Speculative Approaches to Understanding DAOs

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Abstract
In this position paper we discuss the methodological challenges associated with engaging citizens, publics and research participants in speculations around future socio-technical systems. We focus on distributed autonomous organizations and associated smart contracting and distributed ledger technologies as an example of such systems. Drawing on our prior work on Speculative Enactments, we highlight the potential value of speculative approaches to engaging people in the design of DAOs that (i) have clear consequentiality for participants, (ii) illustrate scenarios of the future mundane involving these technologies, and (iii) give opportunities for participants to co-construct speculations. We suggest these as provocative starting points to conducting future participatory and speculative design research on DAOs, and to promote discussion with workshop attendees.

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

Introduction

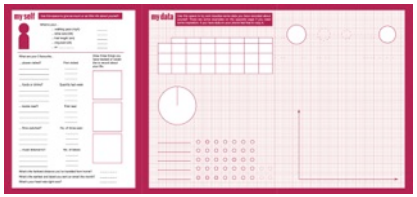
Distributed autonomous organizations (DAOs), and the smart contracting and distributed ledger technologies (DLTs) that underpin them, have potential to radically change the design and management of services, and the interactions, transactions and exchanges of value within them. While offering new ways for organisations to operate and exist, with it comes opportunities to challenge what "value" means, to address power inequalities and to raise questions around ethics, identity, ownership and co-operation. At the same time, while this potential persists, there are acknowledged challenges related to the wider acceptance and integration of DAOs, and DLTs, into a broader array of contexts and application areas. This includes concerns around security, around the long-term immutability of ledger data, and indeed the ways they interact with policy and regulation [1]. But a further fundamental issue is the abstract and ill-defined nature of precisely "what" a DAO or DLT is, and "what" their implications might be for citizens lives in the future. Indeed, as Popper notes, "like so many things related to the digital currencies that cryptographers are creating on the Internet, is difficult to describe" [13]. If the academic community, and indeed professionals engage in establishing DAOs, struggle to comprehend and define these – what does this mean for other stakeholders and general members of the public, in terms of engaging them and exploring how these ideas may impact on organizations and everyday lives?

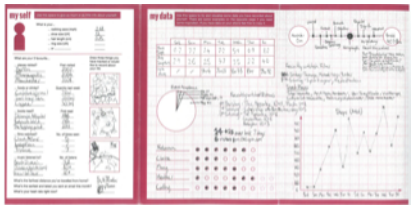
Overcoming Abstract Futures

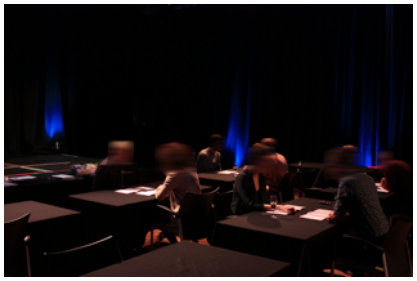
A long running challenge in participatory design research has been to engage stakeholders and publics in discussing new and unknown technologies. In our own work, we have employed speculative methods to engage people in the prospect of a 'data-driven life' and services, which may emerge from the increased prevalence of data-driven technologies, sensors and indeed Internet of Things devices in everyday life. Questions around possible legacies of quantified data, or data as a touchstone to one's personal identity, remain an abstract concern for most individuals. This paper seeks to make a parallel methodological argument: just as the future is abstract, so are the emerging socio-technical phenomena implied by DAO's, which are currently well beyond most people's present experience.

Futurists Candy & Dunagan argue that the aim of speculative studies should be to: *"bridge the experiential gulf between inherently abstract notions of possible futures, and life as it is apprehended, felt, embedded and embodied in the present and on the ground."* [4]. Nonetheless, while speculative work is on the uptick in HCI and related fields, such work frequently generates speculation that is intended to provoke an observant audience, rather than producing experiences that overcome this abstract nature of the future. In many cases, a critical and literate 'reading' of such work is required; else it relies on some kind of illusion or imitation of present tropes and media.

Over a series of projects, we have pursued an approach to speculative design research that prioritizes the *experience* and *action* of participants set amidst speculative circumstances. 'Speculative Enactments' [9] endeavor to transpose abstract possibilities into meaningful and consequential experiences, through which participants can more viscerally, and personally, engage in speculation. In the Metadating project (Figure 1), a speculation about data and identity was







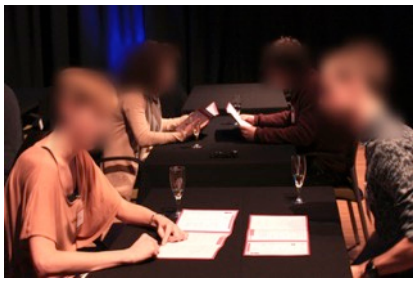


Figure 1: Metadating 'data profiles' and speed-dates.

