

# Remote Design Thinking for Sustainability - Investigating the Role of Distributed Cognition

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## I. Abstract

Design Thinking has become a popular framework to facilitate the creation of innovation. It is an open-ended (Pusca & Northwood, 2018), “human-centered, iterative problem-solving approach that involves stakeholders from various backgrounds” (Buhl et al., 2019). Further, it contains the creation, examination, and manipulation of artifacts (Brereton & McGarry, 2003) – a concept that has been studied by distributed cognition researchers as external representations (Zhang & Norman, 1994).

Remote work of distributed teams has been studied for several years now (e.g. in the CSCW community, see Bjørn et al., 2014) and the world has seen a huge surge of remote work due to the COVID pandemic since 2020 (Brynjolfsson et al., 2020). Yet there is little research on how design thinkers’ interactions with artifacts change, if these artifacts are digital ones, instead of analogous. Our work looks at the current body of literature for Design Thinking practices. Our special interest lies in Design Thinking projects for Sustainability-Oriented Innovation (SOI) because it addresses the four key challenges of sustainability, as defined by Buhl et al.: innovation scope, user needs and behaviors, stakeholder involvement and the assurance of positive sustainability effects (Buhl et al., 2019).

Therefore, we examine case studies, in which Design Thinking was used to design strategies and interventions for the purpose of sustainability. For this, we draw on sustainability literature as well as on HCI research. After identifying these practices, we use the theory of distributed cognition to examine the challenges that practitioners face when applying Design Thinking in a remote environment.

## II. References

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