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TAMING ENTROPY: SYSTEMS DESIGN FOR CLIMATE AND CHANGE.

Boglárka Jakabfi-Kovács^{*a}, András Lányi^b

a Moholy-Nagy University of Art and Design, Hungary

b Eötvös Loránd University, Hungary

* boglarka.kovacs@g.mome.hu

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While design, by its very nature and purpose, strives to reduce entropy within artificial environments, entropy is concurrently on the rise, not only within the natural world but also within the realm of human existence. The segmentation of design, driven by increasingly specialized fields, gives rise to new layers of meaning while universal concepts become depleted. Is sustainable design merely another method of shaping commodities, or can it encompass a comprehensive systems perspective? Within this complex domain, the parameters governing its operation can be defined, offering a fertile ground for scholarly exploration. We invite contributions to the track “Taming Entropy: Systems Design for Climate and Change”, where we aim to shed light on the leverage points of high efficiency within the design of sustainable systems.

As outlined in the call for papers, the concept of sustainability is frequently compromised by market-driven logic, resulting in practices of greenwashing and distortions of value systems. While there are numerous examples that illustrate this phenomenon, perhaps the most striking is the observation that, despite a series of international climate conferences (COP 1-27), agreements (e.g., Stockholm 1972; Rio 1992; Kyoto 1997; Paris 2015), and institutions (e.g., IPCC, 1988), meaningful reductions in carbon dioxide emissions have only occurred temporarily—during the global financial crisis of 2008 (Kallis, 2017) and the COVID-19 lockdowns. The question remains: why have we not met the goals of climate strategies? Why has the transition to a circular economy not occurred, and why does consumption continue to increase? The answer lies in the neoliberal economic

system, where the imperative for growth overrides the values underpinning sustainable strategies. The concept of sustainable development (Brundtland, 1987), while conceptually tautological, has been subject to criticism even before its formalization (Meadows, Randers, & Meadows, 2004; Illich, 1984; Lányi, 2022). Nevertheless, the United Nations adopted 17 Sustainable Development Goals (SDGs) based on this concept. Although the majority of these goals reflect a morally sound systemic perspective, the influence of market forces remains evident, particularly in SDG 8: Decent Work and Economic Growth.

The first session, entitled *Designing Education for Tomorrow*, focused on the integration of ecological perspectives into education. Both the morning session and the afternoon workshops highlighted the importance of developing education that is aligned with ecological principles. Whether addressing museum pedagogy, gamification, immersive UX design, or the introduction of new curricula, uncompromising solutions require the persistent efforts of dedicated practitioners. From Mongolia to Europe, during what was the warmest spring on record, it remains essential to emphasize that the ecological crisis is not separate from the crisis of civilization but rather a consequence of it. It is not global warming that we should be fighting—global warming is not an external threat to humanity, nor is it a catastrophe detached from us. Moreover, the aim is not to “save the planet,” as the Earth will undoubtedly survive without us. Instead, we must redefine our understanding of progress and the good life, recognizing that the fundamental needs of humanity have remained unchanged over the past 20,000 years. These needs encompass more than just basic survival; they include the need for a meaningful existence and a sense of belonging within a supportive community. The unquestioning belief in progress has led to the reduction of knowledge to mere utility (thereby limiting our ability to understand both others and ourselves), the redefinition of freedom as consumption, and the conflation of creation and work with production. Means have become ends (Lányi, 2022, p. 23). To the question of whether there is still time to articulate and teach these concepts through the language of design, the presenters responded that there is not—yet they agreed that there is no alternative.

The second session, entitled *Taming Entropy by Products*, explored whether truly sustainable product and service design is possible. The inherent contradictions—whether a product is made from sustainable sources or produced through a reuse approach, it still results in new production and consumption—raise the question of whether these contradictions can be resolved through the principles of circularity and efficiency. The presentations, posters, and workshops in this session reflected a complex perspective, one that considers not only the energy and materials invested in a product or service but also its utility and the impact it has on shaping societal views. A disheartening conclusion from the panel discussion was that, contrary to the optimistic messages often conveyed by sustainability advocates, technologies that support circularity have been unable to keep pace with the increasing rates of production and consumption. A striking example of this is the millions of tons of textile waste that remain unprocessed and are often incinerated annually, as only a small percentage of clothing is recyclable, and the recycling industry lacks the political influence necessary to effect regulatory change.

The third session, titled *Systems Design*, adopted a broader interpretation of systems thinking, addressing urban-scale social problems as well as the physical and linguistic systems of ecology and the question of responsibility. The responsibility of designers extends far beyond the application of sustainable technologies, encompassing the broader interpretation of systemic perspectives. Why is there no overlap between the growing global housing crisis and the increasing sprawl of real estate developments? The institutionalized certification systems associated with greenwashing provide shameful evidence of this, as sustainability certifications are routinely awarded to building complexes that contribute to environmental degradation and have life cycles of less than 20 years. Despite the façade of sustainability, these practices obscure critical environmental and well-being issues. For instance, why was a particular building constructed in the first place? What was previously located on the site, and what alternatives could have been pursued? Whom does the building serve, and what are the environmental and social impacts of its construction and operation? Which building regulations had to be altered to facilitate its construction, and why? What message does this send to the city’s residents, many of whom will never be able to afford to live in these spaces?

Capitalism, as it operates today, colonizes sustainable models and corrupts decision-making processes. In Track 8, our aim was to explore the coping strategies and intervention points identified by designers from diverse parts of the world, all of whom operate within this global framework. How do these designers attempt to avoid the traps embedded in the notion of sustainable development? The presenters and exhibitors of this track demonstrated a relentless commitment to the challenge of taming entropy, both within artificial environments and within the realm of human existence.

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