'enacted' through the very real circumstances of speed-dating event [11]. The Quantified Wedding project (Figure 2) explored the design of a 'datagraphy' service, and enacted this through meeting with engaged couples, and featuring their weddings in a concept brochure [10].

We see this style of work as building on a history of future oriented HCI methods – e.g. from scenarios [5], role-play and theatre [3,17], to film [2] and design probes (e.g. [19]–which seek to provide spaces for engaging participants in abstract concepts or futures. In many ways, HCI as a field is both explicitly concerned with the embodied present *as experience* [7,20] while being implicitly future oriented [8,15]. It is hence well placed to bridge the 'experiential gulf' and develop methods to engage diverse stakeholders in complex and abstract technological futures.

Maxwell et al.'s [12] use of tangible Lego bricks in order to make the blockchain "'effable" suggest the value of such an approach in the context of abstract distributed systems. In what follows, and at the workshop, we hope to explore the how concepts from Speculative Enactments might be leveraged towards more participatory research in the context of DAO's.

Leveraging Speculative Enactments

Consequentiality

A key tenet of Speculative Enactments is to generate speculative settings where participants' actions are consequential and have consciously meaningful outcomes. These outcomes tend to be social and emotional; for example, Metadating participants experienced excitement and possibly social awkwardness sharing their data on dates; engaged couples were managing a public impression through the datagraphy service. We created conditions in which the terms of the speculation, and the way participants engaged with it mattered to them on some level.

There are many ways to do this. One is to simply make the interaction more public and social, beyond the confines of a lab or the comfort of an audience member. Examples such as dating and the improvised acting in the Runner Spotters [6] project also work as 'games', which have certain rules and incentives for participants to follow and become engrossed with. We might imagine gambling, or other forms of competition as another mode of introducing consequentiality.

Indeed, one outstanding challenge in researching and designing for a DLTs is the opaque nature of exactly what the interaction with these technologies looks like. Perhaps there is potential for enactments to explore ways in which the interaction with these systems can be made more plain and consequential? Examples such as the BitBarista perhaps represent a form of 'material speculation' [18], relying on a physical and functioning artefact. Speculative Enactments may present opportunities to design more speculative objects and settings that relate to DAOs.

Future mundane

Much speculative work relies on presenting a 'future mundane' – prosaic elements of a speculative world that resemble the present world, such as drinking a coffee, or taking a subway train. This can be a starting point that helps situate and ground speculation in people's everyday lives. Speculative Enactments can also be seen to do this. Dating and weddings are positioned as very familiar, and stable, human practices

Figure 2: Materials and enactments from Abacus Datagraphy.

through which technological change can be explored, while still being rooted to a familiar present. This kind of work requires identifying aspects of the present which are expected to change over a longer period, and those which might be more radically shifted by new socio-technical phenomena. We can consider the contemporary social rituals and phenomena that may bear resonance to DAO's? Early examples like Kash cups, and BitBarista [14] arguably rely on the already familiar routines of drinking coffee. Imagination is required to recognise the implicit existence of distributed ledgers in everyday life – from paying council tax, to buying rounds in the pub.

Supporting co-construction of speculation

Lastly, Speculative Enactments support the co-construction of speculation with participants. Design Fiction, by contrast, often mimics a reality, with only subtle hints to its fictional nature, inviting participants to 'suspend disbelief' as an audience [16]. By creating opportunities for participants to meaningfully act amidst a speculative setting, they are in fact co-constructing the resulting speculation. The hand-drawn data profiles crafted by participants became a personalized part of the telling and discussion of Metadating after the event. In this way, Speculative Enactments open up seams for co-creating and producing the 'content' for these speculations. These are all the more compelling for being participant-driven, and further the buy-in of participants. Once again, this resonates with the work of Candy & Dunagan who call for "*…designing* circumstances or situations *in which the collective intelligence and imagination of a community can come forth."* [4]

Clearly, where speculative work is being used to generate discourse, as a boundary object, or to make decisions about the design of technological systems, it would be desirable to better represent participants voices and experiences through these speculations. While provocative, much speculative design work arguably falls short in this respect. Further, given that any DLT or DAO is necessarily distributed and co-produced, it seems apt to adopt methods which allow for the co-construction of speculation, between researchers, participants and things.

Conclusion

This position paper sets out the potential to leverage speculative methods, as a way to overcome seemingly abstract and challenging new socio-technical systems. In attending the workshop, we hope to further our own understanding of DAO's and develop opportunities to involve participants in speculative research that shapes the design and development of these technologies in the future. The opportunity to engage diverse publics, stakeholders and individuals in their design is especially vital for powerful and opaque technological systems such as DAO's. However, this presents considerable methodological challenges, which we hope to develop further during the workshop.

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