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ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

USERS NEEDS AND THE UPTAKE OF TECHNOLOGIES

Understand the users' needs is crucial to optimize technologies, products and services. It is necessary to involve human factors specialists to analyze human cognition and the users' expression of their needs and to properly formalize the requirements for design purposes. A variety of enabling and/or limiting factors can influence the large-scale uptake of technologies, distinguishing between short-term adoption and longer-term sustained use. The research of the University of Bologna can help to better understand how policies can promote acceptance of technologies and how they can be designed in order to be successful.

Users needs

- Usability testing, user-centric approach and design
- User needs, preferences and requests
- Tailoring learning solutions to human needs and competences
- Needs analysis of different groups of practitioners (e.g., security practitioners, workers, health professionals) in the development of innovative products/ services/technologies
- Capability of human cognition in managing information in several formats/ displays
- Analysis of cognition, perception and action
- Emotions and cognitive processes: perception/categorization, memory, attention

User experience, comfort and trust

- Human machine interface in traffic and industrial settings (e.g., showing real-time information in the actual context of operation in a user-friendly way)
- User experience of operators adopting virtual/augmented reality
- Human Factors methods (e.g. Task analysis)
- Human-environment dynamics; cognitive ergonomics
- Cognitive processes and interaction with objects
- Assessment of workload and situational awareness when using tools and technologies
- Trust and comfort in Human Robot Collaboration and automation
- Risk awareness and risk perception
- Diversity based on age and gender
- Assisting users in decision-making

Acceptance and uptake of technologies

- Acceptance or resistance to new technologies (e.g., energy or transport technologies)
- Effects of technological solutions on organizational and societal resilience
- Psychological and social transformations of innovative technologies
- Possible side effects of technological solutions (risk compensation, attention theft, behavioural adaptation)
- Organisational change

European Projects

Horizon 2020 **OPERANDUM** – *OPEn-air laboRAtories for Nature baseD solUtions to Manage environmental* aims at reducing hydro-meteorological risks in European territories through co-designed, co-developed, deployed, tested and demonstrated innovative green and blue/grey/hybrid NBS. It foresees a multiple level of stakeholders' engagement from the local community up to the international level to leverage widest possible NBS cultural and social acceptance to promote its diffusion. OPERANDUM implements activities related to vulnerability and risk assessment and takes into account specific user needs and social aspects associated with adoption of NBS in several regions.