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Personal Data Monetization in the Digital Economy

Yuyun P. Rahayu¹, Oktafiana Akmal², Yuni Shara³

Universitas Papua, Indonesia¹

Politeknik Cendana^{2,3}

Email: yp.rahayu@unipa.ac.id

Entered : 31 June 2026
Accepted : 14 July 2026

Revised : 21 July 2026
Published : 28 July 2026

ABSTRACT

Personal data has become one of the most contested resources of the digital economy: it generates substantial economic value for platforms and intermediaries, while raising persistent questions about privacy, consent, and fairness. This article examines personal data monetization by combining an economic-opportunity perspective with a critical exploitation perspective, addressing a gap in the literature, which tends to treat these two views in isolation. Using a qualitative, literature-based method, twenty-five peer-reviewed and indexed sources published between 2021 and 2026 were analyzed through thematic-comparative synthesis, combining a reference collection assembled by the researcher with five additional sources located independently through recent, DOI-verified academic literature. The novelty of this study lies in its dual-lens analytical framework, which positions data monetization simultaneously as a legitimate economic asset and as a site of structural power asymmetry between platforms and data subjects, and in its comparative reading of global practice against Indonesia's Personal Data Protection Law. Findings show that monetization models range from targeted advertising and data brokerage to consent-based data marketplaces and privacy-preserving technical architectures, each carrying distinct opportunity and risk profiles. Regulatory frameworks such as the GDPR and Indonesia's PDP Law reduce, but do not eliminate, exploitative practices, particularly where consent remains structurally asymmetric. The article concludes that sustainable data monetization requires embedding fairness, transparency, and data-subject agency into market design itself, rather than treating compliance as a sufficient safeguard.

Keywords: personal data monetization; digital economy; data commodification; data protection regulation; Indonesia UU PDP

INTRODUCTION

The last decade has witnessed the rapid datafication of everyday life. Every search query, purchase, location check-in, social media interaction, and biometric login generates a trace that can be captured, stored, and analyzed. What was once an incidental byproduct of digital services has, over the past ten years, become a core input of production in its own right: personal data is now routinely described in industry and policy discourse as "the new oil," a strategic asset that fuels advertising markets, credit scoring, insurance underwriting, product personalization, and increasingly, artificial intelligence systems. Ofulue and Benyoucef (2024) trace how the concept of "data monetization" moved from a peripheral IT practice into a mainstream business strategy, while Kvalvik et al. (2026) show that data now exhibits the economic traits of an asset class, being measured, valued, and traded much like financial instruments, even though it lacks the physical scarcity that traditionally underpins asset value. Birch, Cochrane, and Ward (2021) go further, arguing that Big Technology firms actively construct data as an asset through accounting conventions, valuation practices, and corporate governance

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structures, rather than simply discovering a pre-existing economic property of information.

This transformation is inseparable from the broader architecture of the digital economy. Platforms such as social media networks, e-commerce marketplaces, ride-hailing applications, and digital financial services operate on a two-sided or multi-sided business logic: free or subsidized services are offered to users in exchange for behavioral data, which is subsequently monetized through targeted advertising, data brokerage, or algorithmic personalization (Quach, Thaichon, Martin, Weaven, & Palmatier, 2022). Güngör (2025) estimates that data-driven advertising and analytics now constitute one of the fastest-growing revenue segments within digital-first economies, and Utami (2026) documents how, in emerging digital economies such as Indonesia, data monetization is increasingly treated by both start-ups and established firms as a distinct revenue stream rather than a mere operational by-product. From this vantage point, data monetization represents an economic opportunity: it lowers the cost of digital services, enables more precise matching between supply and demand, supports financial inclusion through alternative credit-scoring models, and creates new markets in which individuals can, in principle, participate as data suppliers rather than passive subjects (Scheider, Lauf, Geller, Möller, & Otto, 2023; Kumar & Brij, 2025).

