

Improving Trust between Humans and Software Robots in Robotic Process Automation

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Robotic Process Automation (RPA) is an emerging technology that sits between the fields of Business Process Management (BPM) and Artificial Intelligence (AI). RPA allows organizations to automate high-volume and repetitive tasks – also referred to as routines – performed by human users. The enactment of these routines is emulated by means of a software (SW) robot that works on the applications' user interfaces (UIs) in the same way as the original human operators did.

From a research and industry perspective, RPA is receiving substantial attention because of its potential for a fast return on investment due to the rapid automation of routines that would free employees from operating on non-value-added tasks. Recent research studies conducted on the effectiveness of RPA within organizations have found that implementation of SW robots does not always lead to the assumed effect, and many SW robots are subsequently withdrawn. In consequence, the human workforce takes over robotized tasks to perform them manually again and, in practice, replaces back SW robots. The fact is that integrating RPA into a human workforce alters the role of human employees and dynamics within the workforce, fueling a lack of trust in RPA technology, an issue deemed increasingly significant given its widespread use in many working domains.

The human lack of trust in RPA technology is considered one of the major barriers to wider RPA adoption. In the AI and Information Systems (IS) fields, the absence of trust is a known hindrance to adopting technologies that introduce new forms of automation. The notion of automation historically carries a negative connotation from the human workforce perspective due to the fear of job loss. In RPA, where SW robots take over significant responsibilities from human employees, and their performance is vital for the successful execution of organizational processes, trust plays a critical role in its acceptance. Three major human-related aspects were identified as the main obstacles to the creation of human trust in RPA, namely: (i) the feeling that SW robots act as competitors of the human employees, fueling a resistance to accept automation opportunities; (ii) the need to set the right expectations concerning the real value RPA is going to bring to the human workforce; and (iii) the poor explainability of SW robots' decisions and actions, which may not be sufficiently transparent for human resources.

In an era where RPA is pushing the automation of human tasks to the extreme, providing organizational and technical solutions to improve trust between humans and SW robots becomes crucial. In this direction, this Dagstuhl Seminar aims to bring together leading experts from industry and academia engaged in diverse communities related to RPA, including BPM and Human-centered AI, intending to reflect on the current RPA principles, which fail to deliver sufficient attention to the interplay between the human workforce and SW robots. The overall goal is to explore the scientific and technological foundations to pioneer new trust-aware RPA solutions that work in partnership with the human workforce, to enhance human capabilities rather than replace human intelligence and break through the barriers to human trust using RPA. The seminar outcomes will serve as a basis to guide organizations in creating a hybrid workforce of SW robots and humans and chart a roadmap for future RPA research.

