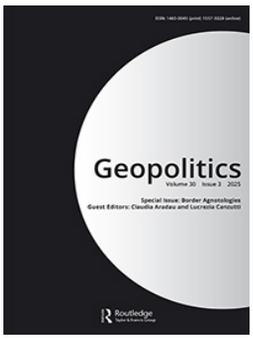

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Conjuring a Blockchain Pilot: Ignorance and Innovation in Humanitarian Aid

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ABSTRACT

When aid professionals adopt high tech pilot projects, ignorance, blind faith, misplaced trust, and authentic expertise all come into play. Based on ethnographic research in Jordan, I examine how a refugee aid organisation produces and applies a blockchain pilot. Innovative pilots help international aid organisations attract and maintain their funding sources and reputations. I argue that The Blockchain Pilot is 'conjured' as a product to be promoted to a marketplace of aid donors. 'Conjurings' are the spectacles and magical appearances that draw an audience of investors. Ethnographic research suggests that conjurings drive capitalist markets. Rather than just requiring knowledge and expertise, I argue that conjurings entail key forms of ignorance: (i) confusion, (ii) illusion, (iii) disappearance, and (iv) misdirection. This ignorance is both strategic and inadvertent. Ignorance, just like knowledge, is shaped by hierarchical power relations. The organisation's experimental adoption of a blockchain database system benefits some stakeholders (innovators, private partners) more than others (local aid workers and refugees). The conjuring of the pilot is what justifies the adoption of blockchain, even though a simple database would have sufficed.

Introduction

> Donors like to hear we are using blockchain because they like innovation, especially if it is about efficiency and tracking where their money is going. And as we all know, donors are really the be all and end all in this [humanitarian aid] sector. It's kind of bad that we've received so much attention and investment with this pilot even before we've done anything. Don't hate the players hate the game, I guess.
>
> Lina, Head of Programmes, Cash4Work aid organisation, December 2018

On a grey day in Amman in the winter of 2018, a dozen humanitarian sector professionals gathered around a large conference table. They were there to discuss The Blockchain Pilot, which would soon be using the database technology blockchain to deliver financial aid to refugee women in Jordan. The

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workshop brought together key stakeholders to agree on the key objectives of the pilot prior to its launch in Al-Za'atari and Al-Azraq refugee camps. Lina managed the activities of Cash4Work[1] Jordan, the aid organisation leading the blockchain pilot. Two aid workers and two IT managers from Cash4Work were in the room. Others included the New Ventures Project Manager at BasicAssistance, the partner aid organisation which had first initiated The Blockchain Pilot, and the Business Development Manager from a Jordanian biometrics company. Opening the discussion about the factors motivating this innovation in refugee aid, Lina was candid. Before even achieving anything, blockchain had already boosted Cash4Work's reputation.

Replacing an analogue cash-in-hand system, The Blockchain Pilot (still running in 2024) uses blockchain, coupled with biometric iris recognition, to deliver essential financial aid to people living in refugee camps. According to the aid agencies' promotions of The Blockchain Pilot, blockchain revolutionises the humanitarian knowledge economy by introducing real-time transparency over transaction data. This data is secure and visible to a 'decentralised network' of coordinated organisations (Cash4Work and BasicAssistance). Blockchain brings logistical efficiency and value for money: by circumventing traditional financial intermediaries (local banks), Cash4Work reportedly saves 90% of previous transaction fees. Cash4Work also claims that the pilot 'empowers' refugee women with independently held, blockchain-based 'digital wallets', accessed through individual biometric checks.[1] But first and foremost, Lina emphasised the beneficial business effects of using blockchain: recognition and funding from humanitarian donors for her agency. These benefits were immediate and not tied to any proof of the technology's concrete achievements. Nor was any technical understanding of blockchain required to make the business case for using it. Indeed, over coffee after the workshop, Cash4Work aid workers expressed cynicism and confusion about the claims being made for blockchain. Throughout my fieldwork in Jordan, aid professionals showed little interest in the mechanics and specifics of this back-end database technology itself. Instead, they viewed The Blockchain Pilot as a staged spectacle, a political gameplay in which they all played a part.

Over sixty different aid industry blockchain projects, mostly short-term pilots, have been launched across South-East Asia, Latin America, the Pacific, African countries, and the Middle East since about 2016. These pilots have involved international NGOs, UN agencies, non-profit organisations, other humanitarian and development aid actors, and crisis-affected groups, from refugees and stateless people to hurricane survivors. Aid organisations are using blockchain for supply chain tracking (from cocoa to pigs), personal records systems (for medical data or educational certificates across borders),

[1] International aid organisation which I have named Cash4Work to preserve its anonymity.

self-sovereign identity schemes for stateless refugees, alternative currencies, cash transfers, remittance projects, and cryptocurrency funds for aid donations (Cheesman 2022c). Blockchain promises to make aid coordination, targeting, monitoring, and delivery more transparent, secure, cheap, and efficient. However, a review of 43 use cases found a proliferation of articles and whitepapers about the technology's potential benefits for the aid sector, but no in-practice analysis (Burg, Murphy, and Pétraud 2018). Aid industry studies note the lack of field-based investigations and project evaluations as a significant knowledge gap (Coppi and Fast 2019; Hart 2023; McDonald and Fast 2019). Blockchain is hard to pin down. It is not a singular technology but a family of database systems, all based on cryptography, the very science of ciphers and secrets. In refugee aid, debates about blockchain are characterised by slippery terms, complex technicalities, and competing logics (Cheesman 2020; Cheesman and Slavin 2021). In general, blockchain has been likened to snake oil or magic beans as a much hyped, poorly understood panacea unequipped to solve all the problems it is set up for (Gerard 2017).

This paper is about the games of ignorance, blind faith, misplaced trust, and authentic expertise that come into play as aid professionals – mainly Cash4Work aid workers – enrol blockchain into everyday humanitarian work. It is based on ethnographic research in Jordan between May 2018 and December 2019 with Cash4Work and their partners (BasicAssistance and private sector companies) as they produce and apply a blockchain pilot. Innovative pilots help aid organisations attract and maintain their funding sources and reputations. I suggest that The Blockchain Pilot is 'conjured' as a conceptual product to be promoted to a demanding marketplace of donors. 'Conjurings' are the spectacles and magical appearances that draw an audience of investors. Ethnographic research suggests that conjurings drive capitalist markets (Ho 2009; Preda 2023; Tsing 2000). Rather than just requiring knowledge and expertise, I argue that conjurings entail key forms of ignorance: (i) confusion, (ii) illusion, (iii) disappearance, and (iv) misdirection. This ignorance is both strategic and inadvertent. Ignorance, just like knowledge, is shaped by hierarchical power relations. Cash4Work's experimental adoption of blockchain benefits some stakeholders (innovators, private partners) more than others (local aid workers and refugees). The conjuring of the pilot ultimately justifies the adoption of blockchain, even though a simple database would have sufficed.

'Web3 is Going Just Great': Blockchain's Politics of Ignorance

Blockchain is arcane. Since its rise to fame around 2016 as the database system underpinning the cryptocurrency Bitcoin, technical explainers, glossaries, decoders, and guides abound. It is variously discussed as a unified concept or thing ('blockchain') but also an assortment of different types of things

('blockchains'). Blockchain innovation is now referred to as Web3. Both terms are regularly described as 'something that nearly everyone has heard of [. . .] yet at the same time essentially no one understands' (Hautzinger 2022). It rapidly became a satirical subject with meme-like, fetish status. In the tech industry, the sarcastic refrain 'put it on a blockchain!' became emblematic of popular resistance to a techno-solutionist fad (Wired 2018). Blockchain and its associated technologies and techniques (magical terms include 'oracles', 'ether', and 'zero-knowledge proofs') are anticipated to provide the conditions for the prosperity of the world's most marginalised populations. Blockchain-based solutions are touted to help undocumented people access asylum, resist dispossessions of land and property rights, redistribute wealth, and mitigate global inequalities. Yet it is difficult to follow or imagine how exactly the technology will fulfil these grand promises.

Blockchain is associated with various competing ideas: economic freedom, the ideal of the commons, anti-authoritarianism, resistance to corporate surveillance, competitive individualism. Proponents argue that the tools of decentralised computing offer a meaningful challenge to platform capitalism and its monopolistic business models. The technology enables 'solidarity finance': for example, a high volume of emergency cryptocurrency donations during the 2023 Turkey-Syria earthquake bypassed the usual fees and frictions associated with charitable donations (Scott 2016; WEF 2023). Humanitarian organisations delivering aid payments to high-risk locations and remote, marginalised communities face significant challenges (Hart 2023, 2). Here, blockchains could considerably improve the speed, cost-effectiveness, and transparency of aid payments, providing alternative channels where financial infrastructure is fragile or underdeveloped (ibid). The tech even seems capable of disrupting traditional, paternalistic models of humanitarian and development aid by enabling grassroots, peer-to-peer economic activity among aid recipients and local markets (Kshetri 2023; Manski and Bauwens 2020).

