The GEMOC Initiative
On the Globalization of Modeling Languages

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Globalization of Modeling Languages

- DSMLs are developed in an independent manner to meet the specific needs of domain experts,

- DSMLs should also have an associated framework that regulates interactions needed to support collaboration and work coordination across different system domains.

Benoit Combemale, Julien DeAntoni, Benoit Baudry, Robert B. France, Jean-Marc Jezequel, Jeff Gray, "*Globalizing Modeling Languages*," Computer, vol. 47, no. 6, pp. 68-71, June, 2014

Globalization of Modeling Languages

Supporting coordinated use of modeling languages leads to what we call the globalization of modeling languages, that is, the use of multiple modeling languages to support coordinated development of diverse aspects of a system.

Benoit Combemale, Julien DeAntoni, Benoit Baudry, Robert B. France, Jean-Marc Jezequel, Jeff Gray, "*Globalizing Modeling Languages*," Computer, vol. 47, no. 6, pp. 68-71, June, 2014

Globalization of Modeling Language

- Context: new emerging DSML in open world
    - ⇒ impossible *a priori* unification
    - ⇒ require *a posteriori* globalization

- Objective: socio-technical coordination to support interactions across different system aspects
    - ⇒ Language-based support for technical integration of multiples domains
    - ⇒ Language-based support for social translucence

Benoit Combemale, Julien DeAntoni, Benoit Baudry, Robert B. France, Jean-Marc Jezequel, Jeff Gray, "*Globalizing Modeling Languages*," Computer, vol. 47, no. 6, pp. 68-71, June, 2014

The GEMOC Initiative

An open and international initiative to

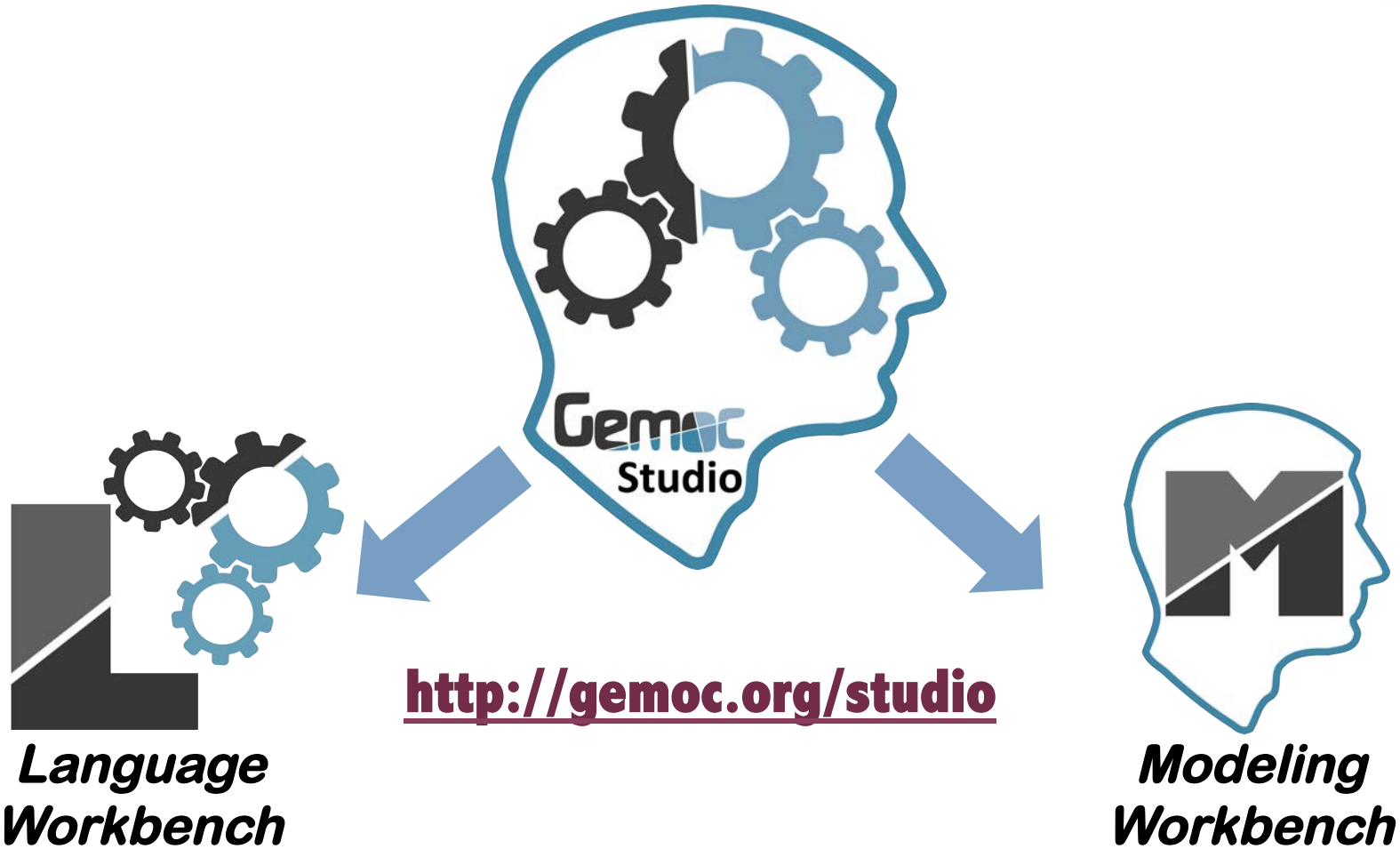- coordinate (between members)
- disseminate (on behalf the members)

