Journal of Business
And Digital Strategy

SAH PUBLISHER

Vol. 1, No. 1, October 2026

Business and Revenue Models of the Metaverse in Indonesia's Digital Economy

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Abstract. This paper examines the business and revenue models of the metaverse and assesses their viability within Indonesia's digital economy. Its purpose is to move the discussion beyond promotional forecasts by asking how value is actually created, delivered, and captured in immersive virtual environments, and which of those mechanisms fit Indonesian market conditions. The study applies a literature review combined with an analysis of public data and documented Indonesian cases, using the Business Model Canvas and revenue model typologies as analytical frames. The literature synthesis identifies seven revenue mechanisms: sales of virtual goods and non-fungible tokens, virtual real estate, advertising and brand experiences, subscriptions and paid access, gaming and play to earn mechanics, business to business services such as training and digital twins, and platform commissions on third party transactions. The Indonesian case analysis covers Telkom's metaNesia platform, the Nusameta ecosystem developed by WIR Group together with state owned banks BRI, BNI, and Mandiri, and the social metaverse Jagat. The results show that Indonesia possesses strong demand side fundamentals, including 221.56 million internet users in 2024 and the largest digital economy in Southeast Asia, yet the revenue models that stalled were those dependent on speculative asset sales and headset based immersion, while models anchored in business services, brand marketing budgets, and mobile first social experiences proved more durable. The novelty of this study lies in mapping each global revenue mechanism onto Indonesian readiness factors and documented local cases, producing a viability ordering that managers and policymakers can use when deciding where metaverse investment in Indonesia is commercially defensible and where it remains speculative.

Keywords: metaverse; business model; revenue model; digital economy; Indonesia; virtual goods

Received September 2026 / Revised October 2026 / Accepted October 2026

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INTRODUCTION

Few technology concepts have travelled as quickly from fiction to boardroom as the metaverse. The term was coined in a 1992 science fiction novel, yet its contemporary business meaning was shaped by industry writers who describe a massively scaled and interoperable network of real time rendered 3D virtual worlds, experienced synchronously and persistently by large numbers of users with continuity of identity, objects, and payments [1]. Academic treatments reached a similar destination by a slower road. An early systematic review of 3D virtual worlds concluded that an integrated metaverse depends on progress in immersive realism, ubiquity of access and identity, interoperability, and scalability [2]. When Facebook renamed itself Meta in October

2021, investment and managerial attention surged, and the scholarly literature responded with multidisciplinary stocktaking exercises that separated durable opportunities from promotional exaggeration [3], holistic mappings of affected sectors from marketing to banking [4], and sociological analyses of who gets to define the concept and why definitions themselves are commercially contested [5].

For business research, the important question is not whether a single unified metaverse will arrive, but how money is made in the virtual environments that already exist. Platform scholars note that what is called the metaverse is in practice a meta ecosystem of distinct platform ecosystems, each with its own orchestrators, complementors, and consumers [6]. A panel of information systems scholars similarly cautions that the metaverse is partly a real technological change and partly a research and investment label whose commercial substance must be demonstrated case by case [7]. This paper takes that caution seriously. It asks three questions. First, what business models and revenue models have been documented for metaverse platforms and for firms operating inside them? Second, how do those models map onto the documented initiatives launched in Indonesia since 2022? Third, which models are commercially viable under Indonesian conditions, and which have already stalled?

Indonesia is a demanding and therefore informative test case. It is the largest digital economy in Southeast Asia, and its scale indicators are reviewed later in this paper, yet it is also a mobile first, price sensitive market in which high end virtual reality hardware remains a niche product and in which regulators have moved cautiously. Between 2022 and 2023 the country saw a concentrated wave of metaverse entry: a state owned telecommunications incumbent launched a national metaverse platform, a listed immersive technology company promoted an Indonesian metaverse ecosystem with the three largest state owned banks as participants, a local social platform built a virtual replica of the future capital city, and global style virtual land and token speculation found local buyers. Several years later, public attention has cooled, which creates a natural experiment: the entry decisions are documented, the revenue logic behind them can be reconstructed, and their trajectories can be compared.

