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Exploring the emerging data value ecosystem: data production (IoT), data management (blockchains/DLT) and data automation (machine learning).
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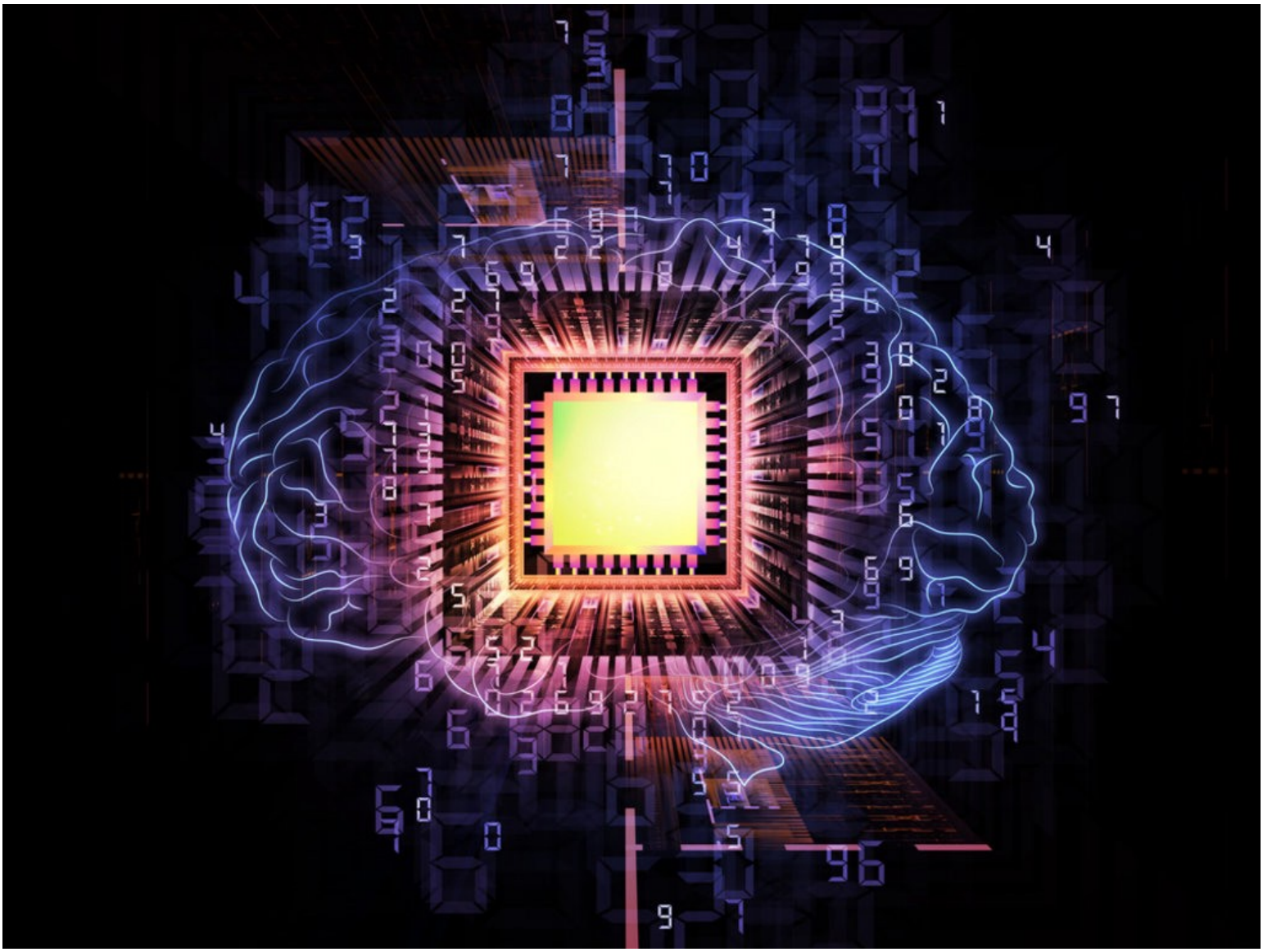
Disrupting Tech Monopolies & AI Tycoons — Part 1

Blockchains & Artificial Intelligence is not just a technical innovation: it's an economic paradigm shift 💰💰💰



>>Blockchains combined with AI will create the conditions for disruption of platform monopolies>>

>> As data stops being a competitive advantage, powerful token-driven network effects will lead to AI agents using blockchains to accumulate tokens>>

>>This will lead to profound questions about the how we govern non-human entities in the economy and society. 🤔 🤔

Data is siloed...

It is almost banal to say it, but as a society we have a data problem. Most of the World's data is held on private servers. The client-server architecture of the Internet and the design of corporate IT networks has resulted in data being hosted and stored on private and centralised databases. Lucrative consulting businesses sprung up to help organisations connect systems and try to make it easier share their data internally. Open Application Programming Interfaces (APIs) have gone some way into opening up data externally, especially in the public sector, but nevertheless these fixes are typically forced upon organisations.