worldwide R&D efforts
on the globalization of modeling languages

http://gemoc.org

@gemocinitiative

The GEMOC Studio

http://gemoc.org/studio

Language Workbench

Modeling Workbench

Design and compose your executable DSMLs

Edit, simulate and animate your heterogeneous models

The GEMOC Community

The GEMOC Initiative - B. Combemale (Inria & Univ. Rennes 1)

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GEMOC: The Projects

CNRS GDR GPL Specific Action 2011
- Survey of the techniques and tools to compose DSMLs and their respectives MoCs
- *Partners: IRISA (Triskell), I3S (Aoste)*
- *Cf. http://gemoc.org/as2011*

ANR INS GEMOC 2012-2016
- A Language Workbench for Heterogeneous Modeling and Analysis of Complex Software-Intensive Systems
- *Partners: Inria (DiverSE), I3S (Aoste), IRIT, ENSTA-Bretagne, Thales, Obeo*
- *Cf. http://gemoc.org/ins*

CNRS PICS MBSAR 2013-2015
- Travel funds for permanent staff and PhD students
- *Partners: IRISA (DiverSE), CSU*
- *Cf. http://gemoc.org/mbsar*

ICT COST Action MPM4CPS 2014-2018
- Promote the sharing of foundations, techniques, and tools and to provide educational resources, to both academia and industry
- *Cf. http://www.cost.eu/COST_Actions/ict/Actions/IC1404*

Concurrent execution of heterogeneous models (ANR Project, #ANR-12-INSE-0011)

DSML Specification and Coordination

- Abstract syntax (domain model)
- Concrete syntax (static and dynamic)
- Operational semantics
- Composition operators

Heterogeneous Modeling and Simulation/ Animation

- Graphical and textual modeling
- Concurrent execution
- Trace management
- Graphical animation

Breakthroughs:

- modular and explicit definition of the behavioral semantics of modeling languages, incl. concurrency [APSEC'12, SLE'12, SLE'13]
- dedicated meta-languages [DATE'15]
- explicit behavioral interface of modeling languages [GEMOC'13]
- integration of modeling languages for heterogeneous model coordination [Computer'14, Dagstuhl #14412]

Visit http://gemoc.org/ins

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The GEMOC Initiative
http://gemoc.org ~ @gemocinitiative
Advisory Board: Benoit Combemale, Robert B. France, Jeff Gray and Jean-Marc Jézéquel