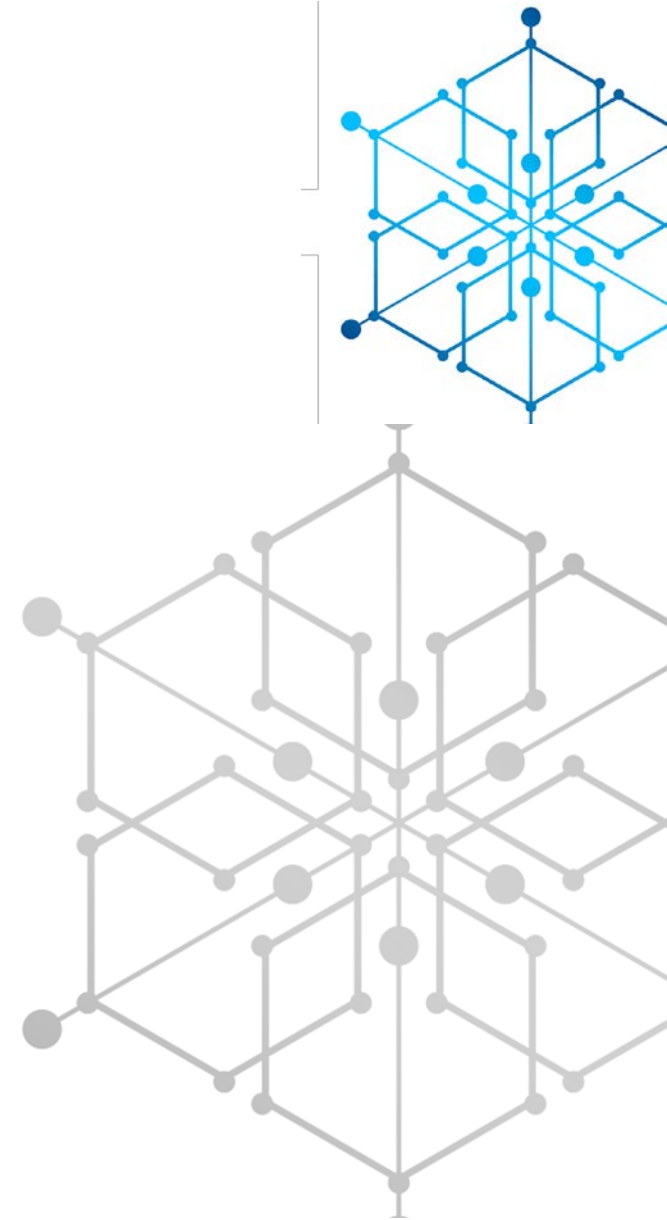


ABCD (AI, Blockchain, Cloud, Data) Inclusive Finance

GIST Blockchain Economy Center/Intelligent Sensors Center
Presenter : Prof. Heung-No Lee
August 19th, 2020



Agenda

- Introduction
- Abstract
- K-New Deal
- Our proposal
- Impact

Capability of the PI

Director | [GIST Blockchain Economy Center](#) / [Intelligent Sensors Research Center](#)

Prof. Heung-No Lee

Private Expert of [Smart City](#) Committee, Private Expert of Korean [Post Office](#)'s 'Blockchain Initiative'
Laid Foundation to [Gwangju AI Town](#) 2016 – 2017.

Research Achievements

- **Paper Publications (SCI) : 270+(75+)**
- Published Books/Chapters : 8
- Int'l Patent(#): Filed 9, Registered 7
- Korean Patent(#): Filed 7, Registered 22
- **Technology Transfer : 2 cases (210million KRW)**
- Technology Valuation : 1 case(Central Technology Appraisal Institute, KOTEC)

Research Interests

- Blockchain Economy
- Intelligent Network
- Intelligent Sensors
- Information Theory/Cryptography

Press

- GIST BEC signs MoU with ConsenSys, a global blockchain development company (2019.07.21)
- SOLASEADO, "Blockchain will play a pivotal role in the organic connections for smart cities." (2018.08.24)
- ETnews, "IEIE Communication Society(Chairman Heung-No Lee), hosts workshop, titled, 'Future opened by Blockchain'" (2018/04/16)

