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Mapping the Juridical Debate on Personal Data Ownership and Contractual Freedom: A Bibliometric Analysis of Scopus-Indexed Literature (2013–2025)

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ABSTRACT

Legal scholarship on personal data is often described through two competing logics, fundamental-rights protection and property or contract. This study maps how the Scopus-indexed literature on personal data ownership and contractual freedom developed between 2013 and 2025. It applies bibliometric analysis and keyword co-occurrence mapping in VOSviewer to a corpus of 482 documents. Three findings emerge. First, publication output increased after the General Data Protection Regulation (GDPR) came into force in 2018, from 17 documents in 2017 to 32 in 2018 and 107 in 2025. The timing shows an association, and the design cannot show that the GDPR caused the increase. The documents come mostly from the United States, the United Kingdom, and continental Europe. Second, the co-occurrence map places GDPR and privacy keywords in a dense central area and property, ownership, and contract keywords in a smaller peripheral area, which indicates thematic separation between the two vocabularies. Third, the overlay map shows that keywords such as data governance, data sharing, digital assets, and ethical technology have more recent average publication years, which points to growing attention to economic value and governance in the academic discourse. Because the study analyses keywords and publication counts, it cannot show a change in legal doctrine. It offers a keyword-level map of the field, a documented screening procedure, a reading of Indonesia's Personal Data Protection Law (Law No. 27 of 2022) against the mapped debate, and an agenda for doctrinal research.
Keywords: *Personal Data Ownership; Contractual Freedom; Data Property; GDPR; Bibliometric Analysis.*

Kajian hukum tentang data pribadi kerap dijelaskan melalui dua logika yang bersaing, yaitu perlindungan hak fundamental dan logika properti atau kontrak. Penelitian ini memetakan perkembangan literatur terindeks Scopus tentang kepemilikan data pribadi dan kebebasan kontraktual pada periode 2013 hingga 2025. Analisis bibliometrik dan pemetaan ko-okurensi kata kunci dengan VOSviewer diterapkan pada korpus 482 dokumen. Ada tiga temuan. Pertama, jumlah publikasi meningkat setelah *General Data Protection Regulation* (GDPR) berlaku pada 2018, dari 17 dokumen pada 2017 menjadi 32 dokumen pada 2018 dan 107 dokumen pada 2025. Waktu kejadian ini menunjukkan asosiasi, dan desain penelitian tidak dapat membuktikan bahwa GDPR menyebabkan peningkatan tersebut. Dokumen terutama berasal dari Amerika Serikat, Inggris, dan Eropa kontinental. Kedua, peta ko-okurensi menempatkan kata kunci GDPR dan privasi di area tengah yang padat, sedangkan kata kunci properti, kepemilikan, dan kontrak berada di area pinggir yang lebih kecil. Pola

ini menunjukkan pemisahan tematik antara kedua kosakata. Ketiga, peta overlay memperlihatkan bahwa kata kunci seperti data governance, data sharing, digital assets, dan ethical technology memiliki rata-rata tahun terbit yang lebih baru, yang menandakan meningkatnya perhatian wacana akademik pada nilai ekonomi dan tata kelola. Karena yang dianalisis adalah kata kunci dan jumlah publikasi, penelitian ini tidak dapat menunjukkan perubahan doktrin hukum. Hasilnya berupa peta wacana tingkat kata kunci, prosedur penyaringan yang terdokumentasi, pembacaan UU Nomor 27 Tahun 2022 tentang Pelindungan Data Pribadi terhadap perdebatan yang dipetakan, dan agenda riset doktrinal.
Kata Kunci: *Kepemilikan Data Pribadi; Kebebasan Kontraktual; Properti Data; GDPR; Analisis Bibliometrik.*

A. INTRODUCTION

Legal scholarship on personal data has long rested on a rights-based framework. The European Union's General Data Protection Regulation (GDPR) is its clearest statutory expression. The regulation treats personal data as an extension of individual autonomy and personhood, and it restricts practices that would exploit the data subject or alienate identity. Many commentators describe the resulting regime as one that resists propertisation (Mantelero, 2017; Voigt & von dem Bussche, 2017; Purtova, 2018; Lynskey, 2015). The growth of the data economy has put pressure on that position. Data is often called the new oil, a resource that firms trade, monetise, and structure through contracts (Zech, 2016; Taylor et al., 2016; Birch et al, 2021). This raises a doctrinal question. Can personal data be conceptualised as property that markets can assign, transfer, and exploit, or does a regime of in personam rights such as the right to privacy remain the only defensible normative basis (Drexl, 2017; Schwartz, 2004; Floridi, 2014)?

