Exploring Utilisation of The Metaverse to Strengthen Indonesian Economic Diplomacy

Shiela Riezqia[1]

Abstract:

Foreign public and private entities have been utilising the Metaverse for economic purposes. However, Indonesia has not fully utilised it. This paper argues that Indonesian Foreign Ministry and diplomats should explore utilisation of the Metaverse to advance Indonesian economic diplomacy. Not doing so may trap Indonesia as a mere market and hinder Indonesia from economic innovation. This paper demonstrates 3 (three) main findings, there are 1) there are existing gap, potentials, and opportunities of Metaverse economy; 2) other countries have been utilizing Metaverse, as best practices and lessons for Indonesia to learn; 3) while there are opportunities, like many other advancements, there are risks that must be managed. This paper proposes interconnected policy choices, there are 1) to increase awareness on the Metaverse Economy in the Ministry of Foreign Affairs of the Republic of Indonesia; 2) to develop policy review and analysis about utilisation of Metaverse for Indonesian economic diplomacy; 3) to embed Metaverse exploration into Indonesian Ministry of Foreign Affairs' Strategy (Rencana Strategi/Renstra Kemlu RI); and 4) to explore international cooperation. Because the policy choices are highly intertwined, this paper recommends implementing the choices in 2 (two) time frames. A short-term period of 2 (two) years, from 2024 to 2025 by implementing the 1st, 2nd, and 3rd policies. A long-term period of 5 (five) years, from 2024 to 2028, by implementing the 4th policy, together with the first three policies. In conclusion, Indonesian Foreign Ministry and diplomats should explore utilisation of the Metaverse. Not doing so may bring setbacks to Indonesian economy and development, because Indonesia may lose market share and economic opportunities for investment, job creation, innovation, competitiveness, and may fall behind other countries.

Keywords: *Metaverse, Metaverse Economy, Economic Diplomacy, Risk Management, Governance, International Political Economy*

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[1]*Kementerian Luar Negeri Republik Indonesia, shielariezqia@gmail.com*

1. Introduction

"The metaverse is not just a game, it's a whole new universe waiting to be explored and experienced." - Adam Frisby, Founder of Sansar. The Metaverse has not been fully utilised by Indonesia. Indonesia should not wait. Indonesia cannot afford to lose economic opportunities from Metaverse economy. 15% of the digital economy has already shifted to the Metaverse. Its reach is projected to be 700 million people worldwide by the end of the decade. The largest segments in terms of revenue in 2030 will be gaming ($163 billion) and e-commerce ($201 billion). (World Economic Forum, 2023).

With its potential to generate up to $5 trillion in value by 2030, the metaverse is too big for companies and states to ignore (www.mckinsey.com, 2023) Indonesia cannot longer be a watcher and a mere market of other entities in the Metaverse ecosystem. Indonesia must be a master of its own destiny in the Metaverse. Hence, it is imperative that Indonesian foreign ministry and Indonesian diplomats ponder and explore how to utilise the Metaverse for Indonesian economic diplomacy. The problem statement that this policy paper aims to solve is: Why does Indonesia need to explore utilisation of the Metaverse and how to do so? This paper argues that Indonesian Foreign Ministry and diplomats should explore utilisation of the Metaverse to advance Indonesian economic diplomacy.

This paper uses qualitative method to analyse the issue and develop policy recommendations. This paper will use both primary and secondary sources, such as interview and literature studies. There are several target audiences that will benefit from the recommendations. The foremost target are Indonesian individuals. The second target are Indonesian private entities in many industries, such as game, entertainment, advertising, art, design, architecture, health care, education, tourism, investment, trade, and many more. The third target audience are Indonesian public entities, such as education, health-care institutions, and state-owned companies. The issue addressed in this policy paper is significant for innovation of Indonesian economic diplomacy. Both policy makers and public should pay attention to it for a stronger Indonesian prosperity.

2. Theoretical Background

International Political Economy
This policy paper roots its analysis, policy choices and recommendations within a framework of International Political Economy (IPE). IPE is the study of the interplay, intersection, interaction, and influence between politics and economics in international relations (Oatley, 2018).