The existing literature offers limited guidance for this comparison. Metaverse scholarship is rich on definitions, technology components, and sectoral possibilities, but thinner on revenue mechanics, and it rarely engages Southeast Asian evidence. Business model scholarship, conversely, supplies powerful general frameworks but was written before immersive platforms matured. This study connects the two bodies of work and grounds them in Indonesian cases. Its contribution is a viability ordering of metaverse revenue models for Indonesia that distinguishes mechanisms supported by recurring demand from mechanisms that depended on the speculative conditions of 2021 and 2022.

METHODS

This study uses a structured literature review combined with an analysis of public data and documented Indonesian cases. The literature review covered peer reviewed research on the metaverse, virtual worlds, platform economics, and business model theory, prioritising journals and books from major international publishers, including Elsevier, Springer Nature, Wiley, Taylor and Francis, SAGE, and Oxford University Press. Foundational business model works were included regardless of age because the analytical frames used here, the Business Model Canvas and revenue model typology building, originate in that literature. Metaverse specific sources were concentrated in the

period from 2021 onward, when the modern wave of scholarship appeared, supplemented by earlier virtual world research that documents revenue practices in Second Life and in free to play games.

Two analytical frames organise the synthesis. The Business Model Canvas distinguishes nine building blocks, namely customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure, and it is used here to compare how platform owners and in world firms configure value creation and capture differently. Revenue model typologies from the business model literature are used to classify the income mechanisms found in the cases, including product sales, asset sales, advertising, subscription, usage fees, brokerage and commission, and licensing.

The Indonesian evidence comes exclusively from public sources: official statistics and industry reports on internet adoption and digital economy size, company announcements, and reputable press coverage of specific initiatives. Four cases met the inclusion criteria of being publicly launched, attributable to an identifiable Indonesian organisation, and documented by more than one public source. They are metaNesia, launched by PT Telkom Indonesia in July 2022; the Nusameta ecosystem of PT WIR Asia Tbk, known as WIR Group, showcased with Bank Mandiri, BNI, and BRI among its participating partners; the banking metaverse agreements that BRI and BNI signed with WIR Group in March 2022; and Jagat, the social platform that launched a virtual representation of the new capital Nusantara in October 2022. Initiatives that appeared only in promotional material without independent documentation were excluded. This is a qualitative, document based design; it does not use proprietary platform data, and its claims about commercial outcomes are limited to what public documentation supports, a limitation discussed at the end of the paper.

RESULT AND DISCUSSION

1. Defining the Metaverse as a Business Platform

Business analysis must begin by resisting the idea of the metaverse as one place. The definitional literature converges on a set of properties, persistence, synchronicity, interoperability, immersion, and an economy with continuity of assets and payments, while disagreeing about how many of those properties any current platform actually has [1], [2]. The multidisciplinary review by Dwivedi and colleagues catalogues applications across education, tourism, retail, and finance, and warns that hype cycles inflate expectations faster than infrastructure matures [3]. Koohang and colleagues, examining nine affected sectors, reach a compatible conclusion: near term value concentrates in specific use cases such as marketing, training, and banking services rather than in a general purpose virtual world [4].

Two further perspectives matter for revenue analysis. Dolata and Schwabe show that defining the metaverse is itself a strategic act, because firms that succeed in fixing the definition position their own assets as indispensable infrastructure [5]. Schobel and Leimeister formalise the consequence: a metaverse is a meta ecosystem in which platform owners supply core infrastructure, orchestrators curate worlds and events, and complementors produce goods and experiences, so revenue can be earned at three different layers that are often confused in popular accounts [6]. Peukert and colleagues add that many supposed metaverse innovations recombine older virtual world capabilities, which means their revenue models also have older precedents that can be

studied empirically [7]. This layered view structures the rest of the analysis: platform owners monetise access, tools, and transactions; orchestrators monetise audiences and events; complementors monetise goods, property, and services sold to end users.

