



# Post-growth HCI: Co-Envisioning HCI Beyond Economic Growth

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## ABSTRACT

Human-Computer Interaction (HCI) makes a significant contribution to economic growth; it is crucial to the market success of digital technologies, including digital services, platforms, and devices, which drive the economic engine. Economic growth, however, has a number of social and environmental consequences. Some HCI researchers have problematized the field's engagement with growth, suggesting the post-growth philosophy as an alternative. Post-growth focuses on improving the quality of life centered on cooperation, social solidarity, care, justice, sharing, localized development, and other values. Orienting to post-growth could be instrumental in leading the HCI community beyond growth politics by envisioning, designing, and implementing technologies toward building a more sustainable, just, and humane society. This workshop aims to bring together HCI researchers, designers, practitioners, educators, and students to critically reimagine ways to embrace post-growth in and through HCI.

## CCS CONCEPTS

• **Human-centered computing** → **HCI theory, concepts and models.**

## KEYWORDS

Post-growth; Degrowth; Post-development; Steady State; Political Economy; Sustainability; Development; SHCI; HCI4D; HCI

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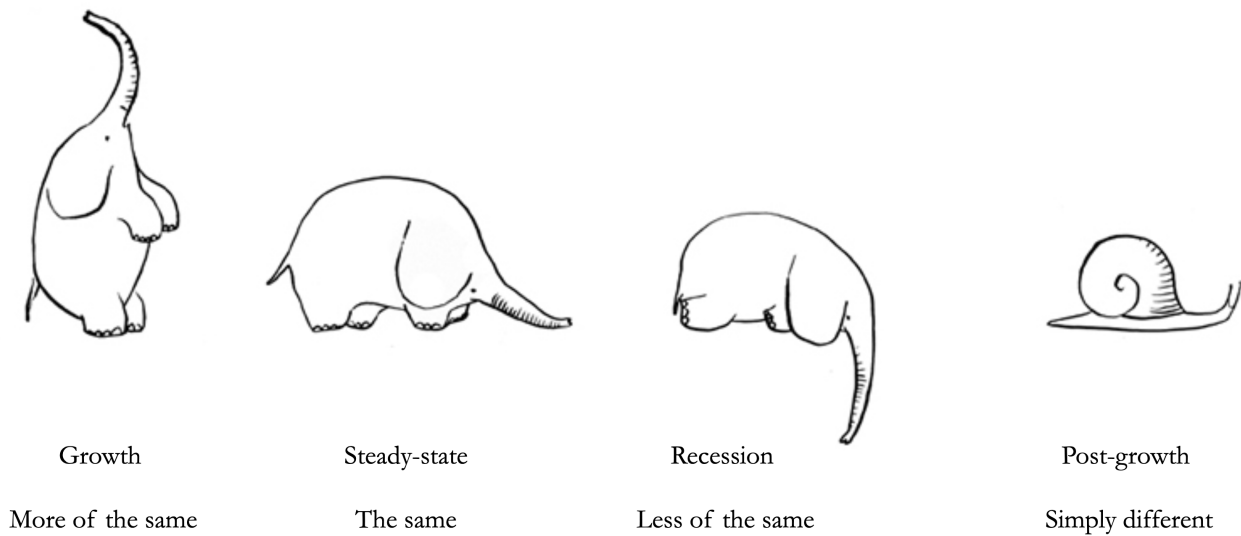
## 1 MOTIVATION

“The IT industry has linked itself strongly to this [growth] ethos, with some particular manifestations being the constant need for novelty, the accompanying throw-away culture around consumer electronics, and the glorification of disruption for its own sake. Yet growth that requires evermore material resources cannot continue forever in a finite world.”

—Borning et al. [7]

Scholars across disciplines have been calling attention to complicating and re-evaluating the growth economy<sup>1</sup>, arguing that our current economy cannot grow infinitely if the material resources required for growth are finite [25, 28, 38, 43, 46]. Hickel [24], an economic anthropologist, noted that in the last 60 years, economic growth has degraded over 40% of the planet's agricultural lands, depleted 85% of fish stocks, and destroyed more than half of the tropical forests: “This rate of extinction is one hundred to one thousand times faster than before the Industrial Revolution—so fast that scientists have classed this as the sixth mass extinction event in the planet's history, with the last one having occurred sixty-six million years ago.” Over the last decades, scientists have begun to warn us about the consequences of economic growth [2, 4, 42, 43].

<sup>1</sup>Also called the market economy, free market economy, globalized economy, and capitalism.



