

Experimental estimates of Digital Value Added in Indonesian Economy



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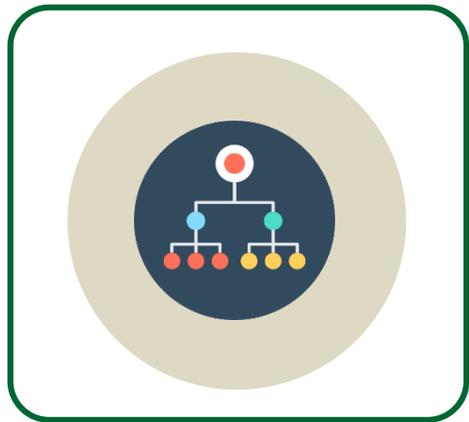
Statistician

BPS – Statistics Indonesia



STEPS OF COMPILING DIGITAL VALUE ADDED IN INDONESIA

DEFINING SCOPE AND CLASSIFICATION



SUPPLY AND USE TABLE (SUT)



E-COMMERCE STATISTICS, OTHER DATA



RE-ARRANGEMENT



DIGITAL CONCEPT



DIGITAL VALUE ADDED





DIGITAL ECONOMY CLASSIFICATION

GDP original series.
Analysis by product to identify full/partial digital products

Digitally enabled infrastructure

ICT goods, four types:
(i) Computers and peripheral equipment; (ii) Communication equipment; (iii) Consumer electronic equipment; and (iv) Miscellaneous ICT components and goods.

Computer hardware, Communication equipment, routers

ICT services, six types: (i) Manufacturing services for ICT equipment; (ii) Business and productivity software and licensing services; (iii) Information technology consultancy and services; (iv) Telecommunications services; (v) Leasing or rental services for ICT equipment; and (vi) Other ICT services.

Provision of telecommunication networks, Software development and engineering

Priced Cloud computing services: (i) user simply accessing the provider's applications (Software as a Services, SaaS); (ii) user deploying their own applications onto the providers infrastructure (Platform as a Service, PaaS); and (iii) the user taking control over operating systems, storage, and deployed applications (Infrastructure as a Service, IaaS).

AWS, Oracle, Azure, Alibaba



Digitally-delivered products

Media products: movies, videos, music and other sound recordings, created and delivered (either to intermediaries or final consumers) in digital format, including the associated licensing and broadcasting rights. The fees for distribution and advertising revenue generated from broadcasting are included.



Output of the digital products



Digitally-ordered transactions (e-commerce)

Priced Digital intermediary services: service of providing information matching two independent parties via a digital platform in return for an explicit fee, the output of these platforms typically consists of the fees paid by the producer and/or the consumer of the product being intermediated.

The margin collected by Uber, Airbnb, Trivago etc. represent the provision of this product.

Comprises the portion of wholesale and retail margins that involves any product and therefore attributable to e-commerce.





CONCORDANCE CLASSIFICATION INDONESIA SUT 2016 AND DIGITAL SUT

List of Digital Product

Source : OECD Guide to Measuring the
Information Society 2011, Tables 2.A1.1, 2.A1.2

ISIC

CPC

KBLI
(Indonesia ISIC)