2. Analytical Frames: The Business Model Canvas and Revenue Typologies

A business model describes the design of the value creation, delivery, and capture mechanisms a firm employs, and its essence lies in defining how the firm entices customers to pay for value and converts those payments into profit [8]. The Business Model Canvas operationalises this definition into nine blocks that can be filled for any metaverse venture [9]. Reviews of the business model literature emphasise that a model is an activity system spanning firm boundaries, so for platforms the canvas must be drawn for the ecosystem and not only for the owner [10]. Business model innovation research adds two warnings that recur in the Indonesian cases. Chesbrough argues that a technology in search of a business model destroys value, because firms experiment too little with capture mechanisms and default to familiar ones [11]. Foss and Saebi, reviewing fifteen years of innovation research, find that novelty in one block without coherence across the others rarely produces performance effects [12].

The canvas also disciplines the cost side of the analysis, which metaverse ventures chronically understated during the launch wave. Key resources for a world operator are not only rendering technology and content libraries but also the moderation, identity, and payment trust systems without which commerce cannot occur, and key activities include continuous world operation and community management rather than one time software delivery. Cost structures are therefore dominated by fixed and semi fixed operating expenditure, which means revenue models must be judged on their ability to generate recurring income against a permanent cost base. This is the analytical reason subscriptions, service contracts, and commissions rank differently from one time asset sales in the viability assessment that follows: only the first group matches the temporal shape of the costs. A launch financed as a capital project but operated as a permanent service is, in canvas terms, a model with a missing revenue block, and several Indonesian initiatives examined below displayed exactly that asymmetry between their announcement budgets and their operating income [9], [10].

Platform economics explains why the revenue side of the canvas looks unusual in virtual worlds. Rochet and Tirole show that platforms serving two sided markets compete on price structure rather than price level: one side is subsidised, sometimes to zero, so that the other side will pay for access to it [13]. In metaverse terms, users are frequently the subsidised side, recruited with free entry and free assets, while brands, advertisers, developers, and merchants form the paying side. The revenue typology that results from combining the canvas with platform theory contains seven mechanisms documented in the literature and cases: direct sales of virtual goods and tokenised assets; sales and leasing of virtual real estate; advertising and paid brand experiences; subscriptions and access fees; game based earnings and play to earn distributions; business to business services, including training, simulation, and digital twins; and commissions charged on transactions between third parties. Each mechanism is examined in turn, and each is then tested against Indonesian conditions.

3. Virtual Goods, Non-Fungible Tokens, and Virtual Real Estate

The oldest metaverse revenue mechanism is the sale of designed digital objects. Kaplan and Haenlein documented how firms in Second Life sold virtual products, rented virtual

land, and charged for services, and they identified virtual product sales as a direct extension of electronic commerce into synthetic environments [14]. Demand side research explains why buyers pay for objects that cost almost nothing to reproduce. Studying free to play environments, Hamari found that attitudes toward virtual goods and social norms strongly predict purchase intention, while enjoyment alone does not, which implies that virtual goods are bought largely as social and identity signals rather than as functional items [15].

Blockchain tokenisation added two features to this old model: verifiable scarcity outside the platform's own database, and a secondary market on which the platform or creator can collect resale royalties. Empirical finance research on tokenised virtual land shows how speculative this layer became. Ante, Wazinski, and Saggu surveyed retail investors in digital real estate and identified aesthetics and identity, social community, speculation and investment, and technology enthusiasm as distinct motivations, with speculation prominent among recent buyers [16]. Dowling's pricing analysis of non-fungible tokens found pricing inefficiency consistent with an immature, sentiment driven market [17]. Governance research on Decentraland shows that even decentralised worlds require funded administration, and that token based voting concentrates influence in large holders [18]. Belk, Humayun, and Brouard characterise the resulting environment as a wild market in which ownership claims are socially powerful but legally and institutionally thin [19].

For Indonesia, this mechanism carried the highest risk. Tokenised assets intersect with domestic rules that treat crypto assets as tradable commodities rather than legal payment instruments, and virtual land has no enforceable property status under Indonesian land law. The revenue was real during the speculative peak, but it depended on continuous price appreciation and on global exchanges rather than on Indonesian consumer demand. When global token prices fell through 2022 and 2023, the local business case for virtual asset sales as a primary model fell with them, a pattern consistent with the speculative motivation documented in the investor research [16], [17].