Awards and Honors

- **Haedong Scholarly Awards**, The Institute of Electronics and Information Engineers, Dec. 2019
- **GIST Research Award 2016** (for Contribution to Industrialization)
- **Top 11 Research Outcomes of GIST**, 2016
- **This Month Science/Engineer Award**, National Research Foundation of Korea, Jan. 2014
- **Top 50 Achievements of National Research and Development**, National Research Foundation of Korea, Oct. 2013
- **Top 100 Achievements of National Research and Development**, Ministry of Science, ICT and Planning, Aug. 2013



ABCD Inclusive Finance

- Download the complete paper at
 - <https://infonet.gist.ac.kr/wp-content/uploads/2020/08/ABCD-Inclusive-Finance-200808-final.pdf>
- Visit Heung-No Lee Lab for other papers
 - <https://infonet.gist.ac.kr/>
- Download new blockchains via Error Correction Codes PoW:
 - BTC-ECC Github: https://github.com/cryptoecc/bitcoin_ECC
 - ETH-ECC: https://github.com/cryptoecc/go-ethereum_ECC/tree/eccpow-1.9

Abstract

- We live in an era of uncertain future.
- Economic booms and busts, aging population, financialization of everything, polarization of wealth, constant struggles, eruptions of pandemics, extreme weathers and natural disasters are upon us.
- To prepare for such a variety of outbursts, world leaders emphasized **solidarity and cooperation**; **but** today **the global society is running in the opposite direction**.
- Individual nations are absorbed with **local interests** and pursuing **segregated goals**.
- **Elections and resultant policies ideologically biased and fragmented aggravate the situation and deepen conflicts.**
- Consequences include **populistic policies** addressing superficial **short-term goals** while downplaying the more important longer-term goal of **restoring the constitution of the economy**.
- Examples include the debasing of money and polarized wealth.

Abstract (2)

- We aim to propose a new way to deal with such problems.
- It utilizes fast evolving state-of-the-art technologies such as AI, Blockchain, Cloud, and Data (ABCD).
- A new framework, called **ABCD Inclusive Finance** (IF), is presented in which ABCD technologies are used to help turn things around.
- It is to build a **financial solidarity network** which helps us get united, enables us reach quickly to a large scale consensus, shapes public policies based on agreed upon consensus, and **fosters innovation**.
- A **blueprint level discussion** is given on how to build such an inclusive network of sovereign individuals.

Why are we uncertain about the future?

- With Covid-19, we realized we are in the middle of a new era.
- Are U.S. and European nations leading the new era?
 - Globally, as of August 6th, 2020, there have been **18.6 million confirmed cases** of COVID-19, including **702,642 deaths**, reported to WHO [1].
 - Containment vs. Economy
- No one knows what kind of an era the new era will be.

K-New Deal [9]

- Korea has shown successful in Covid-19.
 - Utilizing ICT technologies
 - Exporting K-quarantine models
- Made announcement of K-New Deal.
 - 2nd Quarter 2020
 - Ambitious global scale project (160 B.USD; 2M Jobs)
 - **Aims to build a sustainable inclusive society.**
- It has two deals
 - Green New Deal
 - Digital New Deal, our focus!

Our proposal

- GIST Blockchain Economy Center
- Aims to
 - use AI, Blockchain, Cloud, Data (ABCD) technologies
 - Focus on
 - Building human network of cooperation in solidarity
 - Open a new era with
 - Inclusive society in which citizens are empowered with economic freedom
- How can it be possible?
- Aims to build two pillars
 - Inclusive Dam and Friend Robots

Inclusive Dam: Cooperative human network

- Dam here is a digital network, metaphoric to Hoover Dam
 - It serves the role of a Digital SOC.
- It is a network of computer nodes.
 - One computer represents each individual.
- It aims to connect individuals and have them work together.
 - Sharing data and information in a trustable fashion.
 - Offering federated learning opportunities.
 - Making decisions optimal for the members.
- It includes many stakeholders
 - Government, financial/medical/legal institutions, citizens, startups

A Friend Robot

- Represents the interests of human partner
- Interacts with the Inclusive Dam
- Gives assistances to the human partner
- Provides its human partner's needs
 - Manages portfolio, risks, wealth
 - Timely medical attentions
 - Offering legal needs

Philosophical Background

- *Innovation* and *Inclusion* are both needed to build **sustainable** society
- Innovation is not enough!
 - Tech advances make us prosper in the long run.
 - We need to continue innovation.
 - But tech advances demolish the old vested.
 - We need to let people and their families be the first priority!
- Inclusion
 - We want members be tied in solidarity: no one is left behind.
 - Members tied in solidarity can embrace creative destructions.