Yet an equally substantial body of scholarship frames the same phenomenon through the lens of commodification and exploitation. Mattiello (2025) argues that the apparent "freeness" of digital services conceals significant hidden costs borne by users, including the erosion of privacy, exposure to manipulation, and the loss of control over one's own informational identity. Bilić and Žitko (2024) describe personal data as a form of "pseudo-property": something treated as ownable and tradeable in commercial practice, yet lacking the legal clarity, symmetry of bargaining power, and enforceable rights that genuine property normally carries for its holder. Nachtwey and Schaupp (2024) extend this critique by conceptualizing platform interactions as a form of value-generating labor that is rarely recognized or compensated as such, echoing older debates about unpaid digital labor now recast in monetary and platform-economic terms. Roitman, Moon, and Lin (2025) similarly question whether the value extracted from user data by platforms is proportionate to the value returned to users, suggesting that the current arrangement systematically favors platform owners over data subjects. These critiques converge on a common concern: that data monetization, left unregulated, tends to reproduce and even deepen existing power asymmetries between large data-holding institutions and the individuals whose data sustains them.

Regulatory responses have attempted to reconcile these two narratives. The European Union's General Data Protection Regulation (GDPR), enforced since 2018, established consent, purpose limitation, and data-subject rights as binding legal requirements across the European market. Economic evaluations of the GDPR present a mixed picture: Goldberg, Johnson, and Shriver (2024) find that the regulation measurably reduced website revenue and user tracking in the European Union, Aridor, Che, and Salz (2023) show that opt-in consent requirements reduced the pool of trackable consumers while making the remaining, consenting consumers more valuable and more predictable to advertisers, and Frey and Presidente (2024) report that GDPR compliance imposed a meaningful cost burden on firms targeting European consumers, disproportionately affecting technology firms and smaller companies. Taken together, this literature suggests that regulation can curb, but does not eliminate, the underlying economic incentives toward aggressive data monetization; firms adapt their business models and compliance strategies rather than abandoning data-driven revenue altogether. In Indonesia, Law No. 27 of 2022 concerning Personal Data Protection (Undang-Undang

Pelindungan Data Pribadi, or UU PDP) represents a comparable, if more recent, legal milestone. Yuniarti, Ramli, Rosadi, and Budhijanto (2023) document how the law consolidates previously fragmented sectoral regulations into a single framework, imposing obligations on data controllers and processors and introducing both administrative and criminal sanctions for non-compliance. However, the law's transition period only concluded in October 2024, its implementing regulations and independent supervisory authority remain in the process of formation, and enforcement capacity in a large, digitally diverse economy such as Indonesia's continues to lag behind the pace of platform-driven data collection. Singh and Simon (2025), examining a comparable emerging-economy context in India, reach a parallel conclusion: market-oriented data protection frameworks in developing digital economies tend to formally recognize data-subject rights while leaving significant gaps in practical enforcement and in mechanisms for individuals to capture a fair share of the value generated from their own data.

Despite the breadth of this literature, three gaps remain evident. First, most economic and business-oriented studies of data monetization (for example, Zhang, Yue, Yu, & Zhang, 2023; Han, Lucas, Aguiar, Macedo, & Wu, 2023; Levin & Levin, 2024) analyze monetization primarily from the standpoint of platform strategy and market design, with comparatively limited engagement with the socio-legal and ethical literature on commodification and exploitation. Second, socio-legal and critical studies (for example, Mattiello, 2025; Nachtwey & Schaupp, 2024; Bilić & Žitko, 2024) offer rich conceptual critique but rarely translate their arguments into a comparative assessment of concrete market models or regulatory instruments across different economies. Third, much of the empirical regulatory evidence available - particularly on the GDPR - is concentrated in mature, high-income economies, leaving the specific dynamics of emerging digital economies such as Indonesia comparatively under-examined, even though these economies exhibit some of the fastest-growing rates of internet adoption and platform-based data collection worldwide.

