

## IPS-SEC Closed-Door Discussion on “Digital Technologies for Community-Building and Social Resilience”

By Eddie Choo & R Avinash

1 The Governance & Economy Department of the Institute of Policy Studies (IPS), together with the Singapore-ETH Centre (SEC) held a closed-door discussion titled “Digital Technologies for Community-Building and Social Resilience” on 8 March 2024 at IPS. The event drew a total of 28 participants from the private and public sectors, as well as academia, in-person and online via Zoom.

2 The discussion was divided into two sessions. The first session centred around a presentation by Mr R Avinash, Research Assistant at IPS, and Dr Woo Jun Jie, Senior Lecturer at the Lee Kuan Yew School of Public Policy, National University of Singapore (NUS) on their IPS working paper titled “Decentralised Governance Through Blockchain”.

3 The second session featured a project proposal by SEC, IPS and NUS academics to study how Web 2.0 and Web 3.0 technologies can be used by communities to mount self-help projects and to examine the comparative effects of the technologies on fostering social ties, trust — and more broadly, social resilience. The proposal was presented by Dr Jonas Joerin, Director of the Future Resilient Systems at the SEC; Dr Jeehyun Park, Postdoctoral Researcher also at the SEC; and Dr Vincent Chua, Associate Professor at the Department of Sociology and Anthropology of the Faculty of Arts and Social Sciences, NUS.

4 The discussions that followed the presentations were held under the Chatham House Rule. A summary of the proceedings is presented here.

### **Session One: Decentralised Governance Through Blockchain**

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#### **Presentation**

5 The first presentation suggested that blockchain is designed with the potential to facilitate decentralised governance, where local communities can decide on the management of public resources or self-help projects through transparent and fully accountable ways. Blockchain that is built in the spirit of Elinor Ostrom’s eight tenets of the Institutional Analysis and Development (IAD) Framework allows members of a system to fully participate in designing and changing the rules and norms of engagement, reward good behaviour or penalise bad behaviour, and track in a transparent and immutable way all transactions that take place. This removes the need for prior interaction and building of interpersonal trust. Resources can be managed to achieve win-win outcomes and avoid winner-takes-all ones without the need for direct intervention by a higher authority.

6. Mr Avinash and Dr Woo also shared four existing use cases of blockchain and suggested that these were building blocks to fuller use of such a technology for decentralised governance that ultimately promotes public good and social resilience, especially in a diverse society like Singapore.

## Discussion

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7 Participants discussed the key features of blockchain. While the presenters made the distinction between blockchain and the use of it in systems of cryptocurrencies, to remove the “casino-like” aspect of the latter from the former, a participant thought it would be better to distinguish whether a blockchain system is speculative or productive. The participant argued that cryptocurrencies or crypto-assets are integral to the blockchain mechanisms that have been adopted widely. They are important mechanisms for settling cross-border financial and commercial transactions. Fundamentally, blockchain operates on economic principles and tokens that are almost necessarily financial assets though not singularly so. Participants agreed it was ideal to avoid using terms that associate blockchain and the recent cryptocurrency scandals if we do not want potential uses for public purpose and social good to suffer from scepticism around the technology.

8 In addition, the issue of design is crucial. A participant highlighted the importance of setting rules for how people interact with the blockchain system to ensure there is no bias in who can be part of the system. This takes into account the likelihood that not all potential participants or members of the public will be comfortable using a blockchain tool or are comfortable using digital technologies in the first place.

9 Participants also clarified that blockchain technology is not anonymous, but pseudonymous. Data on transactions can be traced back to the user without knowing who exactly the user is in real life.

10 Participants explored how blockchain might be different from current digital technology platforms. Today, large technology companies can suddenly and arbitrarily shut off access to their services to specific users. This is because they operate as centralised systems and can assert their power in that way. Instead of that, a blockchain system is “permissionless” and “trustless”. “Permissionless” means that gatekeepers are not required; anyone can belong to a system if they agree to uphold the rules of the community. The “trustless” dimension comes from the fact that agreements can be executed in code and be completely traceable, as long as conditions are met. Explicit trust is not needed. A blockchain system will not allow unilateral and arbitrary actions.