While promising, progressive blockchain networks are largely still 'thought experiments' while the most powerful, successful ones are 'extractive' (Sadowski and Beegle 2023, 7). Extractive blockchain projects are driven by the business-as-usual motives of unscrupulous venture capitalists. They profit from user data and tend to promote fictitious assets. There is a significant discrepancy between the magical thinking surrounding blockchain-based innovations and their concrete effects. Molly White catalogues these in her famous satirical blog 'Web3 Is Going Just Great'. Her post 'It's not still the early days', for example, lampoons blockchain PR. Despite the prevalence of scams, financial meltdowns, and environmental costs,[2] proponents find new ways of kicking accountability into the long grass, making faithful publics into 'suckers' (White 2022). It is difficult to sort true believers in blockchain from those 'playing the game' (Swartz 2021, 13). Critics suggest that using blockchain rarely makes sense: this is an

inefficient, overly complex tech which often causes more problems than it solves, and claims to remove properties of socio-technical systems which are arguably inevitable and essential, like trust and centralisation (Financial Times 2019a; Lehdonvirta 2016; Moxinspike 2022). The fear of missing out ('FOMO') is a key factor driving blockchain's uptake (Swartz 2017, 2021). FOMO motivates aid donors too. It also explains why plenty of projects mysteriously invoke the name of blockchain, but do not actually require or even use it, or any other form of distributed ledger technology (Financial Times 2019b; Frederik 2020).

Experimental blockchain initiatives in the Global South are bringing financial inclusion to low-income and marginalised groups. They are speeding up humanitarian aid transfers and reducing transaction costs. But they are also generating new risks and harms for people who lack rights and safety nets (Cheesman 2022c). Many aid industry pilots enrol refugee end-users without choice of alternatives, in ways that disrupt and damage their economic routines and relationships (Cheesman 2022a; Cheesman and Mahmoudi 2024). Blockchain pilots often involve predetermined applications not sufficiently adapted to local contexts such as people's connectivity, resources, and needs (Hart 2023, 18). They disproportionately benefit powerful governance institutions and their private partners: for example, the Web3 industry gains legitimacy through involvement in the global 'banking the unbanked' agenda (Jutel 2023; Lemberg-Pedersen and Haioty 2020; Madianou 2019). Despite technical criticism and broken promises, blockchain projects continue to proliferate. Sam Altman's Worldcoin network is among the most notorious: the system stores the identity codes of over 10 million registered users, who receive free crypto tokens in exchange for a scan of their iris (Steyerl 2023). In Ukraine, the UNHCR is delivering emergency aid with an untested blockchain-based currency (Cheesman 2023, 513).

Much like AI, blockchain is widely misunderstood as a unitary, revolutionary entity, invested with agency and coherence. But blockchains are socio-technical infrastructures (Cheesman 2022b, 52) with a structural role: they reorganise data, knowledge, and relationships, giving rise to struggles around access and exclusion, transparency and accountability, labour and maintenance, ownership and control. Infrastructures entail very material administrative systems and techniques. In the case of The Blockchain Pilot, these include Excel spreadsheets, iris scans, payee databases, data entry work, and cash storage facilities, as we will see. Infrastructures are accompanied by a range of competing rationalities, ideals, and promises (Anand, Gupta, and Appel 2018; Larkin 2013). This is a field of innovation characterised by genuine hope but also mystery and uncertainty, tricks, scams, and spectacle. The ignorance surrounding blockchain needs to be taken seriously as part of the politics of its adoption, design, and everyday use, rather than disregarded as separate from the 'technicality' of blockchain infrastructure.

Rather than a pejorative term denoting simply the absence of knowledge, ignorance is a productive social practice that demands ethnographic attention (High, Kelly, and Mair 2012). Unknowns can be useful in the pursuit of political-economic agendas (McGoey 2019). Ignorance-making is both deliberate and inadvertent. It may result from a strategic ploy, selective attention, or be conveniently drawn upon as a resource (Proctor and Schiebinger 2008, 3). Ignorance involves omissions and gaps but is also actively produced, surfed, and shaped through acts of neglecting, forgetting, excluding, refusing, or denying. These should not simply be characterised as the calculated, wilful actions of omniscient human institutions. Ignorance arises from messy, contested, dispersed socio-technical practices (Scheel 2024). In other words, data and technology, not just humans, facilitate the production and circulation of ignorance. Ignorance is not just a bug: it is an integral part of what blockchains are and do, and for whom.

The Blockchain Pilot: Blockchain in Name Only?

The Blockchain Pilot is a private, permissioned blockchain system based on Ethereum. Only predefined entities (the aid agencies) can process transactions.[3] Unlike public, peer-to-peer networks such as the Bitcoin blockchain, only permitted authorities can view and edit code. Some call these kinds of blockchain systems 'glorified spreadsheets' (Prasse-Freeman, 2022, p. 568). The Pilot has been criticised as a 'BINO' (Blockchain In Name Only) project: it makes use of blockchain technology but in a highly centralised manner. The Project Manager, Alex, disagrees with this characterisation, yet has publicly admitted that the same outcomes could have been achieved with a normal shared database. The term 'digital wallet' is also something of a misnomer: refugees cannot access the balance and transactions record on a personal device; they cannot credit money, only withdraw it; they do not have custody of the wallet, Cash4Work does. As we will see, neither refugees nor Cash4Work aid workers have the power to interact with the information available on the blockchain ledger. The controversy around the necessity of using blockchain in the pilot reflects the diverse projects that still come to be labelled blockchain, and underscores the importance of using the blockchain label within the gameplay of aid industry pilots.

Pilots as Products: Conjuring 'The Blockchain Pilot'

Humanitarian agencies supporting refugees are increasingly expected to innovate as part of their performance of care and credibility: a performance in which the crucial audience is their donors in the international community – such as nation states like the US, high net worth individuals, the EU, and international NGOs (McDonald, Sandvik, and Jacobsen 2017). This performance sustains their role in the global system of border and migration management.[4] The gap between humanitarian resources and requirements is growing: with budgets constraints and concerns around accountability, donors are pushing for cost-effective, innovative solutions (Bruder and Baar 2024). New technology pilots serve a key PR function in drumming up investment, legitimacy, and trust from the international community. Producing and promoting projects is a central objective for humanitarian organisations, not just helping people: they sell projects in a kind of market, where donors are the consumers (Krause 2014). Facing the pressure to 'align' with tech sector

partners, aid professionals work with partners to promote innovation projects as unique and necessary (Henriksen 2023, 29). Funding goes to time-limited, project-based innovation pilots, which often do not scale up into long-term solutions (Savoy 2022, 2; Hart 2023, 6). Humanitarian innovation is defined by its interest in novelty, often for novelty's sake; high and low-tech examples include PeePoo Bags, LifeStraws and PlumpyNut pouches (Scott-Smith 2016).[5] These innovation projects rely on business vocabulary ('agile', 'lean', 'cost-effective') and triumphalist, exaggerated narratives. Aid agencies and partners gloss over what a technology actually does and precisely how it works and instead ascribe magical powers to it (ibid). This helps to promote, leverage, and sell the technology as a new but shortly irreplaceable component of aid – even if it offers only superficial, modest improvements to people's lives, or possibly none at all.

Innovation pilots are products promoted to a marketplace of aid donors. Mainstream economists might view market principles and mechanisms (supply and demand, rational choice, pricing, and so on) as neutral and independent from cultural life. But the creation and maintenance of capitalist markets in general relies on spectacles and appearances (Ho 2009; Preda 2023; Tsing 2000). For Tsing (2000, 118), 'the possibility of economic performance must be conjured like a spirit to draw an audience of potential investors'. Here, 'magic, rather than strict description, calls capital' (ibid, p. 120). Conjuring is an 'art' practiced by a range of actors analysing, regulating, reporting on, and investing in new market frontiers. Spectacles and performances are not just abstract metaphors here. They are enacted practically and materially (De Genova 2013, 1184). Advertising, the official art form of capitalist societies, is 'a highly organised and professional system of magical inducements and satisfactions' (Williams 1980, 134). From crypto start-ups to Wall Street investment bankers to street level entrepreneurs in India, 'economies of appearance' are maintained by everyday professional rituals (Bear 2015, 422; Ho 2009; Yogarajah n.d.). Through launch events, conferences, networking meetings, annual reports, and earnings calls, an audience of investors are given promises, narrations, and assurances. Infrastructure projects (from roads to blockchain payment systems) come with spectacles and enchantments: these are the socio-technical practices which create and satisfy audiences, uphold promise despite the capacity to fail and disappoint, and ultimately serve the interests of those with a stake (Harvey and Knox 2012; Valk, Preda, and Xu 2023).

This paper builds on the 'economies of appearance' literature: conjuring works on ignorance and the will to believe rather than just requiring knowledge and expertise. Mystery, speculation, and rumour shape capitalist markets (Bear 2015, 422; Tsing 2000, 126). Uncertainty, controversy, and

disenchantment are part of the spectacle which dazzles, conceals, and confuses, enabling companies to resist accountability (Neff and Nagy n.d.). Innovation projects evoke the latest digital technologies and de-emphasise whether their system is sufficiently understood or even understandable. This allows for deployment in different environments, regardless of whether more development time is needed, or if the system needs to be built at all (Ananny and Crawford 2016, 985). As in Marx's notion of 'commodity fetishism', marvellous promises about new infrastructure projects rely on hiding the conditions under which they are constructed (Harvey and Knox 2012, 529). Investment in humanitarian innovation is an existential priority for the organisations making the promises, which rely far less on evidence than on the conjuring of *magical (dis)appearances*. As at any magic show, the conjuring of Cash4Work's blockchain pilot relied on forms of ignorance: (i) confusion, (ii) illusion, (iii) disappearance, and (iv) misdirection. But ignorance is not just strategically manufactured. Analysing it as such entertains a conspiratorial logic (Scheel 2024, 3). This study also finds forms of ignorance that are inadvertent, and those that constitute local aid workers' playful, subtle resistance to humanitarian innovation and the performance it requires.

