

Abstract

Modeling business processes is one of the popular methods to improve quality and efficiency in the organization. Business Process Modeling Notation (BPMN) is a standard business process modeling on the initial phase of system development. BPMN has a variety of advantages, including the model easily understood by the user, and can minimize the gap between the design and implementation of the system. Besides its advantages, BPMN has some deficiencies in modeling business processes, among which the ambiguity in the standard specifications that have been defined, as well as the complexity of the language needs to be formed so that the formalization of BPMN models to reduce the complexity of language and addressing the issue of ambiguity in the standard specification. One attempt to formalize models with BPMN is to transform BPMN to Petri net models.

Petri net is a graphical and mathematical modeling tool based on directed bipartite graph and can be applied to many systems which is easily understood by practitioners in implementing Petri net models, as well as scientists in mathematical modeling. To perform the transformation from BPMN to Petri net models, need to be formalized models and require transformation rules according to the Dijkman's method in the process of transformation of BPMN to Petri net models. This research aims to apply the Dijkman's method to transform BPMN to Petri net models with its analysis.

The result of this research shows that the number of end event in a BPMN model affects the liveness of the resulted Petri net. If a BPMN model has more than one end event, then the mapped Petri net of the model does not fulfill the liveness criteria. Another result shows that loops which use XOR gateway in BPMN does not create unbounded places in the mapped Petri net model.

Keywords: Transformation, BPMN, Petri net, Dijkman, Formal Analysis, Business Process