This article addresses these gaps and offers three specific contributions. First, it develops a dual-lens analytical framework that integrates the economic-opportunity perspective and the critical-exploitation perspective within a single, coherent analysis, rather than presenting them as competing paradigms. Second, it constructs a structured typology of personal data monetization models, mapping each model against its dominant beneficiary, its economic opportunity, and its associated exploitation risk, thereby operationalizing an otherwise abstract debate into a comparative analytical tool. Third, it situates this typology within a comparative reading of global regulatory practice, principally the GDPR, against Indonesia's UU PDP, offering an emerging-economy perspective that remains comparatively scarce in the existing literature. In doing so, this study aims to answer a central question that motivates the present analysis: is personal data monetization best understood as a genuine economic opportunity, a new form of exploitation, or, as the evidence more precisely suggests, a contested and asymmetrically governed space that can move toward either outcome depending on market design and regulatory choices. The remainder of this article proceeds as follows: the next section outlines the qualitative, literature-based method used to select and analyze the twenty-five sources underpinning this study; the following section presents the results and discussion, organized around the typology of monetization models and the comparative regulatory analysis; and the final section offers concluding remarks, practical implications, and directions for future research.

METHODS

This study employs a qualitative, literature-based research design, combining a structured reference review with thematic-comparative synthesis. The design is appropriate for the research problem because the central question - whether personal data monetization functions as an economic opportunity, a form of exploitation, or a contested space shaped by regulatory design - is conceptual and evaluative in nature, requiring the integration of arguments distributed across economics, information systems, law, and media studies rather than the generation of new primary data.

The source pool for this study was built in two stages, illustrated in Figure 1. In the identification stage, an initial reference collection of academic sources indexed through Consensus/Scopus-linked databases was compiled by the researcher, covering the keywords "personal data monetization," "data economy," "data commodification," and "data privacy." This collection was supplemented with additional sources located independently by the researcher through Google Scholar, restricted to publications from the last five years (2021-2026) with an active, resolvable Digital Object Identifier (DOI), in order to ensure both recency and verifiability. In the screening stage, duplicate records were removed and remaining records were screened by title and abstract for topical relevance. In the eligibility stage, full texts were assessed against four inclusion criteria: (1) publication in a peer-reviewed or otherwise indexed academic outlet; (2) publication between 2021 and 2026; (3) an active DOI resolvable through standard academic search tools; and (4) substantive thematic relevance to at least one of the three analytical themes used in this study - data as an economic asset, monetization market models, or privacy risk and exploitation. Sources addressing data monetization only in a purely technical (non-economic, non-social) sense, without engaging value, market, or governance questions, were excluded.

This process yielded a final set of twenty-five sources for inclusion (Figure 1), comprising twenty sources drawn from the researcher's compiled reference collection and five additional sources located independently, spanning economics, information systems, law, and media and communication studies, and published in outlets such as the *Journal of the Academy of Marketing Science*, *Electronic Markets*, *Big Data & Society*, *Management Science*, the *American Economic Journal: Economic Policy*, the *RAND Journal of Economics*, and the *Journal of Southwest Jiaotong University*, among others.

Analysis proceeded through thematic coding, in which each source was read in full and coded according to its primary contribution to one or more of the three analytical themes noted above. Sources were then read comparatively across two regulatory contexts - the mature regulatory environment represented chiefly by the European Union's GDPR, and the emerging regulatory environment represented by Indonesia's Personal Data Protection Law (UU PDP) - to identify convergences and divergences in how opportunity and exploitation manifest across different stages of regulatory development. This comparative reading forms the basis of the typology and discussion presented in the following section. As with any qualitative literature-based method, this design carries the limitation that findings are interpretive and synthesis-dependent rather than statistically generalizable; this limitation, and its implications for future research, is revisited in the concluding section