Innovative and inclusive society

- Innovative Inclusive society can resolve global problems
 - Pandemics, Abrupt changes in climates, Extreme weathers, Natural disasters
 - Economic booms and busts, debasing of currencies and polarized wealth, Fall of labor value
- Move to Prosperity
 - Local economies helped out, improved living conditions for all, education opportunities for all, provision of health care services, provision of starting families/businesses/startups.

Hoover Dam

- Hoover Dam
 - Engineering marvel in 1935
 - Largest dam
 - Gravity-arch dam
 - Withstood Colorado river for 85 years
 - Served the role of SoC
- Many critics back then.



Do we have a Hoover Dam in K-New Deal?

- This shall be a critical question that we keep on asking for the next decades.
- Shall not be for only short-term goals
 - Elections
 - Burdensome policies
 - Debasement of currencies and increase in national debt
 - Increase public servants
- Shall serve as an SoC for the digital future:
 - Science and engineering project
 - New Digital SoC itself (cf: digitalization of the old industry)

ABCD Inclusive Finance

- Inclusive finance is hereby defined as a new financial system which helps people in the blind spots of financial benefits. It aims to
 - 1) help those individuals who do not own assets such as low-income and marginalized citizens,
 - 2) help them to organize themselves and cooperate with each other in solidarity, and
 - 3) help them to lead a life with financial independence.
- *(cf. See the paper for other definitions such as World Bank's and IMF's)*

ABCD Innovative Finance

- Innovative Finance is hereby defined as an advanced financial system, a level improvement from the Inclusive Finance, which fosters innovation. It aims to expand the solidarity ID network to
 - 1) Empower members with economic independence
 - 2) Foster engagement in innovation
 - 3) Support high tech startups
 - 4) Raise funds globally using the Inclusive Dam

