

---

# PizzaBlock: Can a Workshop be a Research Product?

**Chris Elsdon**

Design Informatics  
University of Edinburgh  
celsden@ed.ac.uk

**Jonathan Rankin**

Design Informatics  
University of Edinburgh  
jonathan.rankin@ed.ac.uk

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

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

© 2020 Copyright is held by the owner/author(s).

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

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

*\*update the above block & DOI per your rightsreview confirmation (provided after acceptance)*

**Abstract**

In this paper, we introduce a recent RtD project, PizzaBlock, where we engaged various communities in speculation about how Distributed Ledger Technologies, could be used to decentralize identity management. We re-examine PizzaBlock, a role-playing game and workshop, through the lens of Research Products. In doing so, we ask 'Can a Workshop, be a Research Product'? We do this to consider how Research through Design can be understood in contexts where engagements and materials are perhaps more fleeting, and yet have nonetheless been carefully and iteratively designed, going beyond an initial probe or prototype.

**Author Keywords**

Research through Design; Identity Management; Distributed Ledger Technology

**Introduction**

PizzaBlock is a Research through Design project and role-play based collaborative workshop to help participants understand and explore the use of distributed ledger technologies (DLTs) to decentralize the management of personal digital identity (e.g. [2]).

In essence, PizzaBlock creates a physical analogue of all of the transactions involved in managing identity through a DLT, and offers a tangible and experiential way to make sense of these complex networked technologies [9].



Figure 1: Examples of a 'Private Wallet', task sheets, receipts and stickers that volunteers need to use to play PizzaBlock.



Figure 1: A completed 'task sheet' which is matched and proven to be eligible through reference to stamps and uniquely numbered stickers.



Figure 3: Participants using the shared ledger, to anonymously check whether volunteers actually have the skills and experience they claim.



Figure 4: Volunteers and social enterprises negotiate and work together to match skilled volunteers with advanced pizza making tasks.

### Playing PizzaBlock

PizzaBlock relies on the design of artefacts (opposite) to shape independent, role-play based, game play. Through iterations after each workshop, the artefacts became simpler to use, more specific and accurate, and easier to manufacture at scale for up to 30 participants, while increasingly their fidelity to the underlying technology we sought to represent.

Most of the artefacts are blank or unused to begin with. As players make transactions with each other, they record these by marking various sheets and receipts, through stickers (representing a data input) and stamps (a public key).

In so doing, players create a record of all of their transactions and these records are then the basis through which features and applications of the technology can be discussed and understood.

### **PizzaBlock Pictorial**

We have published a DIS Pictorial about PizzaBlock [9] where we focus on:

- 1) The design of the gameplay and associated artefacts.
- 2) The iterative process we went through in refining the game-play and artefacts themselves in order to more accurately represent the underlying distributed ledger technology, and to make a more fun, and legible game.
- 3) How the game offers a platform for more participatory design activities grounded in a shared experience and physical artefacts that are created through the gameplay.
- 4) Challenges and opportunities in designing for *experiences* of networked infrastructures.

The project was developed with partners 'Volunteer Scotland' – to explore the potential applications of DLTs and blockchain technologies in managing *volunteer* identities. Specifically, we were interested in ways in which a record of voluntary service and certification could be made more durable, portable and independent. During PizzaBlock, a narrative is presented to participants that Edinburgh faces a crisis that can only be solved through volunteers working with various social enterprises to make better pizza.

An overview of the design of PizzaBlock, and how it is played, is best communicated through this short video: <https://vimeo.com/432648810/e6f876fce3>

We have run this workshop with over 100 participants on six separate occasions, iterating the artefacts and the gameplay between each rendition. The design work we wish to reflect on in this paper encompasses the careful design of all of the artefacts in the game, in concert with the gameplay that they afford, towards an delivering a deeper and experiential understanding of a complex networked technology.

### **PizzaBlock as a Research Product**

The Things of Design workshop offers us the opportunity to consider more closely where PizzaBlock sits as a Research through Design project and as a 'thing'. While we took considerable care in the design and iteration of PizzaBlock, it does not seem like a 'thing' or 'research product' as it might be typically conceived (e.g.[4–6]). And yet, there is much in the qualities of research products [7] that drives our work, that we reflect on in turn now.

### *Inquiry-Driven*

PizzaBlock was very much *inquiry driven*. Although we primarily designed PizzaBlock to be played during workshops which would translate and demystify DLTs, it also became *our* way of knowing and understanding DLTs. Whenever colleagues on our project working in cryptography discussed a technical implementation of the system we were exploring, we thought through these propositions with reference to PizzaBlock. For example, we would think how a new feature could be reflected in artefacts in PizzaBlock, or the implications it would have for a certain role within the game.

### *Finish*

Compared to many workshops, PizzaBlock does have a considerable degree of *finish* - both aesthetically, and in a commitment to technical fidelity. It is to be engaged with *as is* for the duration of the game – every artefact has clear and specific purposes. The majority of the materials are made bespoke for the workshop – in particular several hundred unique stickers are produced for each workshop. And every sticker has a specific role to play. This is quite a contrast to the openness of materials in a Magic Machines workshop[1], for example. And yet, artefacts such as the washing line that store a shared ledger of transactions, and animal stamps that represent one's public key do have a rudimentary and playful quality that is at odds with the cryptographic technologies they represent. Nonetheless, our iterations focused on adding as much technical fidelity to the game, while maintaining coherent gameplay. The quality and *finish* of these materials is essential for the workshop to run coherently and to accurately communicate the affordances of DLTs.