Scholars have proposed ways to connect the two positions. Limited ownership, data stewardship, and functional property rights try to recognise economic value while keeping individual protection (Kerber, 2016; Determann, 2018). The literature on the GDPR and privacy ethics and the literature on property and contract law, which deals with alienability, exchange value, and the transactional structure of data, often develop in parallel (Custers & Malgieri, 2022; Malgieri & Custers, 2018; Cohen, 2019). Questions about meaningful consent and the limits of privacy self-management run through both bodies of work, and several authors treat them as central to the field (Solove, 2013; Solove, 2024).

Doctrinal analysis alone cannot show how a large body of literature is distributed across topics, countries, and time. Bibliometric methods can. They map collaboration, intellectual structure, and thematic development across many documents, and they complement a narrative review (Zupic & Čater, 2015; Donthu et al., 2021). Management and the social sciences use these methods widely. Applications to doctrinal legal scholarship remain uncommon.

Bibliometric work on data privacy and data protection already exists. Judijanto et al. (2024), for example, used VOSviewer to identify clusters around data security, legal frameworks, information privacy, and big data, and they noted that the legal standing of data remains under-explored. We did not find a bibliometric study that concentrates on personal data ownership and contractual freedom as a juridical debate, although a search of this kind cannot rule one out. This study therefore maps the structure and development of the Scopus-indexed literature on that debate for 2013 to 2025. Three research

questions guide it. RQ1: How have publication output and citation impact in this literature developed? RQ2: How are the keywords of the GDPR and privacy literature and of the property, ownership, and contract literature arranged in the co-occurrence network, and how strongly are the two groups separated? RQ3: How have the main themes changed over time in prominence and in their connections to other themes?

The study uses keyword co-occurrence analysis, network visualisation, and overlay mapping of the Scopus corpus. The maps describe the discourse in the literature. They do not test legal doctrine, and they do not establish causal relationships. We use them to see where the vocabularies of protection and of property and contract overlap and where they stay apart, and we read the results against the doctrinal literature.

The contribution is both substantive and methodological. Substantively, the article gives a documented, keyword-level picture of a literature that doctrinal work usually discusses in narrative form, and it proposes a research agenda. It also reads the Indonesian Personal Data Protection Law against the mapped debate. Methodologically, it shows how bibliometric mapping can support doctrinal legal research and states the limits of that use.

The question matters outside Europe. Indonesia enacted Law Number 27 of 2022 on Personal Data Protection (UU PDP), which aligns with the rights-based EU model in many respects while leaving open questions about institutional independence and supervisory authority (Widiatedja & Mishra, 2023; Rosadi et al., 2023). The Discussion reads the statute against the debate mapped here and looks at how it treats personal data, the rights of data subjects, ownership, and freedom of contract.

B. METHODS

This study uses a quantitative bibliometric design with science mapping. The design suits questions about the size, distribution, and thematic structure of a literature (Donthu et al., 2021). It has four phases: corpus construction, data refinement, bibliometric analysis and visualisation, and interpretation. Each phase is described below so that others can repeat it (Zupic & Čater, 2015).

The corpus comes from Scopus. We chose Scopus over Web of Science because its multidisciplinary coverage is broader, which helps capture legal writing that touches economics, technology policy, and business studies. The query combined terms for both conceptual poles, data protection and privacy on one side and property and contractual rights on the other. It was deliberately broad to maximise recall of documents at the intersection: TITLE-ABS-KEY (("personal data" OR "data protection") AND ("property" OR "ownership" OR "commodity" OR "economic value") AND ("private law" OR "legal framework" OR "contract*" OR "rights")). The search window ran from January 2013, in the drafting period of the GDPR, through 2025. The search was run in December 2025. Yearly and country counts in Figures 1 and 2 come from the Scopus analysis tool.

Screening had three stages, which Table 1 summarises. Stage 1 kept peer-reviewed journal articles and book chapters and excluded conference papers, editorials, notes, and other non-peer-reviewed material. Stage 2 removed documents whose primary Scopus subject area is Computer Science, Engineering, Mathematics, or Medicine, so that studies of data architecture and IT implementation stay out of the corpus. Stage 3 screened titles and abstracts. We kept a document when it analysed personal data ownership, property rights over data, or contractual arrangements over data from a legal, regulatory, or normative viewpoint. We excluded it when it dealt with technical design, IT security, or clinical data handling without legal or normative analysis. The authors

carried out the screening manually against these criteria. The refined corpus contains 482 documents.