4. Advertising, Brand Experiences, and Virtual Commerce

The second mechanism treats the virtual world as a media channel. Barrera and Shah's conceptual framework for marketing in the metaverse distinguishes value creation through immersion, gamification, and virtual influencers, and argues that brands buy access to attention and data rich interaction rather than to virtual shelf space [20]. Kim's research agenda for advertising in the metaverse similarly identifies measurement, avatar mediated persuasion, and virtual product placement as the field's central commercial questions [21]. Kaplan and Haenlein had already placed advertising and communication first among corporate uses of virtual social worlds, ahead of direct sales, because audiences were present before payment infrastructure was [14].

A fast growing hybrid of this mechanism is virtual commerce, in which sponsored worlds and live streamed selling converge. The regional data show why Indonesian brands find the format attractive: the e-Conomy SEA 2024 report by Google, Temasek, and Bain, analysed in detail in the readiness section below, records that video commerce had risen to about one fifth of Southeast Asian e-commerce gross merchandise value, a more than fourfold increase in share since 2022, as creator led live selling became a mainstream channel. A metaverse showroom is, commercially, an attempt to own a persistent version of that live commerce stage, in which the audience returns between campaigns and the

brand accumulates a virtual place rather than renting attention campaign by campaign. The economics remain those of advertising, fees paid from marketing budgets for produced experiences and audience access, but the asset persists, which improves the return on production cost across repeated events [20], [21].

Experience industries show the model at its most plausible. Buhalis, Leung, and Lin argue that the metaverse disrupts tourism marketing by letting destinations sell immersive previews and blended physical and virtual experiences, converting attention into bookings in the real economy [22]. Gursoy, Malodia, and Dhir map the same logic for hospitality, where virtual showrooms, events, and loyalty experiences are paid for from marketing budgets rather than expected to generate standalone profit [23]. The canvas reading is instructive: in this model the customer segment is the brand, the value proposition is engagement that two dimensional media cannot deliver, and the revenue stream is a business to business marketing fee. Profitability therefore does not require mass consumer adoption of headsets; it requires only that sponsored experiences reach a valuable audience often enough to justify their production cost, which is why this mechanism survived the cooling of consumer hype better than asset speculation did.

5. Subscriptions, Access Fees, Gaming, and Play to Earn

The third cluster monetises participation itself. Subscription and premium membership models are the virtual world descendants of software licensing: users pay recurring fees for status, storage, creation tools, or enhanced capabilities, while a free tier sustains the population that makes the world socially valuable, exactly the asymmetric pricing that two sided market theory predicts [13]. Gaming worlds add item shops and season passes, and the purchase research shows that continued use and favourable attitudes toward virtual goods, rather than raw enjoyment, drive this spending [15]. These models are unglamorous but produce the steadiest revenue in the sector, because they charge for ongoing services instead of one time asset appreciation.

Play to earn inverted the model by paying users in tokens for gameplay and letting them sell those earnings. Its collapse as a mainstream proposition is instructive for Indonesia, where it was marketed heavily to young, income seeking users. The model contained a structural contradiction: player earnings were funded by new entrants buying tokens and characters, so payouts depended on perpetual growth in demand for the game's assets, the same speculative dynamic that the token pricing literature documents [17], [19]. Once token prices fell, earnings dropped below local informal wage alternatives and participation contracted. The balanced conclusion is not that game based models fail in Indonesia, whose games market is among the region's largest, but that the viable form is conventional: free entry, cosmetic and convenience purchases, and esports and creator ecosystems, with token payouts treated as a marketing expense rather than as the product.

6. Business to Business Services, Training, and Digital Twins

The fourth mechanism sells immersive capability to organisations rather than to consumers. Its technical core is the digital twin. Jones and colleagues, synthesising the literature, characterise the digital twin as a coupled virtual representation updated across the physical asset's life cycle [24]. Kritzinger and colleagues distinguish true twins, with two way data integration, from digital models and shadows, a distinction that matters commercially because integration depth determines what clients will pay for [25]. Mueller and colleagues showed earlier that virtual worlds can function as knowledge management platforms supporting distributed collaboration, which is the organisational

logic behind virtual training, onboarding, and simulation services [26]. Artificial intelligence strengthens this segment, since the survey by Huynh-The and colleagues documents AI methods for content generation, avatar behaviour, and network optimisation inside metaverse systems [27].

