WHICH INNOVATIONS WILL PREVAIL IN OPTIMIZING HUMAN RESOURCE USAGE IN SUSTAINABLE GREEN TRANSITION

MELANI POTRČ,[1] ŠPELA KAJZER,[1] KLEMEN TRŠINAR,[1] DRAGO BOKAL[1,2]

[1] University of Maribor, Maribor, Slovenia
melani.potrc@student.um.si, spela.kajzer1@um.si, Klemen.trsinar@student.um.si, drago.bokal@um.si
[2] DataBitLab d.o.o., Maribor, Slovenia
drago.bokal@um.si

Transitioning to a green and sustainable economy is infeasible without innovative solutions to several technological, economic, and societal challenges. Significant interdisciplinary innovative effort in circumstances of constrained resources requires foresight in understanding which of the innovations will survive the test of time and which will fail. In our paper, we combine insights from decision theory, evolutionary game theory, and psychology into a framework of maturity models to offer some insights into the question of innovation perspective.

Maturity models, exemplified by the Technology Readiness Level (TRL), scale developed by NASA and adapted by the European Commission for Horizon Europe projects, can be used to trace the lifecycle of innovation from theory to practical implementation. Snowden's Cynefin decision-making framework offers another lens, following the innovation from a chaos realm to straightforwardness. Emotions of the innovators within this process parallel these stages: from apathy in chaos through anxiety in complexity to flow in the complicated realm closing in relaxation of the simple realm. We unify these diverse insights using a universal agent model combining models of Markov decision process and Hoffman's interface

theory of perception. We apply the model to several green-transition-supporting innovations from physics, biodiversity preservation, construction engineering, and medicine: building green roofs, where biodiversity is preserved through the conservation of native plant species; converting greenhouse gasses into fuel for heating or electricity, manufacturing rechargeable batteries that store excess energy; the use of materials obtained through low-emission processes, such as bamboo, wood wool or natural rubber.

Keywords: green innovations, maturity models, sustainable economy, climate neutrality, digital transformation