# DEVELOPMENT AND RESEARCH OF SOFTWARE COMPONENTS FOR BUSINESS PROCESS MODEL CORRECTNESS ANALYSIS

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This research solves the relevant scientific and engineering problem of improving the compliance of business process diagrams with modelling rules by developing an appropriate software solution.

Improving the conformance of business process diagrams to modelling standards is extremely important as it promotes uniformity and consistency in the representation of business processes, making them easier to understand, analyze and communicate.

Adherence to business process modelling standards improves clarity, minimizes ambiguity and allows for more effective collaboration between stakeholders, leading to better decision-making, process optimization and overall operational efficiency.

The object of this study is the process of business process model correctness analysis. The subject of this study includes the software components for business process model correctness analysis.

The research aims at the improvement of business process models correctness by analyzing their structure and detecting anti-patterns using the developed software components.

The set of analyzed BPMN models was taken from the public GitHub repository [1], which contains a large number of business process models for research and experimentation. These models belong to different subject areas and describe various business processes, such as shipping goods, credit scoring, insurance claims, and self-service restaurants. The overall accuracy is ≈ 75%, which is a relatively high.

The analysis page of the BPMN model of a software solution for assessing the compliance of business process diagrams with modelling rules is shown in Fig. 1.

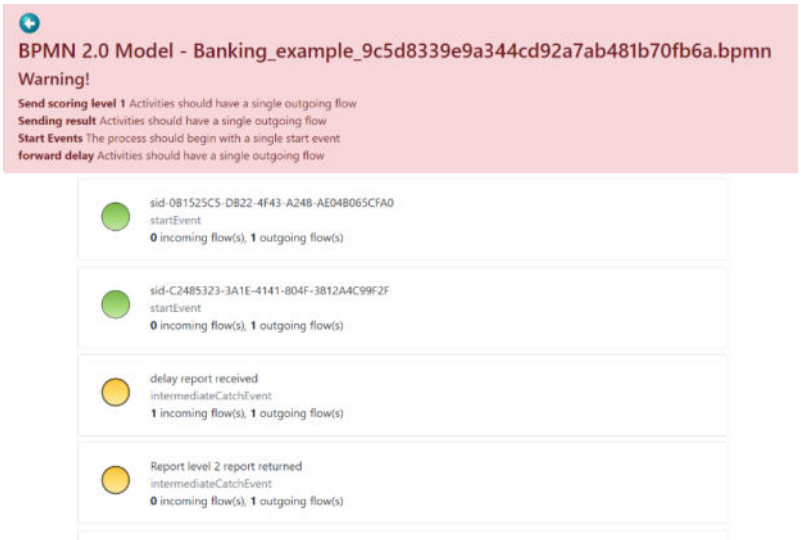


Fig. 1. – BPMN model analysis web page in a software solution

**References:**

1. BPMN for research, https://github.com/camunda/bpmn-for-research, 17.04.2025.