Materials and Methods

I conducted participant observation with aid workers in and around refugee camps and in the headquarters of country offices, IT and data management staff, the monitoring and evaluation team, and other Cash4Work staff implementing The Blockchain Pilot between May 2018 and December 2019.[6] This was part of a broader study involving other key stakeholders (see Figure 1), including refugee groups. I spent considerable time with Cash4Work aid workers on the 2-hour journeys to and from the camps each day, within the Al-Za'atari and Al-Azraq camp Women's Centres, and in walkalongs to the camp supermarkets. With Cash4Work Jordan I co-organised 5 participatory workshops which included the partner agencies and companies involved with implementing the pilot. I sustained the research using video calls, messaging platforms, and emails during and for another year after fieldwork in Jordan. This was supplemented with reviewing grey literature produced by and about The Blockchain Pilot in articles, press releases, videos, and webinars, and over 30 key informant interviews with aid industry experts involved in or following the humanitarian adoption of blockchain.

Gatekeeping and opacity around The Blockchain Pilot were considerable research challenges. Knowledge asymmetries of 'limited presence, partial information and uncertain connections' are characteristic of ethnography and the humanitarian field alike (Jensen 2010). The securitisation of research in refugee camps limited my access to specific locations and time periods. Aid agencies are cautious and risk-averse, tasked with protecting vulnerable

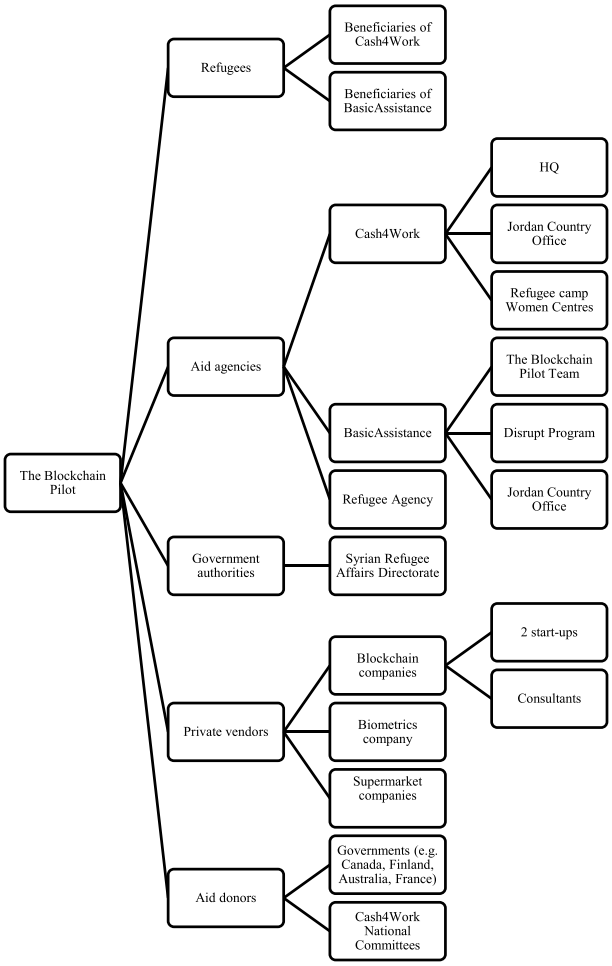

Figure 1. Stakeholder mapping for The Blockchain Pilot in Jordan.

subjects but also guarding their politically neutral reputations, public funding sources, and sensitive commercial information (Lewis et al. 2019; Van der Haar, Heijmans, and Hilhorst 2013). The research involved difficult scavenging to trace and access information, and negotiations around confidentiality and academic freedom. While recording overlooked critical perspectives on the pilot, I resisted the right of aid agencies to approve research findings, but with a good faith research agreement in place, I use pseudonyms and other narrative strategies to protect the privacy and confidentiality of the organisations and staff as far as possible.

Jordan only gained independence from Britain in 1946. The continuation of Western dominance and white saviourism in Arabic-speaking countries is still widely apparent, especially in the aid industry (Nasser-Eddin and Abu-Assab 2020). Researchers – especially white English-speaking and Oxford-affiliated like me – do not stand apart from the unequal and racialised privileges,

authority, and conditions of mobility in refugee aid and its differentiation between local, national and 'expatriate' staff. Researchers benefit from the research data collected and the authority humanitarian partners lend in the field, but often reciprocity is limited (Lewis et al. 2019). Advocating for refugee and aid workers' perspectives, I also produced three field reports for Cash4Work and BasicAssistance outlining key dynamics affecting the pilot and people's experiences with it over time. While acknowledging intractable power and positionality issues, I followed an intersectional ethics of care approach in addressing dynamics of marginalisation in the research, moderating the discussions carefully, making space for people to speak in their own languages, and trying out exercises that could appeal to everyone (Leurs 2017; Raghuram 2019).

Conjuring the Blockchain Pilot

I. Confusion

As I sat in the Cash4Work van, chatting with three aid workers on one of my first journeys to Al-Za'atari in May 2018, Imane confidently told me she was 'into blockchain'. When I asked her what she was into about blockchain, she said, 'Blockchain is going to be the future, so we are getting there first. Blockchain means we are trying new things to improve our organisation'. For her, blockchain was synonymous with innovation and progress. Sitting beside her in the van was Nour, to whom I posed the same question. 'Your knowledge, my knowledge (*3alimy 3alimak*). I'm not the right person to ask. I don't know blockchain', she replied. Farah, the third aid worker in the van, added, 'Don't ask me about blockchain either!' To complete their everyday work, most Cash4Work staff did not need to understand how blockchain operated. Just as the camp staff did not feel obliged to know the inner workings of other payment systems Cash4Work used (such as prepaid cards or cash-in-hand), in-depth knowledge of blockchain was not necessary for their work and educating themselves would come at a high cost with no likely advantage. Ignorance in this sense – the delegation of knowing or acts of knowing elsewhere (to other objects or beings, experts, or institutions) – is a commonplace part of technical mediation (Mulvin 2021). Like other digital infrastructures that mediate payment such as VISA or SWIFT, the aid agencies' blockchain network operated in the background. Its technical protocols were beyond common knowledge.[2]

[2]While one would not expect field aid workers to know the inner workings of blockchain, one would expect for them to understand its practical implications and effectiveness for their work. What they need to know is whether it will effectively deliver the promised service. The issue is that they neither know for certain that it will work nor can they explain the mechanisms behind its potential success. This gap in knowledge hinders informed decision-making and leads to reliance on ignorance and trust rather than understanding and knowledge.

Classic studies of infrastructure stress their background-ness and invisibility; how socio-technical systems only become a subject of attention and debate in moments of breakdown or crisis (Star and Ruhleder 1996). Blockchain, however, was often discursively in the foreground even before it had a chance to break down or not. Most Cash4Work staff in the Jordan Country Office, like Nour and Farah, did not expect and were not expected to know about this backend database system in depth. Yet most expressed some level of confusion and anxiety about not-(yet)-knowing blockchain. Across this small organisation, the blockchain-related technicalities of the new pilot project were treated as an intimidating mystery, but often also laughed off as a slightly silly subject. Cash4Work staff consistently asserted their ignorance by using caveats, humorous deflections, and deferring to other colleagues perceived as more knowledgeable. One was Saif, an IT manager at Cash4Work. In a workshop prior to the pilot's launch in the summer of 2019, Saif said: 'I'm only here to learn, I don't know anything about this blockchain thing'. Saif was a self-described 'technical person'. Other staff considered him the expert on The Blockchain Pilot within the organisation and called on him when they had a question. Yet in a 1–1 meeting he told me, 'Blockchain is very complicated. I don't understand all the details. There is more I need to learn. *Lakin* [but]... we have developed the easy user interfaces for staff now, so thank God we don't have to worry as much about how it works!' It was unclear how much anyone (beyond the private companies that initially set up the solution) needed to understand. Cash4Work staff were well aware of the ambitious promotions of the pilot on the international stage as an important element of Cash4Work's PR. They were highly self-conscious about blockchain's unknowability, but this was also not their problem. For some aid professionals, the complexity of the new system and the confusion around blockchain fostered a sense of detachment from their actions.

