

From Adoption to Governance: A Bibliometric Review of Digital Payment and FinTech Research

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Abstract

The rapid expansion of digital payments has transformed FinTech from a primarily technological innovation into a critical component of contemporary financial infrastructure, with implications for financial inclusion, consumer behaviour, banking transformation, platform competition, cybersecurity, and regulatory governance. Despite the growing volume of scholarship, the intellectual development of digital payment and FinTech research remains fragmented across business, economics and finance, computer science, engineering, decision sciences, and social sciences. This study provides a comprehensive bibliometric review of the field by combining descriptive performance analysis with science-mapping techniques to examine its growth trajectory, disciplinary configuration, geographic distribution, collaborative structure, thematic evolution, and intellectual foundations. The analysis is based on a systematically screened bibliographic corpus derived from major scholarly indexing records and employs publication, co-authorship, keyword co-occurrence, and co-citation indicators to identify both established knowledge structures and emerging research fronts. The findings reveal a rapidly expanding research domain, particularly since 2023, characterised by strong contributions from emerging economies and substantial interdisciplinary interaction between technological and socio-economic research. India emerges as the largest publication hub, followed prominently by Indonesia, while international collaboration remains comparatively regional and fragmented. The thematic structure shows that digital payments, financial inclusion, digital wallets, digital banking, FinTech adoption, and technology acceptance constitute the field's dominant intellectual core. Co-citation patterns similarly demonstrate substantial dependence on behavioural adoption and innovation-diffusion perspectives. At the same time, newer clusters involving artificial intelligence, blockchain, digital currencies, cybersecurity, sustainable finance, and digital transformation indicate progressive diversification of the research agenda. However, this expansion has not been matched by equivalent theoretical development in areas such as platform governance, interoperability, competition policy, institutional regulation, data governance, and the political economy of digital financial infrastructure. The review therefore identifies a transition from an adoption-centred literature toward an emerging governance-centred research agenda.

Keywords

Digital Payments, FinTech, Technology Adoption, Bibliometric Analysis, Science Mapping

Introduction

Digital payments have become an increasingly important component of contemporary financial systems. What began largely as a technological extension of conventional payment services has evolved into a broader transformation of how consumers, merchants, banks, financial technology firms, and public authorities interact within the payment ecosystem. Mobile wallets, QR-based payments, platform-mediated transactions, digital banking interfaces, and other FinTech-enabled payment mechanisms have reduced transactional frictions while simultaneously altering the institutional organisation of retail finance. These developments are especially consequential because payment infrastructures are not merely channels through which financial transactions are executed. They also influence market access, competitive positioning, information flows, consumer behaviour, and the distribution of economic power among financial intermediaries and digital platforms. As digital platforms expand and network effects become increasingly important, the organisation of payment markets may depend not only on technological efficiency but also on the rules, standards, and institutional arrangements through which interoperability and access are governed (García-Canal et al., 2024; Spulber, 2019).

The rapid expansion of FinTech has therefore produced a research field that extends far beyond the technological mechanics of payment innovation. Digital payment research now intersects with financial inclusion, consumer adoption, mobile commerce, banking transformation, platform economics, innovation policy, cybersecurity, financial regulation, and institutional governance. At the user level, digital payment systems are frequently examined through behavioural questions concerning perceived usefulness, convenience, trust, ease of use, financial literacy, and intention to adopt. At the merchant level, the literature has investigated the extent to which digital payment adoption can support transaction efficiency, customer access, business sustainability, and the digitalisation of micro and small enterprises. At the institutional level, however, a different set of questions emerges. Payment infrastructures increasingly operate through interconnected platforms, common technical standards, regulatory mandates, and public-private coordination mechanisms. Consequently, the development of digital payments raises questions not only about whether individuals adopt new payment technologies, but also about how those technologies are organised, regulated, standardised, and governed.

The distinction between adoption and governance is central to understanding the evolution of the literature. Early and continuing empirical research has understandably devoted substantial attention to user acceptance and merchant adoption because the viability of digital payment systems depends fundamentally on widespread participation. Evidence from Indonesia illustrates this orientation particularly clearly. Studies of the Quick Response Code Indonesian Standard (QRIS), for example, have examined consumer preferences, intention to use, merchant acceptance, product-distribution effects, and the relationship between digital-payment usage and business sustainability (Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025; Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024). Collectively, these studies demonstrate the analytical importance of behavioural adoption and confirm that digital

payment diffusion is strongly connected to consumer incentives, merchant capabilities, technological convenience, and the broader process of financial digitalisation.

Yet the expansion of digital payments also creates institutional questions that cannot be fully addressed through adoption-centred perspectives alone. Payment platforms are characterised by network effects, interoperability requirements, switching costs, market concentration, and strategic interactions among providers. Where multiple proprietary infrastructures coexist, fragmentation may constrain the ability of users and merchants to move seamlessly across networks. Digital payment systems can therefore become arenas in which technological architecture and market structure are closely intertwined. Spulber (2019) emphasises that platforms and markets possess distinctive economic characteristics because value creation depends on interactions among multiple groups of participants. Similarly, García-Canal et al. (2024) demonstrate that the expansion of digital platforms involves strategic processes that shape their competitive position across markets. These perspectives suggest that the economic significance of digital payments cannot be understood exclusively through the behaviour of individual users; it must also be analysed in relation to the institutional architecture within which payment platforms operate.

This institutional dimension is particularly visible when interoperability and standardisation become policy instruments. Standardisation can reduce fragmentation by establishing common rules through which competing providers connect to a shared infrastructure. At the same time, such interventions may alter bargaining power among incumbents, new entrants, merchants, consumers, and regulators. In developing markets, these questions are especially important because the architecture of payment systems can influence the extent to which domestic financial ecosystems depend on proprietary platforms or fragmented infrastructures. Earlier research on mobile banking in developing markets already highlighted the competitive and regulatory implications of digital financial services (Anderson, 2009). More recent research on platform governance similarly argues that digital markets require attention to the relationship between competition policy and the organisational power of platforms (Just, 2018). From this perspective, the evolution of digital payments is not solely a story of technological diffusion. It is also a process through which financial infrastructures are institutionally constructed.

The legal and regulatory dimensions of payment systems reinforce this interpretation. Ortino (2022) shows that both law and digital platforms perform important functions within payment systems, indicating that payment innovation operates within a broader institutional environment rather than outside it. Public intervention can therefore shape the conditions under which platforms compete, interact, and provide access to financial infrastructure. The public-interest rationale of regulation is also relevant because regulatory interventions are often justified by concerns extending beyond private efficiency, including market stability, competition, consumer protection, and broader social objectives (Hantke-Domas, 2003). These considerations become increasingly important as digital payment ecosystems move from fragmented private innovation toward more coordinated forms of infrastructural governance.

The relationship between technological innovation and governance is not necessarily antagonistic. Innovation policy itself frequently involves deliberate attempts to shape the conditions under which technological development occurs. Edler & Fagerberg (2017) emphasise that innovation policy is concerned not merely with technological invention but also with the economic and institutional conditions that influence innovation outcomes. Similarly, research on the organisation of innovation highlights the interaction between firms, external participants, and institutional structures in shaping how innovative activity is coordinated (Felin et al., 2017). Applied to digital payments, these insights suggest that technological development and regulatory coordination should not be treated as separate analytical domains. The diffusion of payment technologies occurs within systems of governance that influence interoperability, competitive access, data flows, technical standards, and the relationship between private platforms and public authorities.

The governance of digital finance also increasingly involves questions of information and trust. As financial services become more algorithmically mediated, regulatory institutions must respond not only to conventional financial risks but also to the implications of automated decision-making, data concentration, digital identity, and technological accountability. Perdana et al. (2025), for example, examine algorithmic trust and regulatory governance in the context of central banking, demonstrating how emerging financial technologies create ethical, legal, and institutional challenges alongside their technological possibilities. Such developments indicate that the research frontier of digital payments is expanding beyond questions of convenience and adoption toward concerns involving regulatory design, data governance, cybersecurity, institutional trust, and the allocation of responsibility within increasingly digitised financial systems.

These developments have generated an increasingly broad and interdisciplinary body of scholarship. However, the rapid expansion of the field also creates a problem of intellectual fragmentation. Research on digital payments and FinTech is distributed across business and management, economics and finance, computer science, engineering, information systems, social sciences, and related disciplines. Different scholarly communities often approach similar technological developments through distinct theoretical frameworks and methodological traditions. Behavioural researchers may emphasise adoption intention and user perception; economists may focus on market structure, financial inclusion, or competition; information-systems scholars may examine technological acceptance and digital infrastructure; while regulatory research may focus on governance, institutional design, and legal coordination. As the literature expands, it becomes increasingly difficult to determine whether these streams are converging toward an integrated research domain or remaining separated into loosely connected intellectual communities.

This challenge creates a strong rationale for bibliometric review. Traditional narrative literature reviews provide valuable interpretative synthesis, but they may become increasingly difficult to conduct systematically when the underlying research field expands rapidly across multiple disciplines and publication outlets. Bibliometric methods provide a complementary approach by

examining the observable structure of scholarly communication through publication patterns, citations, co-citations, keyword relationships, authorship networks, and geographic collaboration. Such methods allow researchers to identify not only the most visible contributors to a field but also the relationships through which knowledge is accumulated and organised. Bibliometric analysis can therefore distinguish between research productivity and intellectual structure, enabling the investigation of how rapidly a field grows, which themes dominate it, which references form its intellectual foundations, and how research communities interact.

The usefulness of bibliometric and science-mapping methods has been demonstrated across several rapidly developing technological fields. Xu et al. (2019), for example, employ systematic review methods to examine the development of blockchain research, while Tandon et al. (2021) combine bibliometric analysis with literature review to map blockchain applications in management. Zhao et al. (2016) similarly discuss business innovation and research opportunities associated with blockchain, illustrating the broader need to organise fast-expanding technological research into coherent intellectual structures. Bibliometric approaches have also been used to identify influential publication patterns and citation concentration in other research domains (Shuaib et al., 2015; Yuan et al., 2020). More generally, bibliometric evidence can reveal how research productivity and scholarly concentration develop across scientific communities (Seglen & Aksnes, 2000). These studies demonstrate that bibliometric analysis is especially valuable when technological innovation generates a large, heterogeneous, and rapidly evolving literature.

Digital payment and FinTech research possesses precisely these characteristics. The field has expanded through several partially overlapping research streams, including mobile payment, digital banking, financial inclusion, digital wallets, electronic commerce, platform innovation, blockchain, cryptocurrency, artificial intelligence, cybersecurity, and increasingly digital currency. However, the existence of multiple research streams does not necessarily imply intellectual balance. A field may expand substantially in publication volume while remaining concentrated around a relatively narrow set of theories or empirical questions. For digital payments, this possibility is particularly important because the institutional significance of payment infrastructures may have developed more rapidly than the conceptual frameworks used to analyse them.

The evidence underlying the present study indicates such an asymmetry. The bibliographic corpus shows substantial growth in digital payment and FinTech research between 2021 and 2025, with the largest expansion occurring in the later years of the period. The underlying Scopus search produced 378 records prior to subsequent screening and metadata validation. The resulting network corpus contains 368 validated documents involving 1,067 authors, 68 countries, 1,011 author keywords, and 2,834 cited references. The disciplinary distribution is led by Business, Management and Accounting, Computer Science, and Economics, Econometrics and Finance, confirming that digital payment research operates at the intersection of technological and socio-economic inquiry. At the geographic level, India represents the largest publication hub, followed by Indonesia, while the United States and several Asian and Middle Eastern economies also occupy important positions within the field.

