

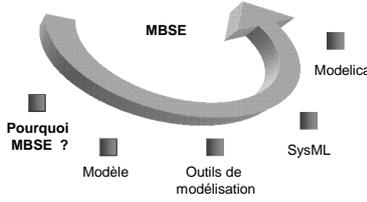
Ingénierie Système dirigée par les modèles



- ✓ Pourquoi MBSE ?
- ✓ Modèles
- ✓ Outils de modélisation
- ✓ SysML
- ✓ Modélisa

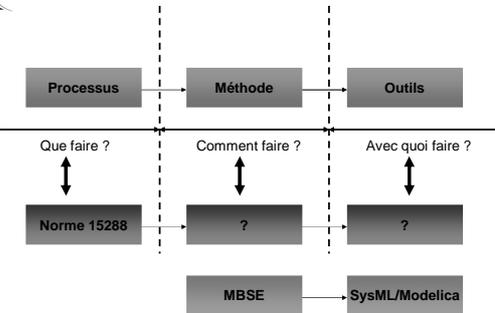
Philippe Meyne – philippe.meyne@ensta-paristech.fr Janvier 2012

Ingénierie Dirigées par les modèles

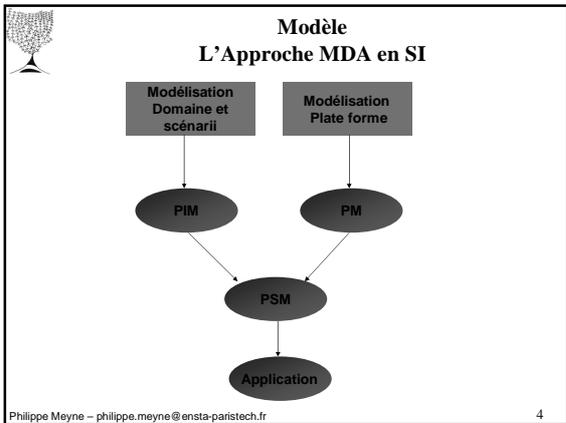


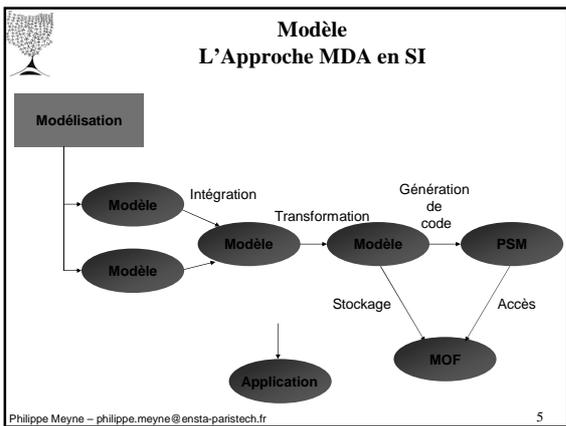
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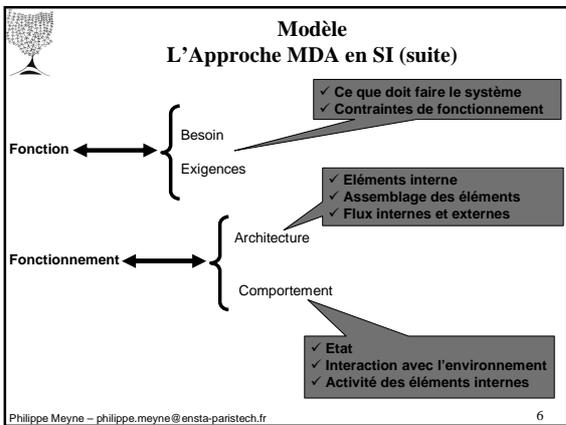
Pourquoi MBSE ?