The confusion about blockchain was shared by staff from across the partner organisations working on the pilot project. A Jordanian supermarket franchise provided cash liquidity in the camps for the refugees who received aid via blockchain. When I interviewed the franchise manager in 2018, expecting to discuss the logistics of the pilot in depth, he smiled, shaking his head: 'Hey look, I don't know anything about the blockchain yet, why don't you ask someone else', even though he had been involved in negotiating the pilot setup and contract with Cash4Work. Likewise, when I met BasicAssistance camp staff who worked with the refugee camp supermarkets and supermarket-goers to regulate the shop environment and pricings, they told me: 'We don't know about the blockchain, we haven't understood what it's all about!' Across the 30+ elite interviews I conducted online and internationally with aid industry experts, few participants spoke confidently about blockchain. In fact, several interviewees asked me to explain blockchain to them. In March 2021, Eliza, a consultant on cash coordination and tech who had written blogs and reports

about blockchain, said: 'I still don't know what the f*** blockchain is, where it is or what it looks like. How do you make one? How do you put something on it? The aha moment I've had recently is, oh, maybe I don't have to understand it, maybe it will just turn into an app?' Data management was usually a mundane, niche topic: blockchain made it interesting. She suggested that aid organisations were 'jumping to blockchain' because it was famous compared to the alternative options: 'Most of us have never heard of a sequel [90s technology] database. And, like, we're stuck on the 2003 version of Excel and always falling behind on security updates'.

Cash4Work staff were now expected to represent, buy into, and defend blockchain and The Blockchain Pilot, at conferences, in reports and press releases, on donor visits and at external events. Blockchain was in the dark, in the background, mysterious and hard to access, yet at the same time it was fully in the foreground as an incomprehensible and absurd signifier of the new and the futuristic, highly important and relevant, but a subject for someone else, somewhere else, to explain. Cash4Work and other aid professionals' confusion was not unique or surprising, given the universal mystification, uncertainty, and bewilderment around blockchain. The Cash4Work Jordan team playfully but consistently refused to engage in discussion about blockchain. This refusal can be understood as a muted challenge to the innovation agenda they were being enrolled in. Invoking their ignorance, humanitarian professionals highlighted the absurdity of applying high-tech innovations dreamed up elsewhere and beyond their understanding. Meanwhile, the confusion was useful in the wider conjuring of the pilot. It allowed the pilot's promotors to express leaps faith in the benefits blockchain could bring. The promotional claims were difficult to refute. To be refuted, they needed to be understood.

II. Illusion

Blockchain was treated as a conceptually elusive, magic technological object that could without clear explanation achieve an extensive range of desirable effects. In December 2018 I was involved in a brainstorming activity with the Cash4Work staff where they set out the objectives for the pilot. Nina, the Monitoring and Evaluation Lead, suggested: 'As well as giving beneficiaries more dignity, blockchain gives us more accuracy and oversight with who we are delivering the salaries to and makes the system more efficient than when we distributed bags of cash'. Cash4Work staff regularly conflated blockchain with features and properties of other, connected components of the pilot's infrastructure – and even just the generic outcomes of digitalisation. In Nina's comment, blockchain was mistakenly equated with the 'digital wallet' concept (the idea of a savings account, considered more dignified for refugee women than cash), for biometric

identity verification (the system's accuracy technology), and for any form of automation (improving cash handout efficiency over a paper-based system). *None of these valued features actively required a blockchain*. Similarly, a 2020 press release about the pilot reported that 'Cash4Work's innovative blockchain cash disbursement has proven to be a reliable and resilient system because it can be managed remotely'. This feature also does not require a blockchain. Purported benefits such as reliability, efficiency, and remote management (which became a priority in the COVID-19 pandemic) are features of automation – they do not require blockchain. Another kind of shared database would have been capable of making major cost savings (by reducing the transactions going through banks) and providing data transparency. It may well have been more expensive and complex to set up and run a blockchain rather than a simple database. The specific need for distributed ledger technology (the family of systems of which blockchain is part) was never argued in discussions with Cash4Work Jordan staff and their PR. The technical details were usually articulated by tech developers or BasicAssistance project staff, but they failed to convincingly justify the need for blockchain.

Aysha, one of the aid workers in Al-Za'atari and Al-Azraq camps, was cynical about the conflations some of her Cash4Work and BasicAssistance colleagues were making. At different points in my fieldwork, she pointed to the illusory quality of The Blockchain Pilot's PR. For example, Aysha deflated the claim that the blockchain was enhancing 'decentralised collaboration' among aid agencies: 'We already collaborated with a logistics agency before! The pilot just replaces that with new collaborators. Why does working with BasicAssistance count as innovation, but the logistics agency didn't? Just because they are not using new tech?' She was also cynical about the claim that The Blockchain Pilot was empowering refugee women:

> The blockchain pilot might be good for the agencies but really it's not for the refugees. This industry is a stage, and everyone has to act. The refugee women can only use this technology during the time they are working with us [on the cash-for-work scheme]. For most of them, that's three or six months, then [because of camp policy] they will not be allowed to work again for a long time. They won't use the technology. We know this really.[7]

Aysha suggested the benefits of using blockchain were always going to be asymmetric. There were clear advantages to the pilot when it came to cutting transaction fees. But, according to her, the pilot privileged reputational advantages and new funding for the organisations at the expense of refugees' needs and priorities. Some of blockchain's promises were a convenient illusion. The Blockchain Pilot's PR ignored a key factor which drastically reduced the possibilities for refugees' meaningful financial inclusion in the longer term: the Jordanian authorities' harsh labour restrictions in the camps which meant

that refugees could only work for short periods, with only one household member working at a time. Other aid professionals I interviewed echoed this cynicism. In January 2021, a digitalisation critic told me, 'I don't think it's helpful to think "aid organisations good, companies bad". In my experience, our sector cares as much if not more about the bottom line as the private sector does. It's naïve to think it's all about the beneficiary. It's all about keeping the donor happy so the money doesn't stop coming in'.

In Amman I met Hannah, a cash expert assisting aid agencies. For Hannah, the vague catchphrases animating the hype around blockchain were strategic to the technology's (often white Western 'tech bro') vendors:

> For a while blockchain was everywhere but I thought, do I have to understand this? Then I realised it was coming for me. I started going to events and there would be presentations, usually by white guys, about how women coffee growers in Uganda can be empowered by blockchain. But they would never explain how. They would say 'because blockchain is decentralised', and I'd be like, 'I *know* that, but connect the dots for me!'

Hannah had been involved in creating a 'decision tree' for aid organisations where every question led to the answer 'No, you probably don't need a blockchain'.

III. Disappearance

Beyond strategic tactics like exaggeration and illusion, some forms of ignorance accumulate when new tech is embedded in a social context. Ignorance can emanate from 'impasses, errors, limitations and affordances of socio-technical networks' – which humans do not fully control – as an unintended side effect (Scheel 2024, 4). Analysing Cash4Work's blockchain system and its socio-technical features highlights important disappearances: blind spots, erasures, and dislocations from knowledge that arose in the design and everyday maintenance of the blockchain. These disappearances were shaped by power asymmetries between and within aid agencies. They played out in the specific configuration of this blockchain network: the node hosting, the data validation hierarchies, and the access to the blockchain ledger.

The job contracts of refugee camp staff were usually renewed on a rolling basis. They were temporary and precarious, in one of the lowest pay brackets within aid agencies. In Jordan, aid workers' routines were unstable, involving hours of travelling each day, making phone calls in a van with patchy network connections, laptops jiggling on their laps. The camp staff were a motivated group, each pursuing part-time studies and keen to build their careers. Yet, one day in the Al-Azraq admin office, Aysha told me she was frustrated that the pilot didn't bring her any technical skills development: 'We are just working with Excel, same as always. We have nothing to do with the blockchain'. Aysha's perspective contrasted with the narrative put forward by Lina

and Imane in the workshops, that the blockchain pilot empowered not only refugees but Cash4Work staff in Jordan. Imane was also an aid worker, but she was named the 'blockchain focal point' and had a strong sense of ownership over the pilot. She represented it in press releases and on diplomatic visits to the camps. Participating in The Blockchain Pilot was rewarding and gave her status:

> I am passionate about blockchain, but the mentality especially in South Jordan is still that people don't believe women can do great things. My work with the blockchain in the camps proves them wrong.

Imane articulated her role in the pilot as part of her own personal attainment and professional empowerment as a woman from a conservative Muslim background. The technical aspect of working with blockchain and any issues she experienced in managing the pilot were less important than championing innovation and Cash4Work's brand of international feminism. But Imane's perspective was not generally shared by her colleagues. For Aysha, the blockchain pilot re-inscribed the hierarchical politics of the Cash4Work Jordan office in its technical architecture. The proclaimed benefits of blockchain – real-time data and transparency – were not extended to aid workers. They could upload datasets to the blockchain interface, but they did not have any further access to information or the authority to amend data in the system:

> If I could access the blockchain and get information about beneficiaries' wallets and the status of their payments, I could answer their questions when they come to me at the Women's Centre. But I can only upload data. I can't edit the information I've uploaded once I've sent it. If a beneficiary tells me there is a mistake with her money, I can't just correct it, I must go through the admin office staff. If something goes wrong, we [camp staff] have very little power in the organisation.

Cash4Work's blockchain application was designed around a sequence of ranked, prescriptive data validation roles for selected Jordan staff. Cash4Work Jordan created its blockchain interface according to the segregation of duties and authority within their organisation. There were nine 'users' of this blockchain. Each individual user had a different level of access to data and authority in the system. This corresponded with the existing hierarchy of roles at Cash4Work. Once the five camp staff members uploaded their datasets to the blockchain interface, the Programme Associate verified the data. She worked with camp staff to resolve any glitches or incorrect data, which were flagged as 'warnings', and were usually caused by typos in the contract information (e.g., rate or length of refugees' cash-for-work contracts). Once the data was submitted, the Finance Associate received an automated email ('Dataset is parked, please review and post') and visited the interface to sign off on ('validate') the information. Two other Cash4Work staff with higher levels of authority ('Signatory Level 1' and 'Signatory Level 2') would then also

validate the information before the total amount could be released to trigger the transfer of financial value to refugees' digital wallets.