### *Fit*

The *fit* of PizzaBlock is a little harder to determine. It is not an artefact to be lived with over time, or experienced in everyday contexts (although we have played PizzaBlock in a London bar). Rather, we seek to engage participants temporarily in a speculative context or 'enactment' [3,8], that we hope can then become a basis for a meaningful shared experience, and a departure point for further participation in design.

However, we can rethink the *fit* of PizzaBlock in terms of familiarity. We settled on 'making pizza' as a playful but very familiar context – no matter who took part in the workshop. Further, PizzaBlock is attempting to take a deeply unfamiliar technology, and leverage tangible, playful materials to render a distributed network legible, playable and something that can be collectively experienced. However, hard work remains afterwards, when we ask participants to think about how such a technology could *fit* in to another context, besides volunteering to make better pizza.

### *Independent*

Like *fit*, there is some tension in thinking about how a game or a workshop can be independent. Further, a fundamental part of PizzaBlock is to play a specific role (e.g. a volunteer, or a social enterprise), and understand the network through that role. While each participant plays the part in their own way, this does limit their independence. However, as we iterated PizzaBlock, our aim was to be able to step back as facilitators so that a tangible distributed network could be run *independently* without our centralised control or intervention. So, although PizzaBlock took place over 2 to 3 hours, in a facilitated session, the purpose was to create space for a more independent experience of a

technology that would otherwise be far beyond the grasp of many participants. Every time we have played PizzaBlock, it has begun with participants in a state of chaos and confusion as they grapple with how to conduct and record transactions. However, on every occasion, we have had difficulty in actually bringing the game to a stop, as each participant is by then, acting independently and pursuing their own aims.

### **Can a Workshop be a Research Product?**

As researchers, it is always valuable to reconsider your work through different lenses as we have here. But what could be learned more broadly from our reflections?

- We should pay more attention to how workshops, games, experiences and enactments can be conceived of as Research through Design. Even where the 'thing' is more ephemeral and fleeting, the design of these experiences can involve much of the same critical and material practice as producing a highly-finished object to be deployed in the home.
- We would argue this is especially important, when we think about undertaking RtD that engages communities and stakeholders, where brief demonstrations, workshops and engagements tend to be prioritised over prolonged deployments of a functioning technology.
- Qualities of Inquiry and Finish seem to translate more easily to these contexts, than Fit or Independence. But, there may be ways to recast the underlying ethos of these terms for more fleeting and mediated contexts.

## References

1. Kristina Andersen and Ron Wakkary. 2019. The Magic Machine Workshops: Making Personal Design Knowledge. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (CHI '19), 1–13. <https://doi.org/10.1145/3290605.3300342>
2. Paul Dunphy and Fabien A.P. Petitcolas. 2018. A First Look at Identity Management Schemes on the Blockchain. *IEEE Security Privacy* 16, 4: 20–29. <https://doi.org/10.1109/MSP.2018.3111247>
3. Chris Elsdén, David Chatting, Abigail C. Durrant, Andrew Garbett, Bettina Nissen, John Vines, and David S. Kirk. 2017. On Speculative Enactments. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 5386–5399. Retrieved May 18, 2017 from <http://dl.acm.org/citation.cfm?id=3025503>
4. William Gaver, Andy Boucher, Nadine Jarvis, David Cameron, Mark Hauenstein, Sarah Pennington, John Bowers, James Pike, Robin Beitra, and Liliana Ovalle. 2016. The Datacatcher: Batch Deployment and Documentation of 130 Location-Aware, Mobile Devices That Put Sociopolitically-Relevant Big Data in People's Hands: Polyphonic Interpretation at Scale. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (CHI '16), 1597–1607. <https://doi.org/10.1145/2858036.2858472>
5. David S. Kirk, David Chatting, Paulina Yurman, and Jo-Anne Bichard. 2016. Ritual Machines I & II: Making Technology at Home. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (CHI '16), 2474–2486. <https://doi.org/10.1145/2858036.2858424>
6. William Odom, Mark Selby, Abigail Sellen, David Kirk, Richard Banks, and Tim Regan. 2012. Photobox: on the design of a slow technology. In *Proceedings of the Designing Interactive Systems Conference*, 665–668. Retrieved April 23, 2013 from <http://dl.acm.org/citation.cfm?id=2318055>
7. William Odom, Ron Wakkary, Youn-kyung Lim, Audrey Desjardins, Bart Hengeveld, and Richard Banks. 2016. From Research Prototype to Research Product. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (CHI '16), 2549–2561. <https://doi.org/10.1145/2858036.2858447>
8. William Odom, John Zimmerman, Scott Davidoff, Jodi Forlizzi, Anind K. Dey, and Min Kyung Lee. 2012. A fieldwork of the future with user enactments. In *Proceedings of the Designing Interactive Systems Conference*, 338–347. <http://dl.acm.org/citation.cfm?id=2318008>
9. Jonathan Rankin, Chris Elsdén, Ian Sibbald, Alan Stevenson, John Vines, and Chris Speed. 2020. PizzaBlock: Designing Artefacts and Roleplay to Understand Decentralised Identity Management Systems. In *Proceedings of Designing Interactive Systems Conference (DIS 2020)*. ACM. <https://doi.org/10.1145/3357236.3395568>