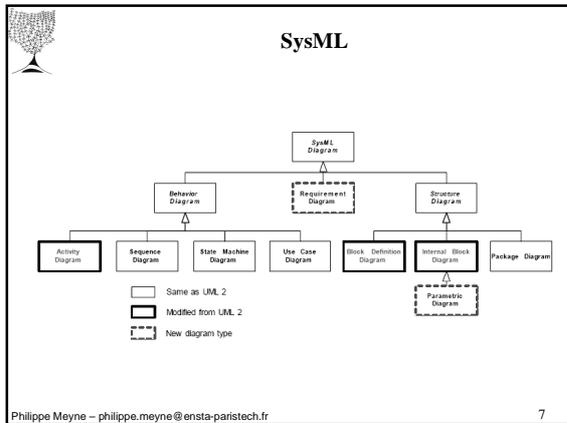


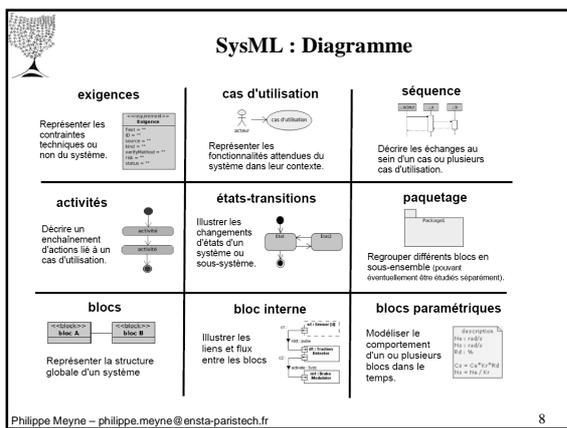
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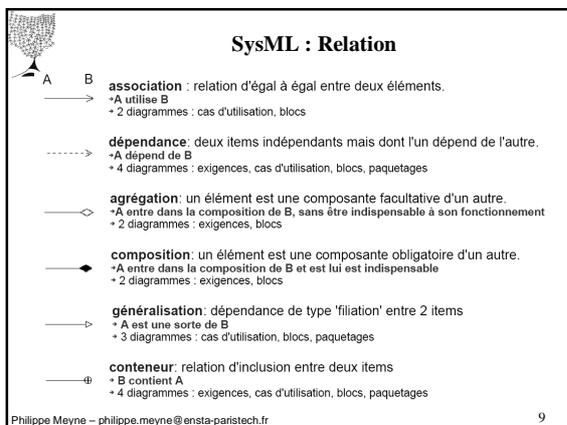