The public sector is a distinctive part of this demand in Indonesia. Government is simultaneously a buyer of training and simulation, a producer of digital showcases, and the sponsor of the new capital Nusantara, whose virtual representation was itself launched as a national showcase in the Jagat case examined below. Digital twins of ports, industrial estates, toll roads, and the new capital's districts fit naturally into infrastructure planning and maintenance workflows, where the twin's value is realised in avoided site visits, safer rehearsal of dangerous procedures, and better coordination among contractors [24], [25]. Education and vocational training form a second institutional market: universities and training providers can license immersive modules per cohort, converting the model into a subscription like service with predictable renewal. These institutional variants matter for the Indonesian assessment because they are denominated in rupiah, procured through ordinary budgets, and insulated from the consumer attention cycle that undermined the entertainment led initiatives.

In canvas terms this is the most conventional model in the paper: an identifiable enterprise customer, a measurable cost saving or risk reduction, contract based recurring revenue, and no dependence on consumer fashion. Indonesian demand conditions support it. A large manufacturing base, state owned enterprises with geographically dispersed operations, and a national infrastructure programme create buyers for simulation, safety training, and virtual inspection. Telkom's own positioning of metaNesia toward enterprise and institutional clients, and the participation of state owned firms in the cases below, reflect this pull. The constraint is capability rather than demand: delivering twins and training systems requires specialised integrators, and the domestic vendor ecosystem around WIR Group and smaller studios is still thin.

7. Platform Commissions and Ecosystem Orchestration

The fifth mechanism is the platform owner's rent. Whoever operates the world can charge commissions on marketplace transactions, fees for listing and discovery, charges for currency conversion, and revenue shares on complementor sales. Schobel and Leimeister's ecosystem analysis explains the governance task behind the rent: owners must keep complementors productive and consumers present simultaneously, and orchestration failures show up as empty worlds that no commission schedule can rescue [6]. Interoperability is the contested variable. Park, Wilson, Robson, Demetis, and Kietzmann argue that Web3 interoperability promises portable assets and identity, but that portability also threatens the closed garden economics from which commissions are drawn, leaving platform owners strategically ambivalent [28]. Kshetri notes that Web 3.0 positioning lets organisations reframe brand and product strategy around such ecosystems, while warning that the supporting institutions remain immature [29].

The comparative evidence from the defining case of the era is sobering. Kraus and colleagues analysed Facebook's transformation into Meta and concluded that the change was an incremental transformation of an advertising business model rather than a radical new one: value capture remained advertising and hardware assisted ecosystem control, dressed in metaverse language [30]. For Indonesian platform aspirants the implication is direct. Commission models require transaction volume that only a handful of global

platforms possess. A domestic platform without that volume earns more by charging orchestration and integration fees to enterprise and government clients, which is a services model, than by waiting for marketplace commissions that may never reach scale.

8. Indonesia's Readiness: Demand, Devices, Payments, and Regulation

Indonesia's demand fundamentals are strong. The Indonesian Internet Service Providers Association reported 221.56 million internet users in 2024, a penetration rate of 79.5 percent of the population [31]. The e-Conomy SEA 2024 report by Google, Temasek, and Bain estimates Indonesia's digital economy at approximately 90 billion United States dollars in gross merchandise value in 2024, the largest in Southeast Asia, with digital payments transaction value far exceeding commerce value and indicating deep payment digitisation [32]. A young, mobile native population and the world's fourth largest national market give any consumer platform an unusually large test bed.