These descriptive developments are important, but they do not by themselves explain the intellectual direction of the literature. Publication growth can indicate increasing scholarly attention without revealing whether new research is broadening the conceptual foundations of the field. For this reason, the present study moves beyond performance indicators and examines the structure of relationships among authors, countries, keywords, and cited references. Keyword co-occurrence analysis is used to identify the principal thematic concentrations of the literature. Co-citation analysis is employed to reveal its intellectual foundations. Co-authorship networks provide information about the structure of knowledge production, while country-level collaboration analysis identifies the geographic organisation of research communities.

The emerging evidence suggests that the intellectual development of digital payment and FinTech research is characterised by both expansion and concentration. Financial inclusion, digital payments, digital wallets, digital banking, FinTech adoption, and technology acceptance occupy prominent positions within the thematic structure. Research concerning consumer behaviour and technological adoption remains especially influential. The prominence of this orientation is consistent with the substantive literature on QRIS and other digital payment mechanisms, where empirical studies frequently investigate intention to use, consumer preference, merchant adoption, and business outcomes (Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025; Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024). These themes remain essential because payment systems cannot function without adoption. However, their dominance raises a broader question regarding the balance of the field.

At the same time, smaller but increasingly visible research areas are emerging around artificial intelligence, blockchain, digital currencies, cybersecurity, innovation, and sustainable finance. These themes suggest that the literature is gradually moving from analysing individual adoption decisions toward examining more complex financial and institutional environments. This transition is important because the technological evolution of payment systems increasingly requires governance frameworks capable of addressing interoperability, platform competition, algorithmic decision-making, data concentration, regulatory coordination, and systemic trust. The broader literature on platform governance and payment-system regulation suggests that these concerns are becoming central to the organisation of digital financial markets (Just, 2018; Ortino, 2022; Perdana et al., 2025).

The key argument of this paper is therefore that digital payment and FinTech scholarship is undergoing a transition from adoption to governance. This formulation does not imply that adoption research is obsolete or theoretically unimportant. On the contrary, consumer and merchant participation remain indispensable to the functioning of payment networks. The argument is instead that the intellectual development of the field has become increasingly uneven. The technological and institutional complexity of digital payments now extends beyond the questions that originally dominated adoption-centred research. As digital platforms become embedded within national payment systems, research must increasingly consider how infrastructures are governed, how standards shape competition, how regulators coordinate

market participants, how data are controlled, and how technological innovation changes the distribution of power between public and private actors.

Indonesia's QRIS literature provides an illustrative example of this broader transition without constituting the exclusive focus of the present review. QRIS studies have contributed important evidence regarding consumer behaviour, merchant adoption, digital transaction preferences, and the implications of payment digitalisation for small businesses (Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025; Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024). However, QRIS also illustrates how a digital payment mechanism can become part of a wider institutional architecture. Standardisation creates a framework through which different providers interact, potentially reducing fragmentation while altering competitive relationships among platforms. In this respect, QRIS represents one empirical manifestation of a wider research problem: the movement of digital payment systems from individual technological products toward coordinated financial infrastructures.

This broader institutional interpretation is consistent with earlier concerns regarding digital financial competition in developing markets (Anderson, 2009), the economics of platforms (Spulber, 2019), competition in platformed environments (Just, 2018), and the role of law in governing payment infrastructures (Ortino, 2022). The literature on innovation policy further suggests that technological systems evolve through interactions between private initiative and institutional intervention rather than through market forces alone (Edler & Fagerberg, 2017; Felin et al., 2017). These perspectives provide an analytical basis for interpreting the bibliometric evidence not merely as a map of publication activity but as an indication of how the conceptual boundaries of digital payment research are changing.

Against this background, the present study conducts a comprehensive bibliometric review of digital payment and FinTech research. The study is guided by four interconnected research questions. First, how has the publication structure of digital payment and FinTech research evolved over time, and how is the literature distributed across countries, disciplines, document types, and authors? Second, what thematic structures emerge from keyword co-occurrence analysis, and which topics form the conceptual core of the field? Third, what intellectual foundations are revealed through co-citation analysis, and to what extent is the field concentrated around behavioural adoption, financial inclusion, technological innovation, and emerging governance perspectives? Fourth, what do the collaboration and thematic networks reveal about the transition from adoption-centred research toward a broader governance-oriented agenda?

To answer these questions, the study combines descriptive bibliometric performance analysis with network-based science mapping. The descriptive analysis examines publication growth, document types, disciplinary distribution, geographical concentration, and author productivity. The network analysis subsequently evaluates keyword co-occurrence, co-authorship relationships, international collaboration, and cited-reference co-citation structures. Full counting is employed in the network construction to preserve the contribution of individual records to each relationship. Thresholds are applied according to the unit of analysis to balance inclusiveness with

interpretability. This sequential design allows the analysis to move from the visible characteristics of research production toward the underlying structure of knowledge formation.

The study makes four principal contributions. First, it provides an integrated mapping of digital payment and FinTech research at a time when the field has expanded rapidly across multiple disciplinary domains. Previous bibliometric studies have demonstrated the value of mapping emerging technological research, particularly in fields such as blockchain (Tandon et al., 2021; Xu et al., 2019). The present study extends this logic to digital payments, where technological, behavioural, financial, and regulatory research increasingly overlap.

Second, the paper distinguishes between the quantitative growth of the literature and its intellectual diversification. A rapidly increasing number of publications does not necessarily imply a correspondingly broad theoretical structure. By combining performance analysis with keyword and co-citation mapping, the study investigates whether the expansion of digital payment scholarship has been accompanied by conceptual diversification or whether the field remains concentrated around a limited set of dominant paradigms. This distinction is important because citation and productivity structures can reinforce established intellectual pathways even as new research topics emerge (Seglen & Aksnes, 2000).

Third, the paper reframes the development of digital payment research as an intellectual movement from adoption toward governance. Existing empirical studies provide extensive evidence concerning consumer usage, merchant participation, and the practical benefits of digital payments (Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025; Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024). This paper does not displace that literature. Instead, it positions adoption as the established foundation from which newer questions of interoperability, platform organisation, regulatory coordination, cybersecurity, data governance, and institutional architecture are emerging. The contribution is therefore interpretative as well as descriptive: bibliometric evidence is used to identify not only what the field has studied most frequently, but also which analytical perspectives remain comparatively underdeveloped.

Fourth, the study develops a forward-looking research agenda for digital payment and FinTech scholarship. The literature on platform economics and governance suggests that future payment research will increasingly need to integrate questions of market structure, interoperability, competition, regulation, and institutional design (Spulber, 2019; Just, 2018; Ortino, 2022). At the same time, the emergence of algorithmic and data-intensive financial systems introduces additional concerns involving trust, ethical governance, and regulatory accountability (Perdana et al., 2025). The future research agenda proposed in this paper consequently connects established adoption and inclusion perspectives with emerging questions surrounding digital financial infrastructure and governance.

The preliminary findings support this positioning. Digital payment and FinTech scholarship displays rapid publication growth and substantial interdisciplinary participation, but its intellectual

foundations remain strongly concentrated around behavioural adoption, financial inclusion, digital banking, and technological diffusion. India and Indonesia emerge as especially important publication centres, suggesting that emerging economies occupy a prominent position in contemporary digital payment research. At the same time, international collaboration remains comparatively fragmented, with significant regional clustering. Keyword and co-citation structures reveal increasing engagement with artificial intelligence, blockchain, digital currency, cybersecurity, and sustainability, but governance-oriented themes remain less structurally developed than adoption-focused research.

This imbalance is analytically important. Digital payment systems are increasingly becoming infrastructure rather than isolated financial products. Their economic significance depends on the ability of multiple actors to interact within common technological and institutional frameworks. Questions of standardisation, interoperability, platform power, regulatory oversight, and data governance therefore become increasingly consequential as adoption expands. If scholarly attention remains concentrated primarily on whether users accept digital payment technologies, the literature risks underestimating the institutional consequences of the systems being adopted.

The paper therefore argues that the next stage of digital payment and FinTech research requires greater integration between micro-level adoption analysis and macro-level institutional governance. Behavioural research explains why individuals and firms participate in digital payment ecosystems. Governance research must additionally explain how those ecosystems are structured, who establishes their rules, how competing platforms interact, how regulatory authorities influence infrastructure, and how technological design affects market power and public objectives. The conceptual transition from adoption to governance is thus not a replacement of one research paradigm by another. It represents an expansion of the analytical unit from the individual user toward the broader institutional system within which digital payments operate.

The remainder of the paper is organised as follows. The next section develops the conceptual and bibliometric foundations of the review by examining digital payment adoption, financial inclusion, platformed, standardisation, and governance. The methodology section then explains the database selection, search strategy, screening procedure, bibliographic dataset, counting method, analytical thresholds, and science-mapping techniques. The subsequent results section presents the descriptive performance indicators, including publication growth, disciplinary distribution, document types, countries, and author productivity, before examining keyword co-occurrence, country collaboration, co-authorship, and co-citation networks. The discussion section interprets these patterns through the transition from adoption-centred scholarship toward governance-oriented research and develops a structured agenda for future investigation. The final section concludes by outlining the principal contributions, implications, limitations, and opportunities for further research on digital payment and FinTech governance.

Literature review

The literature on digital payments and financial technology has developed through several overlapping intellectual streams. At one level, digital payment research examines the adoption of new transaction technologies by consumers and merchants, with particular emphasis on convenience, perceived usefulness, trust, financial inclusion, and behavioural intention. At another level, FinTech research considers digital payments as components of wider processes of financial innovation, digital banking transformation, platformed, and technological disruption. A third and increasingly important stream approaches digital payments as institutional infrastructures whose operation depends on interoperability, regulatory coordination, competition, standard-setting, and the allocation of authority between public and private actors. These perspectives are related but analytically distinct. Understanding the development of the field therefore requires moving beyond a single technological or behavioural interpretation and considering how these research traditions interact.

The central argument developed in this review is that digital payment scholarship has evolved from an initial and continuing emphasis on adoption toward a broader concern with governance. This transition does not imply that behavioural adoption has ceased to be important. Rather, the increasing scale and systemic relevance of digital payment infrastructures have expanded the range of questions that the literature must address. As digital payment systems become embedded within banking, commerce, public regulation, and platform ecosystems, questions of user acceptance increasingly coexist with questions concerning interoperability, competition, data control, institutional coordination, and regulatory design. The literature reviewed below provides the conceptual foundation for interpreting this transition through bibliometric evidence.

Digital Payments and the Transformation of Financial Intermediation

Digital payment technologies constitute one of the most visible manifestations of the broader FinTech transformation. Their significance lies not merely in replacing cash or physical payment instruments with electronic alternatives, but in changing the mechanisms through which users, merchants, financial institutions, and technology providers interact. Digital wallets, mobile payments, QR-based systems, online transaction platforms, and other electronic payment mechanisms progressively embed financial exchange within digital ecosystems. The resulting transformation therefore has implications for both the technological execution of transactions and the organisation of financial intermediation.

The economic characteristics of digital platforms are particularly relevant to this transformation. Spulber (2019) emphasises that markets and platforms create value through interactions among different categories of participants. In payment systems, the usefulness of a platform depends substantially on the participation of both consumers and merchants. A digital wallet with extensive consumer adoption provides limited transactional value if merchant acceptance remains low, while widespread merchant acceptance generates limited benefits without a sufficiently large

user base. These interactions produce network effects that distinguish digital payment systems from conventional one-sided markets.

Digital platforms can consequently develop substantial competitive advantages as their networks expand. The internationalisation of digital platforms examined by García-Canal et al. (2024) further illustrates how platform expansion is influenced by strategic interactions and the ability of firms to establish positions across different markets. In digital payments, this dynamic has particular significance because transactions increasingly occur within ecosystems in which users, merchants, financial institutions, and platform providers are technologically interconnected. Scale, compatibility, and network reach can therefore become important sources of competitive advantage.

