HARA
promoting inclusive
sustainable growth through
the exchange of valuable data
imron zuhri, cto of hara

anggar
are
bahu
borong
iring
kesuk

lupit
paron
prowolon
rakit
rante

ru
sangga
tampah
tumbak
tumbuk
ubin

HARA

anggar **kalimantan**
1/33 ha

are **bali**
100m2

bahu

borong

iring

kesuk **mataraman**
1/6 ha atau 1000m2

lupit **jawa**
250 ubin

paron

prowolon

rakit **pantura**
1000m2

rante **sumatera**
22 x 22 yard

ru

sangga **jawa**
5 ubin = 70m2

tampah

tumbak **jawa barat**
3.75 x 3.75m2

tumbuk **jambi**
100m2

ubin **nasional**
ru=tumbak

LOW PRODUCTIVITY DUE TO ASYMMETRIC INFORMATION

paddy productivity

14.5%

less than Vietnam
(5.7 Tones per Hectare)

Even lower compared to Japan, China, South Korea and Australia

Highest

paddy production cost in Asia ($0.3 per Kg)

2.5x higher than Vietnam,
1.8x higher than Thailand
1.2x higher than China

post-harvest

loss 20%

of crops

Inefficient value chain from farmer to consumer

Source: IRRI (2016)

PROBLEMS WITH DATA

silos

underutilized

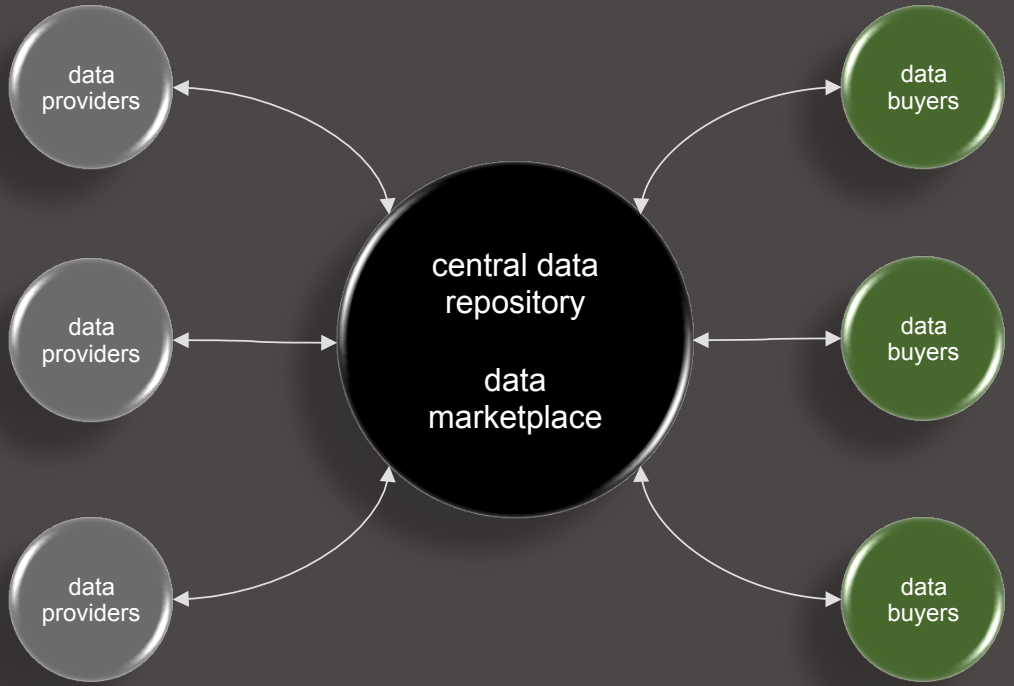
quality

costly

exploitation

availability

trust problems with traditional data exchange



trust?