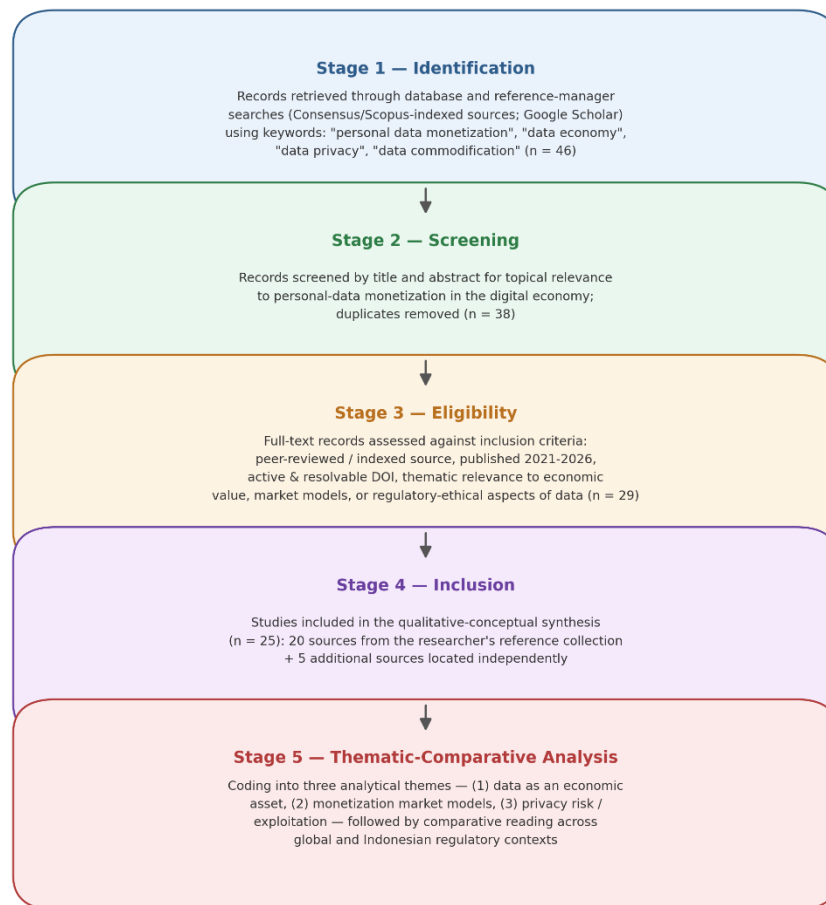


Figure 1. Conceptual Research Framework Linking Business Innovation, Entrepreneurship, Digital Transformation, and Economic Competitiveness.

RESULTS AND DISCUSSION

The thematic synthesis of the twenty-five reviewed studies reveals a coherent, though Thematic-comparative synthesis of the twenty-five sources produced three interlocking findings: (1) personal data functions as an economic asset, but one whose valuation remains structurally contested; (2) monetization occurs through a small number of recurring market models, each with a distinct opportunity-exploitation profile; and (3) regulatory frameworks in both mature and emerging digital economies reduce, but do not resolve, the underlying asymmetry between platforms and data subjects. Each finding is discussed in turn below, followed by a comparative reading of the global and Indonesian regulatory landscape.

Personal data as an economic asset

Across the reviewed literature, there is broad agreement that personal data now functions economically as an asset: it is collected, stored, valued, bundled, and exchanged in ways that closely resemble the treatment of financial or intellectual property assets (Kvalvik, Misra, Mishra, & Dash, 2026). Utami (2026) and Paskaleva (2024) both describe data monetization as an emergent revenue category distinct from a firm's core product or service revenue, while Birch, Cochrane, and Ward (2021) emphasize that this asset status is not a neutral economic fact but an outcome of active construction: firms develop internal governance structures, valuation methodologies, and accounting conventions that render data legible and tradeable as an asset in the first place. This constructed

character matters because it means the "value" attributed to personal data is neither fixed nor transparent - it depends on firm-specific modeling choices, on the bargaining position of the party doing the valuing, and on regulatory disclosure requirements that vary considerably across jurisdictions. Bilić and Žitko (2024) capture this ambiguity in their concept of data as "pseudo-property": commercially treated as an ownable, transferable resource, yet without the settled legal title, symmetrical information, or enforceable individual claims that characterize conventional property rights. The practical consequence is a persistent valuation gap: firms can estimate, with reasonable internal precision, the advertising or analytics value that aggregated user data generates, while individual data subjects typically have no comparable way to assess, let alone negotiate, the value of their own contribution to that aggregate.