These developments connect digital payments to broader questions of financial innovation. Innovation does not occur solely through the introduction of new technological products. It also depends on the institutional and organisational conditions that enable technologies to emerge, diffuse, and become integrated into economic systems. Edler & Fagerberg (2017) conceptualise innovation policy as a field concerned with both the rationale and the instruments through which innovation can be encouraged and directed. This perspective is highly relevant to digital payments because governments and financial regulators increasingly influence payment innovation through licensing frameworks, technical standards, interoperability requirements, consumer-protection rules, and infrastructural coordination.

The organisational structure of innovation similarly matters. Felin et al. (2017) highlight the changing relationships among firms, crowds, and other actors involved in innovative activity. Financial innovation increasingly takes place across organisational boundaries rather than within individual banks or firms alone. Banks collaborate with FinTech providers, merchants connect to payment platforms, technology firms provide infrastructure, and public authorities establish institutional rules governing participation. Digital payment innovation is therefore increasingly ecosystem-based rather than institution-specific.

This shift provides an important conceptual starting point for the present study. If digital payments are understood only as consumer technologies, research will naturally concentrate on the determinants of adoption. If they are instead understood as infrastructures connecting multiple economic actors, the analytical domain expands toward platform organisation, interoperability, governance, and regulatory coordination. The development of the literature can therefore be interpreted as a movement between these two levels of analysis.

The Adoption-Centred Foundation of Digital Payment Research

The behavioural adoption of digital payment technologies constitutes one of the most established strands of the literature. This orientation is understandable because technological innovation generates economic value only when it is accepted and used by relevant participants. Digital

payment studies have consequently devoted substantial attention to the factors encouraging consumers and merchants to adopt new payment mechanisms.

The literature relating to Indonesia's Quick Response Code Indonesian Standard provides particularly useful evidence of this adoption-centred orientation. Although QRIS constitutes only one national manifestation of the broader digital payment phenomenon, the body of research surrounding it illustrates many of the themes that have shaped payment scholarship more generally.

Ediputra & Amalyah (2022), for example, investigate factors affecting consumer preferences regarding the use of QRIS for in-store payments. The emphasis on preferences places the individual consumer at the centre of the analytical framework and reflects a broader research tradition in which digital-payment success is evaluated through acceptance, willingness to use, and perceived utility. Similarly, Djoyo et al. (2022) examine determinants of intention to use QRIS among micro, small, and medium enterprise merchants. Their focus extends the adoption question to the merchant side of the payment system and demonstrates that payment-system diffusion depends upon participation by businesses as well as consumers.

The continued importance of behavioural intention is also evident in Usman et al. (2024), who investigate factors affecting the intention to use QRIS among MSME customers. Together, these studies illustrate a recurring structure in digital-payment research: technological systems are analysed through the perceptions and behavioural responses of individual participants. Such research is essential because network-based payment infrastructures require sufficient adoption on multiple sides of the market before their broader economic benefits can materialise.

Consumer adoption is examined further by Hamzah Muchtar et al. (2024), whose study of QRIS e-payment adoption adopts the customer perspective. The prominence of customer-oriented research reflects the importance of understanding the conditions under which users migrate from traditional transaction methods toward digitally mediated alternatives. Digital payment systems may offer speed, convenience, and simplified transaction processes, but their diffusion re-mains contingent upon user confidence and willingness to integrate the technology into routine financial behaviour.

The economic implications of adoption extend beyond payment convenience. Bakhitah et al. (2023) connect QRIS with product-distribution flows and consumer purchasing behaviour in the use of FinTech payments. This broadens the analytical consequences of payment adoption by relating digital transactions to commercial exchange and consumption. Digital payment adoption can therefore affect not only how a transaction is executed but also the relationship between consumers, merchants, and product distribution.

Merchant digitalisation constitutes another important extension of this literature. Cahyasari & Widyastuti (2025) examine the digitalisation of micro sized enterprises through QRIS and FinTech usage behaviour and consider its implications for business sustainability. This perspective links payment adoption with the broader digital transformation of small enterprises. For micro and small

businesses, participation in digital payment ecosystems can form part of a wider transition toward technology-enabled commercial operations.

Taken together, these studies demonstrate that adoption research has made an important contribution to understanding digital payment diffusion. Consumer preferences, merchant intentions, customer adoption, purchasing behaviour, and small-business digitalisation represent legitimate and necessary research questions (Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025; Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024). The widespread presence of these themes also provides an empirical explanation for the strong representation of adoption-related concepts within the bibliometric networks examined later in this study.

Nevertheless, adoption-oriented research typically places the consumer, merchant, or firm as the principal unit of analysis. Such an approach can reveal why participants enter a digital payment ecosystem but offers comparatively less insight into how that ecosystem itself is organised. Once digital payment adoption reaches substantial scale, questions increasingly arise regarding the standards connecting providers, the competitive relationships among platforms, the rules determining participation, and the institutions responsible for governing the infrastructure. These concerns provide the bridge from adoption toward governance.

Financial Inclusion, Market Access, and Digital Payment Expansion

The adoption of digital payments is closely connected to financial inclusion. Digital financial technologies can reduce certain geographical, infrastructural, and transaction cost barriers associated with conventional financial services. Mobile and electronic payment channels can enable users and merchants to participate in financial transactions without relying exclusively on traditional branch-based infrastructure. This feature has made digital payments particularly relevant in developing and emerging markets.

The competitive and regulatory implications of mobile banking in developing markets were recognised comparatively early by Anderson (2009). The expansion of mobile financial services creates new opportunities for market access while simultaneously generating questions concerning competition and regulatory oversight. This duality remains fundamental to contemporary FinTech. Technologies that expand access can also restructure market relationships, alter the role of incumbent intermediaries, and create new forms of dependence on technological platforms.

The QRIS-related literature illustrates the inclusion dimension at the merchant and consumer levels. Studies examining MSMEs are particularly relevant because smaller enterprises may face stronger barriers to accessing sophisticated payment infrastructure. The intention of MSME merchants to use QRIS examined by Djoyo et al. (2022), and the relationship between payment digitalisation and micro-enterprise sustainability explored by Cahyasari & Widyastuti (2025), demonstrate how digital payments intersect with broader development questions.

Similarly, research connecting FinTech payments to purchasing behaviour and product distribution suggests that digital-payment access can influence participation in commercial networks (Bakhitah et al., 2023). In this context, financial inclusion should not be interpreted solely as possession of a formal financial account. It can also involve the capacity to participate effectively in increasingly digitalised systems of exchange.

However, the financial inclusion narrative introduces an analytical tension. Greater access to digital payments may depend upon expanding platform networks, while larger networks can simultaneously increase the market influence of the institutions controlling those infrastructures. A payment platform may therefore contribute to inclusion while also acquiring greater informational, technological, or bargaining power. The inclusionary and governance dimensions of FinTech are consequently interconnected.

This tension becomes particularly important in markets where digital payment systems depend on proprietary technological architectures. If consumers and merchants must belong to the same network to transact efficiently, the benefits associated with scale can create incentives for concentration. The economics of platforms therefore complicates the simple assumption that greater digital adoption necessarily produces more competitive financial markets (Spulber, 2019). Financial inclusion and market structure must instead be examined together.

The literature reviewed here consequently suggests that inclusion constitutes an important foundation of digital payment scholarship but not its analytical endpoint. As digital payment access broadens, the organisation of the infrastructure becomes progressively more significant. Inclusion creates participation; governance determines the institutional conditions under which that participation takes place.

Platform-Based, Competition, and Interoperability

The transition from adoption to governance becomes particularly visible when digital payments are analysed as platforms. Platform-based payment systems differ from isolated technological products because their value derives from the interaction of multiple participant groups. This structure creates both opportunities for efficiency and risks of concentration.

Spulber (2019) provides a general economic foundation for analysing markets and platforms, emphasising the mechanisms through which platforms organise interactions. Applied to digital payments, this implies that payment providers do more than supply technological services; they organise networks connecting consumers, merchants, financial institutions, and other intermediaries. Control over the architecture connecting these actors may consequently become economically significant.

The governance of online platforms is therefore increasingly connected to competition policy. Just (2018) explicitly links platform governance with competition policy under platform-based conditions. This perspective is particularly important for digital payments because network effects may reinforce established platforms. As more consumers and merchants participate in a network,

switching away from it may become increasingly costly, particularly when rival systems are not interoperable.

Interoperability can alter these dynamics by enabling participants associated with different providers to transact through common standards or shared infrastructure. From an economic perspective, interoperability can reduce the extent to which participation in one network prevents interaction with another. It may consequently reduce fragmentation, lower switching barriers, and reshape the competitive relationship among payment providers.

The international expansion of digital platforms examined by García-Canal et al. (2024) further reinforces the importance of analysing platform strategy beyond individual user decisions. Digital firms can operate across markets, creating competitive relationships that extend beyond national boundaries. Payment governance may therefore involve interactions between domestic regulation and platform strategies developed at international scale.

Legal institutions also play a central role in determining how payment infrastructures operate. Ortino (2022) examines the functions of both law and digital platforms within payment systems. This combination is conceptually important because digital payment platforms cannot be analysed as technologically autonomous systems. Their operation depends on legal definitions, regulatory permissions, contractual relationships, liability arrangements, technical rules, and access conditions.

Regulation can therefore influence not only the behaviour of individual payment firms but the architecture of the market itself. The public-interest perspective on regulation examined by (Hantke-Domas, 2003) provides a useful foundation for considering why governments might intervene in markets where private incentives do not necessarily produce socially preferred outcomes. Within digital payments, regulatory objectives can include stability, accessibility, interoperability, consumer protection, security, and competitive neutrality.

These concerns suggest that digital payment standardisation can be interpreted as more than a technical exercise. Standards determine which technologies can interact, which institutions can participate, and under what conditions transactions can move between networks. Consequently, standard setting may redistribute bargaining power among market participants. A technical rule can therefore have economic and institutional consequences.

The importance of these questions is visible in the contrast between proprietary payment networks and interoperable infrastructures. Proprietary networks can encourage technological differentiation and innovation, but they may also create fragmentation when merchants must maintain multiple interfaces or consumers face restrictions on cross-platform transactions. Interoperability seeks to resolve part of this fragmentation by establishing common mechanisms through which otherwise distinct systems communicate.

From this perspective, the move toward governance does not represent a rejection of platform innovation. Rather, it reflects the need to understand how innovation operates once digital-

payment platforms become economically significant infrastructures. Competition policy, interoperability, standardisation, and law therefore constitute increasingly important complements to the established literature on adoption.

Digital Payment Governance and the Political Economy of Financial Infrastructure

The governance perspective becomes broader when financial technologies are considered within the political economy of financial systems. Digital infrastructures influence not only transactions but also relationships among firms, regulators, users, and public institutions. Control over infrastructure can affect market access, information availability, bargaining positions, and the distribution of authority.

Konings (2018) argues for reconnecting cultural and political economy in understanding how finance is governed. Although this perspective is broader than digital payments specifically, it is relevant because financial technologies operate within institutional arrangements that determine how financial power is organised. Digitalisation does not remove governance from finance; instead, it introduces new technological layers through which governance operates.

In digital payment systems, the ownership and control of infrastructure therefore become analytically important. Private platforms may establish transaction rules through technological design, while regulators establish legal and institutional boundaries through public authority. Payment governance consequently takes place through an interaction between private architecture and public regulation.