Proposed Governance

Governance of ABCD Inclusive Finance



Introduction

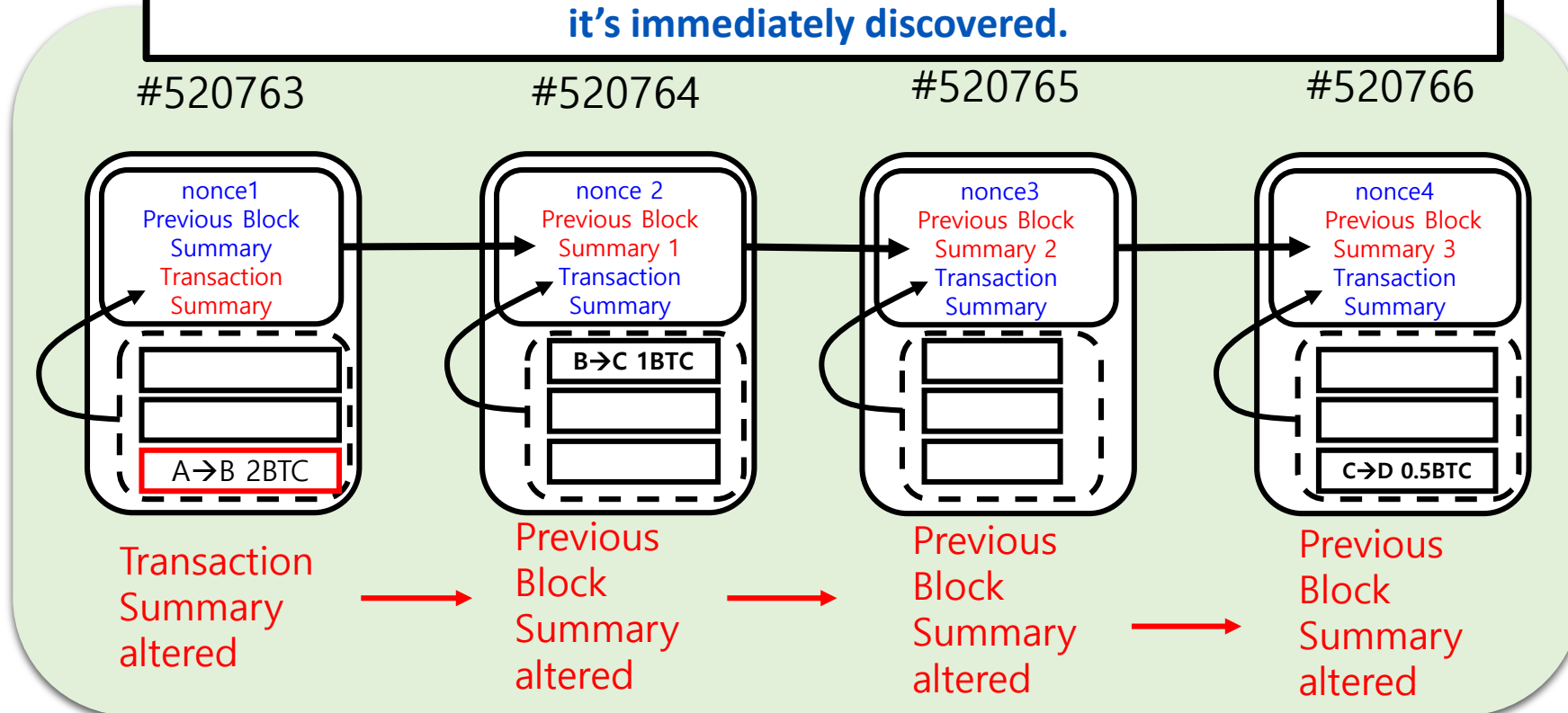
Blockchain is a Trusted Computer Network

A ledger that records the transaction details in timely order.
A Technology that keeps the recorded content in integrity.

What do you record on the ledger?

- Transaction details (Bitcoin, CBDC) → Digital Currency
- Important contents → Public Archives
- Computer code and execution → Contract Execution Computer

Blockchain is a file network system; when contents are forged or altered, it's immediately discovered.

