

Critical Design Fictions of Sustainable Development: Beyond technological optimism

Gavin Melles

Swinburne University
Hawthorn, 3120
Australia
gmelles@swin.edu.au

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CHI 2020 Extended Abstracts, April 25–30, 2020, Honolulu, HI, USA.

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ACM ISBN 978-1-4503-6819-3/20/04.

DOI: <https://doi.org/10.1145/3334480.XXXXXXX>

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Abstract

Since the coining of the term design fictions and its subsequent definition by Sterling, the term has become a lightning rod in the HCI community and beyond for a range of practices associated loosely or strongly with the original idea of challenging current narratives of socio-technological progress and growth. In his original work and later definition of design fictions as the deliberate use of diegetic prototypes to suspend disbelief about change Sterling placed emphasis on envisioning sustainable futures while simultaneously

embedding them in narratives of critical and speculative design. In the enthusiastic uptake of design fictions in many fields the central concern of critical design and design fiction with alternative sustainable futures may have been swamped with technological optimism. This paper analyses the current divergence between scenarios, visualisations and prototyping that critically engage with sustainable futures and those which do not. I exemplify the debate with recent graduate (PhD) student projects.

Author Keywords

Authors' choice; of terms; separated; by semicolons; include commas, within terms only; required.

CSS Concepts

• **Human computer interaction (HCI)**; sustainable development; design fictions

Introduction

The value of fiction in literature, film and other genres to propose alternative desirable futures in current uncertain times is not a new proposition [17]. Dystopian and utopian visions of where society is going and what a sustainable future could look like are important in the current existential threats to humanity. The role of design fictions in promoting sustainable futures has recently been explored and is part of the original impulse for design fiction and critical design [14]. However, the existing discourse of ecological modernization (EM) on sustainability with its emphasis on growth through technological optimism and decoupling from environmental degradation misrepresents the global crisis.

Despite its potential and original impetus to challenge acritical monologues about sustainable futures, design fiction has been adopted and co-opted to further such an agenda. HCI and related fields need to contribute to alternative visions of transformation and change, sidestep unreflective narratives about reality and provoke debate [1]. Thus Bell and Dourish [2] talk about "Homogeneity and an erasure of differentiation is a common feature of future envisionments". Difference in the case of this paper has a name however and it is alternative anthropocentric and eco-centric discourses of sustainable development.

Futures beyond ecological modernisation (EM)

In the current climate of global warming, rising global inequity and other existential threats, the optimistic discourse of ecological modernisation (EM) remains the dominant discourse of mainstream sustainable development [7]. Following the global mainstreaming of sustainable development by the Brundtland Commission, ecological modernisation and market environmentalism established themselves as the default interpretations of continued green growth, particularly in Europe but subsequently in Asia, Australia and elsewhere [4]. Central to both approaches is faith in markets to manage environmental degradation, some roles for state regulation, and technology optimism about the capacity of industry to decouple growth from environmental damage [2]; current enthusiasm including in design circles for the circular economy is the most recent expression of the EM discourse. This matters because design fictions aim to challenge mainstream discourses and alternatives.

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However, it is not clear that that is happening and there is evidence that the critical impulse is being lost as design fiction gets co-opted into the mainstream ecological modernisation and market narrative.

Sustainable futures beyond scenarios

The quest for a sustainable world may succeed, or it may fail. If it fails, the world will become unthinkable. If it works, the world will become unimaginable Bruce Sterling, p.5 [19]

In his original inspiration to design fictions, Sterling pointed to the key mission of diegetic prototypes as proposing sustainable futures. The allusion to the challenge for the artificial sciences of proposing desirable futures recalls Herbert Simon's emphasis on the need for a focus on socially desirable futures and not only optimized market-based solutions [18]. Although there has been a social and ecological turn in design over the last few decades, mainstream design, HCI and related fields mainly support a mainstream EM discourse of progress rather than contributing to critical discussions about alternative 'desirable futures' that question current institutions and processes. Thus, although it is important to have a healthy interrogation of metanarratives of progress in our era of late or postmodernity, it remains alarming that, including in HCI and design uptake of critical narratives for diegetic prototypes remains marginal.

we need more pluralism in design, not of style but of ideology and values, Dunne & Raby, p.9 [9]

Admittedly dystopian visions and narratives about the role of technology, e.g. drones, robots and surveillance, in the future including through film and fiction have supported the agenda of critical and speculative design

to debate the future [1]. From the perspective of sustainable futures this means more than fiction and film encouraging and predicting future technological developments [11]. Rather speculative and critical design has helped create narratives questioning the imperatives of technological optimism. This can happen at two levels – one is questioning the use of specific technologies in the future, e.g. 3D printing [15], and at another level critiquing or resisting the very necessity of such technology. This is not to deny the importance of positive not only dystopian visions of the future, but these visions do not need exclusively to depend on mainstream green growth imperatives [13]. However, there is a tendency already evident of seeing 'pedestrian' futures being generated using design fiction and related approaches [5].

