“Innovation & Entrepreneurship for Digital Economy”

The Integration of AI and E-Commerce (Digitalization) in Agricultural Industry in the Developing Countries

For: Prof Kris Singh

The Integration of AI and E-Commerce (Digitalization) in Agricultural Industry in the Developing Countries

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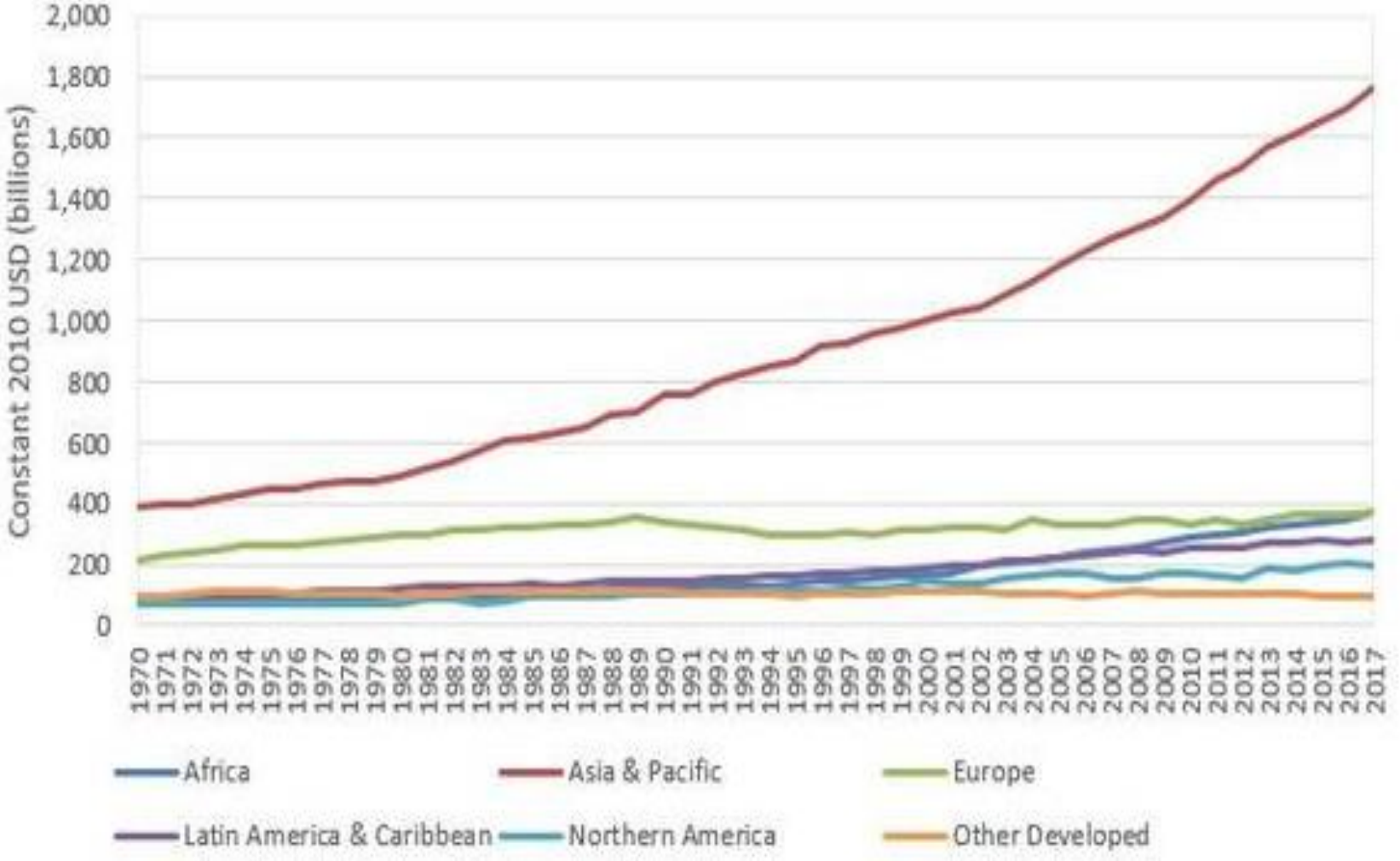
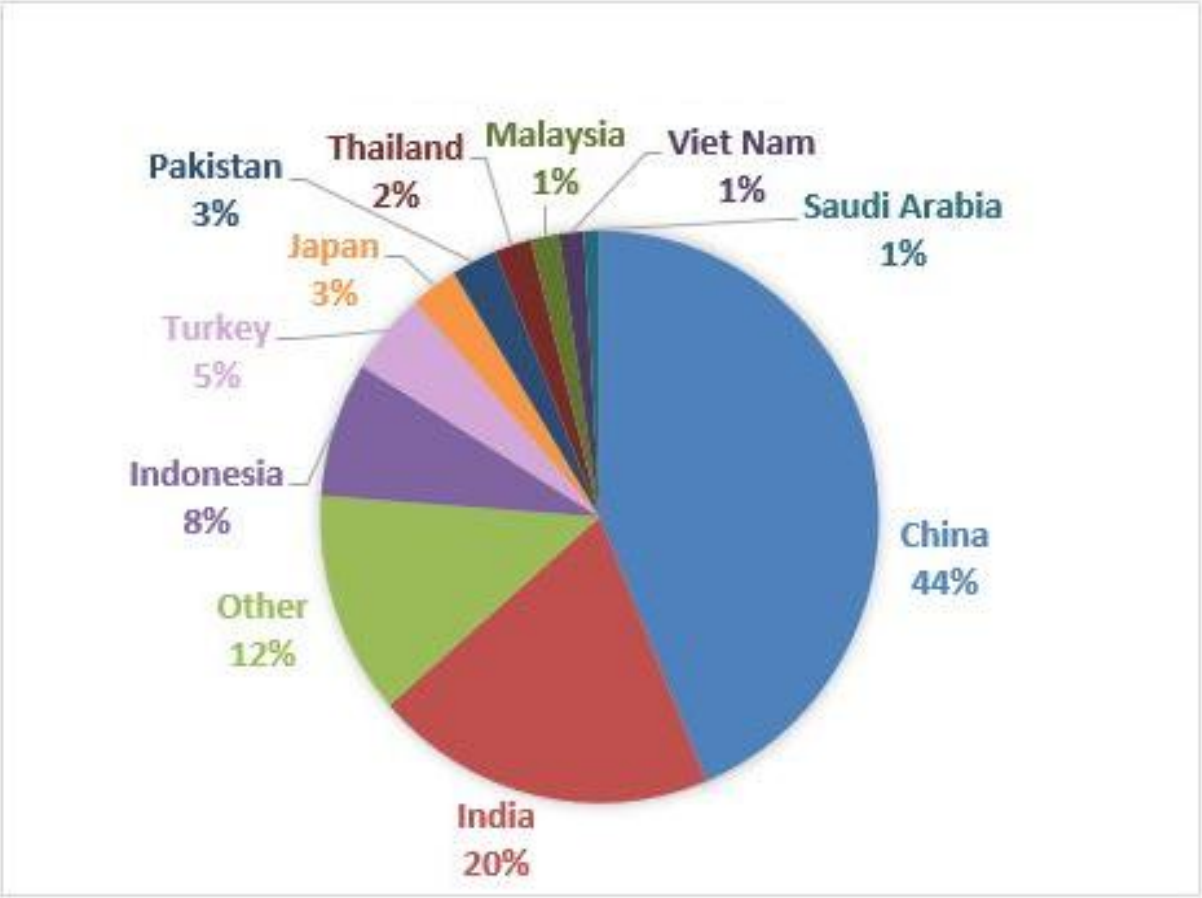
Background Information