Three readiness gaps qualify this picture. The first is hardware. Immersive models designed around dedicated virtual reality headsets confront low household penetration of such devices and high import prices, while the overwhelming majority of Indonesian digital activity occurs on mid range Android phones. Successful local designs therefore treated the headset as optional: metaNesia was explicitly accessible through ordinary computers without a virtual reality headset, and Jagat was a phone based social application. The second gap is willingness to pay for virtual experiences as such. Indonesian consumers pay readily inside games and social platforms, but the purchase motivations documented in the literature, identity display and social belonging [15], [16], are served equally well by incumbent global platforms with far larger social graphs. The third gap is regulatory incompleteness. There is no Indonesian metaverse specific regulation; virtual asset activity sits between commodity trading rules for crypto assets, electronic system operator registration under the Ministry of Communication and Digital Affairs, the Personal Data Protection Law Number 27 of 2022, and sectoral supervision. In banking, the Financial Services Authority publicly adopted a study first posture toward metaverse banking in early 2022 and prepared no dedicated regulation, which left bank initiatives in a promotional and exploratory category rather than a transactional one. Regulatory incompleteness does not prohibit business, but it raises the risk premium on models that require regulated transactions, and lowers it on models, such as marketing and training services, that operate inside existing rules.

9. Documented Indonesian Cases

Telkom Indonesia launched metaNesia at the Digiland 2022 event in Jakarta, inaugurated by the Minister of State Owned Enterprises, positioning it as Indonesia's first metaverse platform under the Leap Telkom Digital umbrella [33]. Its design choices reveal its intended model. Access required only a downloaded application for Windows and Mac computers, with no headset and no wallet needed for exploration; early content consisted of virtual concerts by Indonesian artists, an esports arena developed with the Indonesian esports federation's Garudaku platform, a virtual mall in which small and medium enterprises could display and sell merchandise, a Honda virtual test drive experience with an automotive partner, and institutional showcases such as a virtual replica of Istiqlal Mosque and forestry content with the state forestry company Perhutani [33]. In canvas terms metaNesia is an orchestrated B2B2C platform: Telkom supplies infrastructure and audience access, state owned and corporate partners supply content and pay in partnership and production arrangements, small enterprises are the subsidised side recruited for

legitimacy and supply breadth, and end users are charged little or nothing. Its revenue logic is therefore closest to the advertising and brand experience mechanism combined with enterprise services, not to virtual asset sales.

WIR Group, an Indonesian augmented and virtual reality developer listed on the Indonesia Stock Exchange, promoted the complementary supply side play. Its Nusameta ecosystem was presented as a locally rooted Indonesian metaverse, and at the B20 and G20 exhibitions in Bali in 2022 its pavilion hosted virtual booths and avatar based experiences for partners including Bank Mandiri, BNI, BRI, Alfamart, Kalbe's Hydro Coco, Nutrifood's Tropicana Slim, and Pegadaian [34]. The banking agreements show the demand side of that exhibition economy. In March 2022 BRI became the first Indonesian bank to sign a memorandum of understanding with WIR Group to develop banking services in the metaverse, and BNI signed a similar commitment, stating its intention to build a digital business ecosystem in Metaverse Indonesia, including a virtual presence for banking services, while Bank Mandiri participated through the Nusameta pavilion [35]. Contemporary reporting is candid about the stage of these projects: they were channel experiments and brand positioning, launched while the financial regulator had prepared no metaverse banking rules [35]. The banks' model was therefore marketing expenditure and strategic option value, the purchase of a learning position in a possible future channel, financed from innovation budgets rather than from expected transaction revenue.

Jagat represents the consumer social variant. Launched on 28 October 2022 and inaugurated by President Joko Widodo, the platform offered a social metaverse centred on a virtual Ibu Kota Nusantara, the future capital, with plans for virtual land tokenisation, concerts, exhibitions, and sports in the virtual city [36]. Jagat's later trajectory is equally documented and analytically valuable: the company pivoted toward location based social features, and its treasure hunt game Koin Jagat drew official warnings in early 2025 after crowds damaged public facilities in several cities, prompting the Ministry of Communication and Digital Affairs to summon the developer [36]. The episode demonstrates both the real engagement power of gamified virtual and physical hybrids in Indonesia and the reputational and regulatory exposure that incentive driven mechanics create when the incentive, rather than the experience, becomes the product.