In addition to unreflexive future scenarios and prototypes, design fictions without any critical engagement with sustainable futures has developed. Thus, creatively prototyping the high street sees design fictions stripped of any real engagement with the unsustainability of such environments [10]. The field of strategic foresight and futuring is a particularly worrying example of the co-option of design fictions for promoting un-critical futures [16]. Thus, in exemplifying student engagement with design fictions in a strategic foresight program, the focus albeit purportedly on dialogue centres on surprise factors and customer product relationships [8]. In another recent overview study of approaches to futuring urban mobility through design fictions and prototyping the absence of criticality and alternative non-technical solutions also shows a similar bias in current approaches [20]. Thus, while speculation about alternative socio-technology futures remains an urgent

requirement, stronger modernisation critiques, which might question the very future of HCI and technology development remain marginal.

Personal engagements: three examples

To illustrate some of the tendencies, tensions and possibilities, I will briefly illustrate with examples from two PhD projects in the sustainability space that I have directed. In each example, the proposals and outcomes have proposed alternative visions of communities and urban or rural spaces, while engaging with existing policy and mainstream approaches: a sustainable public transport systems for Kuala Lumpur (Malaysia) and urban regeneration of neighborhoods in Mashhad (Iran) and Melbourne. The two examples are by no means perfect in their future renditions of sustainable development, but they put flesh on this discussion. They show inter alia that sustainable design fictions benefit from engaging other theories, e.g. social practice theory [21], in creating alternative visions, i.e. that design fictions per se is not enough.

Kuala Lumpur sustainable transport system

Sustainable public transport systems are an essential contribution to urban sustainable development goals, and policy and projects in this respect are being globally pursued. As part of a larger contract between my University and the Malaysian government, a hybrid bus system was developed largely by Engineering faculty and delivered in 2017. In parallel (and within) this engineering project, my PhD student responded to the Malaysian Government 2020 vision of a sustainable transport system by proposing a multi-mobility networked and digitally enabled bus and shelter system. The contrast between this (at the time) future outcome and the engineering project was stark as the

reality for Kuala Lumpur was that with a rising aspirational middle-class it was unlikely that even the hybrid bus could succeed [12]. Despite this 'evident' reality, we proceeded to imagine a system that would recharge with renewables, allow connections with cycles and cars, and generally lead to de-congestion. This future remains unlikely, but it is the future that the transport policy document for 2020 encourages. However, rather than restricting future visions to typical industrial design outputs on the hybrid bus we questioned the mainstream engineering and modernist narrative of market environmentalism.

Sustainable Urban Regeneration of Neighbourhoods in Mashhad (Iran) and Melbourne

The idea of sustainable urban design and regeneration is uncontested in Western developed nations and includes the idea of community participation, retention of cultural heritage, and a range of other principles. While rhetorically such an approach is also mooted in urban design contexts of Iran, the reality is that most cities experience a demolition and new-build culture of modernisation that neither acknowledges nor allows for such alternative approaches to urban sustainability, especially in cities with strong religious and political barriers such as Mashhad. In a second, recently completed research project, we decided to explore with community stakeholders, city urban design experts and government, what the desires for a sustainable urban design were, employing digital renderings and other design visualisations [3]. Findings included not only the desire for community participation but also heritage retention, and other socio-economic factors, such as local employment, that could be enhanced by neighbourhood level sustainable design. Thus, here again the project challenges the current policy rhetoric of ecological modernisation and sustainability in Iran to

address this reality through participatory and design fiction approaches.

Conclusions

Design fictions originally emerged to question existing narratives of sustainable futures. This critical impulse still exists but is being swallowed by more mainstream discourses of ecological modernisation and market environmentalism or even simply optimistic futurist narratives.

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