- Agriculture is the oldest industry every country in the world has.
- Agriculture will continue to sustain life, provide food and employment for the generations to come.
- Few decades ago, farmers struggled day in and out with manual tools to farm in big and fertile landmasses.
- Today, nearly ¾ of farmlands worldwide were taken by the development of cities.
- With the decreasing amount of farmlands, farmers are tapping into innovation to help produce in mass and quality crops in small and limited farmlands with the help of Technology.

Agriculture GDP by region, constant 2010 USD (billions), 1970-2017 (Source. FAO)



Agriculture GDP as a percentage share in the Asia-Pacific Region in 2017



Innovation in Agriculture

- Innovation today is needed more than ever;
  - Fewer farmlands due to cities expansion;
  - Population growth and food shortage;
  - Food safety and security;
  - Developing countries livelihood;
  - Maximum production and profit;
  - Save time
  - For efficient and effective

Application of Innovation in Agriculture

There are two areas that need innovation

- Production & Harvesting Process
- Marketing Process

Part I: Innovation in Production

- Application of AI
- AI enabler:
  - Big data, IOT
  - Wide area internet coverage
  - Drones, Cameras, Sensors

- Uses of AI
  - Analyzing satellite images
  - In-field monitoring
  - Assessing crops and soil health
  - Agriculture robots
  - Predictive analytics

Advantages of AI Application

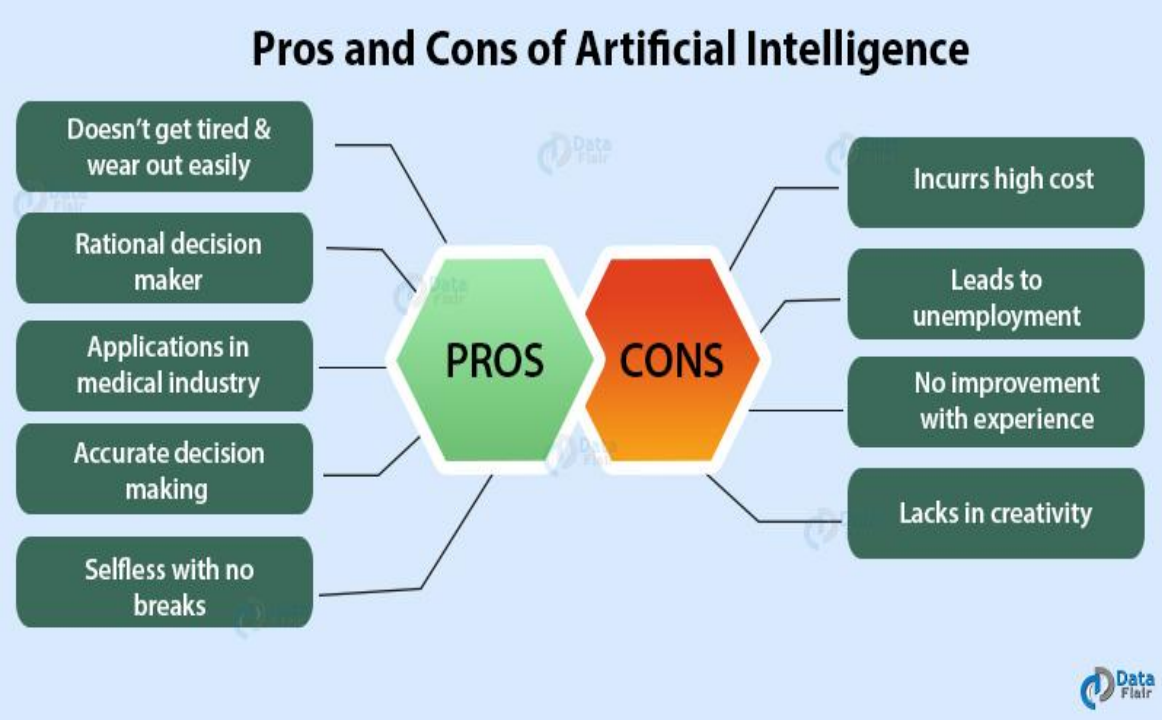
- Increase crop productivity will increase profits and consumption;
- Assures food safety and security,
- Maintains environmental protections and lessens the impact on natural ecosystem,
- Decreases the use of water, fertilizer and pesticides,
- Analyzing data source such as temperature, weather, soil analysis, moisture,

Advantages of AI Application

- Provide predictive insights such as specific areas, periodically crop yielding;
- Minimizes the use of dangerous and expensive chemicals and fertilizers,
- Alerts the risks of pest attacks,
- Save time,
- Yield quality and secured crops

Disadvantages of AI Application

- AI machine malfunction;
- User unfriendly or complex AI machine and its operation;
- Inefficient energy usages by the AI machine



- Lack of users training and knowledge how to operate
- Purchase and installation of IA machines may be expensive.
- Machine may not be customized for specific task

