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metrics across the whole community of scholars. Usually, evaluations are conducted periodically behind closed doors by a narrow circle of experts overburdened with procedures or by managerial outsiders to academia. Instead, the entire scientific community could be invited openly, in real time, using decentralized technology.

The metrics would no longer be imposed as a crude and alien measuring tool from the outside. Instead, they would organically grow out of the community's rules. This approach would make academics less inclined to disengage and become alienated from the very process of how universities and research institutions are run and evaluated – the 'metrics craze' (Kalfa et al. 2018; Muller 2018).

Quite a few reasonable blockchain projects for academia have been either proposed or launched. Yet, almost none have acquired the status of such killer apps as Telegram or Google Scholar. Why is this? One explanation is that academia seems to split into 'tribes' cherishing their standards and differences, in contrast to a more homogeneous 'crowd' of incentive-driven Bitcoin miners. Another is that scholars rely on stable institutional structures in their everyday practices, and the hot DeFi plasma does not appear particularly welcoming or attractive to them. Finally, decentralized, ground-up solutions require serious engagement and commitment from individual scholars and the whole community, which is not easy given the stress of other obligations. There is still time, however. The game is not over. ●

Towards decentralized anthropological scholarship

Some ethical considerations

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The year 2020 witnessed the accelerated unravelling of our social, economic and political structures. Overnight, Covid-19 transformed public and private lives and reinforced long-voiced injustices. Academia is not an inherently equal space even among the privileged, and ethnicity, race, gender, sexual orientation, age, class and ability intersect and act to the disadvantage of most (Malisch et al. 2020). In disciplines such as anthropology, the epidemic recentred another already-articulated truth. The constitutive long-term 'fieldwork as a rite of passage' is a masculinist fantasy, and 'in the field', just as 'at home', not all 'men' are created equal (see Berry et al. 2017). Concerns about 'our communities', which we have often chosen as 'ours' precisely because of their historical experiences of oppression and marginalization, sent further shocks along our already fractured lines.

Will they cope, and if so, at what cost? The reckoning will be long and complex and require restructuring old and new values, practices and relations. Setting our sights on a post-pandemic world, while alluring in its urgency, is a futile task. Just as Foucault (1977) suggested that instead of 'origins', we should focus on 'emergence', so too instead of 'endings', we may want to think in terms of 'co-endurance'. The future, once again – but this time perhaps more than ever – is not quite what it used to be.

The global pandemic has also contributed to the fast-tracking and the broader international (institutional but also cultural) adoption of emergent technologies such as blockchain. The subversive possibilities of such technologies may address some of the injustices regarding access, equity and participation outlined above. The adoption of blockchain and new channels for decentralized scholarly production, communication and ownership that these technologies facilitate also demands that we rethink and rebuild the relationships we have forged with communities and individuals the world over. This essay is an invitation for a multiperspective dialogue on some of the questions we, as anthropologists, must consider at the dawn of decentralized publishing and science. What does the future of decentralized anthropological scholarship look like, and what are the political, moral and ethical values we must consider, commit to and take action over?

The blockchain is a collaboratively managed and distributed write-only ledger that keeps track of a shared database of synchronized and replicated records (Janowicz et al. 2018; Swartz 2017; van Rossum 2017). One of its allures lies in its potential to evade prohibitive central authorities and directly empower its participants across

geographical, economic, political and cultural borders. Its applications span beyond the realm of cryptocurrencies. Indeed, not long from now, a wide array of data, services, goods and contracts will be stored, accessed and shared through blockchain.

Enter academia. The global technological advancement of the past two decades has led to attempts to democratize science and increase quality through umbrella initiatives such as open scholarship and open science. Yet, as Miller (2021) has argued, technology is not value-neutral but modelled after the normative contexts from which it has emerged. Initiatives such as Open Access, for example, have failed to bridge the North-South divide and secure the hoped-for rapid and widespread communication of research findings (Tennant et al. 2016).

Publishers continue to serve as gatekeepers who profit from charging both readers and authors in the process (van Noorden 2013). Coupled with the impact of longstanding linguistic, ethnic and gender bias (Drieschová 2020; Helmer et al. 2017; Politzer-Ahles et al. 2020), slow publishing cycles and lack of recognition for the demanding work of peer reviewers (Cintas 2016), the state of academic publishing seems firmly entrenched in its time-tested, colonial and patriarchal model.

Recent efforts in the field of decentralized publishing offer glimpses of alternative modes. Picture this: the infrastructure moves from the hands of publishers to the scientific community (Tenorio-Fornés et al. 2019). Transcripts uploaded to a blockchain platform allow editors transparently to access the most suitable reviewers, who promptly perform the task and receive recognition for their work. The communication process between editors, reviewers and authors is fast and seamless, as is the distribution of, discovery of and access to research findings in the form of articles, books, data, and so on.

Research outputs are not authoritative monolithic bodies impervious to change; instead, they may be added to and developed over time – the ledger can easily keep track of a scholarly text's evolution. The academic output will transform from static to processual (Janowicz et al. 2018; Janze 2017; Novotny et al. 2018; van Rossum 2017). Today's 'wrongly assigned incentive structures' will be replaced by incentive models that ensure the equal treatment of articles, reviews and data. Native cryptocurrencies can incentivize reputable work performed by authors, editors, reviewers and network operators. This incentive will also help improve the process's quality, speed and fairness (Janze 2017). In sum, decentralized publishing through

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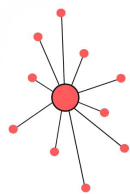
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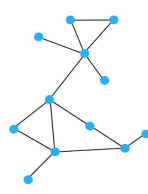
The New Networks

Centralized



Centralized systems have a core authority that **dictates the truth** to the other participants in the network. Only **privileged users** or institutions can access the history of transactions or confirm new transactions.