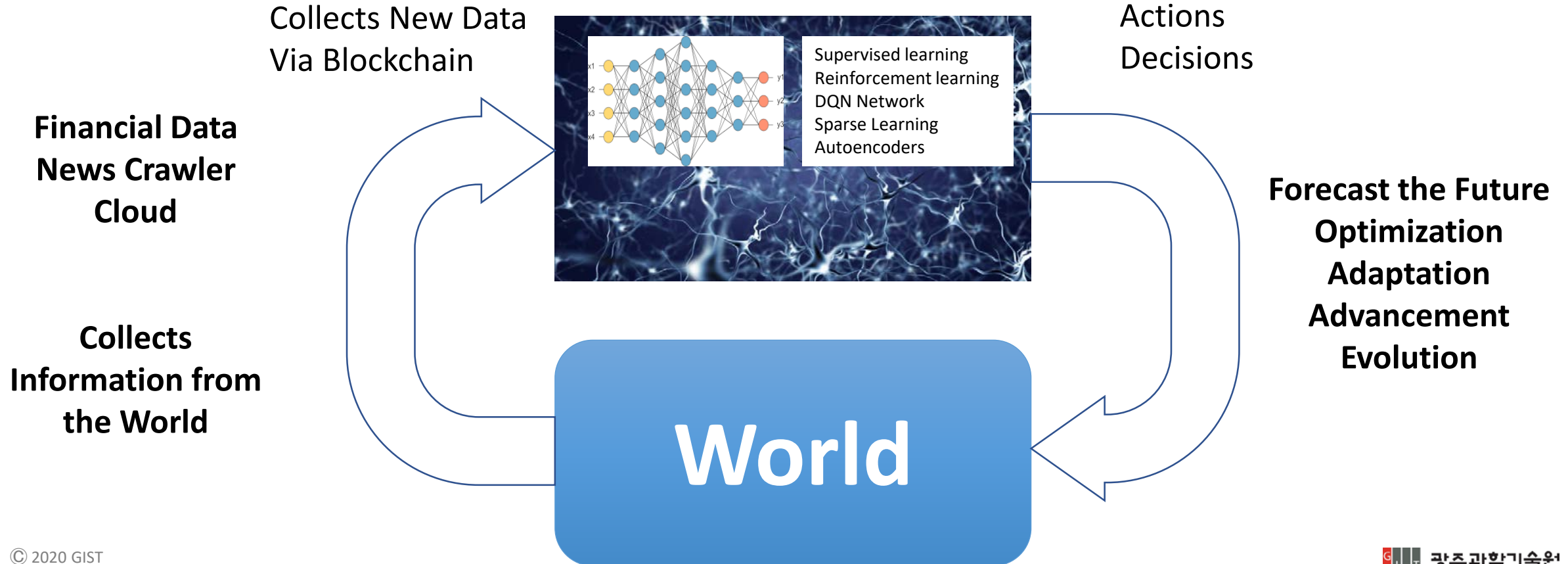


Introduction

What is AI(Artificial Intelligence)?

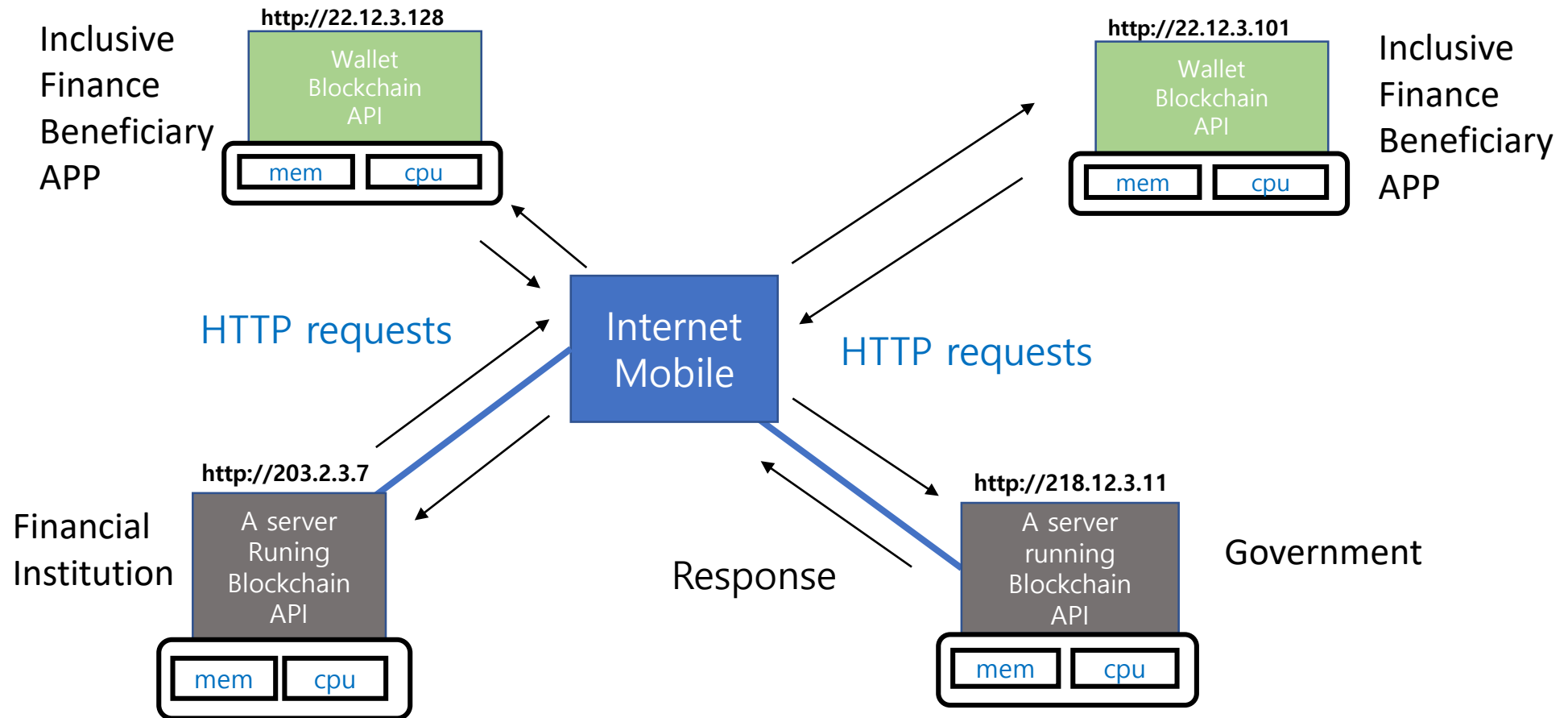
Sensing/Calculate/Judge/Decide
An Advanced Computer Network