Economic Diplomacy

According to (Bayne and Woolcock, 2016), economic diplomacy related to the states and non-state actors, ranging from bureaucracies, ministries, institutions, business, civil society organisations, or even individuals, such as celebrities, experts, and influencers. All to pursue economic welfare and prosperity.

Metaverse

Metaverse is a 3D virtual world with immersive experience. It utilises Virtual Reality (VR) where real human can enter the virtual world, Augmented Reality (AR) where virtual world can enter real world, and Artificial Intelligence (AI) that can learn and re-learn and enrich the experience. Real human can access the Metaverse with the help of software (Metaverses such as Decentraland, Sanbox, Roblox, "Meta", etc) and hardware (such as glasses or as simply as a personal computer/PC) (Khan, 2023).

Metaverse Economy

Metaverse economy is economic activities occurring in the metaverses world, including creative economy. It usually uses decentralised ledger, called blockchain, and digital currency. The currency value can be compared with real world currency, such as $ and €. (Khan, 2023) (Rijmenam, 2022).

Governance

The discourse of governance in Metaverse relates to regulation, standard, protection, and cooperations between state and non-state actors across the globe. There is also a discourse whether existing real-life regulation and current cyber-law can be extended to the Metaverse realities (Kalpokas and Kalpokienė, 2023).

Risk Management

In the simple term, Risk = Probability x Impact. Hence, risk management covers effort to minimise or manage the likelihood and damage caused by an event (Hillson, 2016).

3. Methodology

This paper uses qualitative methods to analyze problems and develop policies. This paper will use primary and secondary sources, such as interviews and literature review. Activities in data data analysis are data reduction, data presentation, and conclusion drawing or verification.
verification.

4. Empirical Findings/Result

The Metaverse: Opportunities and Challenges
Why Does Indonesia Need to Explore Utilisation of the Metaverse?
The world is talking about the Metaverse. But what is it? Some said that it is an immersive world where people can do economic activities virtually. Some said it is a 3D twin world of our real world. And some even said it is another universe. 15% of the digital economy has shifted to the Metaverse. With 700 million users, the largest

segments in terms of revenue will be gaming ($163 billion) and e-commerce ($201 billion) with a total value of $5 trillion by 2030. (World Economic Forum, 2023) (www.mckinsey.com, 2023).

Many brands have established their business in the Metaverse, such as Gucci, Hyundai, Vans, HandM, Coca-Cola, Telkom, Microsoft, Meta, Walt Disney, Nike, Epic, Adidas, Shopify, Sotheby's, in several Metaverses, such as "Roblox", "Decentraland", "the Sandbox", and "MetaNesia". Even Istiqlal Mosque has "IstiqlalVerse" in "MetaNesia". Indonesia has been trying to catch up with the Metaverse. President Joko Widodo has launched "Jagat Nusantara" within G20 event in Bali, 2022. It is a twin immersive world of "Nusantara", the country's future capital. Telkom, an Indonesian state-owned company, has developed "Metanesia", another Indonesian Metaverse. Indonesian Ministry of Creative Economy and Tourism has also planned to develop "WonderVerse Indonesia".

These national efforts to utilise the digital world have been manifested in many international fora. Indonesia is a champion of advancing cooperation with many countries on digital economy. In the recent years, it is shown in Indonesian Presidency of G20 in 2022 and Indonesian Chairmanship of ASEAN in 2023. Moreover, Indonesia was a de-facto leader in Regional Conference on Digital Diplomacy (RCDD) in 2019 and International Cooperation in Digital Diplomacy (ICDD) in 2021.

