

INTELLIGENT SOLUTION FOR BUSINESS PROCESS MODEL QUALITY AND ERRABILITY ANALYSIS

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This study considers the problem of business process models quality assurance. Nowadays, BPMN (Business Process Model and Notation) is a standard notation for business process modeling, offering the understandable syntax and semantics to bridge the gap between business and technical stakeholders in the information systems design and development [1]. Therefore, created BPMN diagrams should be of high quality to minimize errors and provide efficient blueprints for the workflow description, analysis, improvement, and automation.

The proposed procedure of BPMN models analysis is demonstrated in Fig. 1.

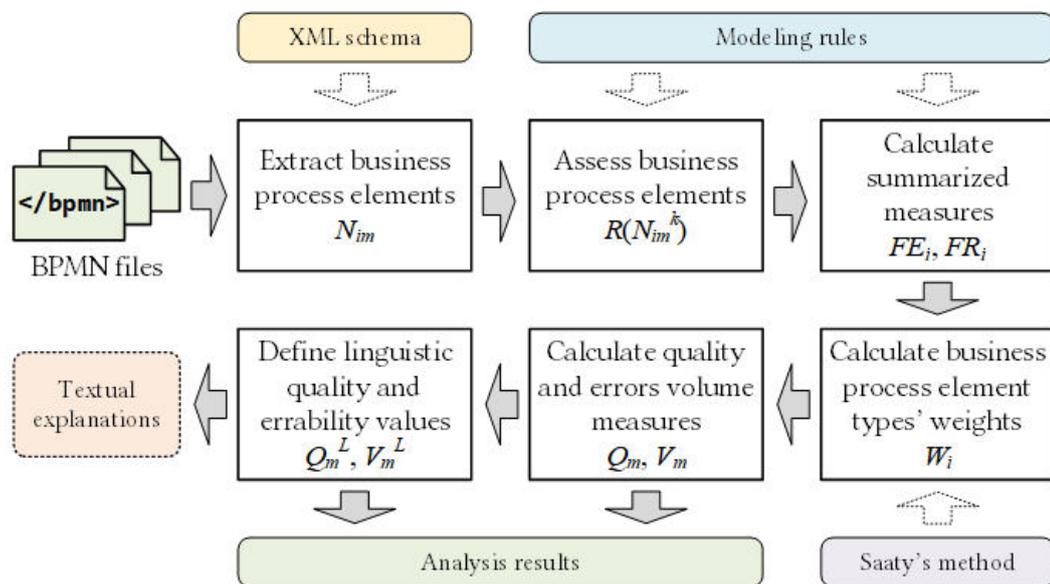


Fig. 1. – Proposed BPMN models analysis procedure

The proposed approach (Fig. 1) assumes extraction of business process elements and their features from BPMN files, processed as XML documents. Then each element is assessed toward modeling rules [2], summarized measures of fault elements (FE) and the overall fault rate are calculated (FR), Saaty's pairwise comparison is utilized to estimate the weights of different business process element types, and the quality and error volume (i.e. "errability") estimates are calculated. The linguistic values for both quality and errability measures are defined using the Harrington scale to analyze the obtained assessments and make decisions on BPMN models quality.

References:

1. A. Correia, F. Brito e Abreu, Enhancing the correctness of BPMN models, In: Information Resources Management Association (Ed.), Hershey: IGI Global, 2020, pp. 373–394. doi:110.4018/978-1-5225-9615-8.ch017.
2. O. Yanholenko, A. Kopp, D. Orlovskyi, U. Litvinova, Towards algorithmic and software solution for business process model analysis and correction, in: MoDaST-2024: 6th International Workshop on Modern Data Science Technologies, Lviv-Shatsk, Ukraine, 2024, pp. 86-103. URL: <https://ceur-ws.org/Vol-3723/paper6.pdf>.