

## AI-Enabled Generativity: Racing towards Artificial General Intelligence

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In this research project, we leverage autonomous vehicle (AV) racing competitions as a backdrop to develop key questions and potential implications related to Artificial Intelligence (AI)-enabled generativity in digital innovation. For several cognitive and perceptual tasks, AI performance already surpasses human intelligence and we are steadily advancing towards Artificial *General* Intelligence (AGI). Reaching AGI requires progress in terms of making analogies and developing a better understanding of the space-time environment and of causal effects (Franklin, 2007).

AI is considered as a general purpose technology that fuels digital innovation (Agrawal et al., 2018). An instrumental view on digitalization is digitally-enabled generativity. This view highlights the heterogeneous and distributed nature of actors and their uncoordinated interactions with technological resources (Yoo, 2013), which is associated with the generation of unprompted and diverse possibilities for innovation (Jarvenpaa & Standaert, 2018). We explore how and why these logics need to be rethought in an AGI-centered world.

An AGI domain that currently draws a lot of attention and resources is that of AVs (cars, drones, boats, etc.). To accelerate the pursuit towards fully AVs, recent initiatives have focused on having AI systems compete in racing formats. We argue AV racing is a revelatory setting for AI-enabled generativity as the performance outcome is simple (to be the fastest), yet contextually emergent. The key contextual factor is the prediction situation, which can be defined as known knowns, known unknowns, unknown unknowns, or unknown knowns (Agrawal et al., 2018). We characterize different AV racing formats in terms of their combination of and emphasis on these four prediction situations. We leverage this setting to start theorizing about generativity mechanisms among AI systems by outlining questions such as: How to conceptualize resources within and across AI systems? How to rethink heterogeneity among AI systems and actors? How does one AI system learn from observing other AI systems? How do AI systems collaborate and compete? How can interactions among AI systems be kept open for an unlimited generation of innovations including those unforeseen by the human designers of AI systems? The IS community has taken the lead in understanding digitally-enabled generativity, the time is now to start theorizing around AI-enabled generativity as well.

### References

- Agrawal, A., Gans, J., and Goldfarb, A. 2018, "Prediction Machines: The Simple Economics of Artificial Intelligence," *Harvard Business Press*.
- Franklin, S. 2007, "A Foundational Architecture for Artificial General Intelligence," in *Advances in Artificial General Intelligence: Concepts, Architectures and Algorithms*, edited by Goertzel and Wang.
- Jarvenpaa, S.L., Standaert, W. 2018, "Digital Probes as Opening Possibilities of Generativity," *Journal of the Association for Information Systems*, 19(10), 982-1000.
- Yoo, Y. 2013, "The Tables Have Turned: How Can the Information Systems Field Contribute to Technology and Innovation Management Research?" *Journal of the Association for Information Systems*, 14(5), 227-236.