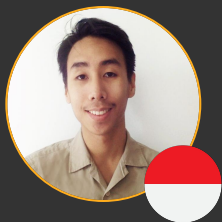


TEAM THRE3





Giovanni Lucky
Data Visualization Enthusiast

Founder at Cerita Data, a platform to raise awareness on the importance of data literacy through data visualization and storytelling

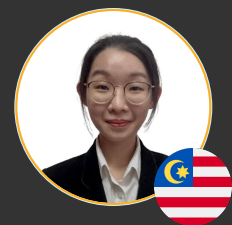
Business Development at Fairphonic, a music-tech startup helping artist claim more music royalties



Korakot Janteerasakul
Public Policy/ Democracy & Governance

Monitoring and Evaluation Program Officer at NDI, working on a program to strengthen public participation in Thailand

Enthusiast for Digital Innovation to drive Democracy & Participatory Governance



Liaw Ying Yan
Tech Ethics Enthusiast

Analyst at Central Bank of Malaysia

Digital Marketer

Independent Researcher in Data Science and AI Ethics



Azam Rahman
Law, Sustainable Economic Development

Legal Counsel at Brunei's sovereign wealth fund

Founder of QuckbasketBN, e-commerce platform for home-based vendors



Harold Delima, MSciArch
Architecture, Sustainable Design

Co-founder of 5XD, a PH-based design and architectural firm

Co-founder of NANO+, an AgTech Startup in agriculture, nanotechnology, and IoT space

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1. Problem
2. History of the problem
3. Culture
4. Selected Smart Technology
5. Impact of the technology on society
6. Future of the technology



PROBLEM

ASEAN is plagued with land ownership issues

- Difficult to identify ownership and rights
- Difficult to monitor changes
- 88% of land disputes remain unresolved
- “Too many cooks” - numerous government departments
- Significant financial loss



HISTORY

How did we get here?

- 200 year old Torrens Title System
- Centralised, Government Controlled
- Invented for countries with unused land.
- Bloated over time
- Recent push for e-registry, leaves much to be desired



LAND REGISTRY CULTURE WITHIN VARIOUS ASEAN COUNTRIES

Brunei:

In Brunei's culture, decisions on land ownership and inheritance are usually made within a family, and passed orally. By the time the government is involved there may be disputes between family members and there is no written legal agreement.

Indonesia:

A major social and political issue in Indonesia today relates to land clearance (*penggusuran tanah*)

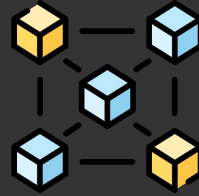
In the 18th century, the debate on land ownership revolves around State ownership of land, whereas it evolved in the early 20th century to the concept of *adat law*, classified as village or communally owned land, gave the so-called "autonomous self-regulating villages" power to make laws regarding the land. [2]

Thailand:

Before the late 19th century, the state (the King) had full legal control over land and its allocation (offering as gifts among nobles). Nowadays, land transactions are still bound by social relations (the nature of kinship and marriage relation), land rental & purchase, voluntary turnover of land by the farmers near the land frontier and loss of land from loan defaults. Land without document of title can be subject of only possessory right but cannot be transferred by conveyance, except by inheritance. [3] Yet, farmers in rural areas are still following the traditional practice of 'marking and clearing previously unused land the same rights of ownership as in cattle or other goods.' [4]