Comparing the three cases across the canvas sharpens the diagnosis. The cases share the same subsidised side, Indonesian end users charged nothing, and the same key resource problem, the absence of an installed base of immersive hardware. They differ in who pays and why. In metaNesia the paying side is Telkom itself and its state owned and corporate partners, purchasing national digital leadership, partner content, and enterprise positioning [33]. In the WIR Group configuration the paying side is the complementors, banks, retailers, and consumer brands buying pavilion presence, production services, and association with a government endorsed national project [34], [35]. In Jagat the intended paying side was the users and virtual land buyers of a consumer social world, supplemented by brand events [36]. The first two configurations had identifiable payers from the day of launch, because their revenue blocks were filled by contracts and budgets that existed outside the virtual world. The third depended on revenue that had to be created inside the world, from land value and user spending that only exist if the world succeeds, which is the circular configuration most exposed to the speculative cycle [16], [19]. This contrast, rather than any difference in technology quality, best explains the cases' different trajectories.

10. Why Early Initiatives Stalled, and Which Models Remain Viable

Read together, the cases and the literature support a consistent explanation of the post 2022 cooling. First, several initiatives were launched as ecosystem announcements before their revenue blocks were specified, the precise failure mode that business model innovation research predicts: novelty concentrated in the value proposition, with customer relationships, channels, and capture mechanisms left as intentions [11], [12]. Second, the subsidised side never reached critical mass on domestic platforms, because the consumers Indonesian platforms needed were already inside global games and social applications whose virtual goods, identities, and friendship networks could not be ported across, the interoperability dilemma in practical form [28]. Third, models that depended on asset appreciation imported the volatility documented in the token pricing literature [16], [17]. Fourth, the absence of dedicated regulation kept regulated institutions in demonstration mode [35]. Fifth, the global patron of the concept redirected its own strategy toward artificial intelligence, and Kraus and colleagues' finding that even Meta's model remained incremental [30] removed the competitive pressure on Indonesian firms to maintain metaverse programmes for fear of being left behind.

The viability ordering that follows is the paper's central result. Most viable in Indonesia today are business to business services, including training, simulation, and digital twins, because they monetise measurable organisational savings and fit existing procurement and regulation [24], [25], [26]. Next are advertising and brand experience production services, which charge marketing budgets for scarce creative capability and do not require mass headset adoption [20], [22], [23]. Third are conventional game and social platform models, free entry with cosmetic, convenience, and community purchases inside mobile first products, which match documented Indonesian consumer behaviour [15]. Platform commissions become viable only for operators that already control large transaction flows, a condition no domestic metaverse platform currently meets [6], [13]. Least viable as primary models are virtual land and token sales to retail buyers, whose returns depended on speculative appreciation and whose legal footing in Indonesia remains that of commodity trading rather than property [16], [17], [19]. This ordering also defines the policy agenda: interoperable identity and payment standards, clear treatment of virtual asset consumer protection, and procurement demand for domestic immersive services would each strengthen the viable end of the ordering without subsidising its speculative end.

This study has limitations. It relies on public documentation, and Indonesian firms do not publish metaverse segment revenue, so the analysis evaluates revenue logic and documented activity rather than audited financial outcomes. Press coverage of launches is fuller than coverage of quiet discontinuations, which may flatter the durability of the cases. The literature base, while drawn mainly from major publishers, reflects a field whose empirical record is still short. These limits argue for follow up interview and financial disclosure research as Indonesian immersive ventures mature.

CONCLUSION

This paper mapped the business and revenue models of the metaverse and tested them against Indonesian conditions and documented local cases. Seven mechanisms organise the field: virtual goods and token sales, virtual real estate, advertising and brand experiences, subscriptions and access, gaming and play to earn, business to business services including digital twins, and platform commissions. Indonesia offers exceptional

demand fundamentals, with 221.56 million internet users and Southeast Asia's largest digital economy, but its mobile first, price sensitive market and incomplete regulatory framework reward some mechanisms and punish others. The documented trajectories of metaNesia, the WIR Group and state bank initiatives, and Jagat show that models financed by enterprise budgets and marketing expenditure endured, while models dependent on speculative virtual asset appreciation and on headset based mass adoption stalled once global token prices and attention moved on. For managers, the practical conclusion is to sell immersive capability to organisations and audiences that already have budgets, using the Business Model Canvas discipline of specifying every revenue block before launch. For policymakers, it is to build the standards, payment interoperability, and consumer protection that strengthen service based models. The metaverse in Indonesia is therefore best understood not as a failed wave but as a sorting process, in which durable business models are separating from promotional ones.

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