Table 1. Corpus Construction and Screening Stages

Stage	Criterion	Result
Identification	Scopus query, TITLE-ABS-KEY, 2013–2025	Initial record set
Document type	Keep journal articles and book chapters; exclude conference papers, editorials, notes, and non-peer-reviewed material	Peer-reviewed documents
Subject area	Exclude primary subject areas Computer Science, Engineering, Mathematics, and Medicine	Documents in law, the social sciences, economics, and related areas
Title and abstract	Keep documents that analyse ownership, property, or contract over data from a legal or normative viewpoint	482 documents (final corpus)

We analysed the corpus in VOSviewer version 1.6.20, which builds and visualises bibliometric networks (Van Eck & Waltman, 2010). Its mapping and clustering algorithms are well validated in the bibliometric literature (Waltman, van Eck, & Noyons, 2010). For RQ1 we extracted annual publication counts, leading countries and affiliations, key source titles, and citation counts. Citation counts serve as a proxy for impact within the corpus. Scopus citation counts change over time, and Table 2 reports counts retrieved in December 2025. For RQ2 and RQ3 we used keyword co-occurrence analysis. The keyword field combined author keywords and indexed keywords. We set a minimum of 15 occurrences per keyword, about 3.1 percent of the 482 documents, which left 78 keywords that VOSviewer can display legibly. Keyword merging was incomplete. Figures 3 and 4 still contain variant pairs such as gdpr and general data protection regulation, cyber security and cybersecurity, or smart contract and smart contracts. We read such pairs together in the interpretation. The split lowers the recorded frequency of the affected concepts and may weaken their apparent links to other keywords.

We examined the keyword network in VOSviewer. Each node is a keyword and each link is a co-occurrence. Node size reflects frequency, and link thickness reflects link strength. The VOS layout (Visualization of Similarities) places keywords that often occur together closer to each other and weakly related keywords farther apart. Distance therefore indicates relative association within this corpus. It is not an absolute measure, the axes carry no meaning, and the layout depends on the algorithm's settings (Van Eck & Waltman, 2014). We treat distance and grouping as descriptive evidence of thematic proximity or separation. In the overlay mode, node colour shows the average publication year (APY) of the documents that contain the keyword, with cooler colours for earlier years and warmer colours for later years. Figures 3 and 4 use different colour scales, so we compare colours within a map only. For RQ3 we use APY to see which themes have a more recent profile and how they connect to other themes. APY describes when a keyword appears in the corpus on average. It does not show when a legal concept changed.

We read the maps against key doctrinal literature, including Purtova (2018), Zech (2016), and Drexl (2017). The interpretation keeps three levels apart: the bibliometric result (counts, positions, and colours), our reading of what the result suggests about the discourse, and the juridical implications. We draw the juridical implications from

doctrinal sources and the statute, not from the maps. VOSviewer was preferred over Bibliometrix because its network and overlay views suit the research questions.

C. RESULTS AND DISCUSSION

1. Results

a. Annual Publication Trends

Publication output increased over the period (Figure 1). From 2013 to 2017 it stayed low, between 7 and 17 documents a year, an average of about 13. In 2018 the count reached 32, almost double the 2017 figure. The GDPR came into force in 2018, and the rise coincided with it. The timing is consistent with increased scholarly attention to the field after the regulation (Hoofnagle et al., 2019). A publication count cannot show that the GDPR caused the rise, and other developments, such as the growth of the data economy, may have contributed. Output kept increasing after 2018, from 32 documents to 107 in 2025, more than three times as many. The largest single-year rise came between 2024 and 2025, and 2025 is the highest value in the corpus.

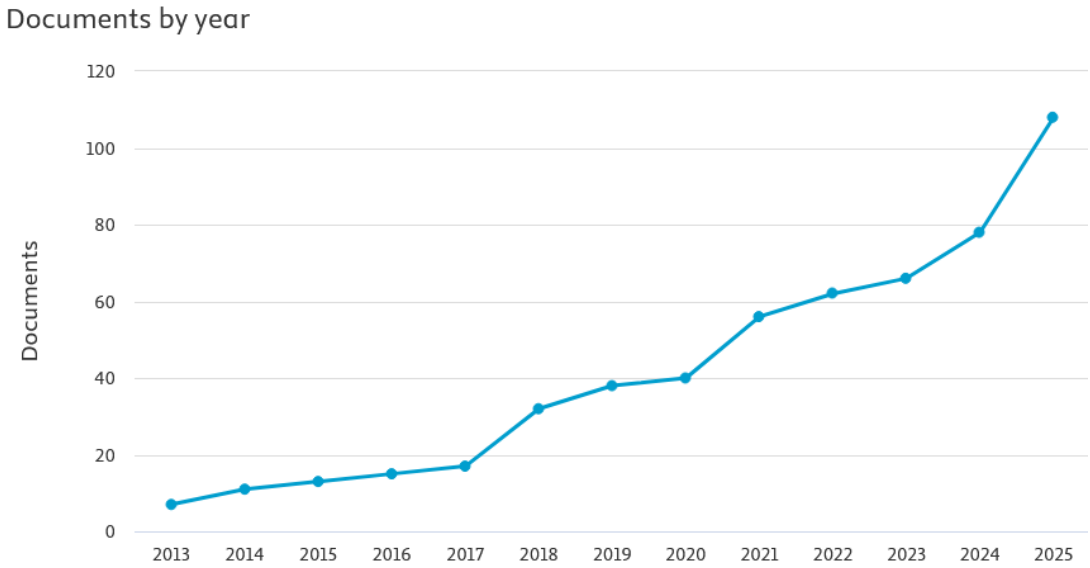


Figure 1. Annual publication trend, 2013 to 2025 (source: Scopus analysis tool)