Monetization market models

The reviewed literature converges on a recognizable set of monetization models, summarized in Table 1. Targeted advertising and behavioral profiling remain the dominant model, in which platforms monetize attention and behavioral inference rather than data itself, selling access to audience segments to advertisers (Quach, Thaichon, Martin, Weaven, & Palmatier, 2022). A second model, data brokerage and secondary-market resale, involves the sale or licensing of user data - often aggregated or pseudonymized - to third parties for purposes unrelated to the original data-collection context; Wu (2025) shows that consumers' willingness to share data in the first instance is measurably affected by whether they anticipate such secondary monetization, suggesting that secondary markets impose a hidden cost on primary data collection by eroding user trust. A third model, personal data marketplaces and data unions, inverts the conventional flow by allowing individuals to license their own data directly to interested buyers, in principle capturing a larger share of the value generated; Scheider, Lauf, Geller, Möller, and Otto (2023) map the design elements such marketplaces require - including standardized data formats, trusted intermediaries, and clear pricing mechanisms - to function at scale, while Galperti, Liu, and Perego (2024) model the competitive dynamics of such markets and show that market structure strongly affects whether data suppliers or data buyers capture the greater share of surplus value. A fourth model relies on privacy-preserving and cryptographic architectures, including blockchain-based tokenization and federated or on-device learning, to monetize data or its derived insights without transferring raw personal data to third parties; Sánchez, Alcarria, Ladid, and Machalek (2024) and Han, Lucas, Aguiar, Macedo, and Wu (2023) both demonstrate technical implementations in which value can be extracted from behavioral or industrial data while limiting direct exposure of identifiable personal information, representing one of the more promising directions for reconciling monetization with privacy protection. A fifth, more targeted model involves the monetization of specific behavioral data streams within particular sectors, such as banking transaction data or mobile application usage data (Jean & Lefrere, 2023; Zhang, Yue, Yu, & Zhang, 2023), where value is generated from highly granular, sector-specific inference rather than broad behavioral profiling.

Table 1. Typology of Personal Data Monetization Models

Model	Mechanism	Primary Beneficiary	Opportunity	Exploitation Risk	Representative Sources
Targeted advertising & behavioral profiling	Monetizes attention and behavioral inference; sells audience	Platform / advertiser	Free or low-cost services; personalized offers	Opaque profiling; manipulation; limited user awareness	Quach et al. (2022)

	segments to advertisers				
Data brokerage & secondary-market resale	Sale or licensing of (often aggregated) user data to third parties beyond the original collection context	Data broker / platform	Ancillary platform revenue; enables downstream analytics	Loss of context and control; erodes user trust; uncompensated data subjects	Wu (2025); Zhang et al. (2023)
Personal data marketplaces / data unions	Individuals license their own data directly to buyers via a trusted intermediary	Data subject (potentially)	Direct value capture by individuals; greater pricing transparency	Requires trusted intermediary and standardization; adoption barriers	Scheider et al. (2023); Galperti et al. (2024)
Privacy-preserving / blockchain & federated architectures	Monetizes derived insight without transferring raw personal data	Platform and data subject (shared)	Reduces exposure risk while retaining monetizable value	Technical complexity; limited scalability; still maturing	Sánchez et al. (2024); Han et al. (2023)
Sector-specific behavioral monetization (e.g., banking, mobile apps)	Monetizes granular, sector-specific usage or transaction data	Platform / financial institution	Tailored services; alternative credit-scoring innovation	Sensitive-data exposure; sector-specific regulatory gaps	Jean & Lefrere (2023); Kumar & Brij (2025)

Note. Compiled by the author from the reviewed literature (2021-2026).