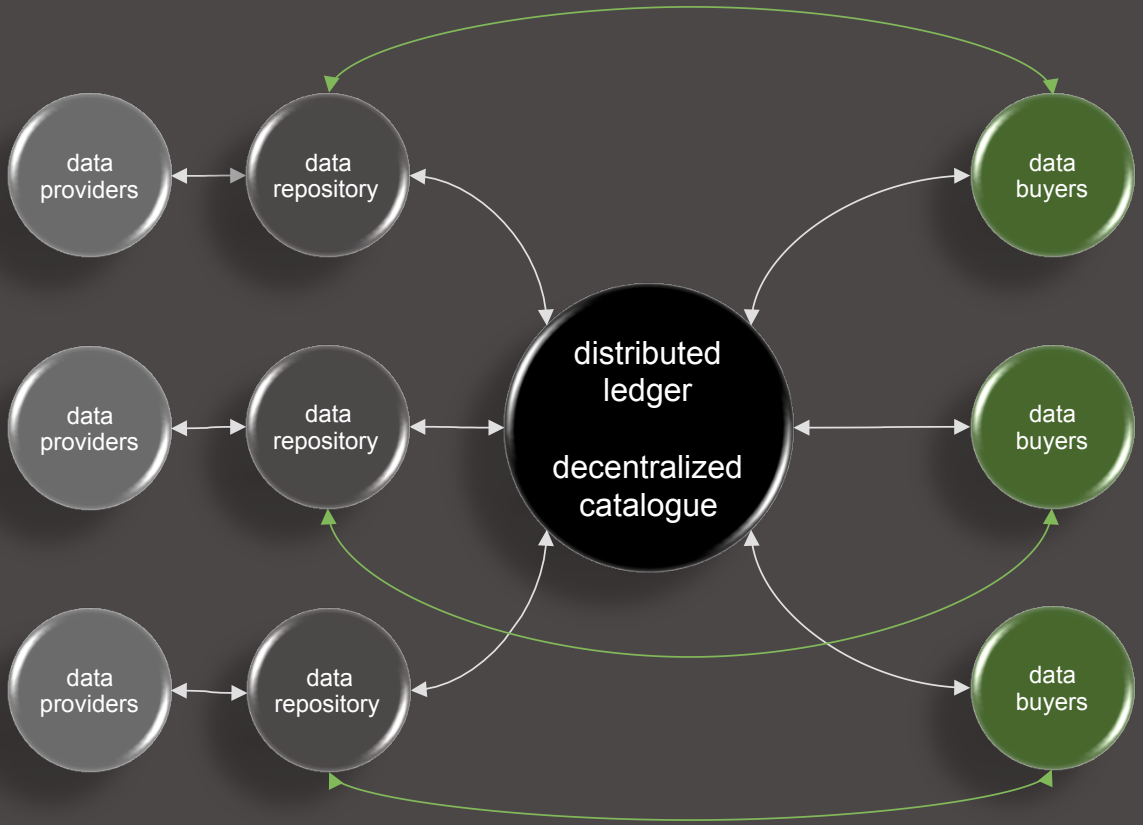
transparency?

data ownership/privacy?

data integrity?

data security?

decentralized data exchange solve most of the problems



trusted

transparent

guaranteed integrity
(immutability/traceability)

secure data ownership/ privacy issues
(smart contract)

farmer’s problems:

