

Artefact As Bridging Concept For Designing Future Economies

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ABSTRACT

We are interested in the use of artefacts as a design research methodology. So, we consider a design-centric approach to move beyond the economic paradigm that has dominated since the industrial revolution. Including the potential of artefacts as a *bridging concept* to links fields, stimulating dialog to foster inter-disciplinarity. In designing future economies we considered Computation Capital, and its innovation potential in the business models of Small and Medium-sized Enterprises. We then developed artefacts to better understand the significance of Computational Capital in the structures and models that have emerged within the digital economy. We then conducted a series of experiments which confirmed the potential and limitations of our approach. We conclude by considering the wider potential of our artefacts in designing digital cultures for future economies.

Author Keywords

digital; culture; materiality

ACM Classification Keywords

H.5.m. Information Interfaces and Presentation (e.g. HCI): Miscellaneous

INTRODUCTION

The digital revolution presents an opportunity to re-conceptualise our ways of making the economy. Technological disruption brings greater levels of uncertainty, but many of our familiar economic structures are not well placed to adapt to these conditions. Therefore, a latent need is developing to focus on designing enabling concepts and methods that would allow us to address the dichotomy, which increasingly presents between current approaches to innovation and cultural needs. We consider that an artefact, as a *bridging concept*, may be a viable approach to understanding of the potential of designing digital cultures for future economies.

DESIGNING FUTURE ECONOMIES

We consider a design-centric approach to move beyond the economic paradigm that has dominated since the industrial revolution (economies of scale, scope, power and capitalism as the main control factors). Instead, recognising the po-

tential of digital technologies, beyond industrialised applications, for creative innovation. Using visual methods, we investigate transitioning from *Homo Economicus* to the emergence of *Homo Reticulus* (the networked human). So, developing a better understanding of the digital economy, and the increasingly digitally-enabled economy through artefacts as a *bridging concept*.

BRIDGING CONCEPT

A bridging concept actively links fields and stimulates dialog to foster inter-disciplinarity [3], including bridging research and policy realms [5]. This is done through utilising a common conceptual framework to stimulate interdisciplinary dialogues and collaborations. So, it can strategically link different areas of work and practice [2]. Therefore, it has the potential to address understanding that is isolated (or *silos*) within certain disciplines, with potential for *actors* to use the *concept* explicitly as a bridge [1]. Furthermore, we can consider the greater potential artefacts may have as *bridging concepts* to be explicitly used as a bridge between disciplines.

ARTEFACT

In designing future economies we considered Computation Capital, and its innovation potential in the business models of Small and Medium-sized Enterprises (SMEs). We argue that this Computational Capital results from computational capabilities and computational capacity, emerging as the dominant form of capital for innovation in emerging economics [4]. This represents the start of a fundamental shift in understanding the nature of digital. Including considerable potential for designing preferable, rather than tech-totalitarian, digital cultures. We then used a design approach to develop visual methods of articulating theory to non-academic audiences. Drawing on visual methodologies, affordance theory and boundary object theory we produced artefacts that both articulates and make tangible complex theory. We developed artefacts to understand the significance of Computational Capital as shown in Figure 1. The first step in making the immaterial material, resulting from being able to visualise the digital dimension of business models. Thus allowing us to share our understanding of the business and economic potential of designing digital cultures. Designed to be a *bridging concept* to communicate between different disciplines, to better understand the structures and models that have, are, and

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could emerge within the digital economy. With the aim to have a similar relationship to the mutual influence of science fiction and technological innovation *bassett2013*.