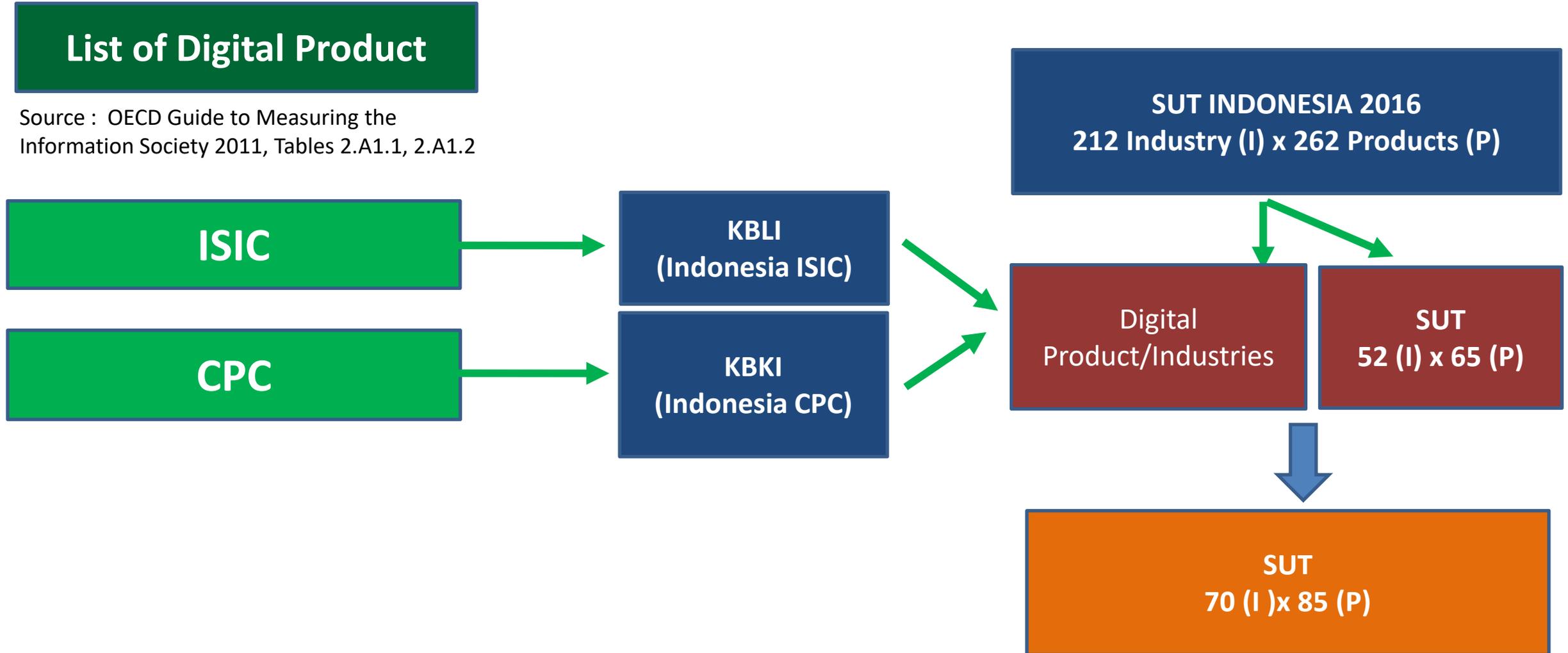
KBKI
(Indonesia CPC)

SUT INDONESIA 2016
212 Industry (I) x 262 Products (P)

Digital
Product/Industries

SUT
52 (I) x 65 (P)

SUT
70 (I) x 85 (P)





DIGITAL SUT

TABLE 1. DIGITAL SUPPLY TABLE AT BASIC PRICE (Million Rupiah)

