

Symbiotic Simulations for Decision Support

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Abstract

Our socio-technical environment is becoming increasingly complex all the while we have less and less time for making decisions. The advent of computers in general and AI in particular has helped us to deal with complexity and time constraints. Virtually no industry and sector remains untouched by this development: The private sector, government, non-profits; manufacturing, advertisement, logistics, healthcare, defense; finance, compliance, customer care, human resources and many more. Why is it then that, I wonder, we still have very little satisfying solutions to our worlds most pressing problems as for example stated in the sustainable development goals: Climate change, poverty, sustainable cities and so forth. One reason for this, I believe, is grounded in the false trust in the abundance of data and ubiquity of computational power. More data and brute force doesnt necessarily mean better insights and thus decisions.

Sustainable and robust decisions depend on our understanding why things happen and our ability to think in plausible futures. Causality and scenarios can be generated through the symbiosis of human brain ingenuity and computational simulations. This implies that humans embrace digitalization as an opportunity and invest in the further development of cognitive humanmachine interaction.

I will suggest and critically discuss a framework for constructing and applying a computational decision support framework that furthers this vision. Technically the framework hinges on data fusion, simulation and insight generation. Successful application for decision-making, however, relies on consequent stakeholder integration, which requires building trust in a simulations underlying causal model from which openness to internalize insights in organizational decision making processes derives. I will present the concrete steps of building a computational simulation designed for decision support against the background of two case studies representing pressing social problems, along with the process of taking the client on this journey and how it helped her to improve business critical decisions and thus outcomes.

The quintessence is as simple as it remains futuresque: Tomorrows successful organization represents itself and the environment it operates in in a form of holodeck, enabling it and its employees to play through and train for the future that will challenges us.