Stevens/QUT study explains how organizations document their business processes

Study finds that business process modelers use just 20% of business process modeling notation

HOBOKEN, N.J. -- Researchers from Stevens Institute of Technology and Queensland University of Technology have explains how organizations document their business processes using a visual notation. The study found that although modeling language offers many symbols to construct detailed process descriptions, only 20% of them are regularly used.

"Organizations need to document their business processes for various reasons: To document compliance to legal regulations, to document new information technology, or to improve the flow of work in order to increase performance. The Business Process Modeling Notation (BPMN) is a rich and increasingly popular standard set of symbols for the visual representation of business processes. It offers organizations the ability to represent the details of business processes, but we know very little about how much of this notation is actually used in practice," said Dr. Michael zur Muehlen, Assistant Professor in the Wesley J. Howe School of Technology Management.

In collaboration with Dr. Jan Recker from Queensland University of Technology, zur Muehlen collected a large sample of BPMN models analyzed the use of modeling techniques. Their results show that only a fraction of the standard notation is commonly used. The remaining symbols follow a long-tail distribution, very similar to how natural language is used:

- Only five symbols (normal flow, task, end event, start event and pool) occurred in more than 50% of the models.
- Seven additional elements occurred in at least 25% of the models -- gateways (parallel and two variants of XOR), lane, message flow and start messages.
- Seventeen elements were identified in less than three models. Seven elements occurred in just two models, five in just one model, and five were not used in any of the models analyzed in this study.

The core of BPMN constructs used is similar to traditional flowcharting notations, while the more advanced symbols, like specification of exceptions, time constraints and similar details went largely unused. The study also found that to date, BPMN has not emerged as a major standard, and that different modelers tend to construct their vocabulary based on the process they want to document. Many organizations are at a very early stage of documenting their processes.

Recker illustrates the implications of this study: "Organizations use BPMN in a manner similar to organizations that existed a quarter century ago -- they want to describe their operations in simple, graphical terms. The process modeling efforts in most organizations simply have not advanced or mature enough to start specifying service-enable workflows with exception behavior, which will be part of BPMN's future improvements."

The first publication of their results sparked a wave of comments from analysts, software vendors, and standards makers alike. "The Great BPMN Debate." While many commentators pointed out the need for a simple, light documentation technique, some pointed out that BPMN should be used more fully to realize its potential benefit.

"We welcome the fact that our findings have generated some discussion around the proper use of BPMN," says zur Muehlen. "There is tremendous potential for better Business/IT alignment based on accurate process descriptions. However, people hold the crossover point between the process documentation used by a business analyst and the process specification used by software developers. This is the focus of our ongoing research."

As part of the research project, "Modeling in the Large," researchers from Queensland University of Technology, Stevens Institute of Technology and University of Melbourne are studying the issues surrounding the identification, documentation and implementation of business processes in large-scale environments, such as multinational corporations, federated projects and enterprise-wide projects.
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