**Figure 1: The elephant and the snail (edited).** Copyright: Bàrbara Castro Urío. The original sketch referred to degrowth(see [29])

In 2021, scientists from the US, South Africa, the UK, Italy, Australia, and Canada stressed that “[the economy] is replete with deep structural flaws that must be fixed if we are to effectively address the catastrophic effects of climate change, extinction, poverty, and other converging crises. . . we should transform our global economy by 2030. . . to use resources much more efficiently [and] to require less of them” [4]. The United Nations Intergovernmental Panel on Climate Change (IPCC) 2022 report emphasized abandoning the “global high-carbon, consumption, and GDP growth-oriented economy” by transitioning to a “low-carbon energy services, well-being, and equity-oriented economy” [11]. These cases demonstrate the limits to economic growth which get manifested in our daily lives as heatwaves, wildfires, sea-level rise, soil erosion, floods, drought, pandemics, forced migration, economic inequality, and social inequity experienced across communities globally. Unless the economy’s focus on unbridled growth is radically altered, social disintegration and civilizational collapse are inevitable [25, 36, 51, 54].

Human-Computer Interaction (HCI) contributes significantly to economic growth that causes sustainability and justice issues [7, 37, 38, 47, 50]. The continuing push to scale technology, increase processing power, and decrease hardware size create a substantial demand for technology [33, 38]. Most improvements in user interactions consume additional energy and resources. For example, the infrastructural support that cloud computing requires, consisting of data centers with high-core-count CPUs, may consume 30 billion watts of electricity per year [22, 26]—much more than traditional computing. On-demand streaming platforms, such as YouTube and Netflix, may consume up to 200 terawatt-hours annually [12]. To all these platforms and products, usable access is crucial to be successful. Many of HCI’s research and design activities are innovation-oriented, driven by companies’ interest in securing future market shares and sales (e.g., in the automotive

industry) [6, 53]. Tomlinson [53] argued, “By aligning and integrating well within that [growth] paradigm, HCI is also, in part, responsible for it . . . HCI is guilty by association, even if it is just following orders from captains of industry to make products and services that will sell well.” Considering the global crises in the making, HCI can no longer ignore its engagement with economic growth and continue doing business as usual.

Outside HCI, academics and activists have envisioned an alternate sustainable, just, and humane economy not dependent on growth: a post-growth economy [25, 27, 28, 46]. Post-growth combines theories and ideas from degrowth and post-development to achieve a global steady-state economy [21]. While degrowth considers economic growth in the Global North damaging to be stopped [25, 28, 34], post-development seeks alternatives to centralized industrial development in the Global South based on local production, leveraging local resources and indigenous knowledge [16, 44, 57]. A steady-state economy aims to achieve equilibrium between population growth and production by maintaining a constant rate of material throughput [13]. Post-growth proposes building society by (a) transforming production and consumption to be ecologically sustainable long-term, (b) supporting social justice and self-determination to strive for a good life, and (c) redesigning infrastructures to become substantially less dependent on capitalist expansion [46]. Transitioning to and building a post-growth society involves shifting radically from growth to redistribution, production to reproduction and care, acquisition to sharing, and industrial development to development appropriate to local circumstances and contexts [25, 27, 46]. Such a society must include solidarity, sufficiency, leisure, conviviality, autonomy, and other values that cannot be reduced to material accumulation [17, 27, 46].

Post-growth sensibilities already exist in HCI, as Sharma et al. [50] noted, with the field’s increasing focus on supporting values of plurality [3, 41, 56], care [30, 55], solidarity [32, 45], mutual aid

and reciprocity [48, 49], decoloniality [35, 39], autonomy [10, 31], justice [5, 14], post-work [9], and post-neoliberalism [18, 31]. HCI researchers have designed sociotechnical systems aligned with post-growth ideas, though linkages are often rather implicit [1, 8, 15, 40]. Franquesa and Navarro [19] developed eReuse.org, an online platform based on *commons-based ownership*. Users gain access to devices by contributing to the shared resource pool; each member shares at least one device. Users can use devices without purchasing them and work towards enhancing them through repairs, improvements, and maintenance. Qadir et al. [40] developed an “approximate internet,” considering *minimum and maximum standards of consumption*. When faced with conflicting parameters, such as performance, cost efficiency, energy consumption, and coverage, the internet employs context-specific trade-offs to provide a good-enough networking service. It operates intermittently to raise users’ awareness of the resources’ finiteness and varying availability.