Cash4Work camp staff upheld (and sometimes held up, due to data entry errors) the system's maintenance with their mundane spreadsheet work. But they were then made to disappear: aid workers had no direct engagement with the blockchain ledger itself and could not access the useful information it contained. They were more spectators or magicians' assistants than players in the grand theatre of blockchain technology. Aid workers could only perform a limited range of tasks, like uploading spreadsheets. They were alienated by the strict, hierarchical pipeline they were asked to work along. They gained no new skills and had no meaningful involvement in blockchain design. They had lost the ability to know important information, relegating them to the same state of ignorance as the beneficiaries. As in other data infrastructure projects in postcolonial settings, The Blockchain Pilot's design was shaped by the differentially valued divisions of labour where engineering knowledge is connected to Western tech partners (Davies 2021). The hierarchical design of the blockchain database enhanced the existing, systematic differentiation in aid organisations according to race, gender, class, status, authority, responsibility, pay, esteem, and proximity to suffering and danger (Benton 2016). Despite the promise of empowerment and transparency, aid workers found themselves constrained by an elusive system, the management and control of which was largely a mystery to them.

With the launch of The Blockchain Pilot, camp staff disappeared from the stage of humanitarian action as soon as they had filled in a spreadsheet of refugees' names and sums to be credited. The setting for the making of the payments, which had previously been the Cash4Work Women's Centres, shifted to the camp supermarket. Supermarket cashiers and biometric cameras replaced aid workers. When salary issues arose, refugees were compelled to seek assistance from the camp staff, who then had to undertake extra work by contacting the supermarkets or visiting them in person to investigate and resolve each issue individually. As Nour – a gender-based violence specialist and camp staff member – told me as she put down the phone with the Al-Azraq supermarket manager: 'Sometimes there is confusion because the supermarket tells the beneficiaries we will handle a payment issue, but we tell them the supermarket needs to handle it. I must address it with them [store managers] on the phone. Often, I'm busy, so I send refugee administrators to find out what's going on'. But her colleague Meriem suggested when we got back to the office, 'Well, it's not our problem anymore. Everything's arranged from our side. It's not our money to deliver, it's theirs [the supermarkets] now. If it got trapped on the way, it's not our problem'. Administrator Meriem had no qualms with Cash4Work delegating the humanitarian work and care, even though supermarket workers are not care specialists and have other priorities to manage. Nour and other camp staff did not agree with this sentiment. The

different views among Cash4Work staff about the confusion over responsibility for solving refugees' problems reflected the failure of blockchain to achieve a magical solution to issues of trust in transactions. Blockchain adoption created new problems: it fostered the disappearance and diffusion of humanitarian responsibilities.

That day, at lunchtime I walked with Nour and a small group of refugee women to the camp supermarket. At the tills, we observed as women withdrew cash and asked the cashier questions, for example about their balance, or querying the amount, or about when the next payment from Cash4Work would come through. Rolling her eyes, Nour leaned over and said quietly in my ear: 'Look, now the women ask their questions to the cashiers, but they're just cashiers, they don't know anything more about the salaries'. Sarcastically, she added: 'Though they [the cashiers] obviously still give the women an answer. They won't say they don't know'. The supermarkets were usually hectic, and the cashiers inundated. The cashiers had received training about how to deliver the Cash4Work salaries. But it transpired that sometimes they would give misleading information rather than confess ignorance. Nour suggested the biometric verification and transaction data on their screens were treated by cashiers as self-evident truth which refugees could not contest. The cashiers had the authority to withhold refugees' access to money. The supermarket staff, naturally, did not uphold the humanitarian values of aid workers.

BasicAssistance led The Blockchain Pilot. More than Cash4Work, their prerogative was to spread and promote the network for global adoption,[8] and they dominated technical decision-making and network management. In collaboration with blockchain companies and consultants, BasicAssistance's Blockchain Team designed the blockchain governance framework, which meant they delineated what decisions should go 'on or off chain' (i.e., what components of the payment system should be automated), how technical issues should be resolved, how consensus algorithms should be formulated, how vendors are selected and vetted or members incorporated, and more. At the start of the pilot, BasicAssistance's authority over the database system was encoded in a very material way: they 'hosted' Cash4Work's node. In other words, Cash4Work had limited ownership and control over the device used to verify and record transactions, and therefore participate in the blockchain network. Fouad told me in July 2019:

> We have different types of ID numbers to BasicAssistance because we serve individuals and they serve households,[9] and somehow, we couldn't work it out yet, so for now we are just using BasicAssistance's node and testing different scenarios until we launch our own.

Disappearances happened in the conjuring of this technocratic pilot. To create the illusion that the project was functioning effectively, Cash4Work vanished as a real blockchain partner in practice, for a mix of human resources and

technical reasons. The node hosting arrangement signified the ultimate authority of BasicAssistance over the 'shared' blockchain. BasicAssistance originally designed this blockchain system to be locally 'customisable' and it was co-owned with Cash4Work. However, the costs of entry, necessary resources, and expertise involved in designing, building, and running a node on the network were very high. No Cash4Work staff in Jordan had experience in blockchain smart contracts, cryptography, and distributed ledger design. Lina pointed out, 'We are only a small organisation and not super strong with data management'. In an expert interview with an aid industry consultant, Jennifer, she suggested Cash4Work Jordan were following a risky and expensive 'out with the old, in with the new' strategy:

> Unless agencies start employing more coders, no organisation has enough blockchain expertise. It's not sustainable. Who are these people going to be that manage blockchain committees but also understand how technical decisions have bearings in the field?

Blockchains are not always designed and maintained as equitable, peer-to-peer infrastructures. The Blockchain Pilot instituted a neoliberal grey area where new problems for aid workers and refugees emerged as private companies, automated processes, and blockchain experts came to dominate previously interpersonal humanitarian work. Cash4Work camp staff in Jordan were not meaningfully upskilled, they fell out of sight from the system, and the blockchain ledger was invisible to them. The disappearances involved in conjuring The Blockchain Pilot highlight how the production and circulation of ignorance is not just a matter of wilful human action. Ignorance was not simply a result of deceptive market creation—humanitarian agencies pursuing political-economic gain, conspiring to exclude aid workers. Disappearances resulted from the combined effects of socio-technical practices: data validation, node hosting, and ledger access. These practices were linked to pre-existing institutional hierarchies and constraints.

IV. Misdirection

Lina, the head of Cash4Work's programmes, was frank about unknowns (meaning the future results of the pilot), which was not the same as not-knowing. In the December 2018 multi-stakeholder workshop, she said candidly, 'Blockchain's value proposition for beneficiaries may not match up in comparison to the cost savings, so we need to see if that weighs up once the pilot launches'. She referred to the analysis from field reports I had shared with Cash4Work based on my research in the camps. Refugee women had reported that the new setting for withdrawing cash (biometric cameras, supermarket cashiers) was far less comfortable and appropriate than the Cash4Work Women's Centres. John from BasicAssistance's Europe-based innovation hub, the Disrupt Programme, responded, 'But

we all know that innovation goes through sprints and iterations, you just have to keep assessing the whole range of costs and benefits and adapting on that basis. The cost savings and efficiency with blockchain are huge'. Using blockchain as an alternative accounting system meant rerouting the agency's (donor) funds around local banks and therefore drastically reducing transaction fees on aid transfers (now nearly zero). Lina and her team agreed. They suggested resistance to change and 'teething problems' were a natural and inevitable part of innovation that would affect refugees and Cash4Work staff, and that 'packaging the pilot as innovation helps with the risk of failure'.

Conjuring The Blockchain Pilot as a product on the donor marketplace involved diverting attention away from its emerging, negative effects on the people it aimed to help. In press releases and professional events, attention was directed towards quantitative metrics (cost effectiveness, speed and volume of transactions) and illusions about blockchain's unique selling points (transparency and reliability, refugee women's dignity) – as discussed above. Lina and her team were aware of the pilot's questionable impacts on refugees, but willing to wait and see how refugees' responses balanced against Cash4Work's KPIs (key performance indicators) and their bottom line. As Aysha had suggested, conjuring blockchain's empowering impacts involved misdirection: overlooking important knowledge about camp policy and refugees' priorities and preferences. The misleading promotions and jargon surrounding blockchain applications in the Global South have been critiqued as a 'neocolonial tactic of bamboozlement', part of a strategy of 'deregulation that reaches back into the imperial core' (Jutel 2023).