100%-300% loan interest

HARA FIELD AGENT
AGRIPRENEUR

3 FINANCING AND INSURANCE

4 FARM INPUTS HARVEST EQUIPENTS

MODERN TRADER 5

1 DATA COLLECTOR

DATA QUALIFIER 2

Mbak Nun

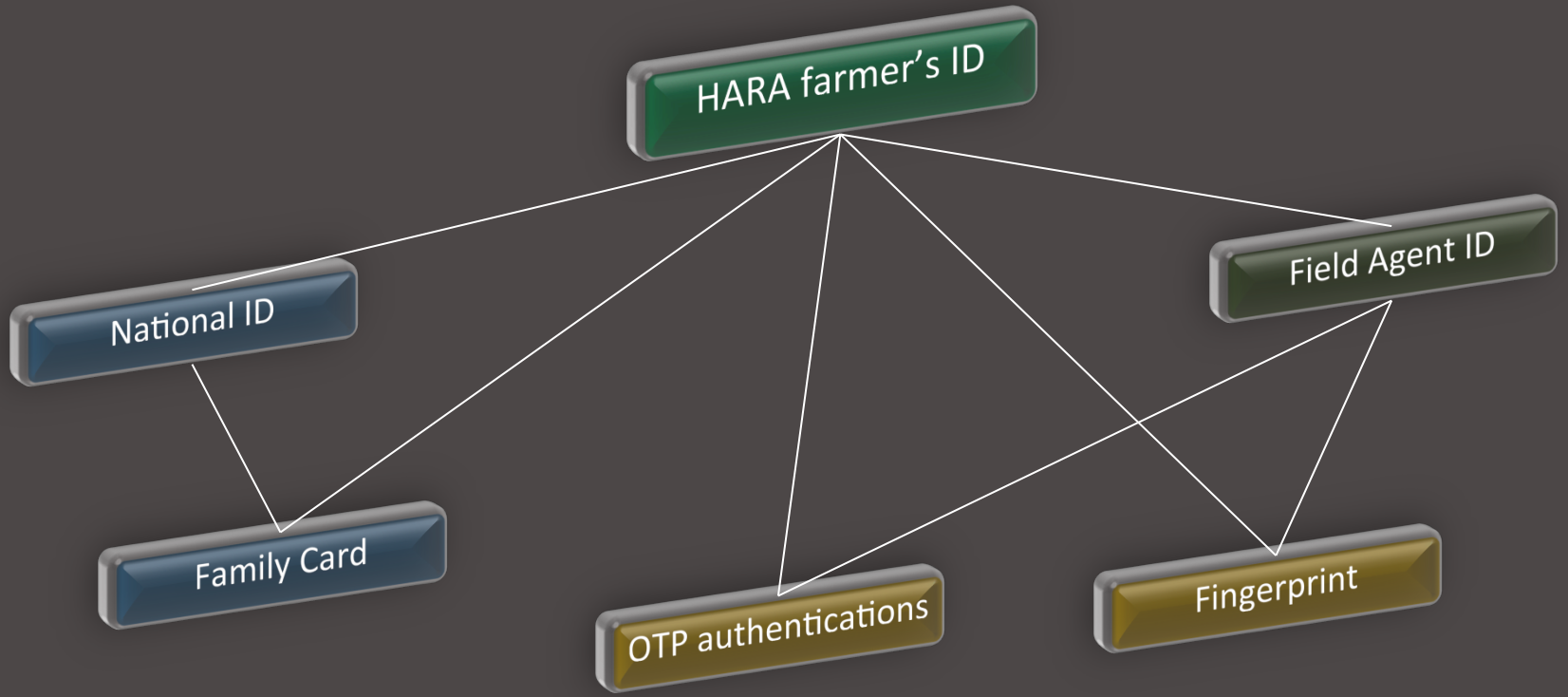
Income up to **IDR 1,500,000 per** month

EVERYBODY WITH A **PHONE** CAN JOIN THE HARA ECOSYSTEM

HARA

farmer’s identity

every links to legal documents,
every peer verifications, electronic authentications
are recorded as **blockchain transactions**