To formally theorize post-growth in HCI, Sharma et al. [50] suggested ways to question growth’s inevitability, neutrality, and desirability. They recommended HCI professionals develop economic literacy and learn alternative economic theories, design systems to mediate policy-making while participating in policy-making at different scales, evaluate the political and economic implications of technology design, normalize redesigning and undesigning technologies, nurture solidarities across geopolitical borders and more-than-human lives, consider ecological limits in technology design, and cultivate critical thinking in HCI students or future professionals [50]. Although useful, these suggestions may be challenging to follow, and barriers to engaging with post-growth may exist. For example, HCI professionals working in the industry driven by market capitalism may feel restricted in incorporating post-growth in their work because of its fundamentally anti- or post-capitalist narratives; those in academia, with its neo-liberalization and publish-or-perish model, may face challenges to embracing post-growth philosophy as it requires time-consuming deep thinking, critical reflection, and system development (see [52]). Our workshop aims to understand such barriers and collectively devise pathways to address them, asking: **what might be the challenges to embrace post-growth across HCI and how might they be addressed?**

We invite all HCI students and professionals—designers, researchers, practitioners, and educators—to join us as active agents in critically and collectively evaluating and co-devising ways to orient HCI to post-growth. This workshop is a preliminary effort towards building a *Post-growth HCI Collective* to raise “critical consciousness” [20] about the economy’s increasing impingements in HCI as well as embracing, engaging, and critiquing post-growth ideas to integrate them into transformative HCI practices for nurturing just and sustainable technology-mediated futures in and through HCI. The workshop aims to create enriching learning experiences and initiate actions that extend beyond the workshop’s boundaries and contribute to the betterment of the HCI community.

## 2 ORGANIZERS

We are a diverse group of scholars from within and outside HCI, conducting research aligned with the post-growth philosophy:

**Vishal Sharma** is a Human-Centered Computing Ph.D. student in the School of Interactive Computing at Georgia Institute of Technology. He studies the design of sociotechnical systems liberated

from growth politics to enable a transition to environmentally sustainable and socially just futures. He is a graduate fellow at the Brook Byers Institute for Sustainable Systems at Georgia Tech.

**Anupriya Tuli** is an incoming Post-doctoral Fellow at KTH Royal Institute of Technology. Her work lies at the intersection of Human-Centered Computing and Healthcare for Development. She engages with feminist perspectives to design technologies for women’s advocacy and works with practitioners and NGOs focusing on menstrual health and wellbeing.

**Asra Sakeen Wani** is a Ph.D. student in the Department of Computer Science and Engineering at IIIT-Delhi. Her research lies in the area of Crisis Informatics and Critical Computing. She uses Human-Centered Computing and Science and Technology Studies approaches to investigate the use of information and communication technologies in regions facing protracted sociopolitical conflicts.

**Anjali Karol Mohan** is a regional and urban planner with a Ph.D. in urban e-governance and a partner at Integrated Design, Bangalore. Her work, research, and teaching focus on urban planning and management, and attendant policy frameworks. Taking an action research approach, she looks at the climate change-induced vulnerabilities in urban Global South contexts.

**Bonnie Nardi** is a Professor (Emer.) in the Department of Informatics at University of California, Irvine. Her research investigates digital technology’s role in transitioning to sustainable environmental and socioeconomic practices.

**Marc Hassenzahl** is a professor at the Institute of Business Informatics at University of Siegen. His research focuses on the theory and practice of designing joyful, meaningful, and transformative digital experiences.

**Morgan Vigil-Hayes** is an Associate Professor in the School of Informatics, Computing, and Cyber Systems at Northern Arizona University. Her current research foci include characterizing and designing interactive systems that support Indigenous values as well as buttressing participation in and empowerment through crowdsourced Internet measurement through design.

**Rikke Hagensby Jensen** is an Associate Professor at Aarhus University, Denmark. Situating her research at the intersection of sustainability and design, she investigates how the design of digital technology may shape everyday social practices in more caring, collective, and sustainable ways.

**Shaowen Bardzell** is a Professor in the School of Interactive Computing at Georgia Institute of Technology, where she is also the School Chair. Her recent research foci include care ethics and feminist utopian perspectives on Information Technology, women’s health, posthumanist approaches to sustainable design and research through design.

**Neha Kumar** is an Associate Professor at Georgia Institute of Technology. Her research lies at the intersection of Human-Centered Computing and Sustainable Development, focusing on post-growth values such as care, solidarity, and post-development, among others.

### 3 PRE-WORKSHOP PLANS

Three months before the conference, we will set up a website with a workshop description, including key dates, organizers' contact information, and a call for participation.