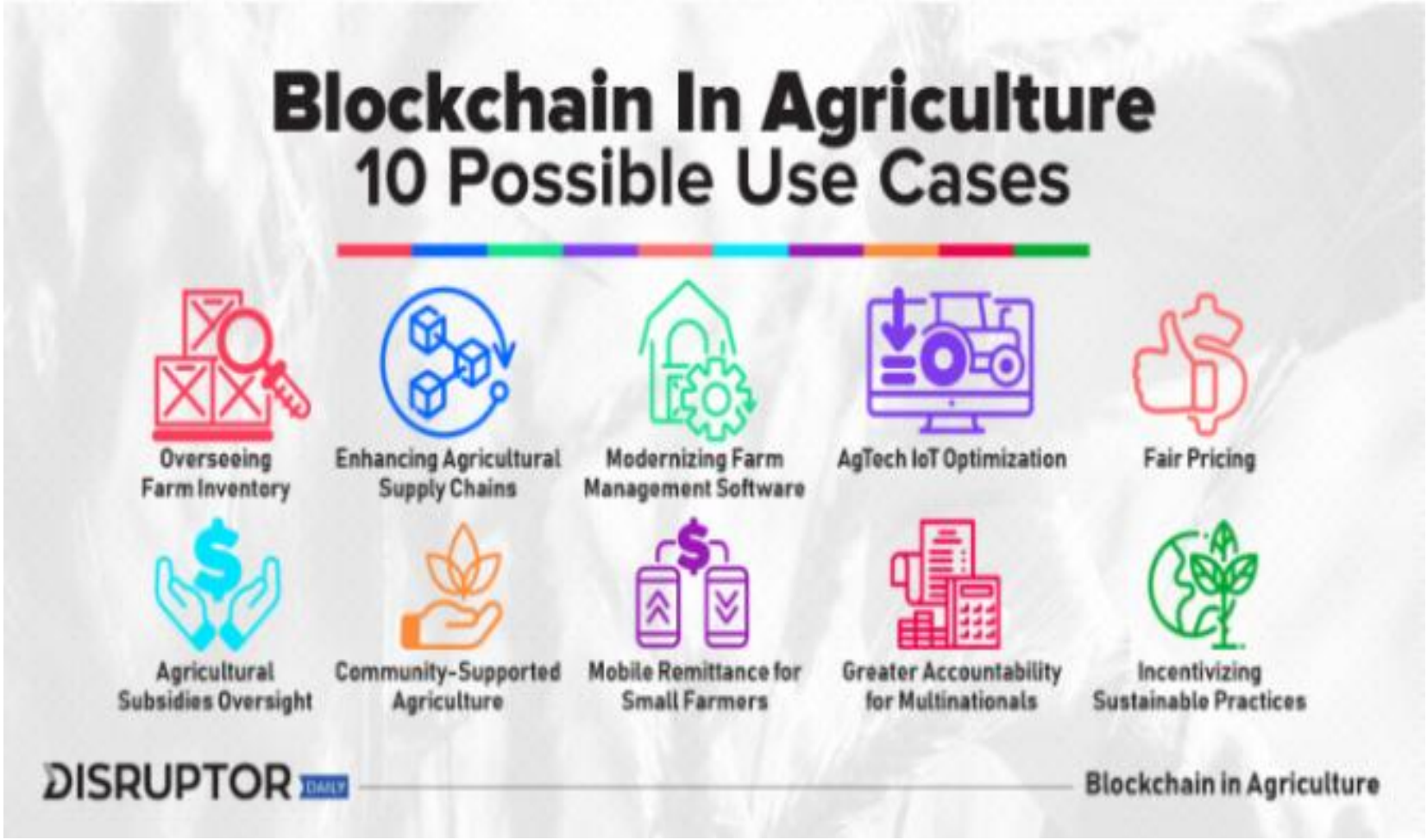
Part II: Innovation in Marketing

- Digitalization in Marketing Process

  - The value of “safe and connected agriculture” will make agricultural activities more :

    - transparent and trustworthy,
    - making the bridge between producers, management, transportation providers and consumers more efficient.

Blockchain Technology in Agriculture



How Blockchain Technology Works

1

A transaction is requested

2

The transaction is broadcasted to a peer-to-peer (P2P) network that consists of computers (otherwise known as nodes)

3

The network of nodes uses known algorithms to validate the transaction and user's status

4

A verified transaction can involve cryptocurrency, contracts, records or other information

5

The transaction is combined with other transactions, once verified, to create a new block of data for the ledger

6

The new block is added to the existing blockchain (which is permanent and unalterable)