This relationship can be interpreted through the public-interest rationale for regulatory intervention (Hantke-Domas, 2003). Markets may generate innovation efficiently while nevertheless producing outcomes involving concentration, exclusion, information asymmetry, or coordination problems. Regulatory intervention can therefore be motivated by the objective of reconciling innovation with broader economic and social considerations.

The governance problem is particularly important where payment systems acquire characteristics resembling essential infrastructure. Once businesses and consumers increasingly depend on digital networks to conduct everyday transactions, access conditions become economically significant. A payment infrastructure that is technically efficient but fragmented across incompatible networks can create coordination problems. Conversely, a highly integrated infrastructure may reduce fragmentation while raising questions concerning centralisation and control.

These tensions suggest that the political economy of digital payments concerns the allocation of infrastructural authority. Who establishes the standards? Which actors can access the network? How easily can participants move among providers? Who controls transaction data? Which institution is responsible for managing systemic risks? Such questions extend considerably beyond conventional behavioural adoption models.

The literature on payment systems and digital platforms provides conceptual foundations for addressing these issues (Anderson, 2009; Just, 2018; Ortino, 2022). Yet, compared with the large volume of adoption research, governance perspectives remain less visibly consolidated within the thematic structure of the field. This imbalance is one of the central propositions examined empirically through the bibliometric analysis.

Innovation Policy, Technological Architecture, and Emerging FinTech Themes

The governance of digital payments must also be understood in relation to the broader evolution of financial technology. Payment systems increasingly intersect with blockchain, artificial intelligence, digital currencies, and other forms of technological innovation. These developments expand both the technological possibilities of digital finance and the institutional challenges associated with governing it.

The blockchain literature provides a useful comparison because blockchain emerged rapidly as both a technological and managerial research field. Zhao et al. (2016) identify business innovations and research opportunities arising from blockchain, illustrating how a new technological architecture can generate diverse questions extending beyond its original technical foundations. Xu et al. (2019) similarly provide a systematic review of blockchain research, reflecting the need to synthesise an expanding and multidisciplinary body of scholarship.

The application of bibliometric methods by Tandon et al. (2021) to blockchain research in management further demonstrates how rapidly developing technologies can produce fragmented literatures that require systematic mapping. Blockchain scholarship expanded across technological, organisational, financial, and governance domains, making bibliometric analysis valuable for identifying intellectual clusters and research trajectories. Digital payment and FinTech scholarship displays a similar pattern of multidisciplinary expansion.

Blockchain is relevant to the present study not because digital payments necessarily rely on distributed ledgers, but because its research trajectory illustrates a broader phenomenon. Financial technologies frequently begin as technically oriented innovations and subsequently become subjects of organisational, regulatory, economic, and governance analysis. As adoption grows, scholarship expands from questions about technological capability toward questions about institutional application and societal consequences.

Artificial intelligence introduces comparable governance concerns. Perdana et al. (2025) examine algorithmic trust and regulation within the context of central banking, highlighting governance, ethical, legal, and social implications. The increasing integration of algorithmic technologies into financial systems means that payment governance may eventually involve more than transaction infrastructure alone. Automated monitoring, fraud detection, customer assessment, data analysis, and regulatory technology can introduce additional layers of algorithmic decision-making.

Trust consequently acquires both behavioural and institutional dimensions. Adoption research frequently treats trust as a factor affecting the willingness of users to engage with technology. Governance research must additionally examine whether users, firms, and regulators can trust the institutional processes through which digital systems process data, make decisions, and allocate responsibilities. This distinction illustrates again how the unit of analysis expands as financial technologies mature.

Innovation policy provides an additional lens. Edler & Fagerberg (2017) show that policy intervention can influence the direction and organisation of innovation. Digital payment infrastructures are therefore unlikely to emerge solely from unconstrained market processes. Regulators, central banks, governments, private platforms, financial institutions, and technology firms jointly influence their development.

Similarly, the organisational perspective of Felin et al. (2017) highlights the distributed nature of innovation. Payment ecosystems exemplify this distribution particularly clearly because no single organisation necessarily controls every technological and institutional component. Payment providers depend on banks, merchants, communication infrastructure, identity systems, regulatory approval, and consumers. Governance must therefore coordinate innovation among heterogeneous actors.

These emerging themes indicate that the future of digital payment research is likely to become increasingly interdisciplinary. Technological questions involving artificial intelligence, cybersecurity, blockchain, and digital currency will coexist with economic questions involving competition, inclusion, and market design, as well as institutional questions involving regulatory authority, data governance, and standardisation. The bibliometric structure of the field provides a means of assessing the extent to which this diversification is already occurring.

Bibliometric Reviews and the Mapping of Emerging Research Fields

The rapid expansion and increasing interdisciplinarity of digital payment and FinTech scholarship make bibliometric analysis especially appropriate. Bibliometric techniques examine observable relationships within scholarly communication, allowing publication output, citation patterns, collaboration structures, and conceptual linkages to be analysed systematically.

One important distinction is between performance analysis and science mapping. Performance analysis evaluates the visible productivity and influence characteristics of a research field, such as publication growth, author output, country contributions, and citation performance. Science mapping instead examines relationships among components of the scholarly system, including co-authorship, co-citation, and keyword co-occurrence. Together, these approaches permit both the volume and the structure of knowledge production to be investigated.

Previous bibliometric studies demonstrate the utility of this approach. Tandon et al. (2021) combine bibliometric analysis with literature review to examine blockchain applications in management. Their approach illustrates how bibliometric methods can reveal thematic structures in an emerging

interdisciplinary domain. Xu et al. (2019) similarly organise the blockchain literature systematically, while Zhao et al. (2016) identify innovation themes and research opportunities associated with blockchain development.

Bibliometric techniques have also been applied beyond technological research. Shuaib et al. (2015) analyse highly cited articles within emergency medicine, demonstrating how citation-based approaches can identify influential contributions within a research domain. Yuan et al. (2020) similarly conduct bibliometric analysis of highly cited research relating to gastric disease. Although these substantive fields differ from FinTech, they illustrate the general methodological value of citation analysis for examining scholarly influence and knowledge concentration.

The relationship between productivity and scholarly structure is also relevant. Seglen & Aksnes (2000) examine scientific productivity and group size through bibliometric analysis, demonstrating that patterns of knowledge production can be investigated quantitatively at the level of research communities. In emerging fields, authorship concentration and collaboration networks can provide information about whether knowledge production is organised around established research groups or remains distributed among relatively fragmented contributors.

This distinction is particularly important for digital payment and FinTech research. A rapidly growing number of publications may indicate substantial scholarly interest, but publication volume alone does not establish that the field has developed a coherent intellectual structure. Large numbers of publications can coexist with fragmented collaboration, repetitive theoretical frameworks, or limited cross-disciplinary integration.

Co-authorship analysis can therefore reveal whether recurring research communities have emerged. Country-level collaboration can indicate the geography of knowledge production and the extent to which research networks transcend national boundaries. Keyword co-occurrence can identify the concepts that repeatedly appear together, thereby revealing thematic clusters. Co-citation analysis can identify references that are frequently cited in combination, providing evidence regarding the intellectual foundations through which the field organises knowledge.

The usefulness of bibliometric analysis in the present setting therefore lies not simply in producing rankings. Rankings of authors, countries, or publications provide descriptive information but offer limited insight into how a field is conceptually organised. The present study instead uses bibliometrics to examine the relationship between growth, concentration, and transition. The objective is to determine whether the expanding digital payment literature has diversified intellectually and whether governance-oriented themes have begun to acquire a more substantial position relative to established adoption-centred research.

From Adoption to Governance: Conceptual Synthesis

The literature reviewed above suggests that digital payment and FinTech scholarship can be organised around a broad developmental sequence. This sequence should not be interpreted as

strictly chronological, because adoption, inclusion, innovation, and governance research continue to coexist. Rather, it describes an expansion in the analytical scope of the field.

The first layer is technology adoption. Research in this stream examines the conditions under which consumers and merchants accept digital payment mechanisms. The QRIS literature provides clear examples through studies of consumer preferences, behavioural intentions, customer adoption, and merchant usage (Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024).

The second layer is economic participation and financial inclusion. Here, adoption is connected to broader consequences involving consumer purchasing, product distribution, small-enterprise digitalisation, and business sustainability (Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025). Digital payments are no longer examined only as technologies that users accept but also as mechanisms through which economic actors participate in digital commerce.

The third layer is platform organisation. As digital payment networks expand, research must consider the economic characteristics of multi-participant platforms, network effects, competitive strategies, and market concentration (García-Canal et al., 2024; Spulber, 2019). At this stage, the unit of analysis begins to shift from individual participants toward the relationships among providers, users, merchants, and other actors within the ecosystem.

The fourth layer is institutional governance. Questions of interoperability, regulation, law, standardisation, and public authority become increasingly central once payment networks function as economically important infrastructure. The relevant literature emphasises competition policy in platform environments (Just, 2018), the institutional functions of law and platforms within payment systems (Ortino, 2022), the regulatory implications of digital finance in developing markets (Anderson, 2009), and the public-interest foundations of regulatory intervention (Hantke-Domas, 2003).

The fifth layer is data and algorithmic governance. The incorporation of increasingly sophisticated technologies introduces questions concerning algorithmic trust, accountability, ethical oversight, and regulatory capacity (Perdana et al., 2025). This emerging layer connects digital payments to the wider transformation of financial governance under technologically intensive conditions. These layers can be summarised as follows

Research Layer	Main Evidence	Assessment
Technology adoption	Consumer preferences, intention to use, customer and merchant acceptance	(Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024)
Financial inclusion and participation	Digital transactions, product distribution, MSME digitalisation, business sustainability	(Anderson, 2009; Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025)
Platform organisation	Network interaction, platform economics, competitive expansion	(García-Canal et al., 2024; Spulber, 2019)
Institutional governance	Competition policy, regulation, law, interoperability, institutional coordination	(Hantke-Domas, 2003; Just, 2018; Konings, 2018; Ortino, 2022)
Innovation governance	Innovation policy, organisational coordination, technological transformation	(Edler & Fagerberg, 2017; Felin et al., 2017; Zhao et al., 2016)
Emerging digital governance	Algorithmic trust, regulatory accountability, advanced financial technologies	(Perdana et al., 2025; Tandon et al., 2021; Xu et al., 2019)

Table 9. Conceptual Evolution of Digital Payment and FinTech Research

The value of this framework lies in avoiding a false distinction between adoption and governance. The two are complementary. Payment infrastructure cannot become economically significant without users, merchants, and firms choosing to participate. Conversely, widespread participation increases the importance of the institutional framework within which transactions occur. Adoption creates scale; scale increases infrastructural significance; infrastructural significance increases the importance of governance.

The development of QRIS research illustrates this relationship particularly clearly. Existing studies provide valuable evidence regarding adoption and economic participation (Bakhitah et al., 2023; Cahyasari & Widyastuti, 2025; Djoyo et al., 2022; Ediputra & Amalyah, 2022; Hamzah Muchtar et al., 2024; Usman et al., 2024). Yet QRIS also represents a standardised payment architecture, which means that its broader significance cannot be reduced to individual willingness to scan and use a QR code. Its institutional relevance arises from the organisation of interaction among providers, users, merchants, and the regulatory framework.

This conceptual distinction motivates the bibliometric inquiry undertaken in the present paper. If digital payment scholarship has evolved in accordance with the institutional development of the technologies it studies, one would expect governance-related concepts to become progressively more visible within keyword and citation networks. Conversely, if the literature remains heavily dependent on behavioural adoption frameworks despite the increasing infrastructural complexity of digital payments, the bibliometric evidence should reveal a gap between technological development and theoretical development.