Code	Description	48	49	50	51	52	53	54	
		41	42D1	42D2	42D3	42D4	42D5	42D6	
		Food and Beverage Service Activities	Publishing activities	Motion picture, video and television programme production, sound recording and music publishing activities	Government Programming and broadcasting activities	Private Programming and broadcasting activities	Telecommunications	Computer programming, consultancy and related activities	
058	048	Other Land Transport	-	-	-	-	-	-	
059	049	Sea Transport	-	-	-	-	-	-	
060	050	River, Lake, and Ferry Transport	-	-	-	-	-	-	
061	051	Air Transport	-	-	-	-	-	-	
062	052	Warehousing and Support Services for Transporta	-	-	-	-	-	-	
063	053	Accommodation	-	-	-	-	-	-	
064	054	Food and Beverage Service Activities	-	-	-	-	-	-	
065	055D1	Results of Publishing	-	-	-	-	-	-	
066	055D2	Film, Animation, video, television programs and s	-	695,840	34,475,050	-	2,396,013	26,763	
067	055D3	Broadcasting and programming services	-	-	-	3,997,049	106,237,765	-	
068	055D4	Telecommunications services	-	-	-	-	434,821	420,953,201	
069	055D5	Computer Programming, Consultancy and IT serv	-	222,423	-	-	-	1,720,640	108,347,035
070	056	Banking Financial Services	-	-	-	-	-	-	
071	057	Insurance and Pension Fund	-	-	-	-	-	-	
072	058	Other Financial Services	-	-	-	-	-	-	
073	059	Financial Supporting Service	-	-	-	-	-	-	
074	060	Real Estate Activities	-	-	-	-	-	-	
075	061	Business Activities	-	-	-	-	-	-	
076	061D1	Advertising Services	-	-	-	-	-	-	
077	061D2	Professional services, technical and other busness	-	-	-	-	-	-	
078	061D3	Rental and Other Business Support Services	-	-	-	-	-	-	
079	062	Public Administration and Defence; Compulsory S	-	-	-	-	-	-	
080	063	Education	-	-	-	-	-	-	

Notes :