Misdirection was justified by the aid agencies' approach to refugee women's own knowledge and understanding as in deficit. Nina, Cash4Work's Monitoring and Evaluation Lead, suggested: 'Women will have a phase of confusion, but going forward, they will be more knowledgeable, aware and accepting of the process'. Later, in a workshop after the pilot's launch, she suggested issues with the pilot were arising from some refugees 'not understanding'. Many refugee women workers were concerned that the rhythm of payments had changed from monthly to weekly, which was convenient for the digital wallet design, but not for their household financial management.[10] Nina said they 'didn't understand the concept of weekly'. Cash4Work hosted my research, supported my camp access, engaged with the workshops, interviews, and ongoing results. At the same time, my fieldwork was curtailed by senior agency staff marginalising refugee women's initial responses to the pilot – failing or choosing not to see and hear them. When I was negotiating my fieldwork dates with Cash4Work, Lina asked that I not conduct research in the Women's Centres until three months after the new blockchain system had been in place: 'We know already beneficiaries aren't keen on the pilot simply because it will bring change. They need some time to get used to it, then let's

gather feedback'. When I was writing up a report in early 2020, Alex from BasicAssistance asked me to 'measure what's normal resistance to change, and what are genuine problems arising from blockchain'. He requested:

> You need to isolate the technical achievement from the implementation [. . .] It's good to get the refugees' impressions, but then there are also hard metrics. Like, the transaction processing times and how they are vastly reduced. That's facilitated by and also captured with the blockchain. Again, I think it will be important to convert perception to reality.

Alex was effectively asking me to detach the name of blockchain and The Blockchain Pilot from any issues arising from the pilot in Jordan's camps. Blockchain was cast in this scenario as a neutral transparency provider. What it had to say was more reliable than the project's end users. The Blockchain Pilot was preserved as an untouchable product, beyond criticism, by denying the validity of refugees' claims and perspectives on system change.

Mirroring aid professionals' deficit approach to refugees and their knowledge claims, expatriate staff sometimes type-cast Cash4Work's Jordan staff working in the camps – nearly all Arab women – with the orientalist trope of slowness and backwardness (Sukarieh and Tannock 2019, p. 393). John, a British 'expat' from the BasicAssistance Disrupt Programme told me he had been trying to get Cash4Work Jordan staff to finalise their procurement of private contracts before the pilot's launch: 'The problems with getting the pilot off the ground are a combination of slow bureaucratic processes, but also a lack of real technical skill and initiative and understanding to get it done. Basically, nobody here knows what they're doing'. Aid workers were critical of Western partners' dominance in the pilot. Imane quipped: 'The BasicAssistance brand is like Nike – just do it. Foreigners are treated with privilege by senior staff. They have perfect English. Even we Jordanians assume they will be better, more professional, and knowledgeable. It will be less effort and resources training them'. At one multi-stakeholder workshop, John had contested Cash4Work staff's – and my – use of the name of their organisation in association with the Cash4Work Jordan pilot. He suggested:

> 'Our technology is separate from the service delivery. This blockchain is ready to go. We don't want to be responsible for any issues that arise with Cash4Work's service delivery in Jordan'.

John positioned this blockchain as separate from social complexity. Like Alex, he was alarmingly upfront about preserving the reputation of The Blockchain Pilot. Any failure would be down to Cash4Work Jordan's implementation, not the blockchain per se. Whereas the agencies had been promoting blockchain as the basis for social change, it now appeared that if the promised change failed to take place, or undesirable outcomes emerged, then blockchain could not be blamed. Conveniently, blockchain could *both* bring about refugee

empowerment and humanitarian efficiency *and* have no effects at all in the case of liability and reputational risk. The blockchain network (controlled by BasicAssistance) was *both* openly available for expert adaptation *and* its only partner, Cash4Work Jordan, was ill equipped to adapt it.

Misdirection served strategic aid industry interests, in this case the actors involved in conceiving and driving The Blockchain Pilot: Basic Assistance's EU-based Disrupt Programme; the US and Europe-based headquarters of BasicAssistance and Cash4Work; the Western governments and other donors that funded the pilot; plus the biometrics company, the blockchain developers, and the supermarket companies and their corporate social responsibility agendas. Misdirection – moving attention away from the social impacts of a pilot to preserve the miraculous purity of the technology – could be the sign of a true blockchain believer. But ignorance is not always only a decided, cynical political strategy of deception by 'those in the know' towards 'those who do not know'. It also served local actors' interests: Cash4Work Jordan and its staff ultimately benefited from the recognition, funding, and opportunities generated by the pilot too. In a subsequent workshop, participants were discussing how The Blockchain Pilot was about 'access to information' and aid agencies' ability to target aid. Lina probed, 'But that's a risk for Cash4Work, being leveraged by BasicAssistance for our data'. John retorted: 'I would hope not, it should be quid pro quo. You are using us for data too'. Lina replied: 'Well, mainly we are using you for the free tech'. In the conjuring of this innovation pilot, who was in the know, and who was using who, was far from clear cut.

Discussion and Conclusion

> It must not be assumed that magicians [. . .] disbelieve their own magic. They may have a limited professional cynicism about it, from knowing how some of the tricks are done. But fundamentally they are involved, with the rest of the society, in the confusion to which the magical gestures are a response. Magic is always an unsuccessful attempt to provide meanings and values, but it is often very difficult to distinguish magic from genuine knowledge.
>
> Raymond Williams, *Advertising: The Magical System*, p. 137

Humanitarian aid organisations conjure innovation products to attract and maintain their funding sources and reputations. Ignorance and ignorance-making is part of this process: true belief and expertise in the technology mingles with confusion, uncertainty, doubt, and deception. Knowledge and ignorance are dynamically related and connected with power. The ignorance of some can still 'conjure' blockchain and The Blockchain Pilot, while the ignorance of others is deemed deficient.

The subjugation and neglect of particular actors and knowledge forms as less reliable or credible are key institutional tactics of domination in migration management settings (Aradau 2021; Aradau and Perret 2022; Tazzioli 2022). As we have seen, refugees' 'impressions' of technological change are rendered deficient, but the 'spectacle' of the pilot still justifies the roll-out of blockchain, even when the most valued outcomes of the pilot (cost effectiveness, data transparency) did not require blockchain technology.

Blockchain, which emerged as a challenge to powerful authorities, is depoliticised. New middlemen become essential nodes in the payment network, marginalising aid workers. The foothold this blockchain network gives to profit motivated actors potentially threatens humanitarian independence; this biometrics company is involved in upholding mobility control and national security interests in authoritarian Jordan. Aid organisations' turn to remote management and subcontracting has been critiqued as 'welfare abandonment' as humanitarian actors and principles gradually disappear from humanitarian spaces (Duffield 2016, 148). Replacing local knowledge and relationships, transactional surveillance and data informatics are meant to 'recoup the distance' (ibid). Some professionals embraced the delegation of humanitarian work. Others, mainly aid workers in the camps, contested the abdication of moral responsibilities. But they had scant power.

The assumption that ideas, developments, and processes originate from the Global North, while the South is on the receiving end and can only negotiate, appropriate, and/or resist is pervasive (İşleyen and Qadim 2023). Powerful 'global' or multinational organisations (and their public and private partners) are seen to 'lead' innovation; research does not need to engage with the supposed 'followers', the heterogenous actors using and making blockchain in practice. This replicates the positioning of local humanitarian staff and refugees as passive recipients of 'top down' paternalistic aid projects. It perpetuates the fetishisation of blockchain as a ready-made, revolutionary solution. Yet aid workers play a primary role in co-constituting the outcomes of humanitarian projects (Gatter 2023; Musmar 2017). Paternalistic relations and epistemic subjugation are not always binaristic (North vs South) and they do not create crude victims. Local and regional actors also legitimise the so-called Arab world as a space for intervention and capital (Carpi 2019; Hanafi 2019). Cash4Work aid professionals played the game: thanks to the ignorance surrounding blockchain, they made and upheld the ambitious promises of The Blockchain Pilot. This gameplay supported the pilot's disruption of everyday work and relationships for Cash4Work staff and refugees for the sake of cost savings, free tech, donations, and PR. Ultimately, ignorance has instrumental value. The blockchain experiment is only possible when

certain knowledges are favoured (quantified effectiveness measures, innovation engineering) while others (refugees' and aid workers' priorities and expertise) are neglected and abandoned. Aid workers kept their sceptical distance from the blockchain pilot, not only through outright critique of what it overlooked, ignored, and conflated, but also through playful rejections of blockchain as a subject worth knowing.

The lens of 'conjuring' contributes to understanding the practices of ignorance-making in technology governance, in and beyond migration management. Infrastructure projects like The Blockchain Pilot are animated by manufactured forms of ignorance. The *illusion* of blockchain's magic is upheld by aid professionals. General *confusion* about the technology plays into the spectacle. *Misdirection* diverts attention from the harmful consequences of disruptive innovation. Conveniently, blockchain brings about refugee empowerment and humanitarian efficiency *and* has no effects at all in the case of liability and reputational risk. At the same time, 'conjuring' does not just involve secret behind-the-scenes plans. Magicians sometimes believe their own magic. *Disappearances* accumulate inadvertently through the design of innovations. Here, some people and forms of knowledge vanish from the socio-technical system, linked to organisational hierarchies. Highlighting the role of ignorance in struggles around access and exclusion, power and accountability, this research advances theories of 'conjuring' in social studies of markets. Conjurings in capitalist markets do not just work on performances, spectacles, and appearances, expertise, and true belief. They involve and require disappearances, misdirection, illusion, and confusion. It is not only in refugee camps that the conjuring of innovation products trumps meaningful value to the people involved, and blockchain will not be the last of its kind.

