

CoPDA 2025: Sustainability Perspectives and Frameworks for Making Cultures of Participation Successful

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Abstract

The CoPDA 2025 workshop "Sustainability Perspectives and Frameworks for Making Cultures of Participation Successful" explores the intersection of sustainability and cultures of participation in diverse contexts. As participatory cultures become central to addressing complex global challenges (as defined by the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals), they require robust sustainability frameworks to ensure their long-term viability. This workshop examines how environmental, social, economic, technological, and cultural sustainability principles can inform and enhance participatory systems by supporting community-driven design with end-user development. Participants engaged in interactive sessions to identify and discuss strategies for fostering evolution, adaptability, and educational innovation within cultures of participation. The participants were able to ground, present, and highlight practical frameworks and real-world case studies, focusing on how sustainable participation can amplify collective creativity in coping with wicked problems.

Keywords

Sustainable Development, Cultures of participation, Meta-design, End-User Development, Lifelong Learning, Human-AI interaction

1. Introduction

The proposed workshop is the 9th in the CoPDA series. Like all editions of CoPDA, the workshop is conducted in person. All the previous CoPDA workshops have identified specific fundamental themes and challenges of the digital age by exploring conceptual frameworks and socio-technical environments (see Figure 1) and their implications for human-computer interaction, artificial intelligence, participatory design, learning, and education. A detailed description of all the workshops and the contributions can be found at <https://copda.unibs.it/>.

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In this CoPDA workshop edition, we addressed the challenges arising from the theme of sustainability. The United Nations Sustainable Development Goals (SDGs) [1] represent a call to action by all countries worldwide to achieve no poverty and zero hunger and, more broadly, to improve the quality of life for all people in terms of health, education, equality, decent work, economic growth, good governance, and living environment.

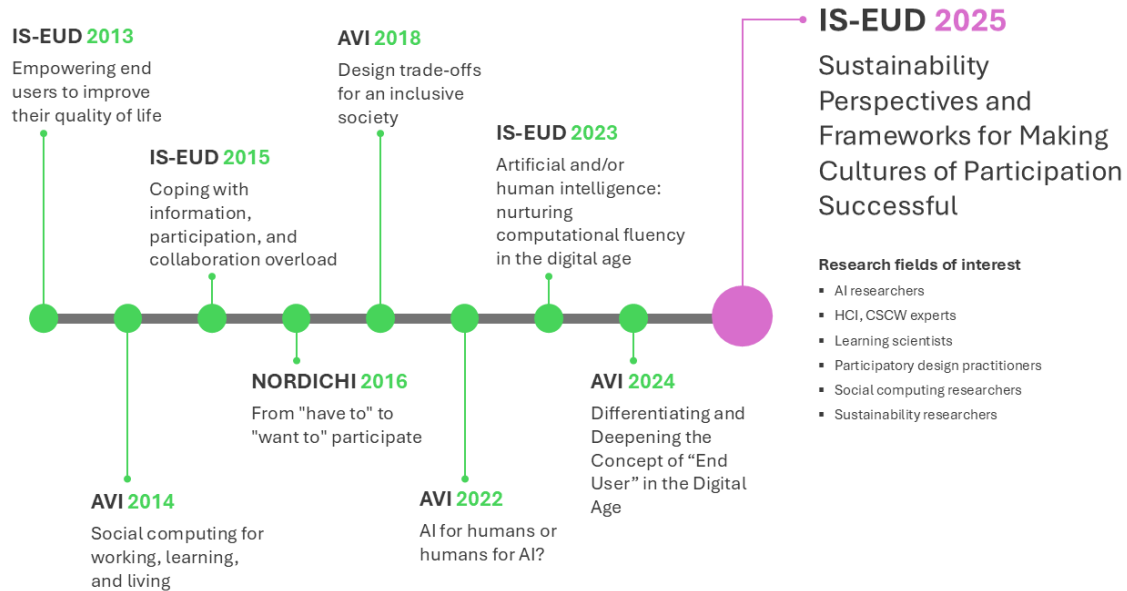


Figure 1: Overview of the past editions of CoPDA Workshop.