Accordingly, the present study does not treat digital payment and FinTech research as a homogeneous literature. Instead, it evaluates the field as an evolving knowledge system in which

behavioural, technological, financial, and institutional perspectives compete and interact. The bibliometric analysis examines publication growth and disciplinary distribution, identifies the geographical and collaborative organisation of scholarship, maps recurring thematic relationships through keyword co-occurrence, and reconstructs the intellectual foundations of the field through co-citation analysis.

The central proposition is that the intellectual trajectory of digital payment scholarship can be interpreted as a gradual movement from adoption to governance. Adoption remains the established core, particularly through research on consumers, merchants, financial inclusion, and technology usage. Governance represents the expanding frontier, incorporating platform competition, interoperability, regulation, law, innovation policy, data governance, and algorithmic trust. The empirical sections that follow test this proposition at the level of the scholarly field itself by examining whether the observed bibliometric structures support a transition toward a broader governance-centred research agenda

Methods

Research Design

This study employs a bibliometric review design to examine the development, intellectual structure, and collaborative architecture of digital payment and FinTech research. Bibliometric analysis is particularly appropriate for a rapidly expanding and multidisciplinary research domain because it enables the literature to be examined simultaneously in terms of publication performance and relational knowledge structures. Rather than relying exclusively on a conventional narrative synthesis, the study combines descriptive indicators with science-mapping techniques to identify how the field has developed, which research communities have contributed to its growth, what concepts dominate its thematic organisation, and which intellectual foundations connect different strands of scholarship.

The methodological design is informed by previous applications of biblio-metric and systematic mapping approaches to emerging technological fields. Research on blockchain, for example, demonstrates how bibliometric analysis can be used to organise rapidly expanding multidisciplinary literatures and identify their thematic and intellectual structures (Zhao et al., 2016; Xu et al., 2019; Tandon et al., 2021). Citation-based bibliometric approaches have likewise been employed to identify influential contributions and knowledge concentration in other research domains (Shuaib et al., 2015; Yuan et al., 2020), while bibliometric evidence on scientific productivity illustrates the value of examining the organisation of scholarly communities rather than publication counts alone (Seglen and Aksnes, 2000).

Accordingly, the analysis is organised around two complementary components. The first is performance analysis, which describes the observable characteristics of the literature through publication growth, geographical distribution, subject-area composition, document types, and author productivity. The second is science mapping, which investigates relationships within the

knowledge system through keyword co-occurrence, author co-authorship, country co-authorship, and cited-reference co-citation analysis.

This combination is important because publication volume and intellectual structure represent different characteristics of a research field. A literature may expand rapidly without becoming conceptually diversified, while a comparatively small literature may contain several well-developed intellectual communities.

The methodological objective is therefore not merely to determine how much digital payment and FinTech research has been published, but to identify how that scholarship is organised.

The analytical design addresses the four research questions established in the preceding sections:

1. How has digital payment and FinTech research developed over time, and how is publication activity distributed across disciplines, countries, document types, and authors?
2. What thematic structures emerge from the co-occurrence of author keywords?
3. What intellectual foundations and research traditions are revealed through cited-reference co-citation analysis?
4. What do author and country collaboration networks reveal about the organisation of knowledge production and the broader transition from adoption-oriented research toward governance-oriented scholarship?

Data Source

The bibliographic dataset was retrieved from the Scopus database. Scopus was selected because the subject investigated in this study extends across several disciplinary domains, including business and management, economics and finance, computer science, engineering, information systems, and social sciences. Digital payment and FinTech research is inherently interdisciplinary: studies range from consumer and merchant adoption to platform economics, regulatory governance, innovation policy, and emerging algorithmic governance. A multidisciplinary bibliographic database is therefore required to capture these partially overlapping literatures.

The empirical corpus used in this paper is based on Scopus-indexed records. Although bibliometric studies may combine or compare multiple indexing databases, bibliographic records from different databases were not merged in the present analysis because doing so may introduce duplicate records, inconsistent author identities, differences in source coverage, and non-equivalent citation structures.

All publication counts and network relationships reported in the empirical analysis are therefore interpreted as characteristics of the Scopus-indexed research corpus.

Search Strategy and Scope

The search strategy was constructed to capture the intersection between digital payment research and the broader FinTech literature while retaining QRIS as a relevant digital-payment standard within that research domain. The final Scopus query recorded in the analytical exports was:

TITLE-ABS-KEY (('QRIS' OR 'Digital Payment') AND Fintech) AND PUBYEAR > 2020 AND PUBYEAR < 2027 AND (LIMIT-TO(LANGUAGE, 'English'))

The query searches titles, abstracts, and keywords for records containing either "QRIS" or "Digital Payment", together with the term "Fintech". Publications were restricted to the period 2021–2026 and to English-language documents. The Boolean structure of the query is methodologically important. Because the expression contains the operator

('QRIS' OR 'Digital Payment') AND Fintech.

A publication does not need to discuss QRIS specifically to enter the corpus. A study addressing digital payments and FinTech satisfies the inclusion logic independently of whether QRIS or Indonesia appears in the record. Consequently, the resulting dataset represents the broader intellectual domain of digital payment and FinTech research, with QRIS constituting one component of that domain. This interpretation is consistent with the positioning adopted throughout the present paper and avoids treating the corpus incorrectly as an exclusively QRIS-related literature.

The 2021–2026 publication window captures the recent period in which digital payment scholarship expanded substantially. Because the database extraction was undertaken during 2026, publications recorded for 2026 represent a partial publication year. The 2026 observation is therefore interpreted as incomplete coverage rather than as evidence of declining research activity.

Corpus Construction and Data Screening

The initial Scopus search returned 378 records. The raw dataset was subsequently subjected to a stepwise validation process before network analysis. The screening procedure focused principally on bibliographic completeness, duplicate removal, and the availability of metadata required for the planned bibliometric analyses.

The first stage consisted of the complete set of records generated by the search query (N = 378). Duplicate records and entries containing incomplete bibliographic information were then removed, reducing the corpus to 372 records. A subsequent eligibility and metadata-validation stage produced a final analytical corpus of 368 records. The corpus-construction process is summarised in Table 2

An explicit distinction is maintained between the raw search corpus and the validated network corpus. The native Scopus "Analyse search results" outputs—including the exported distributions by publication year, country, subject area, document type, and author—describe the original search

universe of 378 records. The VOSviewer-based science-mapping analysis uses the validated corpus of 368 bibliographic records after duplicate and metadata screening. This distinction is maintained throughout the results section so that indicators generated from different stages of corpus construction are not presented as if they shared an identical denominator.

Stage	Procedure	Records
Stage 1	Initial Scopus search using the predefined title–abstract–keyword query	378
Stage 2	Removal of duplicate records and entries with incomplete bibliographic information	372
Stage 3	Final eligibility screening and validation of metadata required for bibliometric and network analysis	368

Table 2. Bibliographic Corpus Construction

No additional subject-area restriction was imposed after retrieval. This decision preserves the interdisciplinary character of the research domain rather than restricting the sample to finance or business journals. Such breadth is particularly important because digital payment technologies are simultaneously studied as financial products, information systems, technological infrastructures, consumer innovations, and regulatory mechanisms.

Bibliographic Data Extraction

The bibliographic records were downloaded in comma-separated value (CSV) format with the metadata required for descriptive and relational analysis. The extracted fields included, where available:

- authors and author identifiers;
- publication title;
- year of publication;
- source title;
- document type;
- author affiliations;
- countries or territories of affiliation;
- abstracts;
- author keywords;
- indexed keywords;
- citation information; and
- cited references.

Separate Scopus analytical exports were also retained for publication year, country or territory, subject area, document type, and author productivity. These exports provide the descriptive performance indicators reported in the subsequent section.

The full bibliographic file was used for relational network analysis. Retaining references, keywords, affiliations, and authors within the same bibliographic dataset makes it possible to examine several dimensions of the research field from a common underlying corpus.

Analytical Software

Two complementary analytical environments were employed. VOSviewer was used to construct and visualise bibliometric networks, including keyword co-occurrence, author co-authorship, country co-authorship, and cited-reference co-citation networks. Bibliometrix/Biblioshiny in R was used as a complementary environment for bibliographic performance analysis and descriptive evaluation of the research corpus. The use of network-based mapping follows the broader methodological logic adopted in bibliometric reviews of rapidly developing technological research. Whereas descriptive indicators identify the volume and distribution of scholarly activity, network analysis identifies relationships among the components of the literature.

For all VOSviewer analyses, the map was created from bibliographic data imported from the Scopus CSV file. Full counting was employed consistently. Under full counting, each qualifying publication contributes fully to the relevant author, country, keyword, or cited-reference relationship rather than being fractionally divided according to the number of participating elements. This approach was selected because the objective is to identify the breadth and visibility of relationships across the literature rather than to allocate fractional publication credit.

Performance Analysis

The first stage of the empirical analysis evaluates the performance structure of the research field. Five principal indicators are examined.

Annual publication output: Annual publication counts are used to identify the temporal development of digital payment and FinTech research. The analysis focuses on the direction and intensity of publication growth rather than treating the number of documents as a direct measure of research quality. The 2026 observation is interpreted cautiously because the search was conducted before the completion of the calendar year.

Geographical distribution: Documents are classified according to author-affiliation countries or territories to identify the principal geographical centres of knowledge production. Because individual publications may contain authors affiliated with more than one country, country totals are not interpreted as mutually exclusive shares of the total corpus.

Subject-area distribution: Scopus subject classifications are used to evaluate the disciplinary location of the literature. A publication may be associated with more than one subject category, and subject-area counts can therefore exceed the number of unique documents. The distribution is interpreted as evidence of disciplinary participation rather than as a mutually exclusive classification.

Document types: The distribution of journal articles, conference papers, book chapters, reviews, books, and other indexed publication types is analysed to assess the publication structure of the field. A relatively strong journal-article share may indicate increasing consolidation within

conventional peer-reviewed outlets, whereas conference proceedings can remain particularly important in technologically oriented research fields.

Author productivity: Publication counts by author are examined to determine whether the field is dominated by a limited number of recurring contributors or remains distributed across a comparatively broad research community. Author productivity is interpreted jointly with the co-authorship network because publication frequency alone does not reveal the extent or structure of collaboration.

Science-Mapping Strategy

The second analytical stage employs science mapping to investigate relationships that cannot be identified from publication counts alone. Four network analyses are conducted: keyword co-occurrence, author co-authorship, country co-authorship, and cited-reference co-citation. Table 3 summarises the principal VOSviewer specifications.

Analysis	Unit of Analysis	Counting Method	Threshold / Restriction
Keyword co-occurrence	Author keywords	Full counting	Minimum 5 occurrences; 51 of 1,011 keywords met the threshold
Country co-authorship	Countries	Full counting	Minimum 2 documents per country; maximum 2 countries per document; 42 of 68 countries met the threshold
Author co-authorship	Authors	Full counting	Minimum 1 document; maximum 10 authors per document; 1,067 authors eligible
Co-citation	Cited references	Full counting	Minimum 2 citations; 253 of 2,834 cited references met the threshold

Table 3. Science-Mapping Specifications

Keyword Co-Occurrence Analysis.

Keyword co-occurrence analysis is used to identify the conceptual structure of the literature. Two keywords are considered connected when they occur within the same publication. Repeated co-occurrence across documents generates stronger relationships and allows related concepts to form thematic clusters.

Author keywords constitute the unit of analysis. The initial bibliographic corpus contained 1,011 author keywords. A minimum occurrence threshold of five was applied to reduce the influence of highly idiosyncratic terms and improve network readability. Fifty-one keywords met this criterion and were included in the final co-occurrence map.

