

Investigation by:

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As digital devices around us acquire more and more functional independence the **role of the human user** is being continuously revised and adjusted. Arguably, the main lesson learned so far, in these early stages of enquiry into this topic, is that **automation does not merely complement human behaviour, but rather it changes it**, often in ways unforeseen and unintended by the designers of the automation (Parasuraman & Manzey, 2010). Given the huge impact of automation on humans' lifestyle, scientists and practitioners rightfully find themselves challenged to **understand the cognitive processes that affect consumers' interaction with automatic systems** (Faraji-Rad, Melumad, and Johar, 2017). Thus, the present research will investigate the adverse effects connected with the diffusion of autonomous digital technologies, identifying those conditions that may overshadow the benefits deriving from such technologies. We set out to examine whether individuals may experience **problematic engagement styles**, i.e. over-engagement or disengagement, towards autonomous digital devices, such as autonomous lighting, heating and appliances. We frame over-engagement as the attachment bonds an individual may form with an autonomous device, and disengagement as the abdication of control for activities partly managed by autonomous devices. Crucially, we aim to determine whether these problematic engagement styles have energy-related consequences, in terms of energy consumption and indulgence. We hypothesize that automation lessens control, favouring a problematic engagement style, subsequently lessening control over consumption-related behavioural outcomes. We find statistical evidence of this in two pretests and aim to extensively explore these relationships, highlighting the situational and psychological factors that drive the effects. A series of laboratory experiments will identify a number of factors likely to promote a proper use of such devices. We aim to position the current investigation alongside this growing body of knowledge that is still in its infancy, showing that digital automated technology frees us of repetitive mundane chores, but may also lead to consumption indulgence when we disengage or threaten certain core components we hold dearly, such as our identity. A deep understanding of the factors that lead to the misuse of automatic digital products will therefore inform the scientific community and the public about mechanisms that lead to indulgent consumption. Furthermore, there is an ever-growing concern about energy consumption and knowledge about the finite state of the world's resources. In a 2017 national referendum, Switzerland voted to abandon nuclear energy and has

set rather strict energy consumption goals for 2050. Any scientific evidence that points to factors that may impede the achievement of these environmental goals is of a value that greatly surpasses academic achievement.