PSD2 is supposed to force banks to open up their data but they are doing their best to wriggle out of it. See Chris Skinner's blog here.

Regulation and data privacy further limit sharing...

Even when organisations might be set up to share data and have a culture of sharing and collaboration, privacy laws and data protection legislation has had a chilling effect on data sharing. The Health Insurance Portability and Accountability Act (HIPAA) in the US or the Data Protection Act in the UK explicitly state what data can and cannot be shared. But these are complicated policies. The technical difficulty of implementing data policies, combined with the degradation of user experience those implementations produce, make IT systems costly, inefficient, and unpleasant to use. On top of which the security theatre that surrounds them only adds to the insecurity of participating with such systems. It's just not worth it for people to go through the risk and hassle of sharing data.

It's also really hard to make any money from sharing data...

Even when sharing is encouraged internally, technically possible with Open APIs, and legislation is favourable, current data infrastructure makes it difficult to monetise data. The best that happens is that external developers or citizens get free access to data. Lovely stuff for the user of the data, not so much for the publisher. There is no good way to get paid appropriately for published data. Some content can be published using an open-source license, sure, and attribution is great, but it doesn't pay the bills. Dual-licensing for software is possible. See Oracle's MySQL database which is dual-licensed under a commercial proprietary license and under the GPLv2 license. But in most cases licensing is costly, difficult to enforce and inefficient. Licensing of personal data is officially non-existent. Despite that in developing countries companies make money from this value. Around the world doctors use Facebook's WhatsApp to send medical reports, nurses use Gmail to provide remedial advice, and that data, while not licensed, is published to advertisers as users uncaringly share the data.

So basically there is no business model for data sharing...

> *The fact is today there is no rational economic incentive for individuals to do anything other than give data away for free and for corporations to hoard it. If only there was a solution...*

Blockchains are terrible databases, stop going on about it...

First and foremost, despite my clickbait-y headline I want to get this out of the way: public blockchains are in most ways worse than existing databases. They are slower, have less storage, are extremely energy-inefficient and in most cases less private (although zero-knowledge

proofs 👏, self-sovereign identity 👏 and Masked Authenticated Messaging (MAM) 👏 will help this). But these are design choices are made to improve one feature: decentralisation. By decentralisation I mean the elimination of a central administrator which leads to extreme fault tolerance and increased data integrity and tamper-evidence. The removal of centralised control and vulnerable centralised data repositories has trade-offs which make most blockchains unsuitable for a ton of use cases that have been spoken about. But in cases where security and tamper-evidence is more important than throughput, speed, capacity, and stable governance, well then public blockchains are well worth exploring. For more on this Adam Ludwin of Chain explains it better than anyone in this post.

Okay, so it's more secure, but nobody cares about security...

So the question becomes: how important is security to individuals, corporates and Governments, right? The bull case for blockchains is that it matters a lot and it will matter more in the future. If security continues to be an afterthought, well existing databases are cheaper, faster and more convenient, so why bother with blockchains at all?

Well, I tend to believe that security will become more important. Things like the Yahoo! or Equifax hacks certainly shine a light on the vulnerability of centralised data providers but tbh I really don't think individuals are going to demand change. People are going mad for Amazon Echos and Dots and sticking them in every room, very few people are asking: what data is actually being collected? Where is it being stored? Is it encrypted? How can it be combined with other datasets? Security and data protection matters far more to business and to Government and the so-called Internet of Things will force the change.

Blockchains will actually help manage the sharing of data instead of fighting over it...

Never has so much data been available for collection and analysis. Connected cars are throwing off vast amounts of data, the challenge is that every single stakeholder wants access for their own purposes: car

makers want it to improve the driving experience; tire makers want it to see how their tires perform; City administrations want it for traffic prediction; and software makers want it to improve their self-driving software. As sensors are embedded in all sorts of everyday objects, everybody is fighting for who 'owns' the data. This is fighting yesterday's war. Blockchains can provide an open, shared data layer in which all stakeholders have access to data.

So blockchains will actually be quite useful in securing and sharing data...

Sure, not every bit of data will need a fully decentralised blockchain with proof-of-work. In most cases a simple distributed ledger with a Merkle tree will suffice (see DeepMind Health Verifiable Data Audit). Much of the data could even be stored off-chain with just links to the on-chain hash. Regardless of the blockchain flavour, cryptographically-secured distributed ledgers offer a better alternative than centralised databases. Of course, an assumption here is that blockchains don't suffer the familiar fate of incompatibility by competing blockchains. The community does seem to be fully behind blockchain-connecting projects like Polkadot, Cosmos, Atomic Swap and AION. These services combined with zero-knowledge proofs mean data can be shared privately on public ledgers. At this point, we are close to the ideal of a globally shared database with easy and, ideally, public permissions.