There are gaps between Indonesian enthusiasm to embrace the Metaverse and the country's domestic governance (Harkomoyo, 2023). The gaps that must be addressed such as:
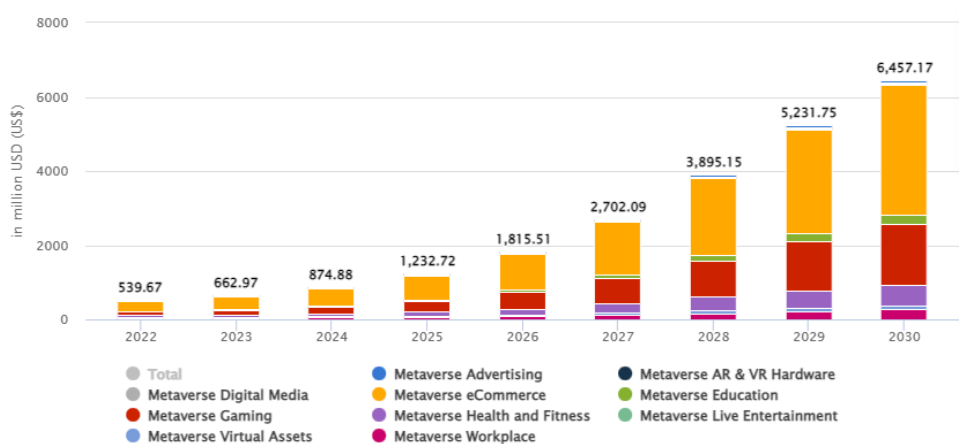a. Individual levels: Lack of awareness in Indonesian Ministry of Foreign Affairs, including its diplomats, about the Metaverse.
b. National levels: Lack of coordination between line ministries and institutions in Indonesia on the Metaverse.
c. International level: Lack of exploration of cooperation between Indonesia and international stakeholders in the Metaverse ecosystem.
d. Political will: A political will, not only a good will, is an important ingredient to ensure sustainable utilisation and funding. It makes decision making cycle possible in all stages, including planning, coordination, implementation, monitoring, and reviewing.

Indonesia needs to include the use of Metaverse in its economic diplomacy because the Metaverse can provide economic opportunities in many sectors, such as:
a. Simulation. BMW has been using a factory digital twin in "Nvidia Omniverse" to increase effectiveness, develop innovation, and reduce operational cost.
b. Gamification. Gaming industry has been using the Metaverse in the early days. Gamification is a new communication channel used in several industries, such as sales and marketing, promotion, media, education, and many more. Telkom uses gamification to promote and educate in "Metanesia".

c. Immersive workplace. "Teamflow and "Gather" applies interactive workplace experiences.
d. Socialization. The Metaverse is not meant to fully replace social interaction in the real life. Like existing social media platforms (Instagram, Twitter, Facebook), the Metaverse provides an alternative immersive channel to interact.
e. Culture. Not only creating a digital twin technology (e.g. virtual museum of La Louvre, Paris), the Metaverse provide opportunities to create new creation. There are virtual idols and virtual concert with no real-world presence. South Korea is an excellent example of this, such as virtual idols "Mave" and virtual idols survival show, "Girl's RE:Verse".
f. Healthcare. Metaverse technology have been used from training and mental health to precise surgical procedures. Johns Hopkins and the Mayo Clinic have use it to assist spine surgeries and catheter placement.
g. Tourism. Metaverse technology is embedded in a travel cycle. From 1) "try-before-you-buy" before booking experience, 2) during travel (training of tourism staff with AR/VR/AI or metahuman cabin crew by "QVerse" Qatar Airways), and 3) upon arrival (destinations combine AR/VR/AI with real world, e.g. a plan to combine Disneyland real world with a 3D VR experience).
h. Trade (goods and services). Metaverse provides immersive commerce (i-commerce) with direct-to-avatar (D2A) and blockchain technology. Examples are selling virtual services (e.g. designing clothes for 3D avatar), trading virtual assets, advertising and promotion (e.g. billboards) and storytelling.
i. Investment. Investors have entered the Metaverse (e.g. real estate, video games, entertainment brands, etc). They want to diverse investment (e.g. investing in game Metaverse, such as "Roblox"), in software (e.g. "Unity Software", in Non-Fungible Token/NFT), in hardware (e.g. "Microsoft-Hololens") and in real estate (e.g. "Decentraland" and "Nvidia-Omniverse") and entertainment.
j. Job creation. The Metaverse need new lines of jobs, such as Meta-Storytellers, Virtual World Creators, Digital Game Designers, Cross-Reality Experience Designers, Hybrid Technologists, Hybrid Architects. The new jobs connect both physical and virtual worlds, maintain privacy and safety, and manage physical and virtual governance.

