1. Record Nr. UNISA996466443803316

Titolo	Globalizing Domain-Specific Languages [[electronic resource]] : International Dagstuhl Seminar, Dagstuhl Castle, Germany, October 5-10, 2014, Revised Papers / / edited by Benoit Combemale, Betty H.C. Cheng, Robert B. France, Jean-Marc Jézéquel, Bernhard Rumpe
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-26172-X
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (XV, 89 p. 17 illus.)
Collana	Programming and Software Engineering ; ; 9400
Disciplina	005.11
Soggetti	Software engineering Computer programming Programming languages (Electronic computers) Computer communication systems Computer logic Management information systems Computer science Software Engineering Programming Techniques Programming Languages, Compilers, Interpreters Computer Communication Networks Logics and Meanings of Programs Management of Computing and Information Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	Intro -- Foreword -- Dismantling the "Tower of Babel" -- Preface -- Organization -- Contents -- On the Globalization of Domain-Specific Languages -- 1 Introduction -- 2 Domain-Specific (Modeling) Languages -- 3 A Grand Challenge of the Globalization of DSLs: Looking Ahead -- 4 Motivating Scenarios for the Globalization of DSLs -- References -- Conceptual Model of the Globalization for Domain-Specific Languages -- 1 Towards a Conceptual Model of Globalization

-- 2 Basic Terms -- 3 DSL Integration -- 4 Language Components and Interfaces -- 5 Globalization -- 6 Language Relations -- 7 Composition -- 8 Language Coordination -- 9 Language Integration -- 10 Towards the Conceptualisation of the Globalization of DSLs -- References -- Motivating Use Cases for the Globalization of DSLs -- 1 Introduction -- 2 Command and Control Wind Tunnel (C2WT) -- 2.1 Application: Evaluation of Command and Control Architectures in Mission Scenarios -- 2.2 Technical Challenges -- 2.3 Model Integration Challenge -- 2.4 A Model Integration Language Solution for C2WT -- 3 Smart Emergency Response System (SERS) -- 3.1 SERS as a Cyber-Physical System -- 3.2 SERS Design -- 3.3 A Smart Intersection -- 3.4 Formalism Integration -- 4 Research Challenges -- 4.1 Software Engineering Challenges Related to the Formal Foundation of Languages -- 4.2 Challenges Related to the (Re-) Construction of Domain-Specific Concepts -- 4.3 Thoughts on Possible Future Directions to Pursue -- References -- Globalized Domain Specific Language Engineering -- 1 Problem Statement -- 2 Motivating Examples -- 2.1 Complementary City Maps -- 2.2 House Building -- 2.3 The A380 Wiring Issue -- 2.4 Tool Bug Fixes -- 3 Basic Notions of Language Integration -- 3.1 Correspondences by Level -- 3.2 Language Relationships -- 3.3 Frames of Reference -- 4 Approaches to Language Composition. 5 Dimensions for Language and Tool Integration -- 5.1 Referencing/Explicit Frames of Reference (Based on the Same Infrastructure/Meta Meta Model) -- 5.2 Language Embedding -- 5.3 Language Extension (Adding New Language Constructs) -- 5.4 Externally Defined Correspondences (with Associated Constraints and Consistency Checks) -- 5.5 All in One Tool vs. Different Tools -- 5.6 Process Aspects: Maybe We Should Stick with the Same Tool -- 5.7 Tool/IDE Integration (Without Language Integration) -- 5.8 Interactivity: Realtime Sync, File Exchange, Shared DB -- 5.9 Collaborative Modeling -- 6 Language Variants (i.e., Parallel Globalization) -- 6.1 Dialects vs. Related Languages -- 6.2 Variability Management -- 6.3 Challenges in Languages Variability Management -- 7 Language Evolution, Refactoring, Retirement (i.e., Sequential Globalization) -- References -- Domain Globalization: Using Languages to Support Technical and Social Coordination -- 1 Context -- 2 State of Art -- 2.1 Tool Composition Frameworks -- 2.2 Model Composition Frameworks -- 2.3 Language Composition Frameworks -- 3 Open Challenges -- 3.1 Composition of Multiple DSLs -- 3.2 Collaboration in a Globalized Environment -- 4 Conclusion -- References -- Author Index.

Sommario/riassunto

The development of modern complex software-intensive systems often involves the use of multiple DSMLs that capture different system aspects. Supporting coordinated use of DSMLs 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. In this book, a number of articles describe the vision and the way globalized DSMLs currently assist integrated DSML support teams working on systems that span many domains and concerns to determine how their work on a particular aspect influences work on other aspects. Globalized DSMLs offer support for communicating relevant information, and for coordinating development activities and associated technologies within and across teams, in addition to providing support for imposing control over development artifacts produced by multiple teams. DSMLs can be used to support socio-technical coordination by providing the means for stakeholders to bridge the gap between how they perceive a problem and its solution, and the programming technologies used to implement a solution. They also support coordination of work across multiple

teams. DSMLs developed in an independent manner to meet the specific needs of domain experts have an associated framework that regulates interactions needed to support collaboration and work coordination across different system domains. The articles in the book describe how multiple heterogeneous modeling languages (or DSMLs) can be related to determine how different aspects of a system influence each other. The book includes a research roadmap that broadens the current DSML research focus beyond the development of independent DSMLs to one that provides support for globalized DSMLs.