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# Model Accuracy in Enterprise Architecture: Validation and Verification of Business Process via Petri Nets and WoPeD

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## Abstract

Enterprise Architecture (EA) is a strategic approach aimed at aligning business functions and information systems/information technology within an organization. Despite its significant potential for improving business process efficiency, EA implementation often faces various challenges, including the failure of integration with Business Process Management (BPM). BPM, as a crucial component of Business Architecture, often encounters obstacles, particularly in the business process modeling phase. Standard modeling languages such as BPMN are commonly used, but do not provide explicit mechanisms for model validity analysis or verification. As a solution, a Petri Nets-based approach was introduced because it provides a more formal method for validating and verifying business processes through analysis of model notation and behavior (soundness). In this

study, validation and verification were conducted using the WoPeD tool, with the object of study being the EA design of a regional company engaged in natural resource management, particularly in logistics and general functions. The results obtained indicate that the validated and verified business process model can support the improvement of the overall success of Business Architecture design.

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## Author keywords

BPMN; Business Architecture; business process; Enterprise Architecture; Petri Nets; validation; verification

## Indexed keywords

### Engineering controlled terms

Administrative data processing; Architecture; Enterprise resource management; Formal methods; Information management; Information systems; Information use; Modeling languages; Natural resources management; Process engineering; Systems analysis

### Engineering uncontrolled terms

Architecture designs; BPMN; Business architecture; Business Process; Business process modeling; Enterprise Architecture; Modeling accuracy; Process management; Validation; Validation and verification

### Engineering main heading

Petri nets; Verification

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### Abstract