Situational Awareness (New Data + Experience)







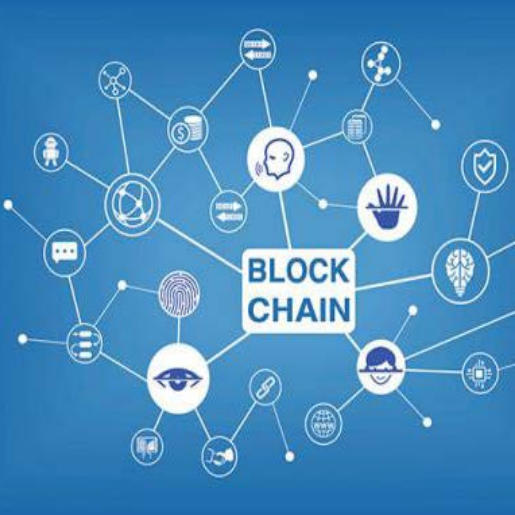
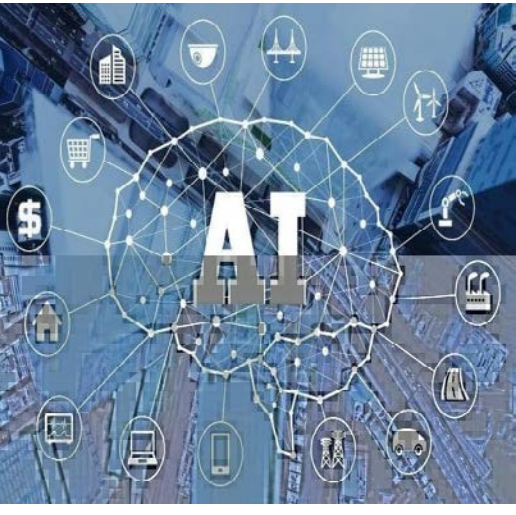
Introduction

Inclusive Finance Blockchain Internet; Anyone can participate in the program by downloading/running ABCD.core which contains a consented policy.