In short, the Metaverse brings huge opportunities. To fully benefit from it, Indonesia needs to close existing gaps between its ambition and its capabilities.

Picture 1. Indonesian Economic Revenue Growth in the Metaverse Economy
Source: Statista, April 2023

Lessons Learned from Other Countries
Metaverse's economy is huge that countries and business cannot afford to ignore. Public and private entities have been working hand in hand to innovate and chase its opportunities. Indonesia can learn from others on what and how it is done, as follow:

a. In ASEAN region. The progression towards creating a Metaverse is increasing in Thailand, Vietnam, the Philippines, and Singapore (Oi, 2021).
   i. Axie Infinity's top-priced NFT game has surpassed Metaverse-linked cryptocurrencies in cost, in Vietnam. Sky Mavis, the creator of the company, has seen its market value of $8 billion.
   ii. The initiation of the grant application process for practical research in the fields of Metaverse, NFTs, and digital identity has been declared by SHR Ring based in Thailand.
   iii. BuzzAR Singapore is undergoing a transition to become part of Facebook to collaboratively develop an ecosystem for the metaverse. It obtained Facebook-Cooking Game VR.
   iv. MetaDhana in the Philippines is to promote accessibility to AI, blockchain technology, and game development by means of the Metaverse ecosystem.
b. In East Asia region
   i. South Korea. Seoul Metropolitan Government (SMG) has developed "Metaverse Seoul" that deliver "all-in-one" services. South Korean entertainment industry have successfully launched virtual girl idols "Mave" and virtual idols survival show, "Girl's RE:Verse".

   ii. China. Tencent, ByteDance, NetEase and Alibaba are ambitious to develop Metaverse software and hardware, worth $8 trillion in China alone. The government support the Metaverse in manufacturing, education, cultural, and tourism industries. China Mobile Communications Association established a

     Metaverse Industry Committee in October 2022 to set standards (Hong and Chen, 2022).

c. In the Middle East region. Kingdom of Saudi Arabia (KSA). KSA is pouring $500 billion to develop "Neom", a megacity project in northwest of KSA, combining metaverse and real world. It uses "XVRS", a "digital twin metaverse" for visitors to be present in "Neom" as avatar or hologram. Besides "Neom", KSA plans to build "New Murabba", an immersive destination in Riyadh. KSA Digital Government Authority cooperates with "Sandbox" to utilise the Metaverse.

d. In the American region
   i. Barbados. It signed an agreement with "Decentraland" to purchase land in the Metaverse and to build a Metaverse Embassy. This move is to provide public service, ease business and promotion activities, and its image as a tech-nation.
   ii. USA. It hosts several Metaverse companies, such as Microsoft, Google, Roblox, Decentraland, Meta, Suffescom Solutions Inc., RisingMax, Appinventiv, DecentaMinds, ITechArt Group, Epic Games Inc.

e. In the European region. European Commission has developed "The VR/AR Industrial Coalition" in 2020. This forum aimed to inform policy making, invite investment, facilitate dialogue, and identify challenges and opportunities (Commission, 2022).

f. Other regions e.g. Asia and Oceania regions
   i. Tuvalu. Tuvalu said in COP27 2022 about its plan to preserve its history and culture in the Metaverse by developing a digital sibling, as rising sea levels threaten its existence.
   ii. Maldives. The Government of Maldives inaugurated the first Virtual Embassy in Second Life in 2007 in traditional Maldives architecture.

Risk Management and the Importance of Governing the Metaverse

Technology is neutral. However, like other channels and platforms, there are risk involve in the Metaverse (Harkomoyo, 2023). The challenges are unlimited data harvesting, abuse and harassment, imposter avatars, security breaches, biased AI, bots and trolls, a further polarized society, increased inequality, and physical and mental health issues. Ethics, security, privacy, and standard, are the risks to be managed. How can we "tame" the Metaverse?