The interpretation of the keyword network considers three principal characteristics. First, node prominence indicates the relative occurrence of a keyword in the eligible literature. Second, link strength reflects the degree to which a keyword relates to other terms. Third, cluster membership

identifies groups of keywords that occur together more frequently and can therefore be interpreted as thematic concentrations.

This analysis is particularly important for evaluating the central proposition of the paper. The literature review suggests that established digital-payment scholarship is strongly oriented toward adoption, consumer behaviour, financial inclusion, and merchant participation. At the same time, theoretical research increasingly raises questions concerning platform organisation, competition, regulation, and technological governance. Keyword mapping allows the relative structural visibility of these perspectives to be examined empirically.

Country Co-Authorship Analysis.

Country co-authorship analysis is used to examine the geographical architecture of research collaboration. Countries are connected when authors affiliated with institutions in different countries jointly contribute to a publication.

A minimum threshold of two publications per country was imposed. Of the 68 countries represented in the validated bibliographic data, 42 satisfied this requirement and were eligible for the collaboration network. The maximum number of countries per document was restricted to two in the configured analysis to prevent unusually international publications from disproportionately influencing the resulting network structure.

The country network is interpreted in terms of publication presence, collaboration links, total link strength, and cluster formation. These indicators enable the study to distinguish between countries that are prolific publication centres and countries that occupy strategically connected positions within international collaboration networks.

Attention is given to the location of emerging economies because digital payment development is especially visible in jurisdictions where mobile and platform-based finance can overcome conventional infrastructural limitations. Earlier research already emphasises the competitive and regulatory significance of mobile financial services in developing markets. The geographical analysis therefore provides an additional perspective on whether contemporary knowledge production is concentrated predominantly in traditional research centres or increasingly shaped by countries undergoing rapid digital-payment transformation.

Author Co-Authorship Analysis.

Author co-authorship analysis examines the social structure of knowledge production. Two authors are linked when they appear together on the same publication, and repeated collaboration generates stronger network relationships.

The minimum publication threshold was set at one document per author to preserve the broad collaborative structure of an emerging field rather than restricting the analysis to a small group of highly productive scholars. A maximum of ten authors per publication was imposed to reduce the

possibility that unusually large author teams would dominate network density. First names were reduced to initials within the mapping configuration to improve consistency in author presentation.

A total of 1,067 authors were represented in the validated bibliographic corpus. The resulting network is evaluated according to the presence of recurring collaboration groups, the degree of fragmentation among author communities, and the emergence of relatively central research teams.

The interpretation does not equate a large node automatically with intellectual influence. Publication productivity, citation influence, and network connectivity represent conceptually different dimensions of scholarly activity. This distinction is consistent with broader bibliometric evidence showing that scientific productivity and research-group organisation should be examined as related but non-identical characteristics of knowledge production.

Co-Citation Analysis.

Co-citation analysis is employed to identify the intellectual foundations of digital payment and FinTech scholarship. Two references are co-cited when a subsequent publication cites both within the same reference list. When pairs of references are repeatedly cited together across the literature, they can be interpreted as belonging to related intellectual traditions or as providing common conceptual foundations for later research.

The validated bibliographic records contained 2,834 cited references. To balance intellectual coverage with network readability, a minimum threshold of two citations was imposed. A total of 253 cited references met the threshold and were retained for network construction.

The resulting clusters are interpreted as intellectual domains rather than merely groups of highly cited documents. Citation frequency reflects the visibility of an individual reference, whereas co-citation relationships indicate how references are used together within the literature. The analysis therefore enables the study to investigate whether the intellectual foundation of digital payment research is concentrated primarily around behavioural adoption and financial inclusion, or whether governance, regulation, platform economics, technological innovation, and other theoretical traditions have acquired comparable structural importance.

This distinction is central to the paper's analytical argument. Bibliometric reviews in technologically dynamic domains demonstrate that citation relationships can reveal the intellectual organisation underlying rapid publication growth. The co-citation analysis is consequently used not only to identify influential references but also to assess the degree of theoretical concentration or diversification within the field.

Network Interpretation.

The VOSviewer networks are interpreted using four related concepts: nodes, links, total link strength, and clusters.

A *node* represents the unit being analysed, such as an author, country, keyword, or cited reference. Node prominence reflects the weight assigned to the unit according to the relevant analysis. A link represents a relationship between two nodes - for example, co-authorship between two researchers, co-occurrence between two keywords, or co-citation between two references.

Total link strength captures the aggregate strength of the relationships connecting a node to the remainder of the network. It is therefore interpreted as an indicator of relational embeddedness rather than simply publication frequency. A country with fewer publications may, for example, possess comparatively strong international connections, while a highly productive author may remain located within a relatively isolated collaboration group.

Clusters consist of groups of nodes that display comparatively strong internal relationships. Their substantive interpretation depends on the unit of analysis. Keyword clusters are interpreted as research themes; co-citation clusters as intellectual foundations; author clusters as collaborative research communities; and country clusters as geographical collaboration structures.

Cluster colours are treated purely as visual identifiers generated by the mapping procedure. They do not imply ordinal ranking, superiority, or temporal sequence. Interpretation instead relies on the substantive composition and relational position of the nodes within each cluster.

Analytical Integration: From Performance to Intellectual Structure.

The methodological framework follows a sequential logic. Descriptive performance indicators are examined first to establish the scale and distribution of digital payment and FinTech research. The analysis then moves to relational networks to identify how scholarly actors and concepts are connected.

The first stage therefore answers *where, when, and by whom* the literature has been produced. The second addresses *how the knowledge itself is organised*. Integrating these two stages avoids interpreting publication growth as sufficient evidence of intellectual maturity.

The study subsequently interprets the science-mapping results in relation to the conceptual distinction established in the literature review. Adoption-centred research is represented by themes concerning consumer behaviour, merchant acceptance, financial inclusion, digital wallets, and technology usage. Governance-oriented research encompasses themes concerning platform organisation, interoperability, regulation, competition, innovation governance, cybersecurity, and algorithmic or data-intensive financial infrastructure.

This classification is not imposed mechanically on the bibliographic records prior to network construction. Instead, the clusters are generated from the bibliographic relationships themselves and interpreted after mapping. The "from adoption to governance" framework therefore functions as an interpretative lens rather than as an ex-ante classification rule. This distinction reduces the risk of forcing network outcomes to conform to the conceptual argument of the paper.

Methodological Reliability and Replicability.

Several procedures were adopted to strengthen methodological transparency and replicability.

First, the complete Scopus search expression is reported explicitly, including field restrictions, publication years, and language criteria. This allows the search universe to be reconstructed independently.

Second, the distinction between the raw search results (N = 378) and the validated bibliographic network corpus (N = 368) is maintained throughout the analysis. The native Scopus descriptive exports are therefore identified as raw search indicators, whereas the relational science-mapping results are identified as validated-corpus indicators.

Third, the principal thresholds used for each network analysis are reported explicitly rather than selected without documentation. Keyword, country, author, and cited-reference networks consequently remain reproducible using the same bibliographic file and VOSviewer configuration.

Fourth, bibliographic CSV data were imported directly into the network analysis environment without substantive manual restructuring of relational data. The principal standardisation applied within the author network consisted of reducing first names to initials as specified in the mapping procedure.

Fifth, the use of full counting is maintained consistently across the principal network analyses, thereby avoiding changes in weighting methodology between author, country, keyword, and citation structures.

Finally, the interpretation distinguishes descriptive bibliometric relationships from causal inference. A strong keyword association does not demonstrate that one concept causes another, just as a dense country collaboration network does not establish the effectiveness of a national digital-payment policy. Bibliometric analysis maps the organisation of scholarly knowledge; it does not directly estimate the economic effects of the technologies or policies represented within that scholarship.

Methodological Limitations.

The methodology is subject to several limitations that should be recognised when interpreting the results. First, the empirical corpus is restricted to publications indexed in Scopus. Relevant research appearing exclusively in other indexing systems, non-indexed journals, policy reports, working papers, dissertations, regulatory publications, or other forms of grey literature is therefore outside the bibliometric network.

Second, the analysis is restricted to English-language publications between 2021 and 2026. This improves comparability within the corpus but may underrepresent research published in national languages, particularly in countries where digital payment initiatives are strongly connected to domestic policy environments.

Third, the Boolean query deliberately captures the broader intersection between digital payments and FinTech. Consequently, the corpus should not be interpreted as representing QRIS research alone. The breadth of the query is appropriate to the objectives of the present paper but means that conclusions relate primarily to the wider digital payment - FinTech knowledge domain.

Fourth, bibliometric networks are sensitive to threshold selection. A lower threshold increases inclusiveness but can produce visually dense and difficult-to-interpret maps, whereas a higher threshold increases readability at the cost of excluding less frequent but potentially emerging concepts. The thresholds used in this paper were therefore selected to preserve a meaningful proportion of the research structure while maintaining interpretable networks.

Fifth, author and institutional names can be affected by bibliographic inconsistencies. Initial reduction and database indexing improve comparability but cannot eliminate all potential identity ambiguities.

Finally, 2026 represents an incomplete publication year. Annual trends involving that year are therefore interpreted as partial observations rather than as evidence of a structural reversal in publication activity.

Despite these limitations, combining transparent corpus construction, descriptive performance indicators, and multiple science-mapping techniques provides an appropriate framework for examining both the quantitative expansion and intellectual evolution of digital payment and FinTech research. The methodology is specifically designed to determine whether the rapid growth of the field has been accompanied by a corresponding transition in its knowledge structure from established adoption-oriented perspectives toward a broader governance-centred research agenda.

Result and Discussion

This section presents and interprets the bibliometric structure of digital payment and FinTech research. Consistent with the methodological distinction established earlier, two related denominators are used. The descriptive indicators exported directly from the Scopus "Analyse search results" interface describe the original search universe of 378 records. Following duplicate removal, bibliographic completeness checks, and metadata validation, 368 records were retained for the VOSviewer-based science-mapping analysis. Accordingly, Figures 1–5 describe the raw search results, whereas the keyword, co-citation, country collaboration, and author collaboration networks are interpreted from the validated corpus.

The results reveal a field characterised by three simultaneous tendencies. First, publication activity has expanded rapidly, particularly since 2023. Second, knowledge production is strongly interdisciplinary and geographically concentrated in several emerging economies, especially India and Indonesia. Third, despite the expansion of the field, its intellectual structure remains disproportionately anchored in financial inclusion, digital-payment adoption, digital wallets, and behavioural perspectives. Governance-related concerns – including regulation, platform

organisation, cybersecurity, digital currency, and institutional coordination – are visible, but they remain less structurally dominant. The evidence therefore supports the central argument of this study: digital payment and FinTech research is progressively moving *from adoption to governance*, but this transition remains incomplete.

Publication Growth and Temporal Development

Figure 1 presents the annual publication trajectory for the raw Scopus search corpus.

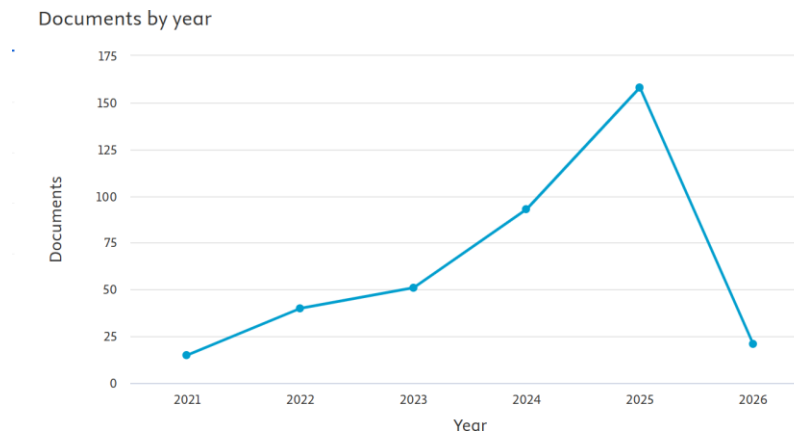


Figure 1. Documents by year

The annual distribution demonstrates substantial growth in scholarly attention to digital payments and FinTech between 2021 and 2025. Publication output increased from only 15 documents in 2021 to 40 in 2022 and 51 in 2023. The expansion became substantially stronger thereafter, reaching 93 publications in 2024 and 158 in 2025. The number of publications recorded in 2025 was therefore more than ten times the level observed in 2021. The 21 records appearing in 2026 should not be interpreted as a reversal of this trajectory because the database search was conducted before the completion of the calendar year. Table 4 reports the exact annual distribution.