- Fully Digital
- Partially Digital
- Non Digital





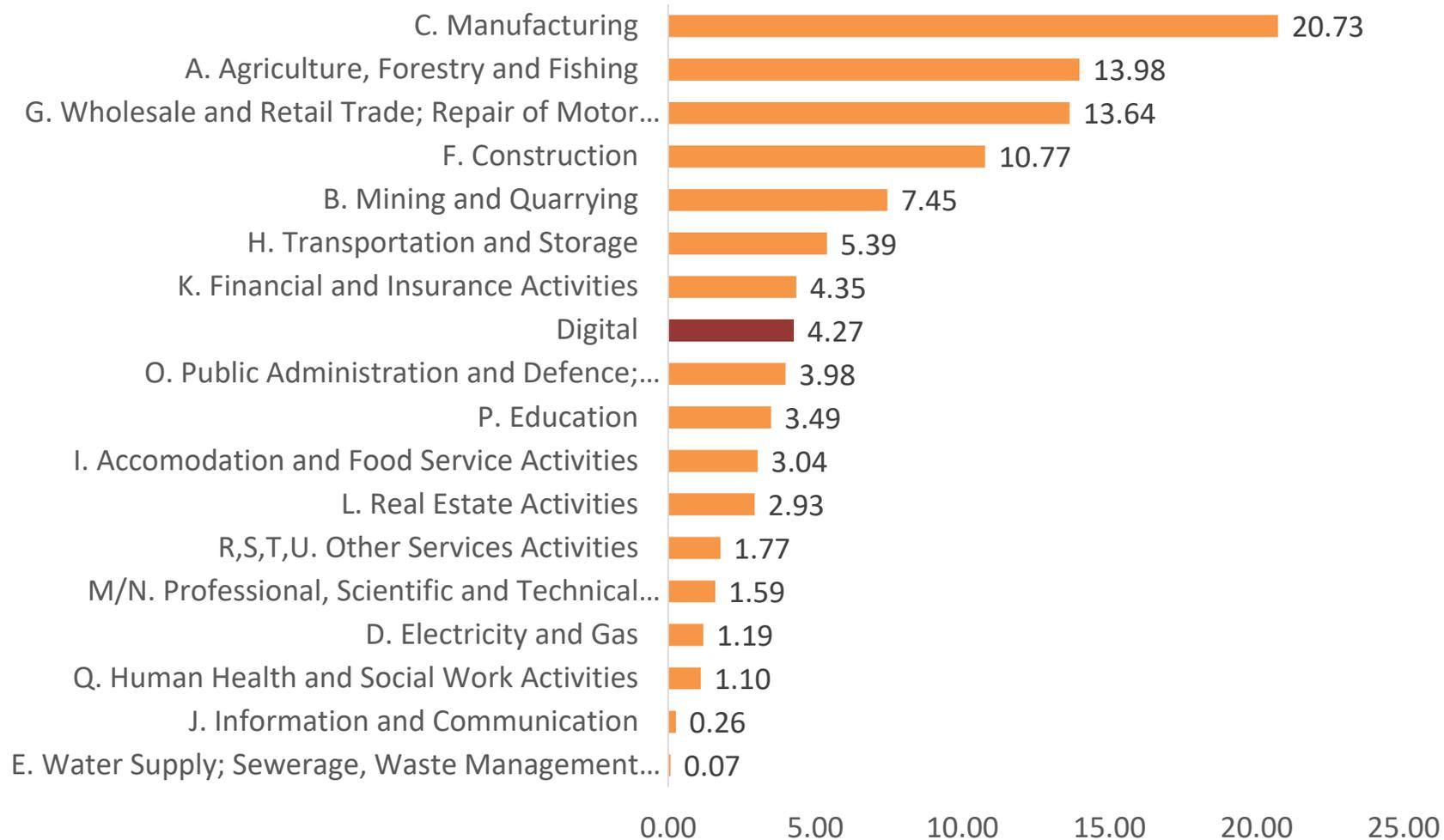
INDONESIAN DIGITAL VALUE ADDED

Industry	2016	
	Digital (%)	Non Digital (%)
A. Agriculture, Forestry and Fishing	0.00	100.00
B. Mining and Quarrying	0.00	100.00
C. Manufacturing	2.61	97.39
D. Electricity and Gas	0.00	100.00
E. Water Supply; Sewerage, Waste Management and Remediation Activities	0.00	100.00
F. Construction	0.00	100.00
G. Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	0.27	99.73
H. Transportation and Storage	0.00	100.00
I. Accommodation and Food Service Activities	0.00	100.00
J. Information and Communication	93.14	6.86
K. Financial and Insurance Activities	0.00	100.00
L. Real Estate Activities	0.00	100.00
M/N. Professional, Scientific and Technical Activities; Administrative and Support Service Activities	10.00	90.00
O. Public Administration and Defence; Compulsory Social Security	0.00	100.00
P. Education	0.00	100.00
Q. Human Health and Social Work Activities	0.00	100.00
R,S,T,U. Other Services Activities	0.00	100.00