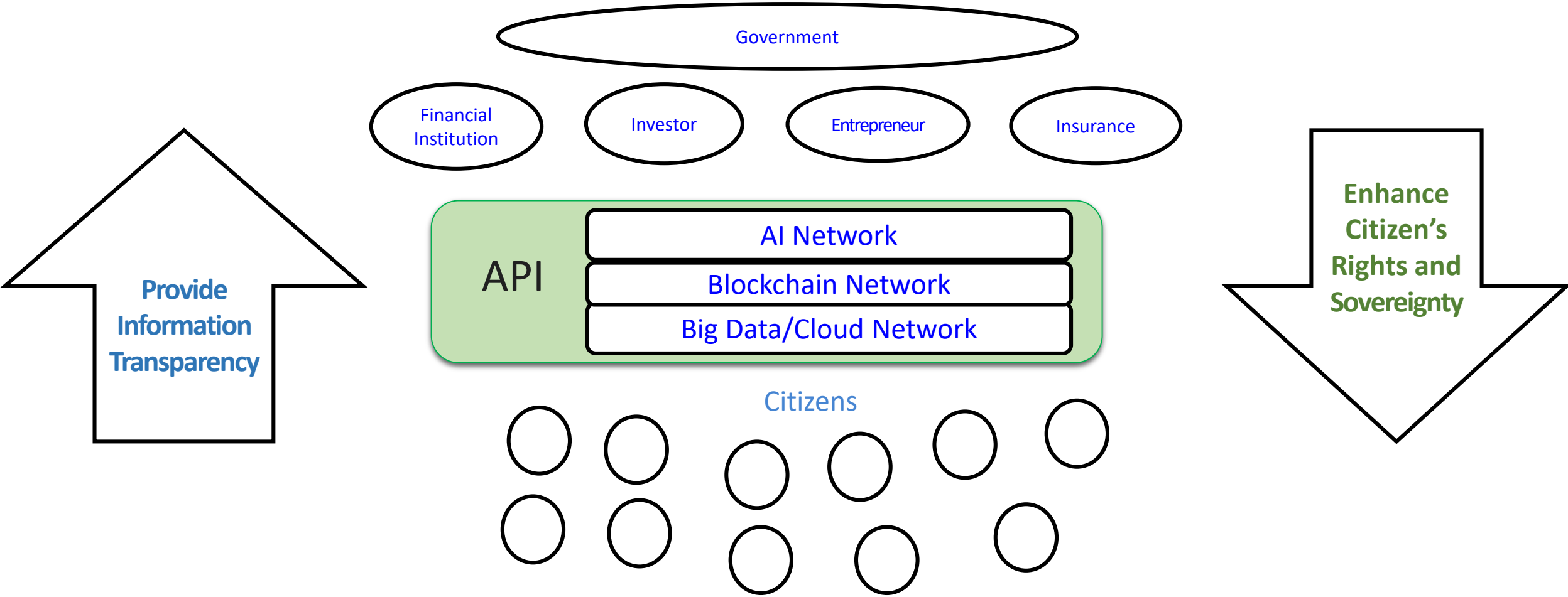


Introduction

ABCD Value Creation Process

Government/ Institution/Citizens	Cloud/Data	Blockchain	AI	Value Creation
NewYork/Chicago/London/Shanghai/Bloomberg/Financial News	Data Accumulation Enhance Analysis	Transaction/Record/Information/Integrity/Reliability	Optimize the decision-making process with reliable big data analysis	Creation of Wealth/ Rational Planning Model/ Financial Stability/ Build Cooperative Society
	 Data Storage  Data Processing  Data Management			Customized Finance ABCD Financial Technology Lead the Digital Economy Data-based Policy

ABCD Inclusive Finance DAM



ABCD Friend Robots

- Robots
 - Equipped with IoT sensors
 - Connected to Inclusive Dam
 - AI updated through learning
- Provide Life Companion **ABCD Brain Service**
 - Finance
 - Medical
 - Legal



Expected Outcome of ABCD IF

Customized Finance

- **Personalized Financial APP Service**
 - For Student/Worker/Disabled/Housewife/Career Disruption/Retiree/Founder
 - Financial Risk Management
 - Support funding for Startups
 - Support funding for Citizens' ups and downs

Fintech Startups

- **AI System Trading, AI Robot Data, Smart Contract, Utilize Digital Currency, Develop New Smart Financial Technologies and Services**
- **Various Startups on International Financial Products Services (Pension/Bond/Equity/ETF/Real Estate/Futures/Option)**
- **Enhance Individual's Adaptability to Social Changes**

Data-based Governance

- **Build a data-based policy making system**
- **Build an automatic data exchange system run by API**
- **Harmony in decision making**
- **Justification of policy implementation**
- **Resolve unnecessary disputes**
- **Resolve social problems (e.g. social polarization)**

Expand Digital Economy

- **Expand the digital economy globally**
- **Expand trust-based transactions among world citizens**

GIST

Gwangju Institute of Science and Technology

Impacts

1. Technical Aspect

- **Trust internet**

2. Social Aspect

- **Trust human society**
- **(Social Integration)** Trust enabled by no-one left behind.
- **(New Governance)** Less struggles with automated conflicts resolutions

3. Economic Aspect

- **Wealth creating platform**
- **One world one economy**
- **Free citizen, free trades**

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Q & A
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