On ethics, risk management and governance must follow principles of respecting human rights, aiming for well-being, having control of one's own data, developing effectiveness, transparency, accountability, awareness of misuse, and competence. On privacy and security, provider must ensure that their platforms respect privacy and enforce security by encrypting data, especially personal data, plan and implement breach response, regularly update operating systems, firmware, and applications, secure hardware, and devices, install effective anti-malware and anti-virus software, have reliable backup, secure network including Wi-Fi, enforce complex requirement to access, educate on security practices, policies, and procedures. These risk management must be applied to prevent risks related to AR/VR technologies, social

engineering, marketplaces, blockchain security, identity theft, data security, and data privacy.

Standards, governance, and regulations must be implemented across different Metaverse platforms. The Metaverse community has built an independent non-profit consortium named "The Metaverse Standards Forum". Currently, it has hundreds of members consisted of government agencies, universities, and companies. Institute Technology Bandung (ITB), an Indonesian university, is a member. The forum aims to foster interoperability and discuss standards, governance, and regulations from design to implementation. Technologies that need risk management and governance for example synthetic visual reality, practical XR optics, real-time environment scanning and semantic understanding, end-user 3D content creation tooling, physical simulations, remote social interactions, and supporting millions of simultaneous users ((Duffey, 2023); (Flores-Galea, 2023)).

5. Discussion

Policy choices
Increasing Awareness on the Metaverse Economy in the Ministry of Foreign Affairs of the Republic of Indonesia (Indonesian MoFA)
In this initial stage, the Metaverse can be used to promote Indonesian products and services around the world in an immersive way. In addition, it can be used to organize virtual exhibitions and promotional events. Indonesia can also gamify promotional activities. To do so, Indonesian MoFA can organize training and workshops that specifically discuss metaverse technology, its benefits, and its risk management. Having open forum to discuss the Metaverse in the Ministry is a practical and initial activity before moving forward to a more institutional approach (Harkomoyo, 2023).

These activities need to be implemented across divisions, including but not limited to Directorate of Information and Media Services (*Dit. Informasi dan Media*), Centre for Information Technology and Communication (*Pusat Teknologi Informasi dan Komunikasi Kementerian dan Perwakilan/Pustik KP*), regional departments (America, Europe, Asia-Pacific, Africa/*Ditjen Amerop and Ditjen Aspasaf*), and *Centre for Education and Training (Pusat Pendidikan dan Pelatihan/Pusdiklat Kemlu RI)*. Indonesian MoFA can also having those activities with *Indonesian Ministry of Communication and Information Technology* (Kominfo). Kominfo has programmes to develop technology human resource, e.g. web-based public training on www.digitalent.kominfo.go.id. The benefit for these activities exceeds the cost. These training and forum may improve awareness with a minimum cost, because initial simulation can be done through a simple website (Web 2.0) with a computer/laptop, without AR/VR equipment, such as goggles.

Developing Policy Review and Analysis about Utilisation of Metaverse for Indonesian Economic Diplomacy

Foreign Policy Strategy Agency of Indonesian MoFA *(Badan Strategi Kebijakan Luar Negeri/BSKLN Kemlu RI)* need to develop policy review and analysis to assess opportunities and challenges in utilizing metaverse for economic diplomacy. They could provide valuable insights and recommendations for how Indonesian economic diplomacy can effectively utilize the Metaverse to achieve its goals and remain competitive in global market. It will require both time and resources. However, the potential benefits of this effort can far outweigh the costs. The policy review and analysis allow Indonesian MoFA to make informed decisions about how to effectively incorporate this technology into economic strategy. First hand insights from the fields are needed. The Agency can enquire assessment from Indonesian Missions overseas regarding the Metaverse ecosystem in accredited countries. This enquiry is very important to obtain accurate information and understanding about the Metaverse its use as a tool of economic diplomacy. Opportunities and cooperations to develop software, hardware, human resource, and infrastructure may arise from this activity.