11 A blockchain inherently functions as an economic system that is tamper-proof and completely traceable. In this sense, one can build in other applications including chat (as a replacement to WhatsApp, as an example). Other possible applications can be designed around the exchange of time and good deeds as long as the activity or assets can be tokenised (represented in a digital format) and transacted. The system allows for the design of graduated sanctions, i.e., a series of incremental punishments if one violates the rules. This differs from the practices when participating in current technology platforms, which are relatively blunt and from a centralised authority, as mentioned earlier.

12 To illustrate how blockchain can be thought of an economic system with tokens that represent the activities or assets of interest and incorporate rewards and deterrents for behaviour, the StackUp system of Tribe was cited as one that rewards people for persisting in their journey of learning or reskilling themselves with digital skills.

13 An important kind of economy that can be applied to blockchain is a reputation economy. A blockchain can record a user's history of transactions or social interactions which can be trusted owing to the tamper-proof system. A user's reputation can be assessed and made known through the number of tokens associated with the user's wallet.

### **Consequences for social interactions**

14 Participants questioned whether technology that claims to foster social interaction might actually bring about social cohesion in the community. There was recognition that digital communication technologies are already reputed to lead to social polarisation, bullying and other undesirable social behaviours. Rather than going to the person directly and confronting the bully, individuals affected can ask a digital mob to address the bully and even "cancel the bully". What if there is a group of older people who might not be as adept at navigating the technology, and what if they are misunderstood for their interactions and "cancelled" from the community as a result? In addition to that, there were concerns among participants about how rules can result in inequality, i.e., the privileging of one group over the other. Also, if barriers to participation in a blockchain system are high, that will also create inequalities of access.

15 Participants also talked about ethical considerations as communities can also be exclusionary in the way they want to govern themselves. Another question of ethics was if people should be explicitly rewarded for good behaviour. This can be a threat to an intrinsic and therefore more sustained motivation to do good.

16 Other participants recognised blockchain as a "trust technology", which prompted a discussion of the "supply chain of trust". Where might the centre of that trust be? Was it with the community, or with the government? They noted that it is important to remember that ties within a community are multifaceted. A participant suggested that one possibility of the technology's effect is that it can strengthen some aspects of community ties, while weaken others.

### **Application**

17 With the understanding of blockchain as a distributed ledger, participants various kinds of applications. One idea is to use it to track a community's decarbonisation actions with an objective of understanding the measures that work well and of rewarding the right behaviour.

18 Another application is to facilitate a participatory system of decision-making and management of the local neighbourhood especially private housing estates where there have been disputes about use of public spaces. In the latter, perhaps a portion of some government tax that residents and owners pay can be put in their hands so that they can decide how best to manage local issues and have the resources so.

19 Yet another area of application that arose in the discussion is the use of blockchain to deal with the issues that the homeless community faces. Blockchain can offer alternative or back-up systems for identification, access to services, and the tracking of the number of homeless people and their movement. It helps to know how members are doing in real time as opposed to relying on an annual census that provides just a snapshot of the situation.

## **Session Two: Digital Technologies for Community-Building and Social Resilience**

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### **Presentation**

20 The second presentation set out the SEC-NUS research proposal to establish empirically how Web 2.0 and Web 3.0 technologies can affect social ties and resilience. The idea is to select three neighbourhoods in the same region or constituency to control for the variation in the profile of participants and the access to infrastructure and resources in the area. In a series of facilitated sessions, residents will be invited to identify an urgent social need they wish to address. The first neighbourhood will act as it chooses to, without active intervention by the research team to introduce any kind of digital technology. The second will be supported in using Web 2.0 tools to create and implement their self-defined project. The third will be supported in using Web 3.0 to do the same. There is a baseline measure of the strength of participants' social resilience (including aspects of social ties, trust, etc.) as well as that of the residents living in the surrounding area before any intervention takes place. The measurement of social resilience is taken during the period of active intervention, and finally, perhaps half a year after the launch of the tools. Qualitative analysis of social resilience and the ways in which the communities set about to achieve their goals will also be conducted.