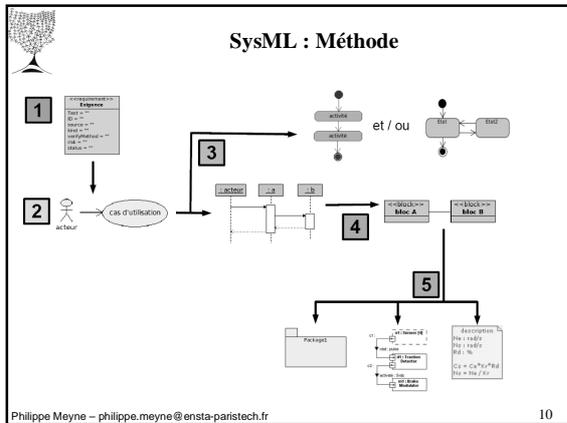


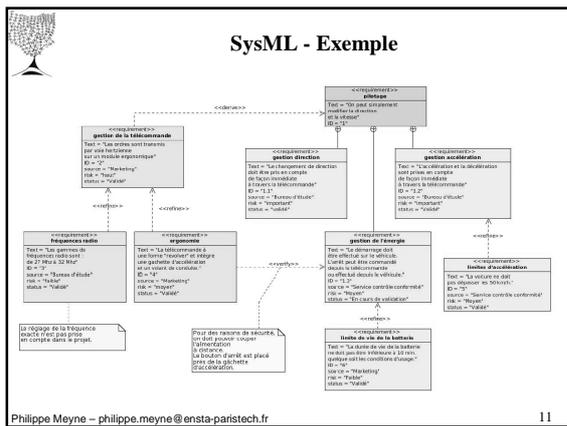


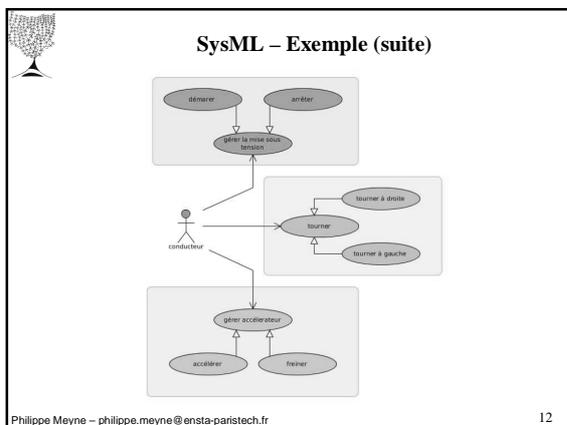


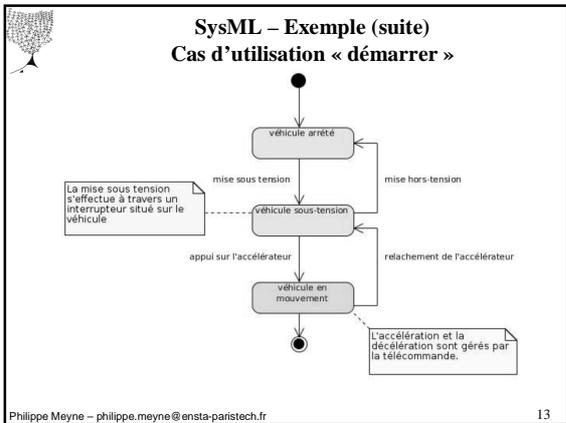


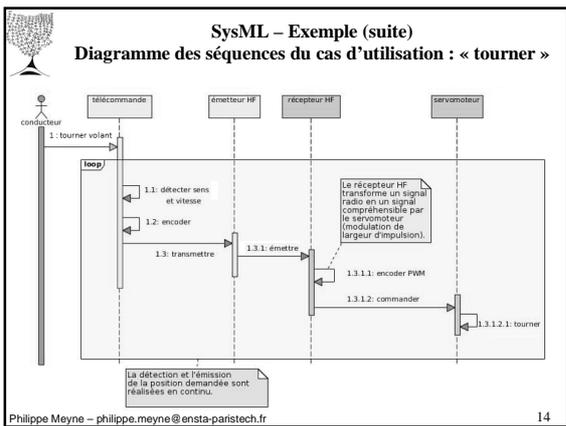


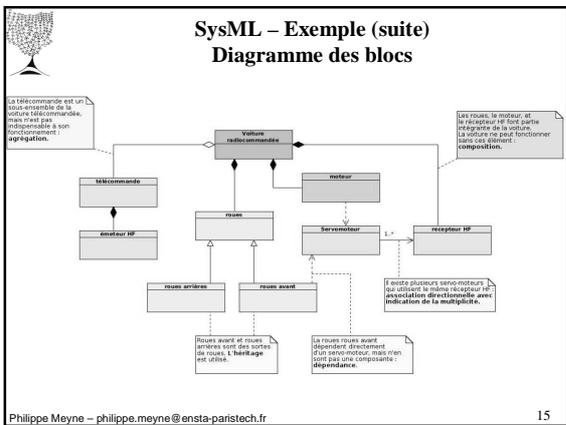










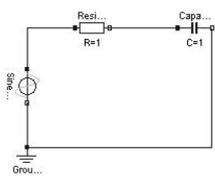


Outils de simulation

- Simulink
 - Produit Mathworks
 - Boîte à outils de Matlab
 - Quasi monopole
- SystemBuild
 - Initialement développé par Wind Rivers
 - Commercialisé par NI; intégration LabView
- Dymola (Modelica)
- Autres: plus spécialisés

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Modelica

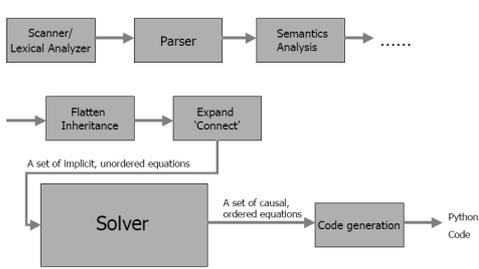


```

model circuit
  Resistor R(R=1);
  Capacitor C(C=0.01);
  VsourceAC AC;
  Ground G;
equation
  connect (AC.p, R.p);
  connect (R.n, C.p);
  connect (C.n, AC.n);
  connect (AC.n, G.p);
end circuit;
  
```

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Modelica (suite)



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Modelica – Exemple : Openmodelica

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Modelica – Exemple : Openmodelica (suite)

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Bibliographie

SysML :

- ✓ <http://www.omgsysml.org/>
- ✓ <http://www.omgwiki.org/MBSE/doku.php>
- ✓ <http://www.sysmltools.com/>
- ✓ <http://www.umi-sysml.org/sysml>
- ✓ **OMG Systems Modeling Language (OMG SysML™) – Novembre 2008**
- ✓ **SysML par l'exemple – Pascal Roques – Eyrolle 2009**
- ✓ **Introduction à UML / SysML – Olivier Servat – Avril 2011**

Modelica

- ✓ <https://modelica.org/>
- ✓ <http://www.openmodelica.org/>

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