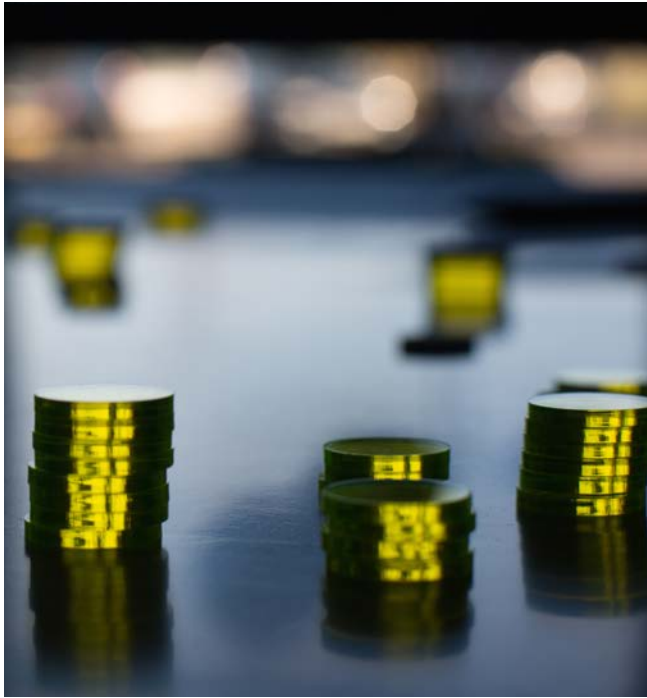


Figure 1. Stacks of Computational Capital: Represents the combination of computational capabilities and computational capacity. It is emerging as the dominant form of capital for innovation in emerging economies. So, it is a new asset class for companies and should be recognised on company reports [?].

EXPERIMENTS

We conducted a series of experiments, in which participants introduced to our artefacts to determine the potential of digital for their organisations, including businesses, local government and third sector. We invited participants to interact and experiment with the underpinning economic theory *playfully* in real world contexts. Our first experiment consisted of participants from local businesses and local government involved with the food sector in a design studio space. We determined that the artefact appeared to be widely applicable to organisations of different types, including local government departments involved with the creative sectors and community power projects. Our second experiment consisted of participants from a range of local businesses, including the food, retail and IT sectors in our highstreet studio. Notably, we found that participants from the IT sector found limited benefit from mapping the digital technologies in their business. This was because, given their specialist knowledge of digital technologies, they were already aware of the potential of digital technologies. So, we determined that the applicability of the artefact while widely applicable is not universal.

Our third experiment consisted of participants from local government, businesses and third sector and was conducted as part of a third sector networking conference. Participants

were asked a series of feedback questions. 83% of participants rated the artefact as *above average to excellent*. 67% of participants of rated the usefulness of the experiment as *above average to excellent*. 67% also rated the learning experience as *above average to excellent*. This suggests a majority valued the experiment and learning experience, but that a third felt it could have been better. 58% rated the potential future impact of the artefact for their organisation as *above average to excellent*. Given that 83% positively rated the artefact, we likely need to adjust the format of our experiments to be more engaging. We also received comments such as “great fun and very creative” from one participant, along with other positive comments. We also received the comment “slightly too intellectual”, which we consider to be informative. Given that the highly complex economics theory we were attempting to communicate without the artefact, was considered unintelligible at the introduction of the experiment. So, ending with “slightly too intellectual” through the use of the artefact is a considerable improvement.

CONCLUSION

We continue to recognise our economy through mental models formed in the industrial economy, which can now hinder our innovative capability. Attempting to understand the post-industrial emerging network structure of society with established mechanistic rational approaches to innovation. However, alternatively understanding Computational Capital through an artefact as a bridging concept highlights the potential of fully-distributed Computational Capital models for emerging future economies. In this context we found use of our artefacts as *bridging concepts* as an effective design research methodology for inter-disciplinarity. For example, we have identified through our experiments future work considering the potential of digital technologies for *distributed* providence in rural food networks. So, designing digital cultures to create preferable futures, rather than some of the possible *digital dark ages* that appear to be emerging, such as tech-totalitarian mega foodchains. Therefore, how digital technologies can be designed to create preferable socio-cultural innovation, rather than ever-greater corporate-lead individualism.

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