



*Detection and Prediction of Errors in  
EPC Business Process Models*

**Jan Mendling**

*j.mendling@qut.edu.au*

**PhD/Postdoctoral Research Fellow  
BPM Cluster, Faculty of IT, QUT  
Lv. 5, 126 Margaret Street**

**THU, 9 August 2007, 10.00-11.00am  
QUT, 126 Margaret Street, Level 4, Meeting room 408-409**

**ABSTRACT**

Business process modeling plays an important role in the management of business processes. As valuable design artifacts, business process models are subject to quality considerations. In this context, the absence of formal errors, such as deadlocks, is of paramount importance for the subsequent implementation of the process. This talk presents the results of my doctoral thesis that provides a fourfold contribution to the understanding of such errors in business process models with a particular focus on Event-driven Process Chains (EPCs), a business process modeling language that is frequently used in practice. Firstly, I formalize the operational semantics of EPCs in a novel way so that matching OR-splits and OR-joins never deadlock. Secondly, and based on these semantics, we introduce a soundness criterion for EPCs that offers a precise identification of those models which have errors. For the verification of this soundness notion in practice, I present two analysis tools, a ProM plug-in for a verification based on the reachability graph, and a batch program called xoEPC for a verification based on reduction rules. Thirdly, I define a set of business process model metrics that are supposed to serve as predictors for error probability of an individual EPC. Fourthly, I use statistical methods and a sample of about 2000 EPCs from practice to derive a regression function for the prediction of error probability. This function is validated against a holdout set of 113 EPCs from textbooks showing that 90% of the EPCs could be classified correctly as having errors or not. These results emphasize the importance of quality issues in business process modeling, and provides the foundations for innovations in tool support.

**SPEAKER**

Dr Jan Mendling is a Postdoctoral Research Fellow at the Business Process Management (BPM) Group at Queensland University of Technology, Brisbane, Australia. Jan is the author of more than 50 refereed papers and editor of several academic workshop proceedings. He is co-organizer of the XML4BPM workshop series and regular member of programme committees for several international workshops and conferences on BPM-related topics. Dr Mendling is co-author of the EPC Markup Language (EPML), an XML-based language for exchanging EPC process models between heterogeneous modelling tools. He has consulting experiences, in particular in the banking, utility, and tourism industry.