Considering the growing number of HCI professionals interested in post-growth ideas (e.g., [1, 9, 30–32, 37, 39, 48]), we expect 30–40 participants in attendance, online and on-site. We will advertise our workshop to a global HCI audience, leveraging all major platforms, such as mailing lists (e.g., CHI Announcements, Sustainable SIGCHI), Slack workspaces (e.g., young researchers, Sustainable HCI), and social media channels (e.g., SIGCHI Discord, CHI Meta). Organizers, coming from diverse geographical and disciplinary contexts, will leverage their networks (and social media channels) to advertise the workshop to targeted groups.

To participate in the workshop, potential participants will be asked to submit a 2–4 page position paper in single-column ACM template format, containing an image of a sociotechnical artifact that, according to them, relates to or troubles post-growth. The submission must include a description of the artifact (250–500 words) and the applicant's responses (250–500<sup>2</sup> words) to:

- How does the artifact align with or against post-growth?
- What barriers do you envisage in embracing post-growth in the context of your work/domain?
- How could the barriers be addressed?

We will accept submissions through a form on our workshop website available until Feb 27, 2024. The organizers will collectively evaluate the submission based on relevance to post-growth, diverse perspectives, and potential to generate critical discussion. Submissions from those traditionally under-represented based on, e.g., race, gender, institution, and geography will be encouraged and prioritized. Applicants will be informed about their selection via email by Mar 15, 2024.

Accepted submissions will be shared with all the participants through the workshop website at least six weeks before the workshop. We will set up a Slack workspace to nurture discussion among participants and organizers during the pre-workshop phase. We will provide participants with essential resources via the Slack channel at least three weeks before the workshop, including the recent Post-growth Human-Computer Interaction paper [50] and other relevant papers on post-growth (e.g., [1, 37]) to ensure that everyone at the workshop starts with a comfortable understanding of post-growth ideas in relevance to HCI. The documents will also be made available online through the workshop website.

### 4 WORKSHOP FORMAT

The workshop will be hybrid, with online and on-site components, for inclusive participation; however, it will be online-first, i.e., online participation will be prioritized throughout. We chose to organize a hybrid workshop to support the participation of many who will not travel to Hawaii due to sustainability, sovereignty, and/or inclusivity concerns but plan to attend CHI virtually with an on-site component, not to exclude on-site attendees.

Considering potentially large differences in time zones, we will enable asynchronous participation. We will share submissions and

other relevant materials with all participants at least three weeks before the workshop. We will use a collaborative Google document and Miro board, where participants can add notes and comments before, during, and after the workshop. Participants can leave comments or notes in the shared Google document to be discussed during the workshop. The document and Miro board will be available to all participants to view and leave comments even post-workshop. The Google document will be outlined prior to the workshop to assist with note-taking. Organizers will be responsible for overseeing logistics, including note-taking, timekeeping, and documenting. During the workshop, we will designate a student volunteer to assist us with taking notes, photos, videos, and recordings of workshop activities—only after obtaining the participants' consent.

### 5 WORKSHOP STRUCTURE

The workshop duration will be 8 hours to allow participants to take breaks, reflect, and re-engage with workshop activities. Periodic breaks will help the organizers to reconnect and adjust the upcoming activities. The main workshop activities are:

**Welcome greetings, introductions, and agenda (30 min.):** We will start the workshop with the organizers greeting the online and on-site participants, a round of introductions, and a brief conversation on the workshop agenda, including its motivation and goals. Doing this would orient and situate the participants in the workshop context to be actively engaged in the following activities.

**Post-growth gallery (30 min.):** All submitted artifacts will be printed and displayed in the room; photos will be shared with remote participants. In-person participants will walk around and view/engage with the artifacts submitted; they will share their reflections with remote participants. Doing so will generate some discussion and reflection; because of their standpoint/situatedness [23], people may view an artifact's engagement with post-growth differently. To simulate the gallery experience for our virtual participants, we will consolidate all the submissions and put them on a Miro board to capture virtual attendees' comments/reactions.

**Artifact presentation and Q&A (75 min.):** Participants will have two minutes to present their artifact, two minutes to describe its alignment with or against post-growth, and two minutes to answer any follow-up questions. As participants present, we will project an image of the artifact for online attendees to view. This activity will generate discussion. The curation of the artifacts will facilitate the formation of working groups for the ensuing session.

**Small-group speculative design session (60 min.):** Based on submissions, online and offline participants will be divided into small groups from diverse geographies, domains, methodologies, perspectives, and identities. The organizers will pre-create these groups, and participants will be informed about their group details during the workshop. Here, the participants will be asked to leverage their insights from the Post-growth Gallery in the speculative design activity session. Collectively, the participants will co-envision the design and research of sociotechnical systems based on post-growth principles. The artifacts curated will help the participants to think and concretize their ideas to envision the systems that could assist in building a post-growth society.