b. Geographic Distribution

Figure 2 shows the ten leading countries or territories by number of documents. The United States (91 documents) and the United Kingdom (85) lead. Together they contribute 176 documents, more than Italy (47), Germany (40), and India (38) combined. The Netherlands (36), Australia (30), China (27), and Spain (23) follow, and 22 documents carry no country label. Continental European countries with civil-law traditions have a visible share. India and China are the only countries outside the Global North among the ten. The counts reflect author affiliation. They show where the documents come from and say nothing directly about the influence of a country's scholarship. The pattern suggests a debate shaped largely by authors based in the United States, the United Kingdom, and continental Europe.

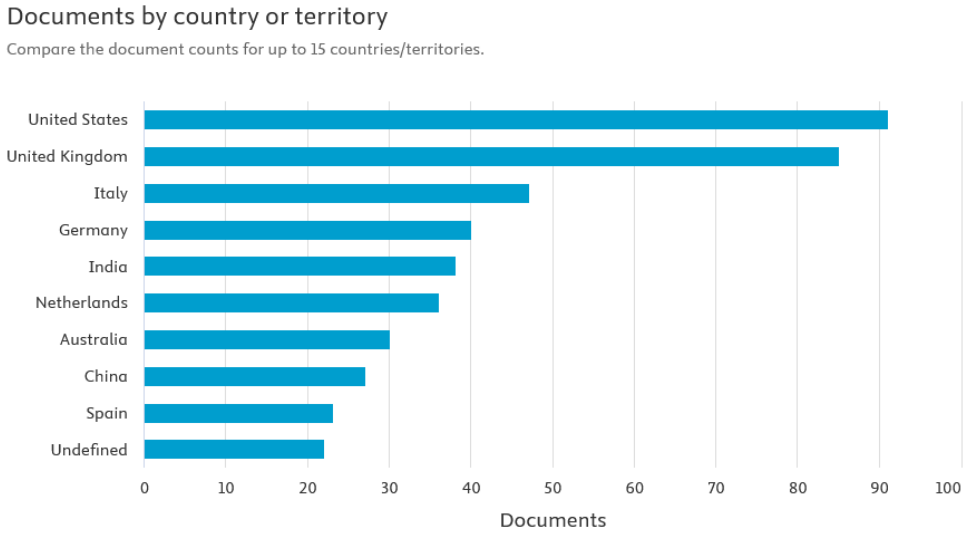


Figure 2. Ten leading countries or territories by number of documents (source: Scopus analysis tool)

c. Most Influential Authors: Productivity and Impact

At the level of individual authors, no single figure dominates. Christopher Millard is the most productive author with four documents, and four other authors have three documents each. No author has more than five documents, and the highest author h-index in the corpus is 14. Output and impact are spread across many scholars, which suggests contributions from several disciplines and jurisdictions.

d. Most Cited Documents

Citations are concentrated in a few documents (Table 2). The five most cited documents have more than 1,600 citations combined and cover several subjects: biomedical data ethics (Mittelstadt & Floridi, 2016), global data justice (Taylor, 2017), surveillance capitalism (Zuboff, 2019), a relational theory of data governance (Viljoen, 2021), and the risks of generative AI (Wach et al., 2023). We describe them as highly cited works within the corpus. Citation counts alone do not make them foundational to the ownership and contract debate, and no title among the five refers to ownership or contract. The list shows that the most cited documents come from ethics, social theory, and governance research more than from doctrinal work on property or contract.

Table 2. Five most cited documents in the corpus (Scopus citation counts retrieved in December 2025)

Author	Year	Title	Citations
Mittelstadt & Floridi	2016	The Ethics of Big Data: Current and Foreseeable Issues	412
Taylor	2017	What is Data Justice? The Case for Connecting Digital Rights and Freedoms Globally	387
Zuboff	2019	*The Age of Surveillance Capitalism*	305
Viljoen	2021	A Relational Theory of Data Governance	278
Wach et al.	2023	The Dark Side of Generative AI: A Critical Analysis of Controversies and Risks of ChatGPT	265

Synthesis for RQ1. Publication output increased after 2018, the year the GDPR came into force, and reached its highest value in 2025. Documents come mostly

from the United States, the United Kingdom, and continental Europe. Productivity is spread across many authors, and the most cited documents come mainly from interdisciplinary work on data ethics and governance.

