A Networked Culture of Unsustainability: ANT & Activism

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Abstract
This paper argues that two open questions exist for HCI in its aim of supporting sustainability: One of networks and one of cultures. The first question is related to HCI's approach in defining sustainability. It this paper, it is argued that actor-network theory (ANT) can help HCI to broaden its understanding of networks of unsustainability. The second one is related to HCI's approach to achieving sustainability. It is argued that, while HCI is moving on from individuals to cultures, e.g. through activist strategies, specific solution approaches are missing.

Author Keywords
HCI & Sustainability; actor-network theory; ANT; activism; social movements

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction
HCI & Sustainability must be looked at from two perspectives: The first one is understanding unsustainability, the second one is achieving sustainability. This paper argues that on both ends there are open questions. In order to address them, it relates to transportational sustainability, because

sustainability as a whole is too large a topic to be covered in a four-page position paper.

The two goals of understanding why people behave unsustainable (in many cases despite better knowledge) and reaching sustainability is a massive enterprise. Too diverse are the issues at hand that a single solution solves the problem once and for all. Historically, HCI has shown interest in sustainability using an individual behavioural approach [1,3,5]. Persuasive technologies have been a popular strategy to alter behaviours. As recent surveys [1] have shown, the effects of the implemented interventions are, however, either unknown or limited. The proposed alternative is to shift from the individual to larger societal and political structures [3]. Instead of optimising personal efficiency, sustainable HCI should foster reflection and social discourse on what it means to live sustainable in a specific context. It should not blame individuals for their unsustainable behaviour, but focus on the political discourse behind it [4].

Let us, however, take one step backwards, and first have a look at how HCI tries to understand sustainability, before we think about how to achieve it. For this purpose, we selected three of the eight questions proposed for this workshop.

Answers to the Proposed Questions

How can we make better use of sustainability knowledge from outside HCI?

As we have outlined in the introduction, technology use should not be looked at in isolation. It is deeply embedded in cultural practises. Thus, any technological change equals societal change. We believe that HCI can gain a lot by incorporating traditions of thought from other scientific disciplines, in particular Science, Technology and Society studies (STS). The phenomenon of unsustainability can be seen as a large network of both human and non-human actors. The actor-network theory (ANT) [12,14] can be a fruitful approach to better understand the complexities and dependencies involved in changing individual behaviour. ANT understands humans, animals, artefacts, texts, institutions, money etc. as actors in an interrelated network.

An artefact that is generally labelled as unsustainable is the car. Why does, in the industrialised world at least, almost everyone own one? ANT helps us to explore the connections. In car usage, there are humans involved: the driver, passengers, mechanics, engineers, designers, and employers that require their employees to use a car. There are artefacts and texts involved, such as a driving license, petrol, roads, ads, goods to transport, and so on. And there are institutions and money: banks, insurances, regulators, sub-contractors, marketing agencies, petrol stations, the oil industry, and so on. This incomplete list makes clear in what complex way a simple object as the car is connected to a large sociotechnical system. If one element of the network is changed, this has consequences on many other components that need to compensate or adjust as well. One cannot imagine the changes necessary in society if we abandoned the car from one day to the other. Most likely it would lead to a total collapse.

So, as we do want to reduce the presence of the (petrol-driven) car on this planet, we need to look at all dependencies instead of deploying simple technological gadgets in the hope they would change the world. Such a deterministic perspective has been criticised from

within HCI before [1,10]. ANT has been proposed in other contexts, such as information systems research [19] and green technology [16]. It might also help HCI to better understand how unsustainable behaviour is embedded in social and cultural practises beyond individual control [6,13].

What do we know, from within and beyond HCI, about how sustainability might be achieved?
Moving on from understanding networks of unsustainability, we argue for activism as a promising approach to achieve cultures of sustainability. It allows to reframe persuasion and sustainable HCI [2,3,7,9,11], as it presents a way to address social, political and cultural aspects of unsustainability. Activism and information and communication technologies (ICTs), of course, do have a common history already. Recent phenomena, such as the *Occupy* and the *Arab Spring* movements, demonstrate how activists use technology, in particular the Internet and social network sites, for their causes [18].

Garret [8] describes the role if ICTs in the emergence, development, and outcomes of social movement activity [15]. He collects a number of facilitating indicators, in particular for mobilisation of participants, exploitation of political opportunities, and creation of alternative informational networks. He is careful though to label them as 'claims', suggesting there is no ultimate evidence that ICTs are actually transforming the way in which social movements work. To flip his analysis over, the framework could nevertheless be useful as a 'toolbox' for HCI to craft technology that fosters these factors. One example Garret names are ICT-supported media tactics that 'seek to influence public opinion and create political pressure through publicity' [8:208]. Accordingly, the design of an ICT for sustainability could particularly ease deploying such media tactics.

What crucial open questions remain?
A major open question for activist HCI is how to go beyond mere advocacy. HCI needs to explore specific aspects of unsustainable practices and how to address them in an activist manner.

For example, in a recently conducted study we identified several factors that make users stick to using the car despite intervention of a persuasive technology [17]. Many of these factors are beyond the individual's control. They include 'hard' factors such as the need to transport children or objects, age, reliability and availability of public means of transport, safety, and weather. There are also a number of 'soft' factors, such as status, need for flexibility, time savings, privacy, and acceptable travel time. Such factors *could* be changed by someone individually. They are, however, heavily influenced by social values. Therefore, societal and structural changes are necessary to reduce car dependency. For example, issues of long travel distances reflect urban planning decisions on where people want to live and where to work. The question remains, however, 'How can HCI better understand such networked cultures of unsustainability and how can it respond?'

Conclusion
We argued in this paper that HCI should adopt ANT to better understand existing networks of unsustainability, whereas activist approaches could be an approach to achieve a culture of sustainability. We do believe, however, that a radical dismissal of 'conventional',

individualistic approaches, as others suggested [10], is not necessary. To the contrary, we believe there are aspects, such as fun, experience, social norms, that can be well addressed with these approaches. How to integrate them with activist strategies is, however, another open question.

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