As Table 1 illustrates, the opportunity and exploitation profile of each model is not fixed but depends heavily on governance design: the same underlying data can be monetized in a way that is broadly beneficial to data subjects (for example, a well-designed data union with transparent pricing) or in a way that is largely extractive (for example, opaque secondary resale without consumer awareness). This reinforces the article's central contention that data monetization should not be evaluated as a single undifferentiated phenomenon, but as a family of distinct market arrangements whose ethical and economic character is contingent on design choices and enforcement.

Exploitation, power asymmetry, and the limits of consent

A recurring concern across the critical literature is that formal consent mechanisms do not, by themselves, resolve the underlying power asymmetry between platforms and users. Mattiello (2025) argues that the "free" pricing of many digital services obscures a substantial non-monetary cost borne by users, including reduced autonomy over personal information and heightened exposure to manipulation through personalized content. Nachtwey and Schaupp (2024) extend this argument by framing routine platform interactions - likes, shares, searches, purchases - as a form of value-generating activity that is structurally similar to labor, yet almost never recognized, compensated, or even disclosed as such to the individuals producing it. Roitman, Moon, and Lin (2025) reach a related conclusion through a platform-economy lens, questioning whether the value that platforms extract from aggregated user data is proportionate to the value, in the form of free or subsidized services, that flows back to users. These

critiques do not necessarily reject data monetization outright; rather, they challenge the assumption, common in more market-oriented accounts, that consent-based data collection is automatically fair simply because a user has technically agreed to a set of terms. Where consent mechanisms are lengthy, difficult to parse, or effectively non-negotiable (a "take it or leave it" condition for accessing an otherwise essential digital service), the formal presence of consent does little to correct the substantive imbalance in bargaining power between an individual user and a large data-holding platform.

Comparative regulatory analysis: GDPR and Indonesia's UU PDP

The comparative reading of regulatory evidence reinforces this picture of partial, rather than complete, correction. In the European Union, economic evaluations of the GDPR since its 2018 enforcement show measurable market effects: Goldberg, Johnson, and Shriver (2024) find reduced website revenue and reduced user trackability following enforcement, Aridor, Che, and Salz (2023) document a reduction in the pool of trackable consumers alongside an increase in the average value of the remaining, consenting consumers to advertisers, and Frey and Presidente (2024) report a measurable profit decline for technology firms targeting European consumers, driven primarily by rising compliance costs rather than by lost sales. Read together, these findings indicate that the GDPR has shifted the economics of data monetization - raising its cost, reducing its scale in some segments, and altering which consumers are trackable - without eliminating the underlying commercial incentive to monetize data; firms have adapted their practices, and in some cases their technology investment, rather than exiting data-driven business models altogether.

Indonesia's UU PDP (Law No. 27 of 2022) follows a broadly similar regulatory logic - consent, data-subject rights, controller and processor obligations, and administrative and criminal sanctions - but occupies an earlier stage in its regulatory life cycle. Yuniarti, Ramli, Rosadi, and Budhijanto (2023) note that the law substantially strengthens Indonesia's personal-data governance relative to the fragmented sectoral regulations that preceded it, yet the law's implementing regulations and its independent supervisory authority remained in formation well after the transition period concluded in October 2024. Singh and Simon (2025), analyzing India's comparable Digital Personal Data Protection Act, observe a similar pattern in another large emerging digital economy: formal recognition of data-subject rights advances more quickly than the practical enforcement infrastructure and market mechanisms needed to let individuals capture a fair share of the value generated from their data. This comparative asymmetry suggests that emerging digital economies face a double challenge relative to mature markets - they must both build enforcement capacity and design market mechanisms (such as the data-union or marketplace models discussed above) largely from scratch, rather than adapting mechanisms already tested elsewhere, while their platform ecosystems continue to expand data collection at a rapid pace (Utami, 2026).

