned from participants – 30 min
  o 6 groups
  o 1 template
  o At least 2 x 3 factors

• Restitution: 40 min
  o 6 minutes per group
  o Merge with internal Thales survey
4 main phases

- **2003-2006 + 2006-2007**
  - Advanced UML Profiling
4 main phases

- **2003-2006 + 2006-2008**
  - Advanced UML Profiling

- **2008**
  - Arcadia method specification
  - The DSL Choice

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**Graphical DSML or UML/SysML Profile?**

<table>
<thead>
<tr>
<th>Graphical DSML</th>
<th>Profiling UML/SysML</th>
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<tbody>
<tr>
<td><strong>Pros</strong></td>
<td><strong>Cons</strong></td>
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<tr>
<td>Tight fit with exact domain and needs</td>
<td>Usually well-accepted in Thales by Software engineers, less by System engineers</td>
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<td>Short learning curve thanks to familiar terms and concepts</td>
<td>Language complexity</td>
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<td>Complete freedom in expressivity (language and representations)</td>
<td>Limited capabilities regarding diagram customizations</td>
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<td>Restraining the usage of a UML tool to selected scope of concepts is difficult</td>
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**Graphical DSML**
- Cost ... *until Sirius!*

**Profiling UML/SysML**
- Easier interoperability with standards
- Widely understood (or misunderstood)
### 4 main phases

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<td>Deployment acceleration</td>
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<td>Collaborative modelling</td>
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10 years of MBSE in Thales: A Quick Summary

4 main phases

- **2003-2006 + 2006-2008**
  - Advanced UML Profiling

- **2008**
  - Arcadia method specification
  - The DSL Choice

- **2009-2011**
  - Capella & Sirius development
  - Evangelization
  - Pilot projects

- **2011-2014**
  - Focus on deployment
  - Collaborative modelling

- **2014-**
  - Open sourcing
Deployment Actors

Top Management, Engineering Transformation Managers, Technical Directors, Programme Directors, etc.

CORPORATE

Method & Tool Owners

R&T Experts

Development & Support Teams

BUSINESS UNIT

SE Champions

Operational Engineers

Local Support & Development Teams

BUSINESS UNIT

MBSE Champions

Operational Engineers

Local Support & Development Teams

BUSINESS UNIT

MBSE Champions

Operational Engineers

Local Support & Development Teams
Deployment Big Picture

Method and Tool Definition

Group-funded training offer (tool, method, etc.)

Coaching

Well-established need capture and priority definition process

Low-TRL topics incubation

User clubs, Internal Conferences

Ad-hoc workshops

Tool Support & CCB

MBSE Champions

Coaching

Corporate

Operational Engineers

BUSINESS UNIT

Business Unit MBSE Champions

Operational Engineers

Local Support & Development Teams

Operational Engineers

Local Support & Development Teams
Issues

- Don’t know how and where to start
- Need definite guidelines and goals
- Need help to approach the tool and method
- Expect pairs feedback

Coaching benefits

- Simplified the modelling activity
- Allowed for a consistent model
- Helped mastering the tool to reach the goals quicker
Missions

- Define the objectives and rules (wiki)
- Monitor the evolution of the model
- Provide coaching
- Communicate with stakeholders
- Define the Tool environment to support the activity
- Request specific work from the corporate and BU teams (doc gen, tool add-ons)
- Evangelize
- Make the model become the reference of the Systems Engineering work
- Give new ideas and raise issues to Corporate
- Manage Tool roadmap
- Manage Model version configuration
- Coordinate interactions with other models
## 3 Factors helping the deployment of MBSE

<table>
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<tr>
<th>Classification</th>
<th>Weight</th>
<th>Factor</th>
<th>Comments</th>
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- **Weight**: How many contributors in the group acknowledge the factor

**Optional keywords**

Focus on deployment topics! (i.e. not on MBSE lacks or added-value)