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Knowledge management in the digital transformation (2)

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A NEW GENERAL DEEP LEARNING VALUE FLOW MODEL OPTIMIZATION. STAKEHOLDERS
ANALYSIS APPLICATION TO HIGHER EDUCATION AND THE SPACE SECTOR.

Abstract

A general new methodology is proposed as a framework to extract critical information from within organizations regarding their internal value flow and the role of their stakeholders. Deep Learning techniques are used in order to efficiently classify and evaluate how this value flow can be optimized within an organization. Our previous work started by presenting results of these optimizations to complex public-private scenarios such as space exploration. We now generalize this method to any public-private scenarios, and we present results of a case study: an application of this methodology to our University, a public technical higher education institution with complex connections to other public and private organizations.

Artificial Intelligence (AI) is currently being applied nowadays in a variety of business models with considerable success. We propose a new software architecture based on the stakeholder analysis of a space endeavour, which can be applied to a variety of organizations. We first propose that the value chain vector should be considered in order to identify which stakeholders are most relevant. We state that from a strategic point of view, the identification and analysis of stakeholders adding value to the process should be the core of the design process. We optimize value loops, defined as value chains that return to the starting stakeholder. Some metrics can be defined and characterized within the model: individuals, companies, Gross Domestic Product created, public awareness, capital flow, etc. A Deep Neural Network is integrated in this simulation, with an easy user-friendly interface. Compared to our previous work, the deep learning core network is faster and allows for more accuracy of the different scenarios, providing the possibility of comparing different strategies with a fast classification in terms of optimal characterization. Regarding our new case study of application, we show the methodology of how the relevant data was entered in the system, by using open data webs and APIs from official sources of our University. The results obtained show that strong links between private and public organizations are the best way to improve quality transfer of knowledge to our students and our society. An optimal path of value flow was found, thus providing recommendations to the governing board of the institution. In conclusion, our system can make critical recommendations to improve the efficiency of organizations in complex public-private scenarios. Specifically, this was the first deep learning core network including stakeholders' diversity, specifically applied to a spaceflight endeavour.