21 Ultimately, the questions behind the research are whether Web 3.0 can achieve two goals in new and effective ways, comparing the methods: Can it solve the key community problem at hand; and can it do so in ways that bring people together and strengthen their ability to collaborate further? Social resilience is after all about the ability to respond to a crisis in ways that strengthen the social fabric.

### **Discussion**

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#### **Digitally strengthening the social fabric of a neighbourhood**

22 The discussion focused on the nature of community-building, and how social resilience indicators can be devised to measure the effects across the three neighbourhoods. The idea is to study the benefits of each digital tool controlling as far as possible for confounding factors. This can provide an empirical framework for evaluating the respective technology's benefits to a community, with a control group for deeper comparison too.

#### **The marketisation of deeds on Web 2.0 vs 3.0**

23 Participants noted that there can be qualitative differences between the way Web 2.0 and 3.0 technologies work. There can also be the threat of the marketisation of good deeds. It was noted that if a good deed is performed on Web 2.0, it will be recorded in people's minds, norms and behaviours. On Web 3.0, that good deed will be recorded on the platform itself. Participants explored how this can make communities less resilient; if people only do good

deeds because there is extrinsic and external recognition and benefit, will that erode the intrinsic motivation and reward of doing so?

### **Web 3.0 facilitating stakeholder participation**

24 Participants also expressed interest in Web 3.0 due to its ability to allow people to be members in a pseudonymous fashion, without having to state their actual identities. Many public resources are not being used as no one knows whom they belong to, should belong to, or how they might be used or abused. So, will this system strike a balance between control and privacy? If there is a system where people can be members of a self-help, self-governing system to share public resources, they will likely feel that they have something at stake. Blockchain can provide a system where people act and are held accountable for their actions, yet with no danger of doxing.

25 The use of distributed ledgers will track, punish and reward different courses of action using a self-executing system for rules determined by the community itself. Self-governance can also mean that people get it wrong, said participants. However, the facility to self-govern means that when an as-yet indeterminate crisis comes along, people can, hopefully, mobilise an existing system or a generalised sense of trust to respond to it together.

26 Web 3.0 can potentially allow people to participate equally with many more creative and worthwhile ideas being generated through it. In contrast, Web 2.0 technology such as WhatsApp allows the opinions of leaders to be tolerated while other ideas are dismissed. Web 3.0 can increase the chances of good and sustainable solutions arising from the ground to prevail, which will then allow a wider range of opinions to be considered.

27 On this, one of the participants said that it is important for the groups participating in these projects in the study to choose the problem they want to solve. This will allow residents to consider the various motivations and concerns of the people in their own community.

28 In this vein, it was noted that in the early 2010s, there was a lot of discussion and research on the sharing economy. This has been given myriad names, ranging from access-based consumption to peer-to-peer economy and most recently, collaborative consumption. It was observed that different initiatives enabled by technology can be mapped based on two dimensions: whether they are driven by intrinsic versus extrinsic needs and motivations; and whether they are person or individual-oriented initiatives versus public-oriented initiatives. It was noted that the motivations that drove people to join four typologies of initiatives in the matrix were very different. Those who joined the more consumption-based initiatives that were driven by private interest were transactional in their approach. In contrast, those who took part in initiatives that were more public interest-driven, did so because they wanted to pay it forward. This analytical framework helps to assess people's motivations and track why they choose certain initiatives.

### **Further use cases of Web 3.0 technologies for public good**

29 A participant urged the researchers to consider this: What exactly is the unique quality of blockchain that is being experimented with and what is the effect that is being measured?