Year	Documents	Share of Raw Corpus (%)
2021	15	4.0
2022	40	10.6
2023	51	13.5
2024	93	24.6
2025	158	41.8
2026	21	5.6
Total	378	100.0

Table 4. Annual Publication Output

The trajectory suggests that digital payment and FinTech research has moved beyond an early exploratory stage. The acceleration after 2023 is consistent with a broader transition in which digital payments are increasingly treated not simply as supplementary banking technologies but as integral components of financial and commercial infrastructure.

This development is important for the interpretation of the literature. During the early stages of technological diffusion, scholarly attention commonly concentrates on whether users accept the innovation, whether merchants participate, and which technological characteristics encourage adoption. The approved empirical literature on QRIS illustrates precisely this orientation. Consumer preference, intention to use, merchant adoption, customer perspectives, purchasing behaviour, and small-business digitalisation occupy central positions in studies.

As publication activity increases, however, the research problem becomes broader. Once payment technologies are extensively adopted, their consequences increasingly depend on the structure of the platform, the rules governing participation, interoperability between providers, regulatory oversight, cybersecurity, and data management. This creates a natural movement from research concerned with *whether* digital payments are adopted toward research concerned with *how the resulting digital financial infrastructure is governed*.

The publication trajectory therefore provides the first indication of the transition investigated in this paper. Quantitative expansion has been substantial; the more important question is whether intellectual diversification has occurred at a similar pace. The subsequent analyses examine this question through disciplinary composition, thematic clustering, co-citation relationships, and collaboration networks.

Geographical Structure of Knowledge Production

The geographical distribution of publications is presented in Figure 2.

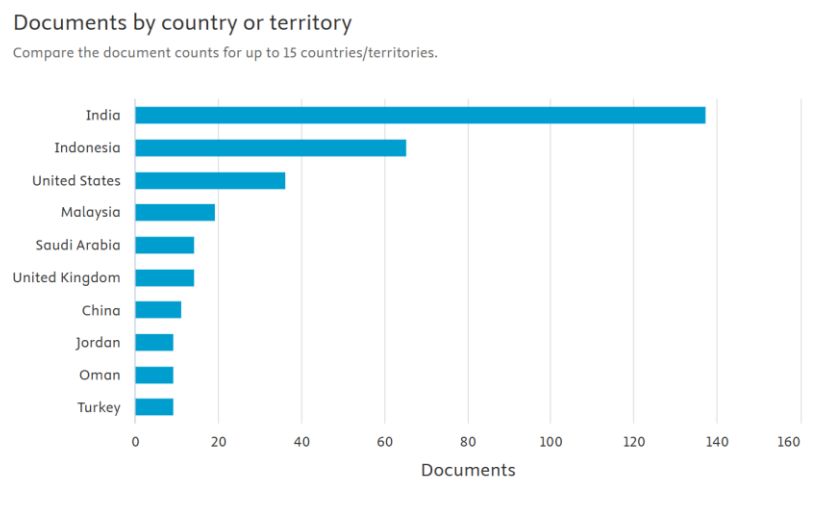


Figure 2. Documents by country or territory

India represents the largest publication centre in the dataset, with 137 documents, followed by Indonesia with 65 and the United States with 36. Malaysia contributes 19 documents, while Saudi Arabia and the United Kingdom each contribute 14. China accounts for 11 publications, and

Jordan, Oman, and Turkey each contribute nine. The leading countries are summarised in Table 5.

Country	Documents
India	137
Indonesia	65
United States	36
Malaysia	19
Saudi Arabia	14
United Kingdom	14
China	11
Jordan	9
Oman	9
Turkey	9

Table 5. Leading Countries by Publication Output

Because country assignments are derived from author affiliations, the counts are not mutually exclusive: a publication involving authors from several countries can contribute to more than one national total. The table should therefore be interpreted as a measure of geographical research participation rather than as a decomposition of the 378 documents into exclusive national shares.

Two features are especially important. First, knowledge production is not concentrated exclusively in the United States or Western Europe. India and Indonesia occupy the first and second positions respectively, while Malaysia, Saudi Arabia, Jordan, Oman, Turkey, and other emerging economies are also visible. This geographic pattern is consistent with the practical relevance of digital-payment transformation in markets where mobile infrastructure and FinTech can complement or bypass conventional branch-based financial channels.

Earlier work on mobile banking in developing markets already emphasised that digital financial services carry competitive and regulatory consequences beyond technological convenience. The present geographical pattern suggests that these questions are now generating substantial scholarly activity within the jurisdictions where digital-payment transformation is particularly visible.

Second, the strong presence of Indonesia is important even though this study no longer treats the corpus as exclusively QRIS-related. QRIS forms one component of the broader digital-payment and FinTech literature, and the substantial Indonesian contribution demonstrates how a nationally embedded digital-payment initiative can stimulate research concerning consumers, merchants, MSMEs, digitalisation, and payment infrastructure. This is consistent with the empirical concentration of QRIS research on adoption and participation.

The geographical findings consequently reinforce the developmental dimension of the field. Digital-payment research is not merely a literature about global technology firms. It is also a literature about how individual financial systems respond to rapid technological change and how emerging economies organise digital access, payment standards, platform participation, and regulatory coordination.

Disciplinary Composition and Interdisciplinary Character

Figure 3 reports the subject-area distribution.

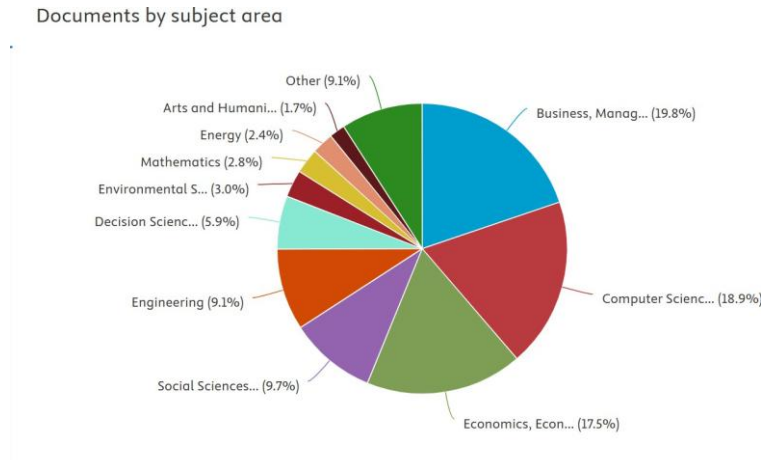


Figure 3. Documents by subject area

Business, Management and Accounting represents the largest disciplinary category, accounting for 19.8% of all subject-area assignments. Computer Science follows closely with 18.9%, while Economics, Econometrics and Finance accounts for 17.5%. Together, these three categories represent more than half of all disciplinary assignments. Social Sciences contributes 9.7%, Engineering 9.1%, and Decision Sciences 5.9%. Environmental Science, Mathematics, Energy, and Arts and Humanities account for smaller but nevertheless visible shares.

Subject Area	Assignments	Share (%)
Business, Management and Accounting	170	19.8
Computer Science	162	18.9
Economics, Econometrics, and Finance	150	17.5
Social Science	83	9.7
Engineering	78	9.1
Decision Science	51	5.9
Environmental Science	26	3.0
Mathematics	24	2.8
Energy	21	2.4
Arts and Humanities	15	1.7
Other subject areas	78	9.1
Total subject assignments	858	100.0

Table 6. Principal Subject Areas

The disciplinary composition confirms that digital payment and FinTech research cannot be adequately characterised as belonging to a single field. Its intellectual development lies at the intersection of technology and socio-economic organisation.

The strong Computer Science representation reflects the technological dimension of payment systems, including digital architectures, security, software-enabled transactions, blockchain, and

algorithmic systems. The almost equally large Business and Economics shares indicate that those technologies are simultaneously investigated in relation to adoption, business performance, financial inclusion, banking, market structure, and regulation.

This interdisciplinary structure is consistent with the evolution observed in other emerging technologies. Blockchain scholarship, for example, developed simultaneously as a technical innovation and as a managerial, financial, and organisational research field. Digital payment research exhibits a comparable pattern. Technical development generates economic consequences, and economic adoption generates new institutional and governance problems.

The subject distribution also provides an important explanation for the conceptual diversity observed later in the keyword networks. A field containing substantial contributions from computer science, finance, business, social science, engineering, and decision science would be expected to include technological, behavioural, economic, and institutional perspectives simultaneously.

Nevertheless, interdisciplinarity does not necessarily imply theoretical integration. Multiple disciplines may participate in the same research area while remaining organised around separate questions. The science-mapping evidence below therefore becomes important for identifying whether technological, behavioural, and governance research streams are genuinely interconnected

Document Types and the Consolidation of the Field

The distribution of publication types is shown in Figure 4.

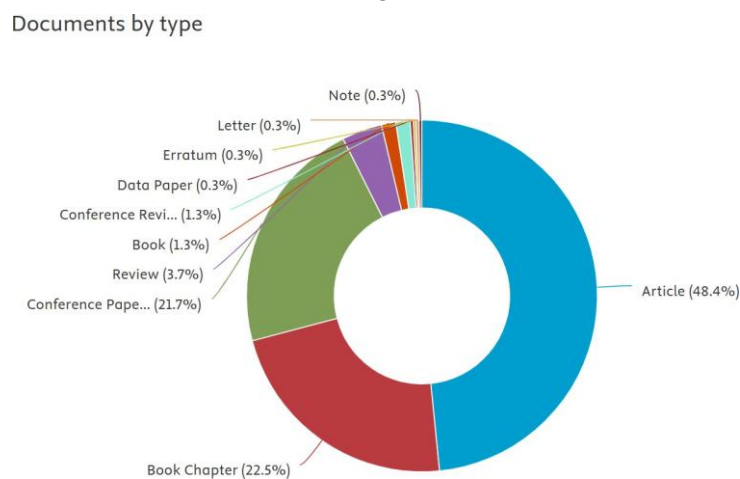


Figure 4. Documents by type

Journal articles constitute 48.4% of the corpus, corresponding to 183 publications. Book chapters represent 22.5%, while conference papers account for 21.7%. Reviews comprise 3.7%, and the remaining document categories are comparatively small.

Document Type	Documents	Share (%)
Article	183	48.4
Book Chapter	85	22.5
Conference Paper	82	21.7
Review	14	3.7
Book	5	1.3
Conference Review	5	1.3
Data Paper	1	0.3
Erratum	1	0.3
Letter	1	0.3
Note	1	0.3
Total	378	100.0

Table 7. Distribution by Document Type

The distribution suggests a field that combines characteristics of both technological innovation research and an increasingly consolidated social-science literature. Conference papers remain important, as would be expected in technologically intensive subjects where new applications and technical developments are communicated rapidly. At the same time, almost half of the corpus now consists of journal articles. The substantial book-chapter share also indicates that digital payment and FinTech questions are being incorporated into broader treatments of digital finance, technology, financial inclusion, and institutional transformation rather than being confined to highly specialised journals. This diversity of publication formats is consistent with the field's transitional character. Emerging technological literatures frequently develop initially through conferences and specialised outlets before becoming progressively absorbed into established disciplinary journals and broader conceptual debates. The growing presence of review-oriented and journal-based work is therefore compatible with an increasing need to consolidate accumulated evidence. Bibliometric review itself becomes particularly valuable under these conditions.