Taken together, these three findings support the article's dual-lens framework: personal data monetization is simultaneously a genuine, growing economic opportunity - visible in new revenue models, financial inclusion applications, and privacy-preserving technical innovation - and a persistent site of exploitation risk rooted in valuation opacity, weak practical consent, and uneven enforcement capacity, particularly in emerging digital economies such as Indonesia. Whether a given monetization arrangement tilts toward opportunity or exploitation appears to depend less on the presence of regulation per se, and more on the specific design of market mechanisms, the practical (not merely formal) strength of consent, and the maturity of enforcement institutions.

Implications for market design and policy

Two practical implications follow from this synthesis. First, for platform operators and data marketplace designers, the comparative evidence in Table 1 suggests that opportunity-oriented models - personal data marketplaces with transparent pricing, and privacy-preserving architectures that limit raw data exposure - are not merely more ethical but also more resilient to regulatory tightening, since they generate less of the compliance and reputational risk associated with opaque secondary resale (Han, Lucas, Aguiar, Macedo, & Wu, 2023; Sánchez, Alcarria, Ladid, & Machalek, 2024). Firms that continue to rely primarily on undisclosed secondary-market resale may find themselves increasingly exposed as consumer awareness and regulatory scrutiny both rise (Wu, 2025). Second, for policymakers, particularly in emerging digital economies still building enforcement capacity, the Indonesian and Indian comparisons suggest that formal legal recognition of data-subject rights should be paired with concrete market-facing mechanisms - certified data intermediaries, standardized valuation disclosure, and accessible dispute-resolution channels - rather than relying on consent and sanction provisions alone (Yuniarti, Ramli, Rosadi, & Budhijanto, 2023; Singh & Simon, 2025). Without such mechanisms, the gap between the formal right to data protection and the practical ability of individuals to benefit from, or meaningfully contest, the monetization of their data is likely to persist even as legislation matures on paper

CONCLUSIONS

This article set out to examine whether personal data monetization in the digital economy is best understood as an economic opportunity, a new form of exploitation, or something more contingent than either label alone suggests. Drawing on a thematic-comparative synthesis of twenty-five recent, DOI-verified academic sources, the analysis finds that both narratives capture part of a more complex reality. Personal data has become a genuine, actively constructed economic asset that underwrites a recognizable typology of monetization models - from targeted advertising and data brokerage to consent-based marketplaces and privacy-preserving architectures - each offering real economic opportunity, including lower-cost digital services, financial inclusion applications, and new income streams for data suppliers. At the same time, the same models carry persistent exploitation risk rooted in valuation opacity, structurally weak consent, and uneven enforcement, risks that regulatory frameworks such as the GDPR and Indonesia's UU PDP measurably reduce but do not eliminate. The comparative reading of mature and emerging regulatory contexts further shows that the gap between formal data-subject rights and their practical realization is especially pronounced in emerging digital economies, where enforcement institutions and market-facing mechanisms are still being built.

The study's dual-lens framework and monetization typology offer a modest but concrete contribution: they provide researchers, platform designers, and policymakers with a shared vocabulary for evaluating specific monetization arrangements on their own merits, rather than debating data monetization as a single, undifferentiated phenomenon. Practically, the findings suggest that sustainable data monetization depends less on the mere existence of regulation and more on how market mechanisms are designed - toward transparency, fair value distribution, and meaningful (not merely formal) consent.

As a literature-based, qualitative study, this article's conclusions are interpretive rather than statistically generalizable, and the twenty-five sources reviewed, while recent and diverse, cannot capture every national context or emerging business model. Future research would benefit from empirical, quantitative assessment of value distribution in personal data marketplaces, from primary studies of user understanding and bargaining

power under Indonesia's UU PDP as its implementing regulations mature, and from comparative work extending this framework to other emerging digital economies across Southeast Asia..

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