

## GUEST EDITORIAL PREFACE

# Special Issue on Advanced Information Systems Engineering Workshops: 2011, London, UK

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## ABSTRACT

*This Special Issue on Advanced Information Systems Engineering Workshops follows the set of Workshops selected for the 23<sup>th</sup> International Conference on Advanced Information Systems Engineering (CAiSE 2011) which was held in London, UK, June 2011. Following the quality, relevance and reputation of the working context and the rigour of the Workshops selection process, this special issue includes a valuable material: three papers were selected among the best papers of the eleven selected CAiSE Workshops. The papers in this special issue include extensively modified and blind reviewed versions of the three papers that were initially presented at the corresponding workshops, and they conform a new contribution to Information Systems Engineering community. The selected papers focus on conceptualization of modelling methods, information systems security engineering, and business/IT alignment and interoperability. This Special Issue is then targeted at both researchers and practitioners in the Information Systems community with a focus on those three relevant dimensions.*

## INTRODUCTION

In the information era, Information Systems (IS) Engineering is a working domain where more and more theoretical and practical activity is continuously being developed with the intention of improving the quality of the process of constructing and managing effectively and efficiently information. The wide acceptance of IS and their usage in practically every aspect of our modern life require to use the most adequate methods, models and techniques, and require to

know those best practices to assess correctness in the IS design and management processes.

Among the aspects to be considered for this purpose, this special issue is devoted to three relevant drivers, that are selected for their importance to face the research question of what “drives” the wheel when it turns to reach a IS that represent the real word and that adapt to the changing nature of information and to the unavoidable continuous improvement requirements. These three selected drivers are:

i) conceptualization of modelling methods, ii) business/IT alignment and interoperability, and iii) information systems security engineering.

The set of eleven selected workshops for the edition of CAiSE 2011 provided a very interesting spectrum of IS topics. These high quality workshops were:

1. Conceptualization of Modelling Methods (CMM)
2. Domain Specific Engineering (DsE@ CAiSE'2011)
3. 1st Workshop on Integration of IS Engineering Tools (INISSET 2011)
4. Ontology-Driven Information Systems Engineering Workshop (ODISE)
5. 5th Ontology, Models, Conceptualization and Epistemology in Social, Artificial and Natural Systems Workshop (ONTOSE)
6. International Workshop on Semantic Search (SSW)
7. 6th International Workshop on BUSIness/IT ALignment and Interoperability (BUSITAL 2011)
8. 9th International Workshop on System/ Software Architectures (IWSSA)
9. Workshop on Governance, Risk and Compliance: Applications in Information Systems (GRCIS)
10. The First International Workshop on Information Systems Security Engineering (WISSE'11)
11. 7th Enterprise & Organizational Modeling And Simulation (EOMAS)
2. "Validation of IS Security Policies Featuring Authorisation Constraints"- by Yves Ledru, Akram Idani, Jeremy Milhau, Nafees Qamar, Régine Laleau, Jean-Luc Richier, and Mohamed Amine Labiadh
3. "On Developing Hybrid Modeling Methods using Metamodeling Platforms: A Case of Physical Devices DSML based on ADOxx"- by Srdjan Zivkovic, Krzysztof Miksa, and Harald Kühn

## **BUSINESS/IT ALIGNMENT BETWEEN BUSINESS MODEL AND ENTERPRISE ARCHITECTURE.**

Linking with a concrete conceptual framework business models and enterprise architecture is a problems where different audiences are involved –those of BPM (Business Process Modeling), BI (Business Intelligence), EM (Enterprise Modeling), CM (Conceptual Modeling), ISE (IS Engineering),...- Solutions that clearly specifies how a business model aligns with an enterprise architecture are strongly required to assess that an enterprise is compliant with a given Business Model.

The paper by Boris Fritscher and Yves Pigneur, "*A Visual Approach to Business IT Alignment between Business Model and Enterprise Architecture*", addresses the problem by facing the interesting research question of whether a visual intermediary model support IT alignment by helping to transition between a business model and an enterprise architecture. This "visual" feature is an original aspect of the work. As a solution, the authors put forward an intermediary model that takes components of both paradigms in order to have a common ground. This provides a relevant bridge between these two domains. Connecting business models with enterprise architecture is an open issue, that the authors directly face in their work with a concrete proposal.

Through a use case, the authors show how this model can connect to the business model vision as well as to the enterprise architecture.