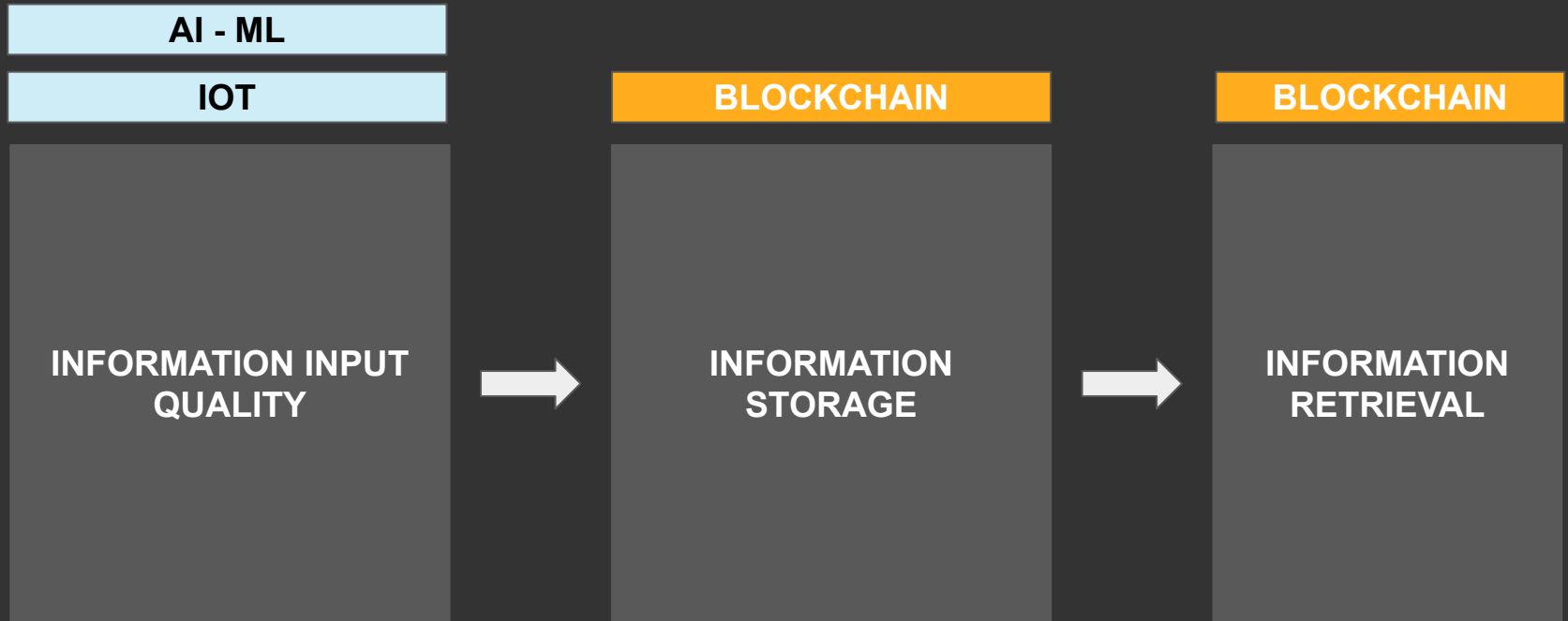
Philippines:

"An intimate relationship with land expressed in communal ownership has shaped and sustained these cultures over time. But now, public and private enterprises encroach upon indigenous peoples' traditional domains, extracting minerals and timber, and building dams and roads. Displaced in the name of progress, indigenous peoples find their identities diminished, their livelihoods gone." [9]



SMART TECH

INTEGRATING AI-ML AND BLOCKCHAIN TO SOLVE EXISTING LAND REGISTRY PROBLEM



INFORMATION INPUT QUALITY - USING AI-ML AND IOT

USER INPUT

Land Information Verification

Document & KYC Verification

Drones as IOT Device
Input

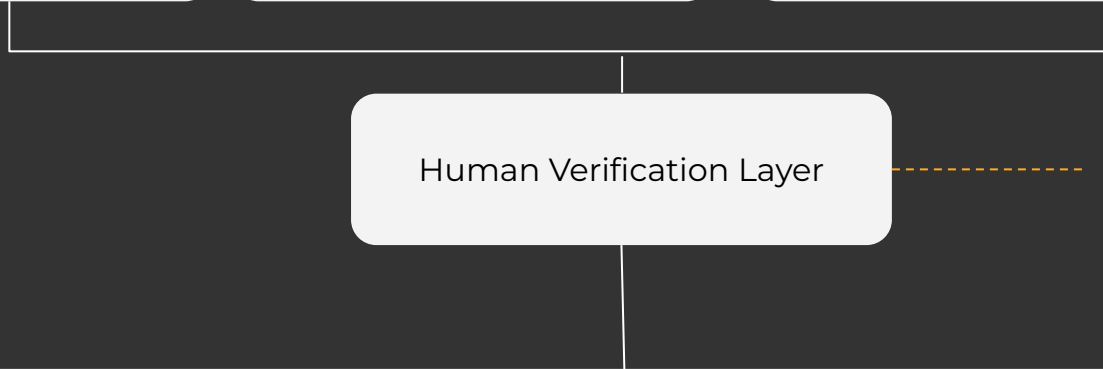
Intelligent Spatial
Mapping Technology
(ex. ArcGIS) [7]

Text & Image Recognition Technology via
AI-ML [6]