e. Disciplinary Distribution and the Focus of the Debate

The distribution of documents by subject area shows the interdisciplinary character of the field. Social Sciences (45.4 percent) and Computer Science (15.1 percent) are the two largest areas, followed by Business, Management and Accounting (14.0 percent) and Economics, Econometrics and Finance (10.2 percent). Discussion of personal data ownership therefore sits mainly in law, policy, and the social sciences, with a visible technical component. The share of business and economics suggests attention to economic governance, business models, and market value. Engineering, mathematics, and medicine contribute little, which is what the screening stage aimed to achieve. The subject-area distribution describes the composition of the corpus. It does not by itself show a division between protective and transactional approaches.

f. Keyword Co-occurrence Analysis: GDPR versus Property Rights

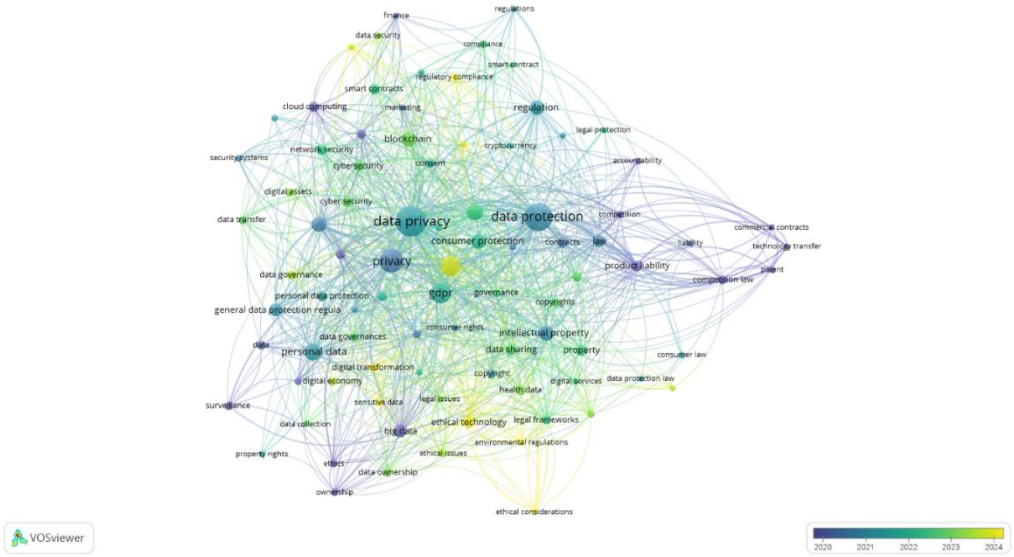


Figure 3. Keyword co-occurrence map, overlay visualisation (minimum 15 occurrences; colour shows average publication year, 2020 to 2024).

Group 1 (teal to green, average year about 2022). This group centres on data protection and data privacy, with strongly connected nodes such as GDPR, privacy, personal data, consent, and consumer protection. It forms the main body of research that connects legal rules on data protection to digital practice.

Group 2 (purple to dark blue, average year about 2020 to 2021). This group forms around property rights and intellectual property and connects to product liability, patent, competition law, liability, and commercial contracts. The cooler colours show an earlier average publication year for these keywords within the corpus.

Group 3 (yellow, average year about 2024). This group sits around ethical technology and ethical considerations, with linked nodes such as data ownership, ethical issues, ethics, environmental regulations, and health data. The warm

colours mark the most recent average publication years, which may indicate emerging topics.

Group 4 (light green to teal, average year about 2021 to 2022). This group gathers keywords on technology and security, including blockchain, smart contracts, regulatory compliance, cybersecurity, and network security. It points to technical and compliance topics in decentralised systems.

In the map, GDPR sits in the central area, close to privacy, data protection, personal data, consent, and consumer protection. This position fits the description of the GDPR as a regime built on fundamental rights and human dignity, not on economic instruments or data ownership (Bygrave, 2014; De Hert & Papakonstantinou, 2016; Kuner et al., 2020). Property rights, by contrast, appears as a small node at the edge of the map, linked mainly to ownership, intellectual property, and contracts. The pattern is consistent with a private law and economic discourse that stresses exclusivity, alienability, and the exchange value of data, as in early attempts to treat personal data as an object of ownership (Zech, 2016; Schwartz, 2004; Birch et al., 2021).

The distance between the GDPR and property rights nodes and their weak co-occurrence indicate thematic separation between the two vocabularies in this corpus. The map does not measure a conceptual gap, and it does not explain why the separation exists. Purtova (2018) and Borgesius (2016) argue that data propertisation and pervasive tracking risk eroding the protective function of data protection law, and their argument offers one doctrinal reading of the separation. More recent intermediate nodes, such as intellectual property, data sharing, artificial intelligence, and digital services, suggest that some authors connect the economic value of data with GDPR principles through use rights, contractual data governance, and quasi-property regimes (Custers & Malgieri, 2022; Wachter & Mittelstadt, 2019; Taylor et al., 2016). The space between the two vocabularies therefore holds both a problem and material for further doctrinal work.