The workshop is designed for researchers, practitioners, educators, and anyone interested in building and researching sustainable participatory cultures. The objective of the workshop is that participants, through collaborative discussions, gain actionable insights, design objectives, and frameworks for socio-technical environments to explore shared wicked problems and create desirable, sustainable changes in their fields.

2. Workshop theme

Meta-design [2] and end-user development (EUD) [3][4], fostering cultures of participation and lifelong learning, can play an important role in achieving SDGs, such as SDG 4 “*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*”, SDG 8 “*Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*”, and SDG 9 “*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*”.

Meta-design aims to create socio-technical environments through which end users can engage in the continuous development of the information systems they use. As underlined in [5], meta-design has a dual nature: *the social one* is aimed at promoting rich ecologies of participation, cultures of participation, conviviality, and user-system co-evolution, which can motivate end users to participate both at design and use time; *the technical one* encompasses a spectrum of programming languages and software environments of progressive complexity to

support users in performing their tasks by exploiting the full potential of EUD to create and adapt information systems to their needs. EUD enables distributed, participatory decision-making processes that are more inclusive and democratic, providing methods and techniques that allow end users to better appropriate and shape the technology they are called on to use for work, education, or personal needs. If designed properly, EUD tools may support a sustainable digital transformation [6], accompanying end users to perform the jobs of the future that require more and more creative and analytical thinking skills [7].

Cultures of participation [8] empower individuals to participate in knowledge creation and consumption from different perspectives and backgrounds, favoring cross-fertilization and novel ways of learning, including lifelong learning. In turn, lifelong learning creates resilient societies capable of adapting to technological, social, and environmental changes. With the recent advent of generative intelligent agents and Large Language Models (LLMs) considered both as tools and actors, they become teammates for different kinds of cooperative problem-solving [9]. Even though the collaboration between humans and artificial intelligence (AI) systems is becoming fundamental to support the evolution of artifacts in a changing world, new methods and conceptual frameworks are needed to make cultures of participation sustainable, avoiding excessive trust in technologies, participation overloading, and worker deskilling.

These objectives are also explored in a recent book, “Design for a Better World” [10] by Donald Norman. He advocates transforming Human-Centered Design (HCD), which focuses on people and their immediate needs, into Humanity-Centered Design, in order to focus on the entire ecosystem of people, living things, and the environment and take a long-term perspective that considers the impact of any intervention on society and the planet.

While HCD ignores the sustainability problem, Humanity-Centered Design and meta-design take a broader and longer-term scope, considering community-driven design, multidisciplinary, rich ecologies of participation, and, in synthesis, *cultures of participation* as important pillars for achieving sustainability development goals. Cultures of participation, in turn, must address wicked problems [11] and involve a large number of people, be sustained over time by infrastructures for communication and knowledge sharing, and advanced technologies like AI, and tools for design, education, and orchestration. The use of AI can, for example, promote education and widen access to digital skills and knowledge, but AI artifacts should be designed to evolve (with EUD tools and meta-design support) because of societal and technological changes.

CoPDA 2025 addresses this theme, deepening the relationship between sustainability, AI artifacts, and cultures of participation, through the discussion of design trade-offs, conceptual frameworks, socio-technical environments, and the analysis of case studies.

3. Workshop topics

This edition of the CoPDA workshop aimed to attract submissions from researchers and practitioners from various backgrounds and communities, such as designers and users of socio-technical environments, AI researchers, learning scientists, and educators, to explore the following fundamental issues:

- Identifying and integrating sustainability principles into design processes.
- Supporting ongoing engagement through meta-design and digital tools.

- Exploring the role of emerging technologies (specifically related to AI and LLMs) in fostering sustainable participation.
- Exploring how involving users in the adaptation of design tools through EUD can help ensure these tools better support sustainability goals.
- Investigating how educational programs and courses can shape visions and scenarios of sustainable communities, helping to anticipate both desired and undesired outcomes.
- Examining what sustainable online communities can learn from the enduring qualities and behaviors of natural systems, like insect colonies and the climate.