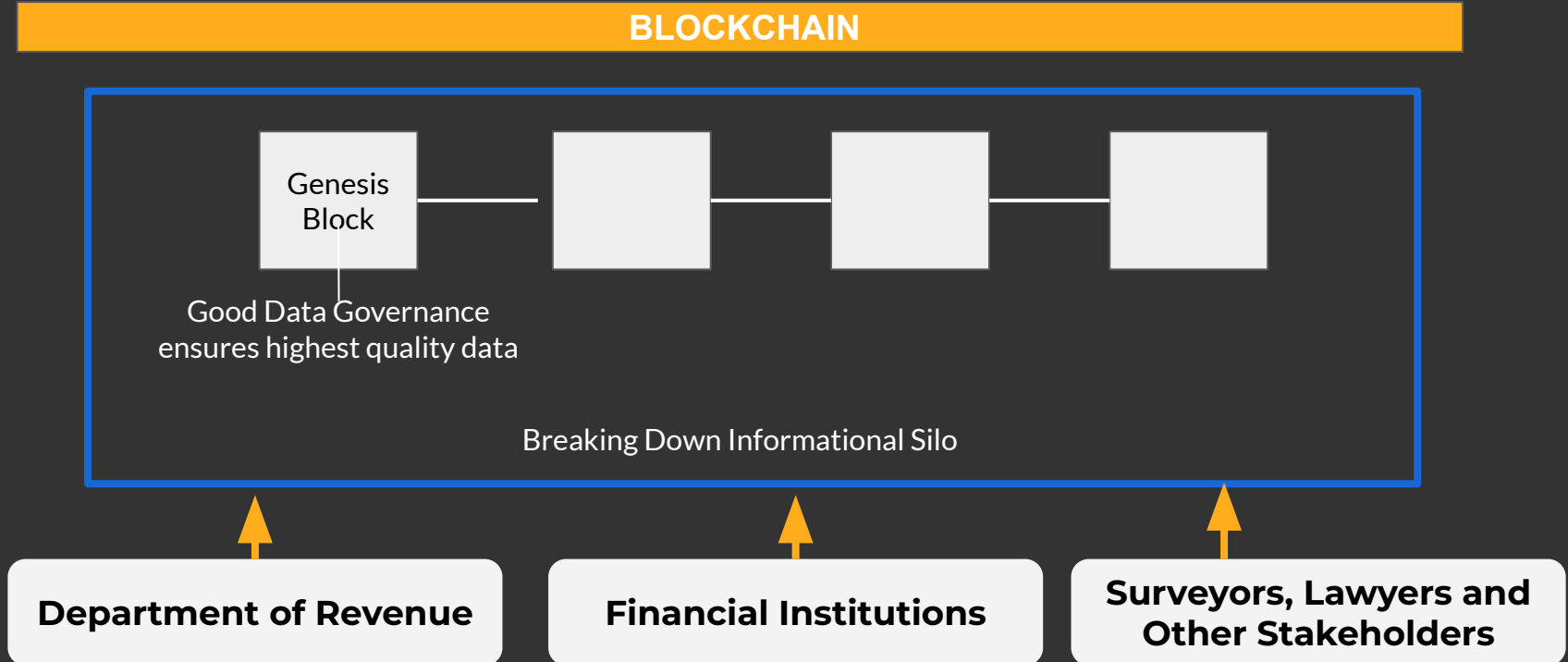
Human Verification Layer

Reduced lead time with
tech input

QUALITY DATA ENTERS BLOCKCHAIN



DECENTRALISED INFORMATION STORAGE & RETRIEVAL VIA BLOCKCHAIN





IMPACT

LEVERAGING ON KEY BLOCKCHAIN PROPERTIES



Transparency - Land registers and administration suffer from corruption in more than 61 countries (UN Report (2011)). The use of blockchain in this particular case is aimed to combat corruption and nepotism since the lands can be verified in real time without the risk of public loss.

Efficiency - Reduce cost of manual surveys, repetitive tasks accurately

Security - Greater formalization of access to land tenure and natural resources also assist the rural poor in protecting their assets, improve tenure security, and reduce land-related conflicts.

Decentralization and Immutability- Blockchains help eradicate opportunistic behaviours and improve accountability and oversight. The valuable property data remain a permanent, indelible, and unalterable history of transactions. This characteristic is not found in traditional databases, where information can be modified, bribed or deleted with ease.

Value Proposition	Description
Equitable Economic Growth Guarantee rights of marginalized groups	- With the security of the land registration Land owners can increase the value of their land should they choose to sell. - Land Owners can receive loans from banks by issuing land as collateral -> dependent on the reliability of the bank
Efficient Taxation	- Close land tax loophole
Natural resources preservation	- Detect exploitation of firewood, timber and grazing lands
Produce a Digital Twin of all the land inventory	- For digital land data in the blockchain



Systems that are accessible only to well-informed and affluent investors?

It requires the engagement of institutional actors such as local governments to strengthen **public awareness and digital literacy** to the local people.

Some land **resources** may **no longer be accessible to the landless.**

Financial crimes such as money laundering to mask illegal activities.