farmer’s land

OPEN NEW ACCESIBILITY AND POSSIBILITIES FOR FARMERS

MARKET

DATA MONETIZATION

LAND TITLING

FINANCING & INSURANCE

PRECISION AGRICUILTURE

TOKEN INCENTIVES

Bapak Nisu

Access to micro-loans and other benefits

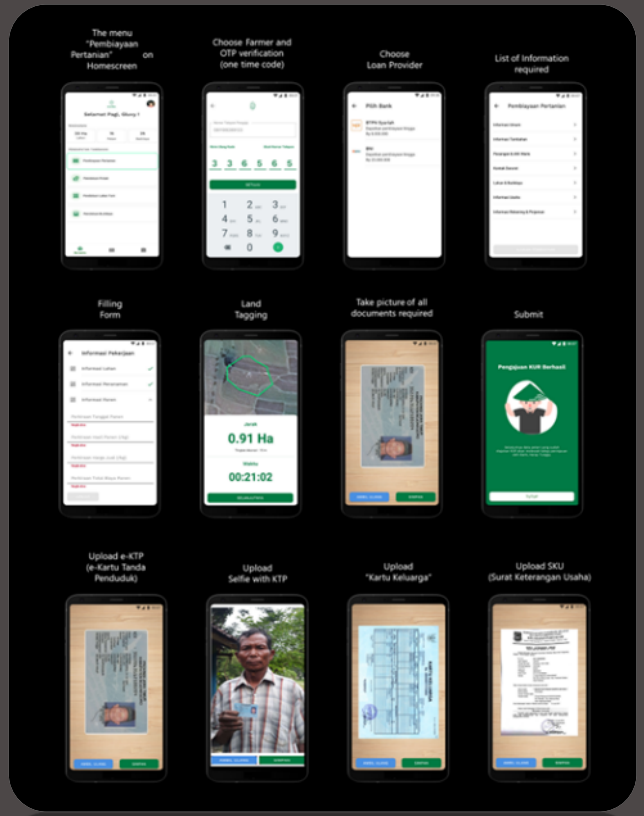
HARA

DATA BUYERS

- Banks
- Insurance
- Enterprises
- Government
- Retailers

PUNDI X · BOI RESEARCH · BANK INDONESIA · PRISMA · IJHOP4 JICA · Synchro · XCHNG · hrk

HARA AGENT'S ROLE TO PROVIDE ACCESS TO FINANCE



Data Acquisition

Data Validation

Loan Agreement

Loan Disbursement

Loan Repayment

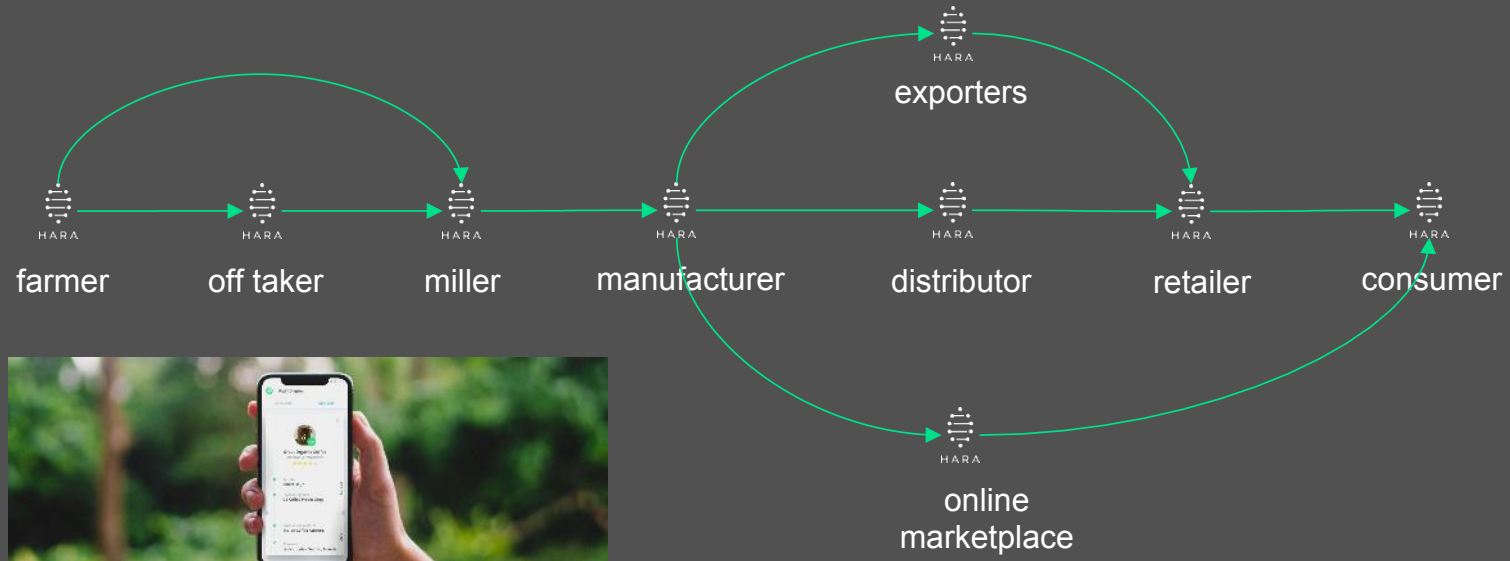
HARA

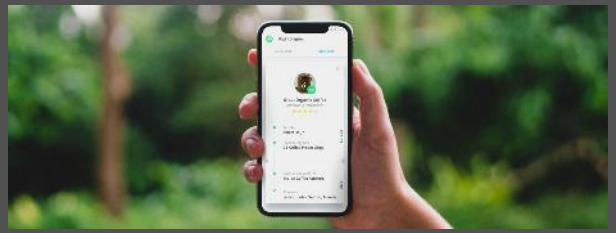
LOAN DISBURSEMENT IN BOJONEGORO

next problems:

inefficient supply chain and sustainability