INDONESIAN DIGITAL VALUE ADDED

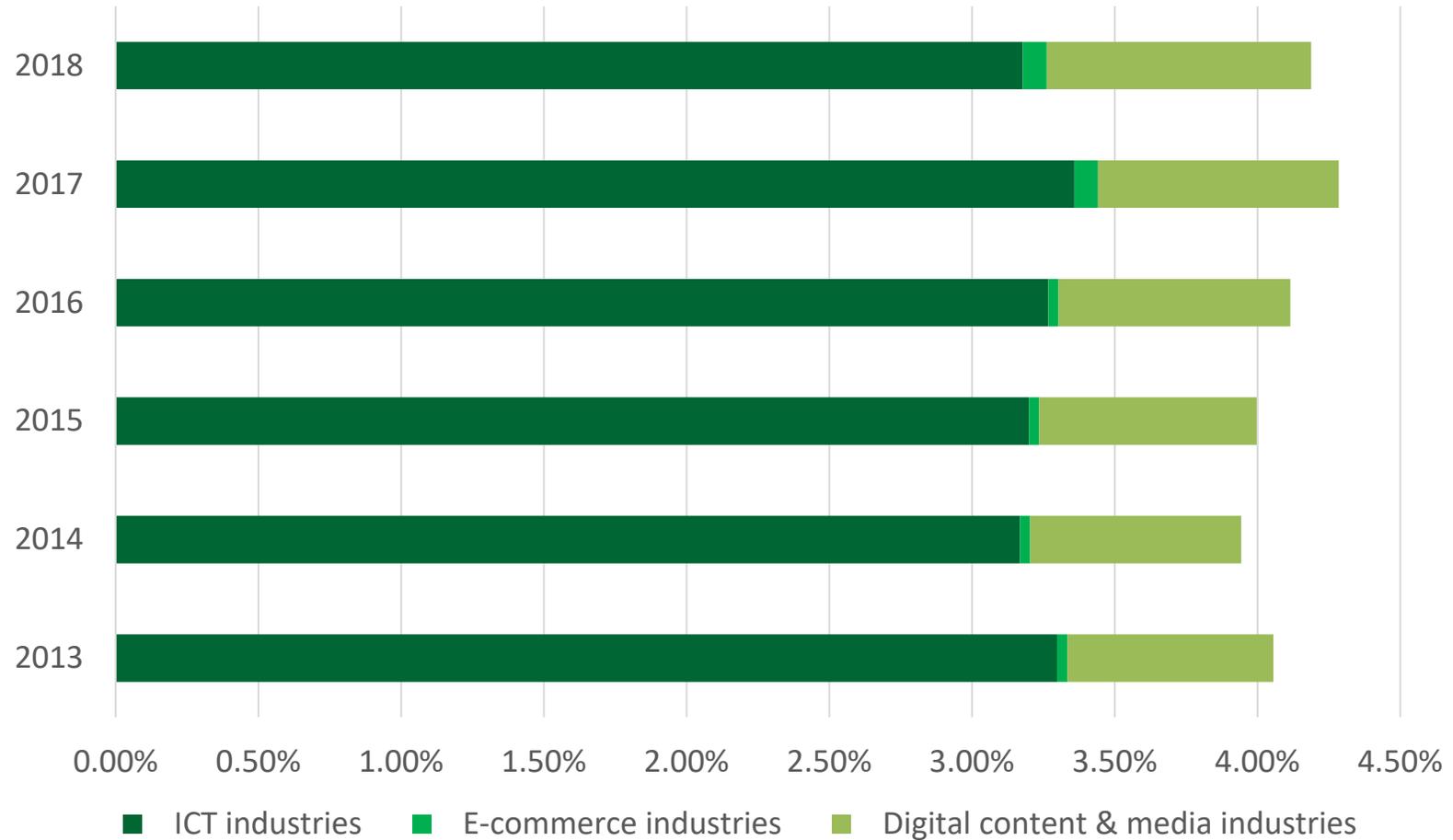
Share of Digital Industry in Indonesian GDP 2016