Then, they will be asked to critically reflect on the current realities that could pose challenges to the design and use of such

<sup>2</sup>While we recommend limiting the word count to 500, it can go over.

Time (HST)	Duration	Activity
09:00–09:30	30 min.	Welcome greetings, introductions, and workshop agenda
09:30–10:00	30 min.	Post-growth gallery
10:00–10:30	30 min.	Break
10:30–11:45	75 min.	Artifact presentation and Q&A
11:45–13:15	90 min.	Lunch and group set up
13:15–14:15	60 min.	Small group speculative design session
14:15–14:45	30 min.	Break
14:45–15:45	60 min.	Share-out and discussion
15:45–16:15	30 min.	Break
16:15–17:00	45 min.	Final reflections, closing, next steps, and informal chat

**Table 1: This is a tentative workshop schedule. We will be prioritizing breaks throughout.**

technologies and the possible pathways to address the challenges by, for example, asking how HCI practices could be altered to support technology design for post-growth futures or what social, economic, cultural, or political change is required to deploy their envisioned post-growth technology. Through this activity, we aim for the participants to share ideas, opinions, and experiences that will assist mutual collaborative learning. Here, each group will be working on a dedicated Google doc and will unanimously select a note-taker and presenter for their group to present next.

**Share-out and discussion (60 min.):** Each group’s presenter will share what their group discussed and the outcome of their discussion, i.e., what technology they envisioned, the challenges to designing and using such technology, and suggestions to address such challenges. This sharing will be followed by a discussion with the larger group on supporting post-growth in and through HCI.

**Final reflections, closing, next steps, and informal chat (45 min.):** We will conclude by reflecting on the workshop experiences, discussing what we learned and the next steps. We will collectively explore potential follow-up activities, collaborations, or initiatives that can build upon the discussions and insights gathered during the workshop. Participants will be encouraged to share their ideas for future actions and developments. We will also collectively discuss ways in which the insights from the workshop can be best shared with the larger HCI community. Finally, we will organize an informal networking event where attendees can (re)connect and engage in open discussions about various topics related to HCI, post-growth, or related areas.

## 6 POST-WORKSHOP PLANS

After the workshop, we plan to publish an interactions article and a Medium blog post, summarizing the insights and critical discussion that emerged from the workshop. Depending upon the submissions and participants’ engagement—comments, critiques, and suggestions—with post-growth ideas, we will organize a special issue in an HCI journal (e.g., COMPASS, TOCHI), inviting workshop participants and others to make submissions to take the conversation on post-growth HCI forward. Participants and organizers will use the Slack channel to share research on post-growth and collaborate on studying, designing, and developing sociotechnical systems to nurture post-growth futures. If there is collective interest, we will start a group to write an edited book on post-growth HCI.

## 7 ACCESSIBILITY

Prior to the workshop, we will ask participants how we can support their participation throughout the workshop. We will share a short questionnaire via the Slack channel and email, asking participants to share their needs to enable their desired engagement.

## 8 CALL FOR PARTICIPATION

The field of HCI significantly contributes to economic growth, which has caused the polycrisis of climate change, economic inequality, social inequity, and more. Seeking alternatives, HCI researchers have suggested orienting HCI to the post-growth philosophy centered on values such as care, autonomy, solidarity, and justice, to focus beyond material accumulation. Post-growth suggests improving quality of life and redesigning infrastructures to become substantially less dependent on capitalist expansion; these can be achieved by shifting from growth to redistribution, production to reproduction and care, acquisition to sharing and community, and industrial development to localized development. This one-day “online-first” hybrid workshop invites HCI researchers, designers, practitioners, educators, and students to co-evaluate the challenges and co-devise the pathways to embracing post-growth in HCI.

Participants are asked to submit a 2–4 page document (500–1000 words) in a single-column ACM template by Feb 27, 2024, with images of artifacts related to or challenging post-growth, a description, and an explanation via a form on our workshop’s website. Workshop organizers will evaluate the submissions based on their relevance and potential to generate critical discussion. Accepted submissions will be made available on the workshop website. All participants must register, and at least one author of each accepted submission must attend the workshop. All participants are required to register for at least one day of the conference. The online workshop would ensure that those concerned about the substantial environmental or financial costs of travel can attend virtually. This workshop is an initial effort to raise collective and critical consciousness about the economy’s increasing impingement in HCI and integrate post-growth ideas into transformative HCI practices for nurturing technology-mediated sustainable and just futures. For more information, visit the workshop website: <https://sites.google.com/view/post-growthhci/home>

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