Topics of discussion include (but are not limited to):

- characterize the general interpretation of “sustainability” (e.g.: as defined by the United Nations SDGs) and explore its meaning for different contexts/domains (e.g., software, learning, innovations, knowledge, cultures of participation, democracies);
- identify factors and frameworks that are important for sustainability (e.g., lifelong learning, meta-design, seeding/evolutionary growth/reseeding model, rich ecologies of participation, avoidance of participation overload);
- identify approaches that may be limiting factors for sustainability (e.g., overemphasis on technology as the solution, insufficient stakeholder engagement, lack of local adaptation, lack of common ground, insufficient support for evolution to match a changing world);
- explore the lessons learned from successful examples of sustainable cultures of participation in technology-mediated environments (e.g., Open Source [12], Wikipedia [13], Scratch [14], domain-oriented design environments [15]), and identify features and support mechanisms underlying and being responsible for their success (e.g., a critical mass of collaborating actors); empirical examples to substantiate claims are encouraged;
- explore lessons learned from natural and physical systems that have existed for a long time and reveal desired characteristics without explicit goals or plans (e.g., insect colonies, animal behavior, climate and weather, biological evolution, ecology) to identify features, behavior, and metaphors that can form part of new conceptual frameworks [16];
- discuss the advantages and issues brought about by social media and platforms provided by Big Tech (Google, Microsoft, Apple, etc.), which sustain the use of their services with different types of content creation tools, but with a business goal;
- identify the lessons learned from unsuccessful examples of sustainable cultures of participation (e.g., expert systems in AI in the 1980s, One Laptop per Child (OLPC) initiative [17]) and identify the reasons underlying their failure;
- explore how recent and envisioned future developments of AI (e.g., OpenAI ChatGPT and LLMs in general) can contribute to the UN SDGs and which specific goals will represent the most important and meaningful contributions;
- analyze challenges that may limit the long-term sustainability of the big AI approaches (e.g., ChatGPT and LLMs) and identify specific missing features (e.g., factual accuracy, domain-specific expertise, explainability, and transparency);

- identify future research activities and describe aspects of socio-technical environments contributing to the sustainability of cultures of participation.

4. PROGRAM COMMITTEE

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5. Organizers

Barbara Rita Barricelli is Associate Professor at the Department of Information Engineering of Università degli Studi di Brescia (Italy). Her research interests are Human-Computer Interaction, Human Work Interaction Design, Socio-technical Design, End-User Development, Usability, and UX.

Gerhard Fischer is a Professor Emeritus of Computer Science, a Fellow of the Institute of Cognitive Science, and the Director of the Center for Lifelong Learning and Design (L3D) at the University of Colorado at Boulder. His recent work is centered on quality of life in the digital age, social creativity, meta-design, cultures of participation, design trade-offs, and rich landscapes for learning.

Daniela Fogli is Professor at the Department of Information Engineering, University of Brescia, Italy. Her research interests are in the field of Human-Computer Interaction and include meta-design, end-user development, universal design, conversational and multi-modal interfaces.

Anders Mørch is Professor and Deputy Head at the Department of Education, University of Oslo, Norway. His research interests are in how tools and artifacts help people learn together; interfaces supporting learning; domain-oriented design environments for classroom use; new models of design-based collaborative learning.

Antonio Piccinno is Associate Professor at the Computer Science Department of University of Bari, Italy. His research interests focus on Human-Computer Interaction End-User Development, Software Engineering, Secure Software Analysis and Design, Human-Centred Artificial Intelligence (HCAI).

Stefano Valtolina is Associate Professor at the Computer Science Department of Università degli Studi di Milano. His research interests include Human-Computer Interaction, Creative

Design, as well as studies in semantic, social, and cultural aspects of information technologies with an emphasis on the application of this knowledge to interaction design.

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Declaration on Generative AI

During the preparation of this work, the authors used Grammarly and ChatGPT for text revision, paraphrasing, rewording, grammar, and spelling checks. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

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