INDONESIAN DIGITAL VALUE ADDED

Digital Industry by Type of Industries





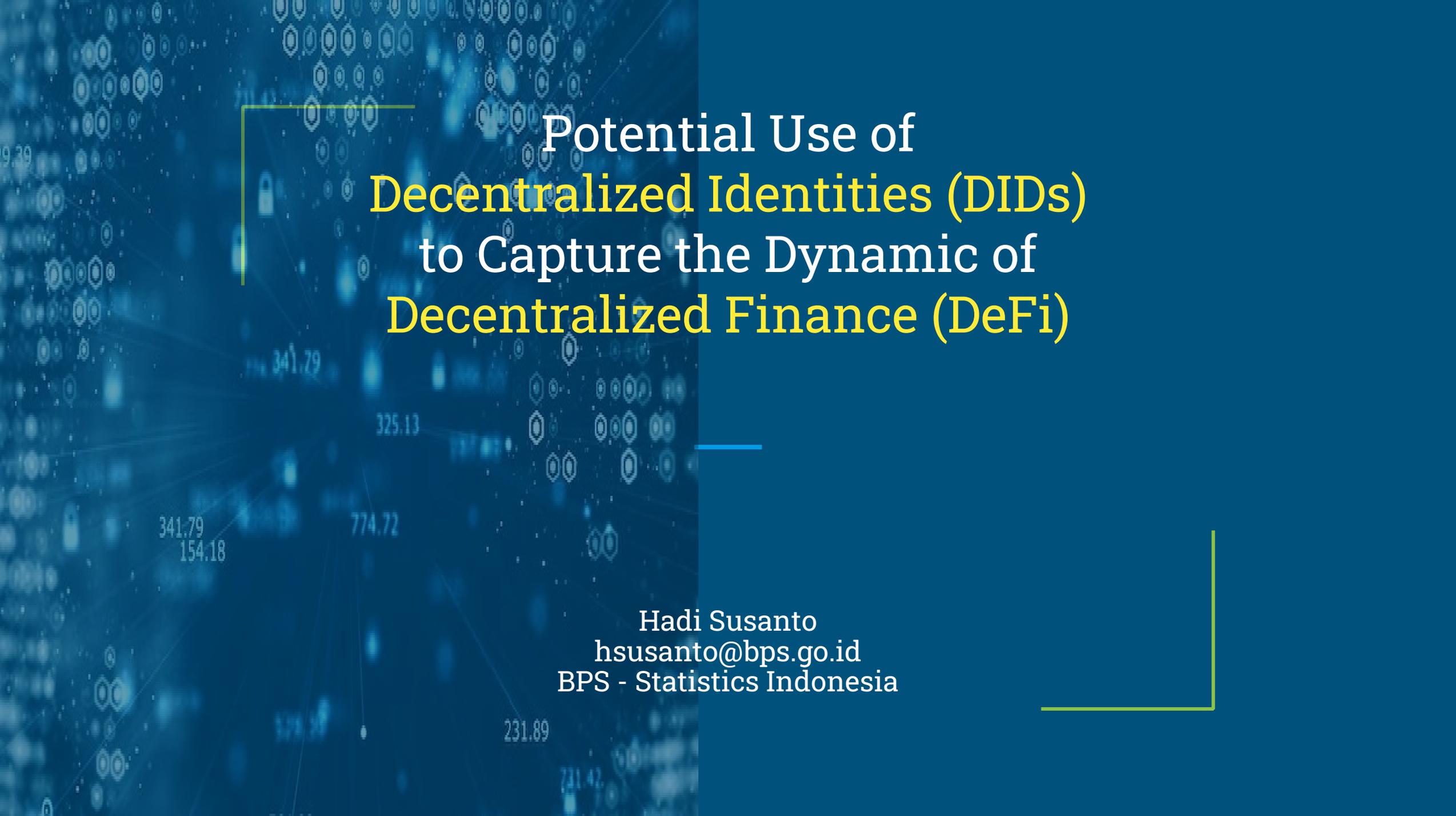
CHALLENGE

1

Identify digital economic activity in Indonesia and limited data availability.

2

Data processing infrastructure has not met adequate standard in dealing with digital economy, which involves massive transactions.



Potential Use of Decentralized Identities (DIDs) to Capture the Dynamic of Decentralized Finance (DeFi)

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Decentralized Finance and the Challenge of Identification

DeFi is a financial technology runs in Web 3.0, which is based on safe distributed ledgers in a blockchain environment, much like the ones used by cryptocurrencies.

DeFi advantages over traditional finance: greater access, cost efficiency, transparency, and security



Challenge of Identification

Difficult for authorities to obtain accurate and trustworthy information regarding financial transactions and user profiles.

Hampering also statistical data collection.



Needs

A scheme of identification system to effectively facilitate a secure data collection activities in the DeFi ecosystem