Notes

1. The pilot is promoted as a 'financial inclusion' project for refugee women: it helps them develop digital literacy and money management skills and supports their financial independence and security. Gender-based violence is a pressing issue faced by some refugee women workers enrolled in the Cash4Work scheme. An iris-scan-protected digital wallet is imagined to be safer from the predation of men than physical cash.
2. Controversial examples include Bitcoin, which – like other 'proof-of-work' blockchains – demands significant computing power, energy consumption, and electronic waste, and the corruption scandal surrounding FTX (formerly one of the largest cryptocurrency exchanges) which went bankrupt and collapsed in 2022.
3. I explain the technical architecture in more detail below (Section III: Disappearance), and the roles of the key actors, Cash4Work, BasicAssistance, and their partners.
4. In immigration diplomacy, refugees are 'bargaining chips' as rich metropoles seek to outsource the responsibilities of refugee protection and care to low-income countries

(Walia 2021, 4). Humanitarian labour and funding are chiefly distributed among historically marginalised, dispossessed countries in the Global South – in the case of the Syrian crisis, among Turkey, Lebanon, and Jordan (Fiddian-Qasmiyeh and Daley 2019). Wealthier governments and aid agencies in the Global North (the European Union, the World Bank) facilitate South-South 'burden-sharing' by giving grants, loans, and preferential trade agreements. This supports regional stability and sustainable development in the Middle East, but also their financial interests and asylum policies (externalisation and hostility to migration) (ibid). Through innovative governance strategies and initiatives, Jordan in particular has become 'a laboratory and a showcase for a new global blueprint for economic development in refugee hosting states, thereby attempting to marshal the unused "human capital" of refugees' (Lenner and Turner 2019, 12).

5. Humanitarian agencies have always collaborated with businesses to purchase supplies or secure funding. But the more recent innovative turn does not just forge temporary alliances: 'it adopts, wholesale, the priorities, language and worldview of the private sector'. (Scott-Smith 2016, p. 2242).
6. This was part of an extended study which involved research with end-user communities, refugee women, as well as aid industry decision makers and tech designers.
7. For an account of refugee end-users' evaluations of blockchain-based aid, see 'Cheesman, M. (forthcoming). On being financialised: "Mish baraka" or aid recipients' critique of a blockchain pilot' and 'Blockchain for Refugees' (Cheesman 2022a). Here, refugee women critique the pilot as disrupting and depleting their socio-economic resources, relationships, and routines. Blockchain's promises (data privacy, transparent accounting, frictionless transactions) fall down: women lack trust in the technology and find public cash withdrawals uncomfortable. Without access to the ledger, they keep track of their finances with paper receipts and tallies. The blockchain-based payments disrupt their debt repayment schedules.
8. This blockchain network now operates in several other countries and humanitarian settings around the world.
9. To authorise transactions, blockchains deploy public and private keys, pairs of long numbers corresponding to the identity credentials of individuals. The UN agencies' different beneficiary types brought major technical challenges relating to private key management. Each of the agencies are custodians of beneficiaries' private keys, and they cannot share the keys with each other for privacy reasons and so that one agency cannot spend another's money. Much technical development was required to allow the Cash4Work and BasicAssistance digital identities assigned to group and individual beneficiaries to correspond with one another in a secure way.
10. See Cheesman, M. (forthcoming). On being financialised: 'Mish baraka' or aid recipients' critique of a blockchain pilot. *New Media & Society*.

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References

Anand, N., A. Gupta, and H. Appel. 2018. Introduction: Temporality, politics, and the promise of infrastructure. *The Promise of Infrastructure* 1–41. doi:10.1215/9781478002031.

Ananny, M., and K. Crawford. 2016. Seeing without knowing: Limitations of the transparency ideal and its application to algorithmic accountability. *New Media & Society* 20 (3):973–89. doi:10.1177/1461444816676645.

Aradau, C. 2021. *Regimes of power/(non)knowledge in governing borders and mobility*, pp. 0–1. doi:10.1145/3478675.

Aradau, C., and S. Perret. 2022. The politics of (non-)knowledge at Europe's borders: Errors, fakes, and subjectivity. *Review of International Studies* 2:1–20. doi:10.1017/s0260210522000080.

Bear, L. 2015. Capitalist divination: Popularist speculators and technologies of imagination on the Hooghly River. *Comparative Studies of South Asia, Africa and the Middle East* 35 (3):408–23. doi:10.1215/1089201X-3426265.

Benton, A. 2016. Risky business: Race, Nonequivalence and the humanitarian politics of life. *Visual Anthropology* 29 (2):187–203. doi:10.1080/08949468.2016.1131523.

Bruder, M., and Baar, T. (2024). Innovation in humanitarian assistance—a systematic literature review. Journal of International Humanitarian Action, 9(1). doi:10.1186/s41018-023-00144-3 .

Burg, J., C. Murphy, and J. P. Pétraud. 2018. Blockchain for international development: Using a learning agenda to address knowledge gaps. *MERL Tech*. http://merltech.org/blockchain-for-international-development-using-a-learning-agenda-to-address-knowledge-gaps/.

Carpi, E. 2019. Thinking power relations across humanitarian geographies: Southism as a mode of analysis. *Southern responses to displacement*. https://southernresponses.org/2019/01/23/thinking-power-relations-across-humanitarian-geographies-southism-as-a-mode-of-analysis/.

Cheesman, M. 2020. Self-sovereignty for refugees? The contested horizons of digital identity. *Geopolitics* 27 (1):134–59. doi:10.1080/14650045.2020.1823836.

Cheesman, M. 2022a. Blockchain for refugees. *Data & society*. https://medium.com/datasociety-points/blockchain-for-refugees-a46b41594eee.

Cheesman, M. 2022b. Infrastructure justice and humanitarianism: Blockchain's promises in practice (university of oxford). https://ora.ox.ac.uk/objects/uuid:3a375a60-85b2-4953-bc04-5cae34021df1.

Cheesman, M. 2022c. *Web3 and communities at risk: Myths and problems with current experiments*. https://www.mctd.ac.uk/crypto-and-other-web3-tech-is-being-used-experimentally-on-at-risk-communities/.

Cheesman, M. 2023. Digital humanitarianism: Interfaces, infrastructures, and countercurrents. *London Review of International Law* 11 (3):513–22. doi:10.1093/lril/lrae003.

Cheesman, M. forthcoming. *On being financialised: 'mish baraka' or aid recipients' critique of a blockchain pilot*. New Media & Society.

Cheesman, M., and M. S. Mahmoudi. 2024. On donkeys and blockchains. In *Resisting borders and technologies of violence*, ed. M. Aizeki, M. S. Mahmoudi, and C. Schupfer, 161–169, (NY) and London: Haymarket Books.

Cheesman, M., and A. Slavin. 2021. Self-sovereign identity and forced migration: Slippery terms and the refugee data apparatus. In *Digital identity, virtual borders and social media: A panacea for migration governance?*, ed. E. Korkmaz, 10–33. Oxford: Edward Elgar.

Coppi, G., and L. Fast. 2019. Blockchain and distributed ledger technologies in the humanitarian sector. *Humanitarian Policy Group (HPG) commissioned report*. doi:10.1111/disa.12333.

Davies, A. 2021. The coloniality of infrastructure: Engineering, landscape and modernity in Recife. *Environment and Planning D: Society and Space* 39 (4):740–57. doi:10.1177/02637758211018706.

De Genova, N. 2013. Spectacles of migrant "illegality": The scene of exclusion, the obscene of inclusion. *Ethnic and Racial Studies* 36 (7):1180–98. doi:10.1080/01419870.2013.783710.

Duffield, M. 2016. The resilience of the ruins: Towards a critique of digital humanitarianism. *Resilience* 4 (3):147–65. doi:10.1080/21693293.2016.1153772.

Fiddian-Qasmiyeh, E., and P. Daley. 2019. *Routledge handbook of south-south relations*. Oxford and NY: Routledge.

Financial Times. 2019a. *Blockchain officially confirmed as slower and more expensive*. https://www.ft.com/content/fe5b17e1-4040-3249-b473-f3c998c67de9.

Financial Times. 2019b. *Facebook's Libra: Blockchain, but without the blocks or chain*. https://www.ft.com/content/a053d6d4-323a-3247-9cad-8c7229f287c9.

Frederik, J. 2020. Blockchain, the amazing solution for almost nothing. The Correspondent website. Accessed December 12, 2021. https://thecorrespondent.com/655/blockchain-the-amazing-solution-for-almost-nothing/86649455475-f933fe63.

Gatter, M. 2023. *Time and power in Azraq Refugee Camp: A nine-to-five emergency*. Cairo: American University in Cairo Press.

Gerard, D. 2017. *Attack of the 50 Foot Blockchain: Bitcoin, Blockchain, ethereum & smart contracts*. https://books.google.co.uk/books?id=L7hEDwAAQBAJ.

Hanafi, S. 2019. Postcolonialism's after-life in the Arab world. *Routledge Handbook of South–South Relations* 76–85. doi:10.4324/9781315624495-5.

Hart, S. U. 2023. From promise to practice: A cross-institutional analysis of design trends, enablers and challenges in blockchain-enabled cash and voucher delivery. *International Journal of Disaster Risk Reduction* 100 (October 2023):104129. doi:10.1016/j.ijdrr.2023.104129.

Harvey, P., and H. Knox. 2012. The enchantments of infrastructure. *Mobilities* 7 (4):521–36. doi:10.1080/17450101.2012.718935.