7

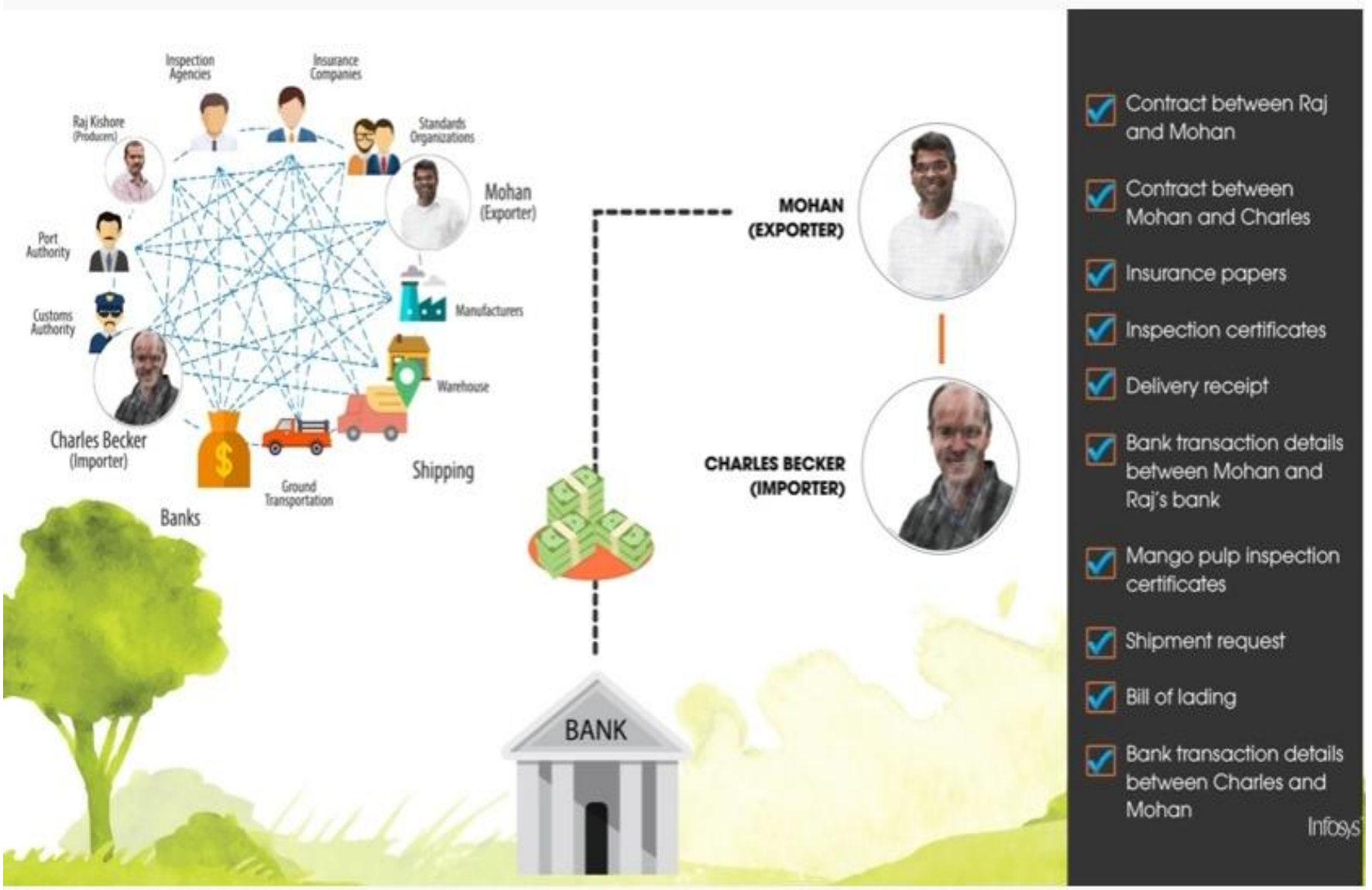
The transaction is now finished

Advantages of Blockchain in Agriculture

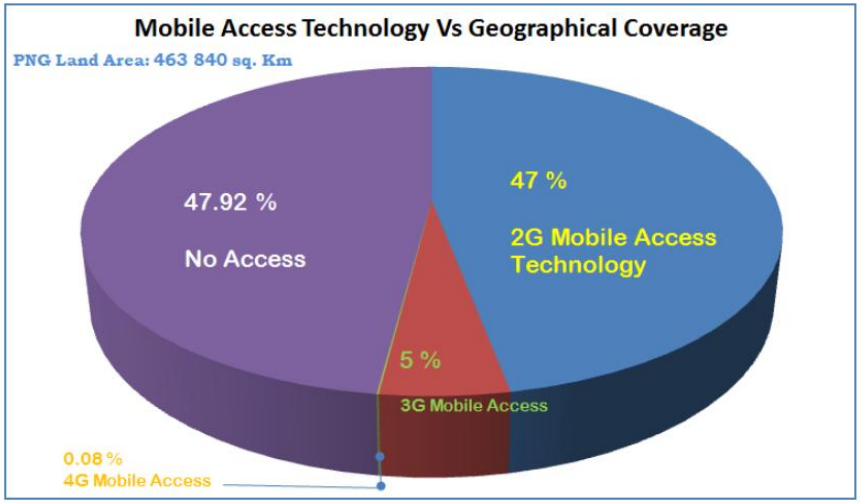
Solutions with Blockchain

- Tracking the place of origin, ingredient and quality;
- Communication between stakeholders,
- Trust between stakeholders,
- Information Flow,
- Transparency

Blockchain checks all aspects of Agriculture Connected Activities

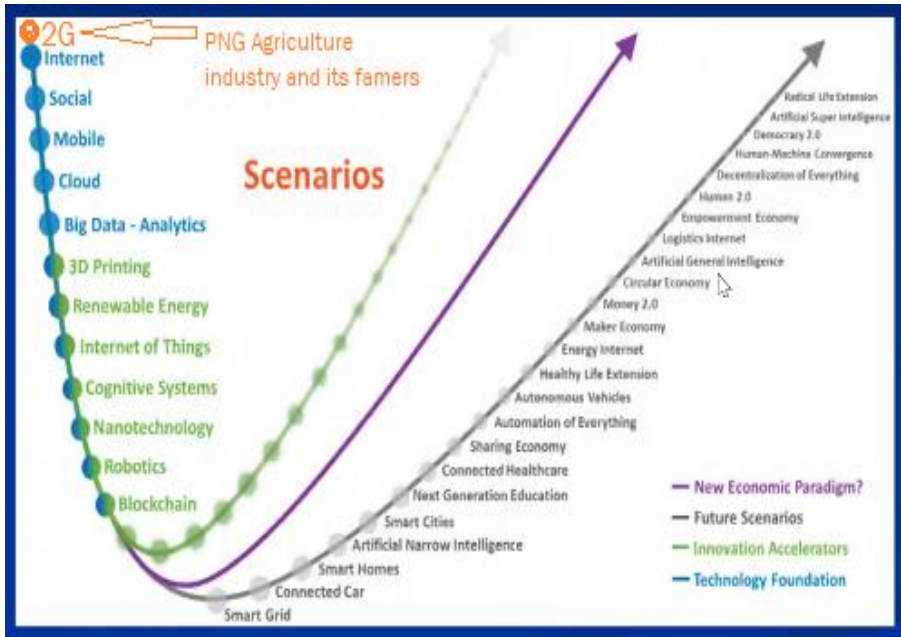


Developing Countries Common Challenges on Agriculture Industry



- No connectivity with the mobile network;
- No infrastructure to facilitate the flow of information;
- Literacy level is low;
- No accessibility to technology equipment;

- No established digital platform for trade among others.
- Non customized AI machineries
- Affordability and installation of AI machines will be issue;
- Low level of literacy will cause training difficult.



Effects of Non-application of Innovation

- Decrease in the volume of food production;
- No Pest damage control;
- Access to limited market;
- Venerable to Food safety and security;
- Low quality of food production;
- No existence of trust among the stakeholders from framers to importers to consumers;
- Bank and other transaction will still continue to face challenges among many others.

Opportunities

• Start-up e-commerce companies can now identify these challenges, customize their digital platforms and provide platforms for farmers to sell their produce online, create online based customers, and allow safe and secure e-bank transactions.

Turning the Challenges into Opportunities

- Literacy level is low;
- No accessibility to technology equipment;
- No established digital platform for trade among others.
- Non customized AI machineries
- Affordability and installation of AI machines will be issue;
- The non-availability of digital platforms to control the AI machines;
- Lack of farmers and operators training;
- No connectivity with the mobile network;
- The unavailability of energy supply to power the AI machines;

- For the AI companies, the research, development and design (according to the needs) of affordable and energy efficient AI machineries will also generate income for them.

Thank you