g. Overlay Visualization: Privacy and Digital Assets

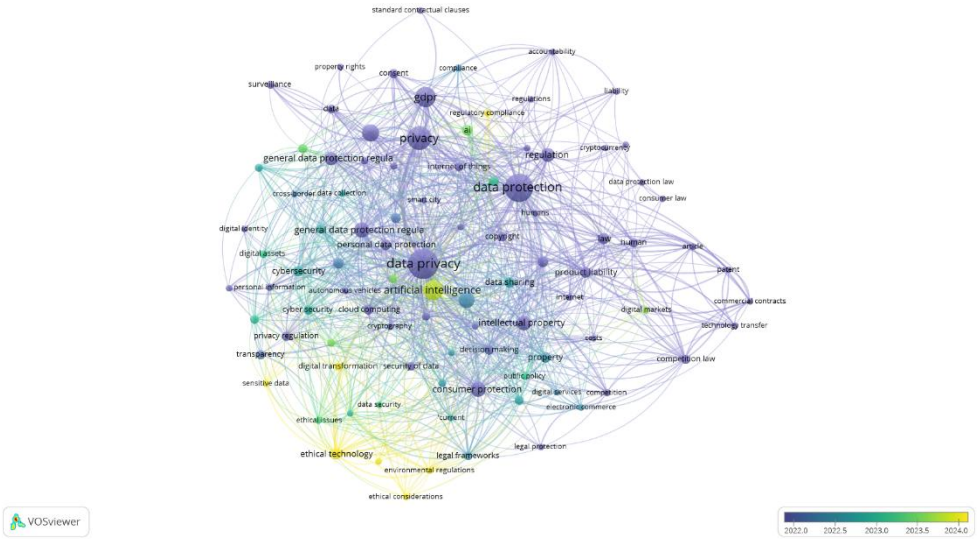


Figure 4. Overlay visualisation: privacy and digital assets (colour shows average publication year, 2022 to 2024).

The overlay map in Figure 4 shows how privacy relates to digital assets. Privacy is a large central node connected to personal data, data protection, GDPR, and law. This matches the view of Voigt and von dem Bussche (2017), who describe the GDPR as built on the protection of fundamental individual rights, in particular the right to data protection within the European human rights regime. Digital assets appears as a smaller node linked to cybersecurity, data governance, and digital identity. Its position suggests that part of the literature treats data, including personal data, as an object of economic value that needs management and protection as an asset.

Zech (2016) describes the transformation of data into a tradeable commodity, and the link between privacy and digital assets in the map is compatible with that description. Drexl (2017) argues that the development of industrial data markets pushes the field away from a pure protection approach toward market designs that balance propertisation and access. In these accounts privacy is not eliminated. It is reconceived as part of the architecture of digital markets, which need governance mechanisms, licensing arrangements, and shared access protocols. The connections between privacy and nodes such as contracts, data sharing, and intellectual property are consistent with this view (Hummel et al., 2021).

The overlay map indicates a change in the focus of the academic discourse. Recent keywords, including digital assets, data governance, data sharing, and artificial intelligence, point toward economic value, digital assets, data governance, and contractual governance. The map does not show a change in the legal status of privacy from a fundamental right to a transactional or regulatory asset. It records which keywords appear together and when. Doctrinal writers offer accounts that fit this shift in attention. Purtova (2018) criticises the expanding concept of personal data in EU law, which places almost all data under a protective regime and creates pressure to balance fundamental rights against economic and innovation interests. Kerber (2016) argues that legal and economic discourse increasingly considers new rights over data, including non-personal data, that serve market functions. Mantelero (2017) shows that privacy protection is moving from the individual toward collective dimensions, which supports large-scale data management and negotiation. Determann (2018) argues that no one owns data, and Malgieri and Custers (2018) examine whether data subjects have a right to know the value of their personal data. These works show that the doctrinal question remains open, and the map cannot settle it.

2. Discussion

The bibliometric analysis describes the intellectual structure of the literature on personal data ownership and contractual freedom. The discussion below keeps the map-level evidence, our interpretation, and the juridical implications apart. First, output increased after 2018 (Figure 1). The increase coincided with the entry into force of the GDPR and is consistent with greater scholarly attention to personal data regulation. The design does not allow a causal claim, since other factors, including the expansion of the data economy, may have played a role (Voigt & von dem Bussche, 2017; Hoofnagle et al., 2019). The concentration of documents in the United States, the United Kingdom, and continental Europe (Figure 2) matches the view that the debate reflects tensions between protective, rights-based regulatory models and more flexible market-based models (Drexl, 2017; Purtova, 2018). Author affiliation alone cannot demonstrate that view.