After a first selection process, from the set of best papers and the subsequent reviewing process, this special issue selected three papers devoted to the three drivers commented before. These papers –corresponding resp. to the BUSITAL, WISSE and CMM Workshops- are:

1. "A Visual Approach to Business IT Alignment between Business Model and Enterprise Architecture"- by Boris Fritscher and Yves Pigneur

As they construct their intermediary model using formalism from both domains, the work provides a common basis to start a discussion with parties from both paradigms. This is a concrete, valuable result. The proposed model is agnostic regarding the direction of study: it can be used from a top-down view, moving from a business model strategy to an architecture supporting it, or it can be used in a bottom-up view, starting from the enterprise architecture and extracting the business model it can support. Offering this mixed view, containing both a business-focused and an IT-focused view, the authors go one step beyond in the process of helping to align with a precise conceptual background business strategies and technical IT infrastructures.

## VALIDATION OF IS SECURITY POLICIES

The second driver selected for this Special Issue concerns the validation of security policies, a problem that in the IS domain is being studied for a long time, and that needs effective approaches and reliable solutions. A topic that deserves further attention in this context is the validation of security policies that involve authorization constraints. These constraints associate functional and security information to grant access to the protected resources. Subsequently, tools that can take into account both functional and security aspects in their analyses are required.

In line with this direction, the paper by Yves Ledru, Akram Idani, Jeremy Milhau, Nafees Qamar, Régine Laleau, Jean-Luc Richier, and Mohamed Amine Labiadh, -“Validation of IS Security Policies Featuring Authorisation Constraints”- addresses the validation of security policies which include authorisation constraints referring to the functional model of an information system. Authors highlight that currently available tools do not take sufficiently into account the functional description of the application and its impact on authorisation constraints and dynamic aspects of security. They then suggest translating both security and functional models into a formal language, such

as B, whose analysis and animation tools will help validate a larger set of security scenarios. The work is completed with the description of how various kinds of constraints can be expressed and animated in this context, and with the presentation of a basic tool support which performs the proposed translation. A case study is reported, that includes animation and testing techniques used to validate the security policy of a medical emergency information system, an attractive teaching application case.

## DEVELOPING HYBRID MODELING METHODS USING METAMODELING PLATFORMS

Combining Domain Specific Modeling Languages (DSML) with ontology languages constitutes a challenge that can facilitate the design of platforms where ontology reasoning technologies are used to enhance the modeling approach.

With the intention of 1) giving support for both linguistic and ontological instantiation 2) and giving support for semantically-rich constraints definition, the paper Srdjan Zivkovic, Krzysztof Miksa, and Harald Kühn - by “*On Developing Hybrid Modeling Methods using Metamodeling Platforms: A Case of Physical Devices DSML based on ADOxx*”- faces this challenge. It introduces what they call a hybrid modeling method: a dedicated DSML is used to model the structure of physical devices, whereas the ontology language OWL2 is used to specify configuration-related constraints. The outcome of the work is a novel semantic modeling tool prototype that fulfills the initial requirement: to leverage ontology reasoning technology to enhance the modeling.

The approach is applied in the context of a concrete domain, what makes the paper more attractive and applicable: the domain of network management and operation support systems (OSS), where the maintenance of thousands of physical network devices is a complex, error-prone and time-consuming task. Consistent device configuration and error identification

among plethora of network device types is impossible without tool support.

The outcome of the implementation, the prototype modeling tool, features a hybrid DSML for semantically rich modeling of physical devices, a set of mechanisms for consistency checking of models, and a modeling procedure to guide users through the network configuration process. By supporting the hybrid DSML approach, the authors argue to gain the languages' best of both worlds (a simple domain PDDSL –the DML- and an expressive OWL). The outcome is to integrate two technical spaces (TS) (modeling TS and ontology TS) and provided new services for consistency checking and guidance. With the reported solution, the goal is to help method developers to experience the potential and challenges of domain-specific method design and realization based on metamodeling platforms and ontology technology

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## ACKNOWLEDGMENT

CAiSE is traditionally hosting a set of very interesting workshops, on different topics that are considered year after year relevant for the Information Systems engineering audience. This fact and the natural evolution that is associated to it, generates a fruitful interaction where the essentials of this domain find a forum for continuous discussion and fruitful interaction.

We wish to thank all the members of the CAiSE Steering Committee, and we want to extend our gratitude to all the reviews of the Program Committee that helps us in the reviewing process of this Special Issue.

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