Hautzinger, D. 2022. "NOVA" explains cryptocurrency and examines its possibilities. WTTW. https://interactive.wttw.com/playlist/2022/11/09/nova-crypto-decoded.

Henriksen, S. E. 2023. Finding the "sweet spot": The politics of alignment in cross- sector partnerships for refugees. *Business & Society* 63 (1):145–84. doi:10.1177/00076503231191432.

High, C., A. Kelly, and J. Mair. 2012. *The anthropology of ignorance*. (NY): Palgrave Macmillan.

Ho, K. 2009. *Liquidated: An ethnography of Wall Street*. Durham, NC: Duke University Press.

İşleyen, B., and N. E. Qadim. 2023. Border and im/mobility entanglements in the Mediterranean: Introduction to the special issue. *Environment and Planning D: Society and Space* 41 (1):3–13. doi:10.1177/02637758231157264.

Jensen, C. B. 2010. Asymmetries of knowledge: Mediated ethnography and ICT for development. *Methodological Innovations Online* 5 (1):72–85. doi:10.4256/mio.2010.0011.

Jutel, O. 2023. Blockchain financialization, Binance and Neo-colonialism. *Frontiers in Blockchain* 6. February. doi:10.3389/fbloc.2023.1160257.

Krause, M. 2014. *The Good Project. Humanitarian NGOs and the fragmentation of reason*. Chicago: University of Chicago Press.

Kshetri, N. 2023. Blockchain in the global south: Opportunities and challenges for businesses and societies. In *Blockchain in the global south: Key issues and current status*, edited by N. Kshetri, pp. 1–28. Cham, Switzerland: Palgrave Macmillan.

Larkin, B. 2013. The politics and poetics of infrastructure. *Annual Review of Anthropology* 42 (1):327–43. doi:10.1146/annurev-anthro-092412-155522.

Lehdonvirta, V. 2016. The blockchain paradox: Why distributed ledger technologies may do little to transform the economy. *Policy & internet blog*. https://ftalphaville.ft.com/2017/06/14/2190149/blockchains-governance-paradox/.

Lemberg-Pedersen, M., and E. Haioty. 2020. Re-assembling the surveillable refugee body in the era of data-craving. *Citizenship Studies* 24 (5):1–18. doi:10.1080/13621025.2020.1784641.

Lenner, K., and L. Turner. 2019. Making refugees work? The politics of integrating Syrian refugees into the labor market in Jordan. *Middle East Critique* 28 (1):65–95. doi:10.1080/19436149.2018.1462601.

Leurs, K. 2017. Feminist data studies: Using digital methods for ethical, reflexive and situated socio-cultural research. *Feminist review* 115 (1):130–54. doi:10.1057/s41305-017-0043-1.

Lewis, C., A. Banga, G. Cimanuka, J. D. D. Hategekimana, M. Lake, and R. Pierotti. 2019. Walking the line: Brokering humanitarian identities in conflict research. *Civil Wars* 21 (2):200–27. doi:10.1080/13698249.2019.1619154.

Madianou, M. 2019. Technocolonialism: Theorizing digital innovation and data practices in humanitarian response. *Social Media + Society* 5 (3):205630511986314. doi:10.1177/2056305119863146.

Manski, S., and M. Bauwens. 2020. Reimagining new socio-technical economics through the application of distributed ledger technologies. *Frontiers in Blockchain* 2 (January). doi: 10.3389/fbloc.2019.00029.

McDonald, L. W., and L. Fast. 2019. Humanitarians are using blockchain - but it's not (yet) as transformative as we thought. *ALNAP*. https://www.alnap.org/blogs/humanitarians-are-using-blockchain-but-its-not-yet-as-transformative-as-we-thought.

McDonald, S., K. B. Sandvik, and K. L. Jacobsen. 2017. From principle to practice: Humanitarian innovation and experimentation. *Stanford Social Innovation Review* 21:1–5. https://www.prio.org/Publications/Publication/?x=10847.

McGoey, L. 2019. *The Unknowers: How strategic ignorance rules the world*. London: Bloomsbury.

Moxinspike, M. 2022. First impressions of web3. moxie.org website. https://moxie.org/2022/01/07/web3-first-impressions.html.

Mulvin, D. 2021. *Proxies: The cultural work of standing In*. Cambridge, MA: MIT Press.

Musmar, A. 2017. Chapter 14: Environmentalising humanitarian governance in Za'atri refugee camp through 'interactive spaces': A posthuman approach. In *Architecture and Feminisms: Ecologies, economies, technologies*, ed. H. Frichot, C. Gabrielsson, and H. Runting, pp. 181–91. doi:10.4324/9780203729717.

Nasser-Eddin, N., and N. Abu-Assab. 2020. Decolonial approaches to refugee migration. *Migration and Society* 3 (1):190–202. doi:10.3167/arms.2020.030115.

Neff, G., and P. Nagy. n.d. Conjuring algorithms: Understanding the tech industry as stage magicians. *Forthcoming*.

Prasse-Freeman, E. 2022. Nothing to lose but their (block) chains: Biometrics, techno-imaginaries, and transformations in Rohingya lives. *American Ethnologist* 49 (4):563–79. https://doi.org/10.1111/amet.13100.

Preda, A. 2023. *The spectacle of expertise: Why financial analysts perform in the media*. (NY): Columbia University Press.

Proctor, R. N., and L. Schiebinger. 2008. Agnotology: The making and unmaking of ignorance. doi:10.1515/9783839404263.

Raghuram, P. 2019. Race and feminist care ethics: Intersectionality as method. *Gender, Place & Culture* 26 (5):613–37. doi:10.1080/0966369X.2019.1567471.

Sadowski, J., and K. Beegle. 2023. Expansive and extractive networks of Web3. *Big Data & Society* 10 (1):205395172311596. doi:10.1177/20539517231159629.
Savoy, C. 2022. Donor Funding Models for Innovation: A Review. *Center for Strategic and International Studies*. https://www.csis.org/analysis/donor-funding-models-innovation-review June 2024
Scheel, S. 2024. The deportation gap as a statistical chimera: How nonknowledge informs migration policies. *Geopolitics*:1–23. doi:10.1080/14650045.2024.2368620.
Scott, B. 2016. How can cryptocurrency and blockchain technology play a role in building social and solidarity finance? In *UNRISD working paper*. http://hdl.handle.net/10419/148750.
Scott-Smith, T. 2016. Humanitarian neophilia: The 'innovation turn' and its implications. *Third World Quarterly* 37 (12):2229–51. doi:10.1080/01436597.2016.1176856.
Star, S. L., and K. Ruhleder. 1996. Steps toward an ecology of infrastructure: Design and access for large information spaces. *Information Systems Research* 7 (1):111–34. doi:10.4135/9781452231266.n11.
Steyerl, H. 2023. Common sensing? *New Left Review*. https://newleftreview.org/issues/ii144/articles/hito-steyerl-common-sensing?pc=1565.
Sukarieh, M., and S. Tannock. 2019. Subcontracting academia: Alienation, exploitation and disillusionment in the UK overseas syrian refugee research industry. *Antipode* 51 (2):664–80. doi:10.1111/anti.12502.
Swartz, L. 2017. Chapter 4: Blockchain dreams: Imagining economic alternatives after bitcoin. In *Another economy is possible: Culture and economy in a Time of crisis*, ed. M. Castells, pp. 82–105. Cambridge and Malden: Polity Press.
Swartz, L. 2021. Theorizing the 2017 blockchain ICO bubble as a network scam. *Preprint (accepted for new media & society)*. https://llaannaa.com/Swartz_Scams_forthcoming_NMS.pdf .
Tazzioli, M. 2022. Governing refugees through disorientation: Fragmented knowledges and forced technological mediations. *Review of International Studies* 48 (3):425–40. doi:10.1017/S0260210522000079.
Tsing, A. L. 2000. Inside the economy of appearances. *Public Culture* 12 (1):115–44. doi:10.1215/08992363-12-1-115.
Valk, J., A. Preda, and R. Xu. 2023. Blockchain imaginaries: Introduction to this special issue. *Anthropology Today* 39 (4):3. doi:10.1111/1467-8322.12824.
Van der Haar, G., A. Heijmans, and D. Hilhorst. 2013. Interactive research and the construction of knowledge in conflict-affected settings. *Disasters* 37 (SUPPL.1):20–35. doi:10.1111/disa.12010.
Walia, H. 2021. *Border and rule: Global migration, capitalism, and the rise of racist Nationalism*. Chicago: Haymarket Books.
WEF. 2023. Blockchain driven humanitarianism. WEFORUM website. https://www.weforum.org/agenda/2023/03/blockchain-driven-humanitarianism/.
White, M. 2022. It's not still the early days. Web3 is Going Just Great website. https://blog.mollywhite.net/its-not-still-the-early-days/.
Williams, R. 1980. Advertising: The magic system. In *Problems in materialism and culture*, edited by R. Williams, pp. 170–95. London: Verso.
Wired. 2018. *We put the entire internet on the Blockchain–and you can too*. https://www.wired.com/story/we-put-the-entire-internet-on-the-blockchainand-you-can-too/.
Yogarajah, Y. n.d. 'Staging' divinatory economic performances: Comparing startup and MLM cryptocurrency projects. *Journal of the Royal Anthropological Institute*.