visible supply chain networks and food traceability

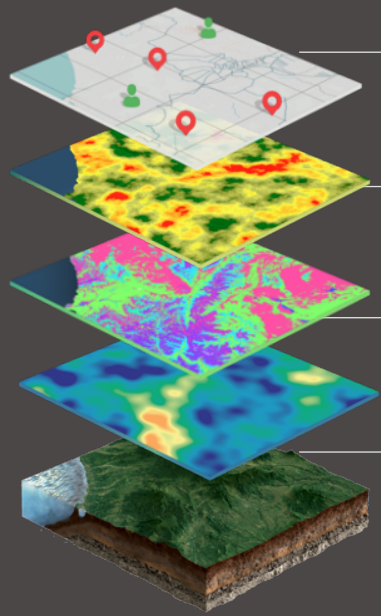




next problems:

low productivity and small land sizes

the collected historical ground data from the farmers and IoT devices can be used to train machine learning to read and recognize satellite images



Dattabot: Helping Indonesian Farms Secure Loans With Space Data

Ian Ritchey | June 15, 2017

STORIES agriculture + insurance

Farmers are often at the mercy of the elements. A wetter-than-usual growing season, for example, could provide a hospitable environment for crop diseases that significantly impact yields. Changes in crop conditions over time could signal near-term production booms or long-term problems. For Indonesian farmers, the uncertainty of weather patterns, soil conditions, and [...]