Embedding Metaverse Exploration into Indonesian Ministry of Foreign Affairs' Strategy (*Rencana Strategi/Renstra Kemlu RI*)
According to *Renstra Kemlu*, there is already a framework to utilise digital tools in economic diplomacy. However, there is a gap in exploring potentials of the Metaverse, which is yet to be included. Embedding the exploration into the Ministry's strategic plan is vital to ensure that its implementation is systematic and well-planned in terms of time, human resources, and budget. It can be incorporated into *Renstra Kemlu RI* "Providing Optimum Economic Benefits through International Relations to Support Productive, Independent, and Competitive Economic Structure" and "Digital Diplomacy Strategy".

It can also be incorporated into *Rencana Strategis Direktorat Informasi dan Media* "Improving Information Management and Service with Data-Based Information Technology and Communication" and "Strong Digital and Information Diplomacy". The benefit for these activities exceeds the cost. The activities may cost some time and effort with logistics and meeting package costs. However, the benefit is having a clearer strategy to utilise the Metaverse to strengthen Indonesian economic diplomacy.

Exploring International Cooperation
Indonesia has a vision to enrich digital economy as one of main ingredient to reach the top 10 global economies by 2023. Regarding the Metaverse, Indonesia must continue exploring domestic and international cooperation, both public and private. Indonesia can follow up existing initiative, such as *Indonesia Metaverse Collaboration Initiative 2023 – Metaverse Research and Experience Centre (MREC) programme,* as a base for further cooperation. Indonesian Missions can promote Indonesian existing Metaverses, such as "Jagat Nusantara", "MetaNesia", or "WonderVerse Indonesia" (Prasetyo, 2023). Promoting Indonesian Metaverses aims to showcase that Indonesia is keeping up with the latest technology and is inviting international cooperation to innovate.

The benefit exceeds the cost. The activities may cost some time, efforts, logistics and meeting package costs. However, the benefit is having tangible international cooperation to utilise the Metaverse. There are several aspects that Indonesia can cooperate internationally, such as developing hardware and software, implementing risk management to govern the Metaverse, and conducting benchmarking sessions to identify best practices and to avoid potential pitfalls. Other aspects for international cooperation are discussing with international experts to share the latest research, development, and trends; developing human resources, including diplomats; and developing standards and regulations that promote responsible use of Metaverse technology.

6. Conclusions

In conclusion, Indonesian Foreign Ministry and diplomats should explore utilisation of the Metaverse to advance Indonesian economic diplomacy. Doing so is dire necessary because Metaverse economy is highly potentials with enormous benefits and potentials for Indonesia. This paper shows 3 (three) main findings, there are: 1) there are existing gap, potentials, and opportunities of Metaverse Economy; 2) other countries have been utilizing the Metaverse. They provide best practices and lessons for Indonesia to learn; 3) while there are opportunities, like many other advancements, there are risks must be managed. Indonesia needs to have a robust risk management in "taming" the Metaverse. This paper proposes interconnected policy choices, there are 1) increasing awareness on the Metaverse Economy in the Ministry of Foreign Affairs of the Republic of Indonesia; 2) developing policy review and analysis about utilisation of Metaverse to strengthen Indonesian economic diplomacy, 3) embedding Metaverse exploration into Indonesian Ministry of Foreign Affairs' Strategy (Rencana Strategi/Renstra Kemlu RI); 4) exploring international cooperation. Because the policy choices are highly intertwined, this paper recommends implementing the choices in 2 (two) time frames, short term, and long term. The 1st time frame is a short-term period of 2 (two) years, from 2024 to 2025 by implementing the 1st, 2nd, and 3rd policies. The 2nd time frame is a long-term period of 5 (five) years, from 2024 to 2028, by implementing the 4th policy, together with the 1st, 2nd, and 3rd policies. Metaverse economy is growing rapidly both in the short term and in the long term. Indonesia should not become a mere watcher and a mere market for foreign Metaverse entities. Indonesia should be a master of its own destiny in the Metaverse economy.

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