Artificial Intelligence for Human-Technologies-Economy Sustainable Development
23–25 May 2024
Lublin, Poland
make learn
TIIM
PIConf
Management, Knowledge and Learning
International Conference
Technology, Innovation and Industrial Management
Sustainable Development

Integrating Non-Human Factors into Business Processes: A Model Simulation and Its Implications for Management

Roman Batko
AGH University, Poland
rbatko@agh.edu.pl

Alicja Góralczyk-Putowska
AGH University, Poland
agoralczyk@agh.edu.pl

Ida Knapik
AGH University, Poland
ikna@agh.edu.pl

Abstract

The introduction of non-human factors (robots, AI, voice bots, chatbots, etc.) into the operational sphere has significantly transformed management practices. Starting with the leader's perspective, which requires flexibility and openness to changes due to automatization through employee awareness and relevant knowledge of how to manage and understand AI outputs, ends with a clear division of roles and responsibilities in order to optimize the synergy between human expertise and machine capabilities. This research delves into the consequences of incorporating non-human factors into business processes, focusing on a comprehensive analysis of selected business processes. The identification and integration of non-human factors into process models were guided by insights drawn from a systematic review of the latest Human-Computer Interaction (HCI) literature from databases such as Web of Science and Scopus. This approach enabled the construction of Business Process Modeling (BPM) notations that reflect existing processes, subsequently overlaying potential non-human interactions to assess their management implications. The simulation of these adaptations reveals insights into efficiency, decision-making processes, optimization of workflows, prediction of outcomes, and the evolving role of human employees, emphasising the need for management frameworks that are responsive to these technological integrations. The findings highlight the dual impact of non-human factors on enhancing operational capabilities and introducing complex management challenges. The study contributes valuable perspectives on the seamless integration of technology into business processes, suggesting adaptive management approaches to leverage technological advances while mitigating potential disruptions.

Keywords: non-human factors, business process management (BPMN), human-computer interaction (HCI), AI integration, adaptive management approaches