Second, the keyword co-occurrence map (Figure 3) shows thematic separation between GDPR, privacy, and data protection keywords, which lie in a dense central area, and property rights and ownership keywords, which appear at the edge with few links. Distances in a VOSviewer map show relative association and depend on the layout algorithm, so we do not treat the separation as a measure of conceptual distance. We read it as compatible with an argument in the doctrinal literature. The GDPR group reproduces the public law and fundamental-rights logic that underpins the continental European approach (Bygrave, 2014). Property-related keywords, linked to ownership, intellectual property, and commercial contracts, reflect the private law and economic tradition that focuses on resource allocation, exchange value, and transactional efficiency (Zech, 2016). Purtova (2018) describes an unreconciled tension between the logic of propertisation and the logic of protection, and the separation in the map is compatible with her account. One doctrinal reading holds that the GDPR's refusal to propertise personal data leaves a regulatory space that property and contract discourse then fills (Determann, 2018). The map cannot test that explanation.

Third, the overlay maps (Figures 3 and 4) show that keywords such as data governance, data sharing, artificial intelligence, and digital assets have more recent average publication years. This suggests that recent writing pays more attention to how access, control, and value are regulated. One author puts the question as how to regulate access, control, and value in a complex digital ecosystem, and no longer as whether data is property (Custers & Malgieri, 2022). Proposals for hybrid regimes, including data stewardship, access rights, fractional ownership, and contractual governance, appear in the recent literature (Kerber, 2016; Taylor et al., 2016; Hummel et al., 2021; Wachter & Mittelstadt, 2019). The maps do not show that these proposals have replaced the earlier debate. They show a change in which keywords are prominent and connected.

Fourth, the subject-area distribution and the most cited documents (Table 2) show that the debate draws on several disciplines. The high impact of work from ethics (Mittelstadt & Floridi, 2016), social theory (Zuboff, 2019), and relational governance (Viljoen, 2021) suggests that writers on this topic use considerations of social justice, market power, and the collective value of data, which doctrinal analysis alone does not supply. Work on privacy harms shows that doctrinal categories struggle to capture the diffuse damage of modern data processing, which complicates remedies (Citron & Solove, 2022). Comparative studies of the socio-technical imaginaries that shape EU and US data governance (Guay & Birch, 2022) and of models such as data trusts and intermediaries (Micheli et al., 2020; Hicks, 2023) suggest that the institutional vocabulary of data law is changing.

a. Reading the Indonesian Personal Data Protection Law

Law Number 27 of 2022 on Personal Data Protection (UU PDP) is the main statute on this question in Indonesia (Republik Indonesia, 2022). It defines personal data as data about an identified or identifiable individual, and it defines the data subject as the person to whom personal data is attached (Article 1(1) and (6)). The wording "attached" (melekat) places personal data with the person and does not create a right of ownership in the data. The statute gives data subjects rights to information, to access and copies, to correct and complete data, to end processing or delete data, to withdraw consent, to object to certain automated decisions, to postpone or limit processing, to sue and receive compensation, and to obtain and use data in a structured, commonly used format (Articles 5 to 13).

As we read them, these are entitlements to control processing, and none of them assigns a property right in data. In terms of the mapped debate, the UU PDP therefore belongs to the rights-based vocabulary. The portability right in Article 13 comes closest to the access and sharing themes that appear among the recent keywords, such as data sharing and data governance.

Freedom of contract enters through consent and through the contractual basis for processing. Article 20(2) lists explicit valid consent, performance of an agreement, legal obligation, protection of vital interests, public interest tasks, and other legitimate interests as bases for processing. Article 23 declares void by operation of law a contract clause that requests processing of personal data without the explicit valid consent of the data subject. In our reading, this limits what parties can agree, because a standard clause cannot remove the conditions the statute sets for valid consent. The limit fits the general law of contract in the Civil Code, where freedom of contract under Article 1338 operates within the requirements of Article 1320, including a lawful cause (Kitab Undang-Undang Hukum Perdata). Consent-based and contract-based processing remain available, so contractual arrangements over personal data stay possible within mandatory rules. The UU PDP therefore touches the private-law side of the mapped debate through its regulation of contractual processing, and it does not recognise data as property.

The statute does not say whether personal data can be owned, licensed, or traded as an asset. Under the Civil Code, property law concerns things and rights that can be the object of ownership (Article 499), and the UU PDP does not classify personal data in those terms. That leaves open the questions the mapped literature also leaves open: property and ownership keywords sit at the edge of the map, and doctrinal work on access rights, data stewardship, and contractual data governance is still developing. Three questions follow for Indonesian legal scholarship. How do the rights of data subjects interact with contractual clauses on data use? Can access and portability rights support data sharing without creating ownership? How will supervisory authority be built (Widiatedja & Mishra, 2023; Rosadi et al., 2023)? A framework that addresses only rights risks leaving the transactional dimension unregulated, and one built on market logic risks under-protecting data subjects. These are legal implications drawn from the statute and the doctrinal literature. The bibliometric maps show only that the same questions appear in the international literature.

b. A Future Research Agenda on Personal Data Ownership and Contractual Freedom

The maps and the doctrinal reading above point to four priority research agendas. First, develop legal theory and doctrine for access rights and data stewardship duties. Data governance and data sharing carry recent average publication years in the maps. Future research can focus on doctrinal constructions for access rights that fall short of full ownership and on fiduciary or stewardship duties for data controllers (Determann, 2018; Viljoen, 2021). It can examine how the essential facilities doctrine in competition law or fiduciary duty in corporate law might be adapted to personal data to create a functional regime without full propertisation (Drexl, 2017).

