# TOWARDS INTELLIGENT TECHNOLOGY FOR ERROR PROBABILITY ASSESSMENT IN BUSINESS PROCESS MODELS

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In this study we propose an intelligent technology for error probability assessment in business process models given in the BPMN (Business Process Model and Notation) format. Errors detection and prediction in business process models is a relevant task for every organization or institution nowadays. Business process models are used to describe activities in the form of graphical diagrams, used to reflect real workflows in order to analyze, improve, and automate organizational operations.

Therefore, this study proposes a connectionist system (see Fig. 1) inspired by the computational systems that simulate the constitution of living being brains, known as artificial neural networks [1]. The technology depicted in Fig. 1 was called the BPMN Error Probability Prediction Network (BPMN-EPPN).
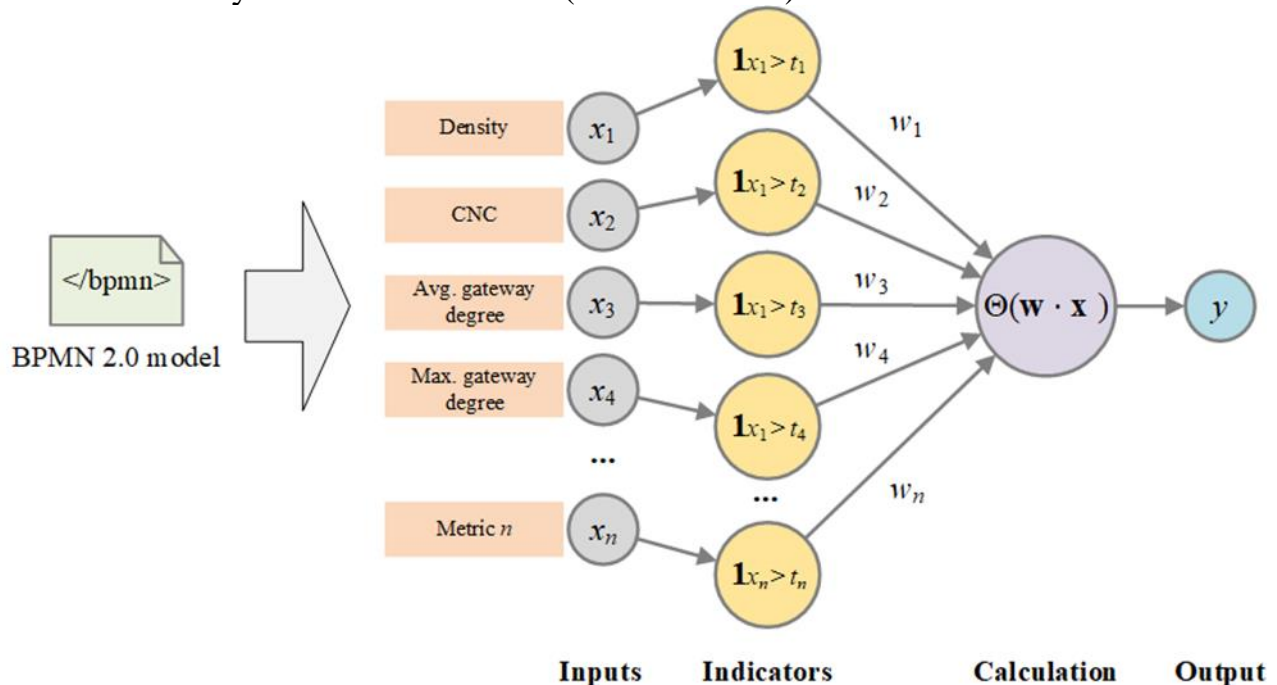


Figure 1 – The connectionist system for error probability assessment in business process models

The proposed intelligent technology (Fig. 1) assumes BPMN models processing to find all necessary metric values $x_1$, $x_2$, …, $x_n$, build the binary indicator values using metric threshold values $t_1$, $t_2$, …, $t_n$, and calculate the output function $y = \Theta(\mathbf{w} \cdot \mathbf{x})$ based on the weights of metrics that exceed thresholds $w_1$, $w_2$, …, $w_n$ [2].

In the future, the proposed system will be implemented as the software solution for error probability prediction in BPMN 2.0 process models.

**References:**
1. Kopp A., Orlovskyi D. Towards Intelligent Technology for Error Detection and Quality Evaluation of Business Process Models. *IntelITSIS 2023*, 2023. Vol. 3373. P. 1-14.
2. Mendling J. et al. Thresholds for error probability measures of business process models. *Journal of Systems and Software*, 2012. No. 85(5). P. 1188-1197.