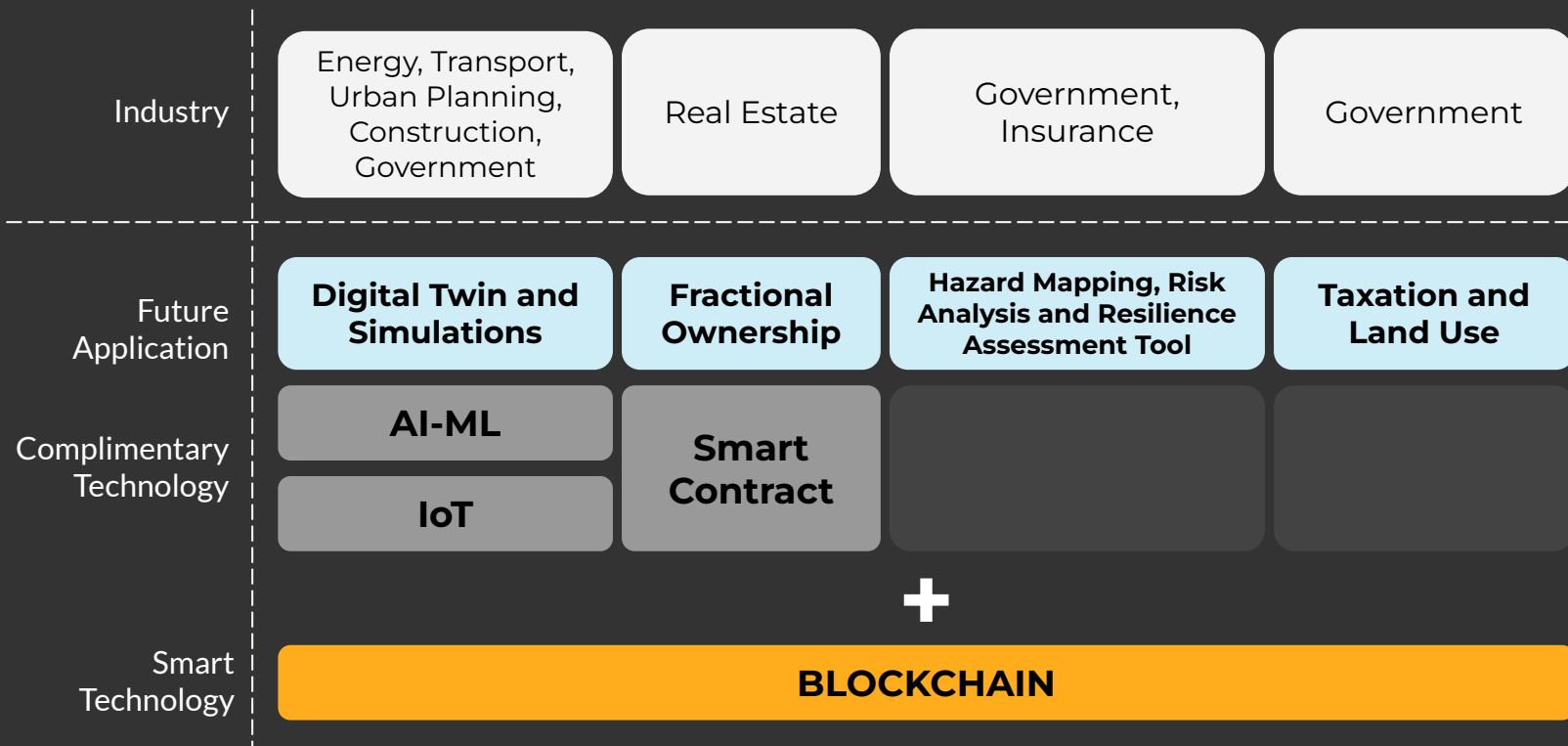
Note to Vlad: Differences between intended benefits (slide 'Blockchain properties') and intended consequences? What we put here is rather 'negative' consequences.



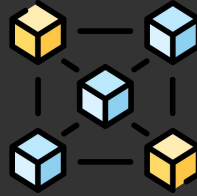
1. **Counterfeit data** permeating in the public ledger
2. **How to validate** the digital data? *"Auditability becomes near impossible in an environment that bases everything on the digital with no way to recalibrate what is fact and not fiction"*
3. *Changes to decision-making regarding the management of land can be sensitive. **How to tackle the issue on the lack of privacy**, which is important for businesses wanting to keeping privacy their financial information? [11]*



FUTURE



Land Administrator	Land Owner
Complementing human work - Reduce repetitive documentation process - Reduce the cost of analysis Providing insight and analysis - Geo-tagging and drone technology detect land violation, monitoring and surveillance - Enhance the accuracy of GIS analysing and displaying info	Providing info transparency - Land value analysis provides pricing transparency, thus avoiding market manipulation - Image-tracking and verification of document reduces false proof - Avoid dispute on the ownership Improving digital literacy - With the advantages, users feel safe and put trust on what blockchain offers - The literacy level can be enhanced through consistent education and exposure to use cases



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