Identification Challenges in the DeFi Ecosystem

Situation

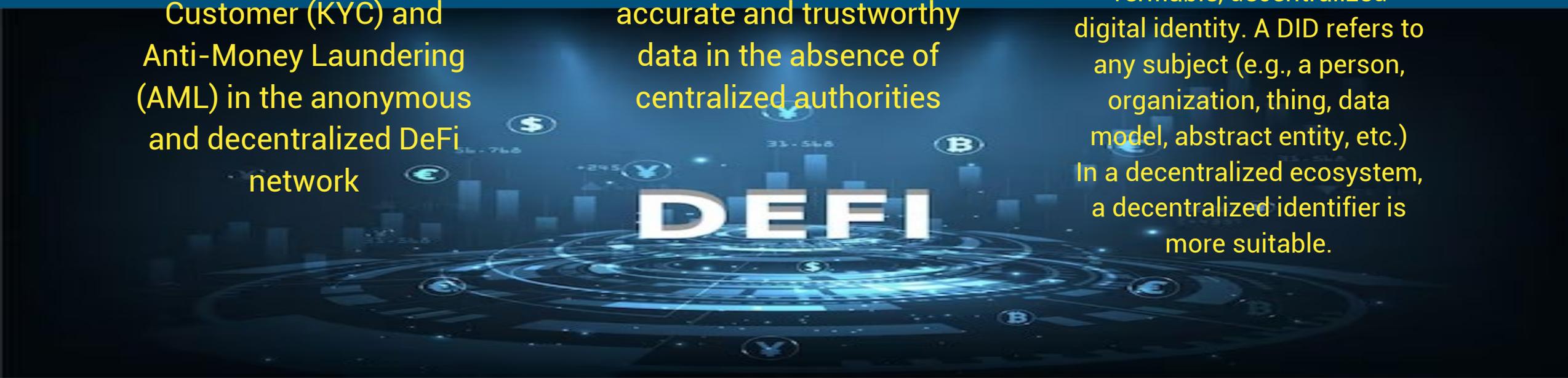
The limitations of traditional identification methods like Know Your Customer (KYC) and Anti-Money Laundering (AML) in the anonymous and decentralized DeFi network

Impact

The difficulties authorities face in monitoring and collecting accurate and trustworthy data in the absence of centralized authorities

Potential Solution

Decentralized Identities (DIDs) are a new type of identifier that enables verifiable, decentralized digital identity. A DID refers to any subject (e.g., a person, organization, thing, data model, abstract entity, etc.) In a decentralized ecosystem, a decentralized identifier is more suitable.



DEFI

The Potential of Decentralized Identifiers (DIDs) in DeFi

DIDs

What are they?

a DID is a new type of identifier that allows for verifiable and decentralized digital identities.

DIDs are designed to be detached from centralized registries and any kind of identity provider

Features

Providing a more secure, trustworthy, and private form of identity verification across various DeFi platforms and protocols

World Wide Web Consortium (W3C): 10 goals to be achieved by adopting DIDs, which are decentralization, control, privacy, security, proof-based, discoverability, interoperability, portability, simplicity, and extensibility.

Potential

Without sufficient regulation, the implementation of DIDs will grow divergently. There will be no standard data provision that will lead to the inability of authorities to collect data in DeFi ecosystem.

According to study, the global decentralized finance (DeFi) market size was \$11.96 billion in 2021 and is projected to reach \$232.20 billion by the end of 2030 with a compound annual growth rate (CAGR) of roughly 42.6% between 2022 and 2030. (Mar 7, 2023, <https://www.globenewswire.com/>)

Implementation Steps of Standardized and Interoperable DID Protocols in DeFi

Formulating and implementing standardized and interoperable DID protocols across various DeFi platforms to ensure the successful adoption and incorporation of DIDs in DeFi

Developing collaboration and coordination between regulatory authorities, DeFi developers, and blockchain companies

Emphasizing the potential benefits of such collaboration and standardization in fostering financial inclusion, privacy, and international cooperation

DeFi
Decentralized Finance

Conclusion

Conclusion:

Several key points of the presentation:

- Awareness on the growing scale of DeFi
- The necessity to implement a proper identifier in DeFi ecosystem before it is too large to be regulated.
- DIDs has the potential to be an identifier. Initial researches have been done on DIDs. Yet a common form and mechanism of DIDs have not been agreed.
- Initiatives at the international level to promote DIDs implementation is needed as well as regulations at national level, which comply with the initiatives.

Decentralized
Finance

VECTOR ILLUSTRATION



Future Research

Future research would be needed to:

- Identify the impact of DIDs on financial inclusion and services
- Specify and develop the recommended DIDs mechanism and protocol
- Analyze the privacy implications of DIDs in DeFi
- Design the architecture of international cooperation and standardization for the collection and reporting of DeFi transaction data