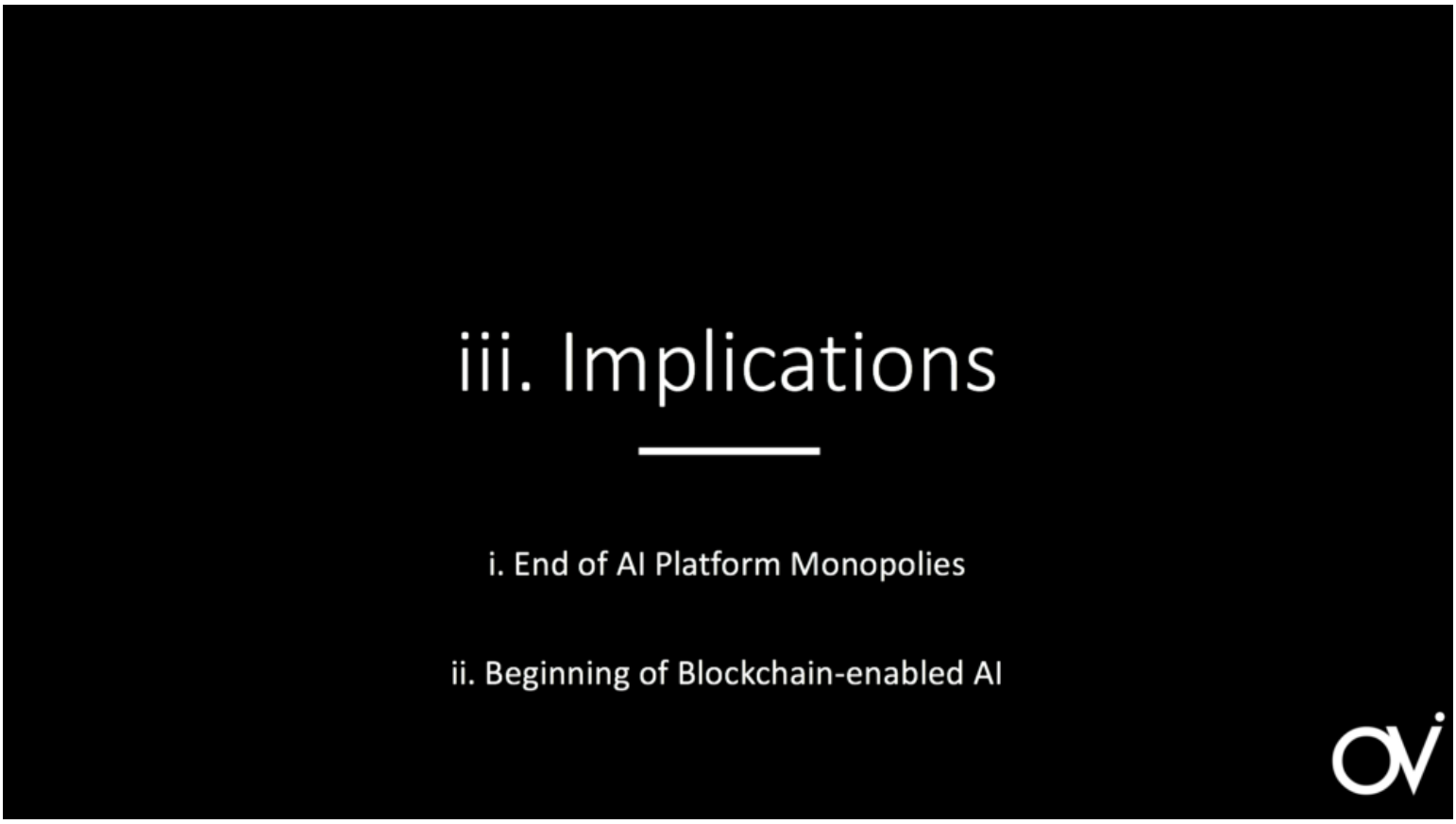
Add in data exchanges...

Now, the final piece. Data exchanges like the Ocean Protocol bring together data buyers and sellers (also including bots and devices). As explained, today data is either given away for free or sits underutilised because people and organisations have no way to monetise it. A blockchain-based data exchange can enforce data quality standards, ownership and usage rules, and pay sellers to rent or sell data. A data exchange provides the missing component to a shared ledger: a business model. People and organisations can easily earn money from their data.

Now we have the infrastructure to share and monetise data...

Sure, people won't just stop using Google or Facebook tomorrow. The value they provide is far too great. But these new networks will change the conversation. The public will begin reading news stories about how they can be paid when people download their pictures or paid when they upload their smart watch data.

> *The seed of disruption has been planted. Why allow yourself to be sold for nothing when you can get paid?*



If this piqued your interest and you want to know more about the implications Part 2 is available to read here.

Thanks for reading 👍. If you enjoyed it, please hit the 👏 button and share on Twitter and Linkedin.

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