

Subject-oriented Modelling for Smart Systems

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ABSTRACT OF KEYNOTE

In this presentation we will explore the role of conceptual modelling, and subject-oriented modelling in particular, in the context of smart systems, including socio-digital-physical systems.

We start by briefly defining our understanding of smart systems, in terms of underlying concepts from general systems theory.

This will allow us to better identify the role, and importance, of conceptual models (including business process models) in the design, and operation, of smart systems.

With this as a background, we then zoom on the need to create semantically rich conceptual models using a subject-oriented modelling approach.

In doing so, we will also briefly revisit the rich history of natural language based modelling approaches, in particular fact-oriented approaches, as represented by methods such as ORM, KISS and DEMO.

SHORT BIO

Prof.dr. Henderik A. Proper, Erik to friends, is Head of Academic Affairs of at the [Luxembourg Institute of Science and Technology \(LIST\)](#) in Luxembourg, and senior research manager within its [IT for Innovative Services \(ITIS\) department](#). He also holds a chair in Information Systems at the [Radboud University Nijmegen](#). Furthermore, he chairs the [Enterprise Engineering research network](#) involving researchers from a.o. these two institutions.

Erik has a mixed background, covering a variety of roles in both academia and industry. His professional passion is the further development of the field of enterprise engineering and enterprise architecture. His long experience in teaching and coaching a wide variety of people enables him to involve and engage others in this development. He has co-authored several journal papers, conference publications and books. His main research interests include enterprise architecture, enterprise engineering, enterprise modelling, systems theory, business/IT alignment and conceptual modelling.

Erik received his Master's degree from the University of Nijmegen, The Netherlands in May 1990, and received his PhD (with distinction) from the same University in April 1994. In his Doctoral thesis he developed a theory for conceptual modelling of evolving application domains, yielding a formal specification of evolving information systems.

After receiving his PhD, Erik became a senior research fellow at the Computer Science Department of the University of Queensland, Brisbane, Australia. During that period he also conducted research in the Asymetrix Research Lab at that University for Asymetrix Corp, Seattle, Washington. In 1995 he became a lecturer at the School of Information Systems from the Queensland University of Technology, Brisbane, Australia. During this period he was also seconded as a senior researcher to the Distributed Systems Technology Centre (DSTC), a Cooperative Research Centre funded by the Australian government.

From 1997 to 2001, Erik worked in industry. First as a consultant at Origin, Amsterdam, The Netherlands, and later as a research consultant and principal scientist at the Ordina Institute for Research and Innovation, Gouda, The Netherlands.

In June 2001, Erik returned to academia, where he became an adjunct Professor at the Radboud University Nijmegen, on the subject of "Architecture-Driven Information Systems Engineering". In September 2002, Erik obtained a full-time Professorship position at the Radboud University Nijmegen.

In January of 2008, he went back to combining industry and academia, by combining his Professorship with consulting and innovation at Capgemini, with the aim of more tightly combining his theoretical and practical work. Finally, in May 2010 Erik moved to the Public Research Centre – Henri Tudor, Luxembourg, where he now leads the Enterprise Engineering team.