AXELSPACE

Making Private Satellites a Reality

HARA

CURRENT USE CASE FOR SATELLITE IMAGERY

SATELLITE DATA

FARMER'S PROFILE

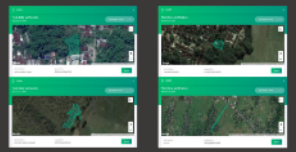
LAND TAGGING

CULTIVATION DATA

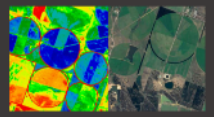
TRANSACTIONAL DATA

HARA APPLICATION SUITES

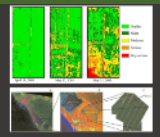
DATA VERIFICATION
FRAUD DETECTION



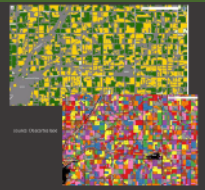
FARMER'S INCOME
CREDIT
WORTHINESS



CROP RISK
CROP INSURANCE

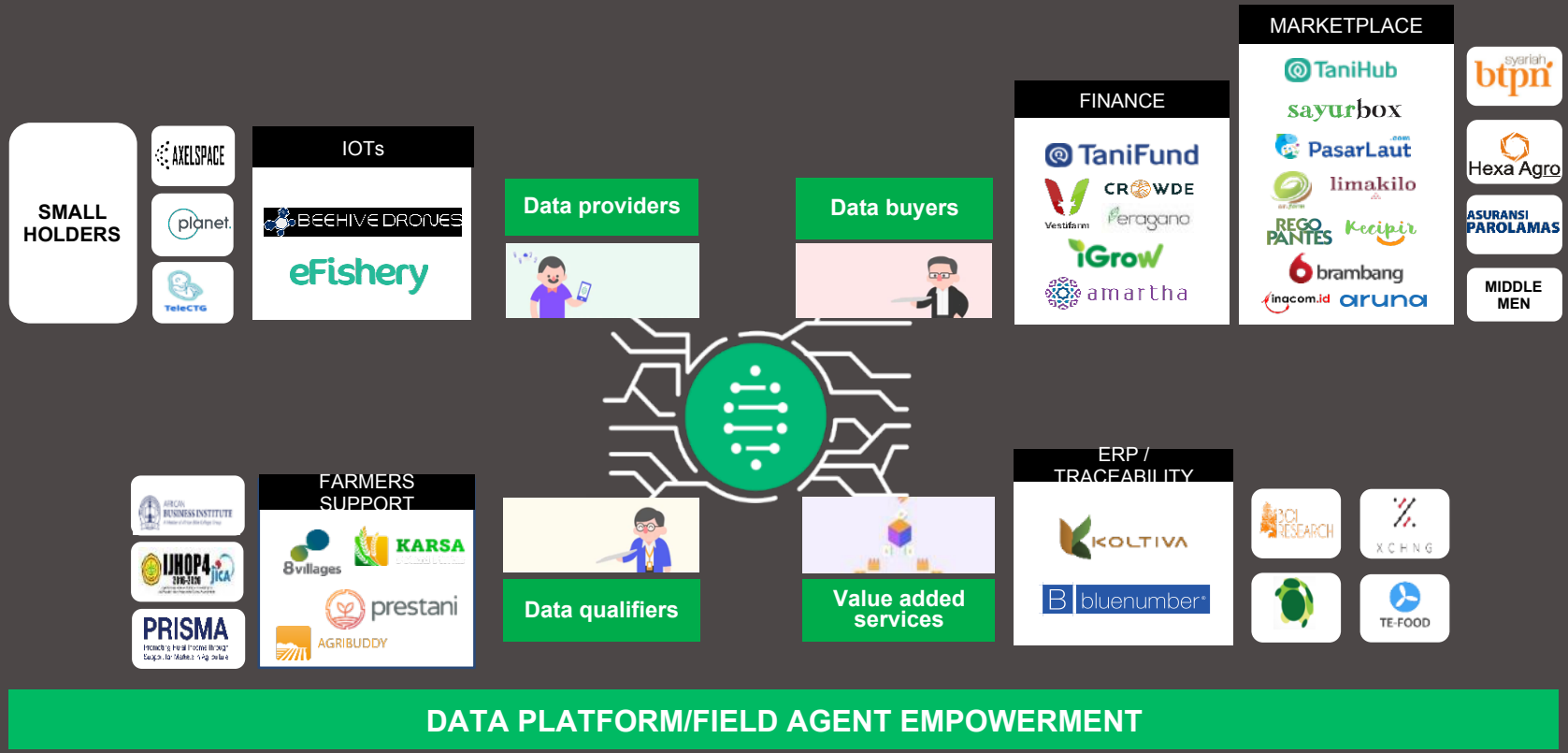


CROP MONITORING
CREDIT
REPAYMENT



once we have enough historical data we can improve productivity further by applying precision agriculture

FOUNDATION TO BUILD DATA DRIVEN AGRICULTURE ECOSYSTEM



THANK YOU