Decentralized



Decentralized systems have **no core authority** to dictate the truth to other participants in the network. **Every participant** in the network can access the history of transactions or confirm new transactions.

Fig. 1. An infographic, illustrating the characteristics of centralized and decentralized networks.

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blockchain may lead to the complete transformation of established procedures and relations between all involved participants (Novotny et al. 2018).

The adoption of blockchain technology for science and publishing has been slower than in other spheres. Authors have identified various reasons for this. Kosmarski (2020), for example, cites lack of user-friendliness, lack of legal clarity, the dubious reputation of the crypto technology and lack of resources among the main barriers to the blockchainification of the scholarly workflow and cycle. Similarly, Leible et al. (2019) write that lack of explicit governance models and standards and volatile incentive structures have added to the constraints in the field. Yet, we must keep in mind that academia has been historically suspicious of the value and applicability of new technologies. Take, for example, the internet.

Pondering on the dangers of 'balkanization' of the research process in the late 1990s, van Alstyne and Brynjolfsson were concerned that, '[f]aced with a wealth of resources and limited attention, researchers can use IT to focus on only those articles and colleagues that really interest them, regardless of location, and to the effective exclusion of others' (1996: 1479). Furthermore, only two decades ago, high costs, lack of standards, hardware restrictions and low audio and video quality seemed prohibitive to the development of videoconferencing for academic purposes (Kouzes et al. 1996): a particularly uncanny throwback in the age of universal zoom fatigue and burnout.

Despite these early-stage challenges, blockchain seems here to stay, and sooner or later academia will have to figure out ways to incorporate it into its system. Leible et al. (2019) compare the current situation to a 'greenfield' with few to no constraints and point to the many opportunities to implement new systems and processes. As anthropologists, we must ensure from the outset that we actively participate in the development of these systems and processes and tailor them to the specific needs of our discipline. How can we do this? When we migrate to these new technological ecosystems, we must ensure that the communities and individuals that have propelled us to our privileged positions travel with us and receive equal access and recognition.

I like to think of this in terms of moral responsibility, a type of timely hands-on activism that removes us from the pedestal of sole experts, advocates and benevolent allies; that grants equal recognition to our interlocutors. If we as authors can build a reputation (and careers) and gain incentives on a decentralized scholarly platform, so must our knowledge co-creators. Suppose one of our tasks as engaged anthropologists is to 'unmask ... the material and ideological effects' of the global capitalist order 'not as abstractions but as a very real set of interventions' (Lyon-Callo & Hyatt 2003: 177). In that case, this may be a once-in-a-generation opportunity to do so.

Here is one (of many, I imagine) possibilities as to how we may go about it in the field of academic publishing. Suppose the recognized actors in a decentralized publishing ecosystem are authors, editors, reviewers, consumers and network operators. In that case, we can start by assigning interlocutors (designated communities, individuals, organizations or other representative bodies – our knowledge co-creators) an equal role as participants on par with the various established roles (see Janze 2017). Note that blockchain allows for anonymization by design. To avoid wrongdoings, universities or other elected ethical bodies can verify the identity of and assign partners in this process. When publishing a text or data, we can tag our interlocutors who have contributed to the publication. If publishers are obsolete, so will be the costs associated with publishing and access in a decentralized world. Instead, resources may be redirected towards editors and reviewers (for authors) and citations (for consumers).

When authors build a reputation and economic incentives (in the form of crypto tokens, for example), a certain amount can be redirected to the tagged knowledge co-creators. Stretching this proposal a step further, communities with access to the internet can have their voices, opinions and comments added to the record or even enter into dialogues with authors, editors and reviewers. Material and immaterial cultural data and intellectual rights can be directly linked to communities, and the use of the data by third parties can benefit tagged communities directly and immediately. One of the inherent qualities of blockchain is the flexible forms of ownership it allows (Swartz 2017). Not unlike corporate models of distributed ownership, we, as an academic community, have the chance to move towards a distributed ownership of research data and findings by producing high-quality, rigorously reviewed scholarship that incentivizes the right parties.

My understanding of blockchain technology is limited. I understand much better the historical and ongoing conditions of persecution, dispossession and exclusion of the people I have worked with over the past 13 years in east-central Namibia – the Omaheke Ju|'hoansi. Stifling state policies and the dominance and violence imposed by neighbouring groups have made it impossible for the Ju|'hoansi to break away from the vicious circle of poverty and dependency that permeates every aspect of their lives: from limited participation in education to inability to gain legal title over their land, to lack of freedom to envision and decide on the course of their development (Ninkova 2017; 2020; forthcoming).

Economic and other incentives for marginalized communities are not without their problems. They alone cannot address the underlying machinery of colonialism, exploitation and continued oppression. However, the inclusion of interlocutors as equal actors in these new forms of research dissemination goes way beyond this. By making space for our interlocutors, we can shift the power dynamics shaping and guiding our research practices. Including research participants may mean communities themselves will gain greater control over research priorities and processes.

Blockchain records tagged with specific communities and reputable authors and reviewers may also lead to greater legitimacy and easier access to data for legal and juridical purposes. These new forms of engagement and potential benefits may create new dialogues, commitments and trust between researchers and communities. With all their undeniable potential, the increasingly rapid development of new technologies has also created tangible rifts along geographical and class lines. Through blockchain technology, we have an opportunity to imagine and create a different outcome. ●