Second, study data contracts and standard terms empirically. Contract-related keywords connect to both vocabularies in the maps. Empirical doctrinal and socio-legal research on contractual practice in data markets, such as click-

wrap agreements, data licensing agreements, and data trust models, appears scarce. Future research can analyse these clauses to test how far contractual freedom allocates rights and risks. It can also ask how instruments such as the EU Unfair Contract Terms Directive protect individuals in asymmetric transactions, and how Article 23 of the UU PDP works in Indonesian practice (Custers & Malgieri, 2022; Malgieri & Custers, 2018).

Third, examine regulatory design for non-personal and synthetic data. Artificial intelligence appears among the recent keywords in the overlay map. Its growth raises questions about the legal status of machine-generated, anonymised, and synthetic data, whose boundary with personal data is increasingly blurred. Building on Kerber (2016), research can assess whether a limited sui generis property regime for non-personal data is feasible without weakening personal data protection or innovation.

Fourth, widen the geographic perspective and engage with data justice. Among the ten leading countries in Figure 2, only India and China lie outside the Global North, and no other Global South jurisdiction appears. Future research can include more perspectives from the Global South, compare alternative data governance models, and examine what the ownership and contract debate means for global inequality and data colonialism (Taylor, 2017). Frameworks in Indonesia, India, Brazil, and South Africa deserve attention because regulatory choices there will shape data governance in the coming decade (Widiatedja & Mishra, 2023; Rosadi et al., 2023). Data justice can be built into the legal and economic analysis of data.

D. CONCLUSION

This study mapped the Scopus-indexed literature on personal data ownership and contractual freedom published between 2013 and 2025 (482 documents). The conclusions are stated at three levels. Bibliometric findings. Publication output increased after 2018, from 17 documents in 2017 to 32 in 2018 and 107 in 2025. The increase coincided with the entry into force of the GDPR, and this study cannot show that the GDPR caused it. The United States and the United Kingdom lead in document counts, followed by Italy, Germany, and India. In the keyword co-occurrence map, GDPR, privacy, and data protection keywords occupy a dense central area, and property rights and ownership keywords appear at the edge with few links, which we describe as thematic separation. In the overlay maps, data governance, data sharing, digital assets, and ethical technology have more recent average publication years.

Interpretation of the discourse. These patterns are compatible with a discourse in which attention to economic value, digital assets, data governance, and contractual governance is growing next to the established rights-based vocabulary. They indicate a change in emphasis in academic writing. They do not show a change in legal doctrine, and they do not show a paradigm shift.

Juridical implications. These come from the doctrinal literature and from our reading of the UU PDP, not from the maps. The UU PDP treats personal data as attached to the data subject and gives rights of control, and its Article 23 limits contractual freedom over processing. It does not settle whether personal data can be owned or traded as an asset. Indonesian legal scholarship can therefore examine access rights, portability, and contractual data governance as options within a rights-based framework.

The contribution is twofold. Substantively, the study gives a keyword-level map of this literature, a documented screening procedure, a reading of the UU PDP against

the mapped debate, and a research agenda. Methodologically, it shows that bibliometric mapping can help describe the structure of doctrinal legal scholarship when the interpretation stays within what the method can show (Zupic & Čater, 2015; Donthu et al., 2021).

The study has several limitations. The corpus covers Scopus-indexed publications and omits monographs and non-indexed journals. It draws on English-language literature, and the doctrinal screening may exclude relevant technical or economic discussion. The screening was done manually without an inter-coder agreement test, which limits its reliability. Keyword variants were not fully merged, which may split the frequency and links of some concepts. Citation counts change over time. VOSviewer layouts depend on the algorithm's settings, and keyword maps describe co-occurrence, not the content of legal arguments. A follow-up study can add a second coder, a documented thesaurus, and other databases such as Web of Science.

The mapped literature and the doctrinal sources suggest that an adaptive framework for the data economy does not require one vocabulary to prevail over the other. Legal institutions can address protection and transaction together. Data governance, data sharing, and the contract and access questions discussed above are candidate starting points for doctrinal work. For Indonesia, where the UU PDP is still in its implementation phase, attention to these questions would help avoid a choice between pure protection and pure propertisation and support a regulatory architecture that protects fundamental rights and serves the digital economy (Widiatedja & Mishra, 2023; Rosadi et al., 2023).

E. DAFTAR RUJUKAN

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