

**DECISION SCIENCES INSTITUTE**

The “dark side” of Industry 4.0: How to make technology more sustainable?

**ABSTRACT**

The literature has identified several positive sustainability impacts of Industry 4.0 technologies in manufacturing companies. In contrast, empirical research on the negative sustainability effects is still scarce and anecdotal. The goals of this study are: (1) to identify the possible negative impacts of the new digital technologies (e.g., autonomous robots, blockchain, Internet of Things, and additive manufacturing) on firms’ environmental and social sustainability aspects; and (2) to highlight the motivations and mechanisms behind them. For this purpose, a Delphi study involving experts from both academia and practice has been performed. Findings acknowledge various negative impacts of Industry 4.0 on sustainability performance while also identifying corrective actions that might be implemented by companies to mitigate these negative effects.

**KEYWORDS:** Industry 4.0, Sustainability, Delphi study, Environmental performance, Social performance