Another participant offered four tangible examples to illustrate the unique applications and utility of Web 3.0:

- a. The Women's History Museum (WHM) of Zambia and the National Museums of World Cultures in Sweden collaborated on a project titled *Shared Histories*.<sup>1</sup> Its aim is the cultural repatriation of displaced artifacts through digitalisation. In practice, it means displaying these cultural items online so that local communities in Zambia can reconnect with their cultural heritage. The WHM, with funding from the Swedish Institute, created a virtual museum using blockchain that ensures the traceability and authenticity of those items. This has enabled host museums, stakeholders, galleries, artists, object makers and communities to share the revenue generated from their knowledge and objects, as well as their capacity to host and exhibit those objects.
- b. The *Ongaeshi* project<sup>2</sup> in Japan involves the use of Non-Fungible Tokens (NFTs) to make education accessible. In rural Japan, every now and then, someone hits university age and ought to head off to the city to study. If they cannot afford it, the village will come together to create NFTs as assets to fund the educational aspirations of their young members, where sponsors purchase these assets. *Ongaeshi* NFTs operate on the principles of reciprocity and accountability, in that once the students successfully graduate and start working, a share of their salaries will be used to reimburse their sponsors holding these NFTs.
- c. With the Ukraine-Russian War in its second year, crypto-mechanisms, such as a Ukrainian Decentralised Autonomous Organisation (DAOs) platform<sup>3</sup> and NFTs,<sup>4</sup> are being used to support Ukraine's war effort by facilitating the donation of millions of dollars to the cause. This is something that cannot be done through the traditional banking system.
- d. The United Nations High Commissioner for Refugees collaborated with the United Nations International Computing Centre and Stellar Development Foundation<sup>5</sup> to set up cash assistance in the form of a crypto-based stablecoin as an income stream for refugees from Ukraine. This technology can be expanded to serve people fleeing humanitarian crises in other regions as well. Since refugees cannot be paid in cash, the best way to do so is through crypto means.

### Methodology in the research project

30 Participants discussed the relationship between using the technologies and the social resilience indicators for the proposed study. A member of the research team pointed out that

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<sup>1</sup> <https://pro.europeana.eu/post/the-women-s-history-museum-of-zambia-in-cyberspace>

<sup>2</sup> <https://www.ongaeshi-pj.com/>

<sup>3</sup> [Ukraine DAO \(notion.site\)](#)

<sup>4</sup> [Why the role of crypto is huge in the Ukraine war | World Economic Forum \(weforum.org\)](#)

<sup>5</sup> <https://www.unhcr.org/news/press-releases/unhcr-wins-award-innovative-use-blockchain-solutions-provide-cash-forcibly>

given the still-evolving nature of Web 3.0 technologies, an approach might be to use the current technologies — that is, Web 2.0 applications first, and then introduce Web 3.0 to the same group after a period of time. This seems ideal but it can take a long time to complete. The proposed study — of comparing how communities might change with the use of different technologies *in parallel* — can still be useful as a contribution to understanding how aspects of technologies shape different aspects of communities.

31 Participants had different perspectives on the maturity of the technology and Singapore's overall readiness to adopt it. Some participants thought that Singapore is more ready than other societies across the world, given the overall high digital technology adoption. Other participants were more cautious given the perceived daunting nature of Web 3.0 technologies.

32 Societal or community buy-in is important. This means a group of people within the specific neighbourhoods must work together to build the application they hope to use. This will allow them to have a sense of ownership whether it is a Web 2.0 or 3.0 application. The research team must discern if the proposal is targeted at achieving public or private good as highlighted earlier.

33 One way to isolate the impact of the technology used is for the research team to specify the precise projects that the neighbourhoods will work on, suggested a participant. However, since community buy-in is important, it may be better if the communities themselves think about what social project they want to do. There is nonetheless appreciation that the choice of the community project might affect how the technologies are used, creating a confounding factor when it comes to drawing a direct line between the creation of social relationships with social resilience outcomes.

## Conclusion

34 The IPS-NUS research team noted the suggestions for refining the research proposal and the methodologies, acknowledging that is an attempt at creating social innovation and resilience.

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