Author Productivity and Scholarly Fragmentation

Figure 5 displays the leading authors according to the Scopus descriptive export.

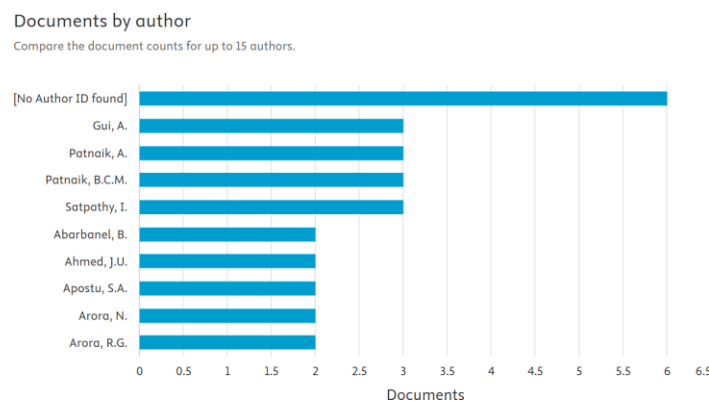


Figure 3. Documents by author

The author distribution differs substantially from the geographical concentration described previously. No individual scholar dominates publication output. Gui, A.; Patnaik, A.; Patnaik, B.C.M.; and Satpathy, I. each contribute three publications, while a relatively large number of authors contribute two. Six records could not be associated with a Scopus Author ID in the descriptive export.

This low concentration is important. A mature and theoretically consolidated research field may develop recognisable groups of recurrent scholars and stable collaboration networks. By contrast, the descriptive evidence here suggests broad participation combined with relatively low individual publication concentration. This pattern is consistent with bibliometric research showing that research productivity and collaborative organisation constitute distinct features of scientific communities. A field can contain many participating authors without possessing a dense or centralised intellectual community.

The VOSviewer co-authorship results later reinforce this interpretation. Digital payment and FinTech research appears to be expanding faster than stable scholarly communities are consolidating. This can be regarded simultaneously as a sign of vitality and a source of fragmentation. New researchers and disciplines continuously enter the field, but theoretical integration may lag the growth of publication activity.

Thematic Structure of FinTech and Digital Payment Research

The descriptive indicators establish that the literature is expanding, geographically diverse, and interdisciplinary. The next stage examines its conceptual organisation.

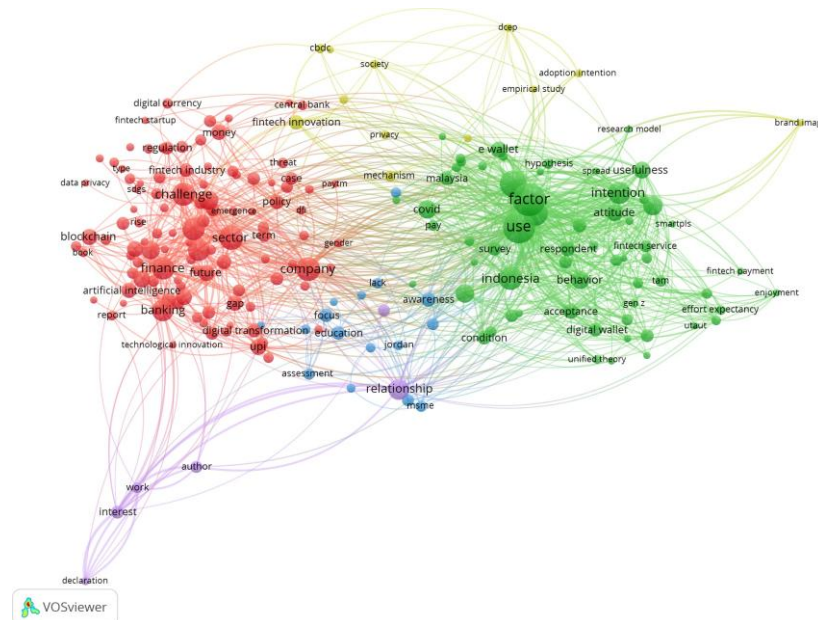


Figure 6. FinTech thematic structure in the digital payment research corpus

Figure 6 reproduces the VOSviewer thematic structure derived from the validated bibliographic corpus. The network contains several visually differentiated conceptual regions. The largest thematic structure is associated with financial inclusion, digital transformation, FinTech adoption, financial technology, and related behavioural or developmental concepts. A second substantial region contains terms associated with payment infrastructure, user behaviour, trust, and technological use. Smaller parts of the network extend toward digital currencies, blockchain, artificial intelligence, cybersecurity, and sustainability. The earlier analysis identified five broad thematic groupings:

Phillips–Perron, and KPSS tests under an intercept specification. The three tests provide broadly consistent evidence.

Thematic Group	Principal Orientation
1	Financial inclusion, digital banking transformation, FinTech adoption, and policy-related themes
2	Digital payment infrastructure, mobile payments, platform use, trust, and user experience
3	Macro-financial themes, digital currencies, and regulatory frameworks
4	Artificial intelligence, blockchain integration, and Cybersecurity
5	Sustainability-oriented FinTech, sustainable development, and green-finance connections

Table 8. Broad FinTech Themes Identified in the Network

The network is notable not simply because financial inclusion is prominent, but because inclusion is tightly connected to adoption and digital transformation. This confirms that the established core of the field is concerned primarily with how digital financial technologies expand participation and how users and firms adapt to them.

The position of adoption-centred research is consistent with the approved empirical literature. Studies of QRIS have repeatedly examined preferences, intention, usage, consumer behaviour, merchant participation, and business sustainability. The bibliometric network therefore generalises a pattern visible in individual empirical studies: digital-payment scholarship has been built substantially from the bottom up, beginning with users, merchants, and technology adoption.

At the same time, the emergence of artificial intelligence, blockchain, cyber-security, digital currency, and sustainability demonstrates that the field is not static. These themes represent expanding research fronts. Their comparatively smaller size suggests that they have not yet displaced adoption and inclusion as the dominant intellectual core.

The pattern resembles the evolution of blockchain scholarship, where technological innovation gradually generated managerial, institutional, and regulatory research questions. Digital

payments appear to be undergoing a similar process. The technological system becomes more complex, and the research agenda expands accordingly.

Digital Payment Network and the Dominance of Adoption

Figure 7 focuses more specifically on the digital-payment component of the network.

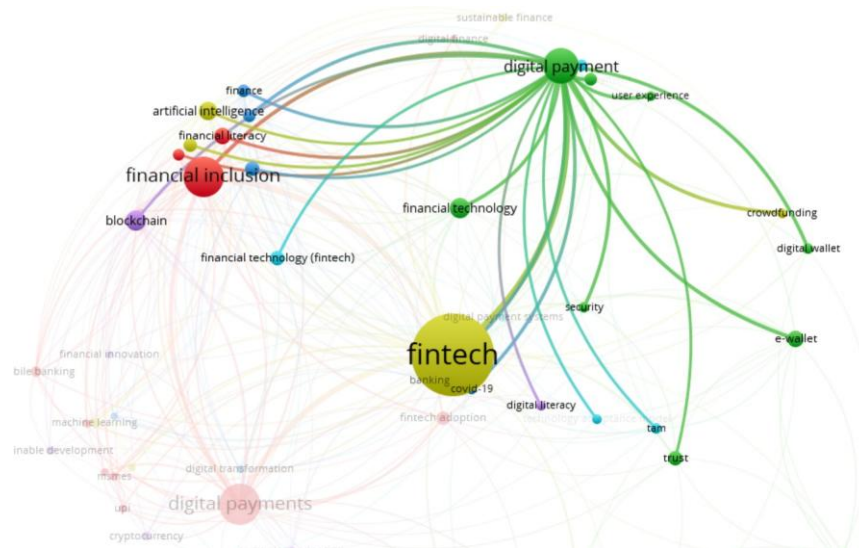


Figure 7. Digital payment co-occurrence network

The strongest visible relationships connect digital payment with FinTech, financial inclusion, digital wallets, e-commerce, financial technology, trust-related concepts, and behavioural constructs. Financial literacy also appears as part of the wider digital-finance environment. This structure is important because it demonstrates that the digital-payment literature has not developed primarily around payment-system law, interoperability, or competition.

Cluster	Items	Principal Orientation
1	12	digital banking; digital finance; digital financial inclusion; digital payments; digital inclusion
2	12	digital payment; digital wallet; e-commerce; e-wallet; financial technology
3	8	banking; COVID-19; digital transformation; finance; financial services
4	7	Artificial intelligence; crowdfunding; cryptocurrencies; FinTech; innovation
5	6	blockchain; cryptocurrency; digital currency; financial innovation; sustainable development
6	6	cybersecurity; digital payment systems; financial technology; Indonesia; TAM

Table 9. Keyword Co-Occurrence Clusters

Instead, its most central concepts relate to participation and use. The network can be organised into six thematic clusters reported in the original VOSviewer analysis. The complete keyword co-occurrence structure is shown separately in Figure 8.

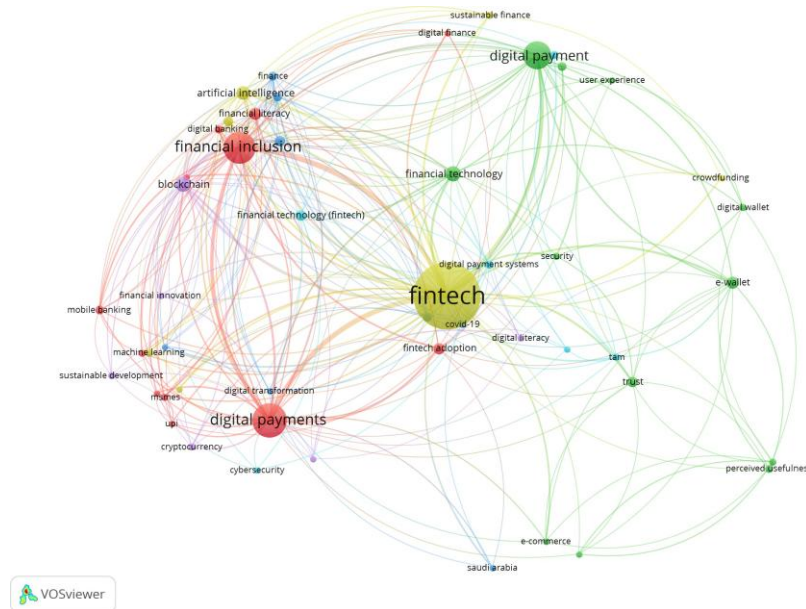


Figure 8. Author-keyword co-occurrence network

Of the 1,011 author keywords contained in the validated dataset, only 51 reached the minimum threshold of five occurrences. This result is informative. The literature contains a large vocabulary, but a comparatively small number of terms recur sufficiently often to enter the principal network. The field is therefore broad in terminology but concentrated around several recurring conceptual anchors.

Cluster 1 represents the inclusion-oriented component of the literature. Digital banking, digital finance, financial inclusion, and digital inclusion are strongly connected. This indicates that researchers frequently conceptualise digital payments as mechanisms through which financial access can be broadened.

Cluster 2 represents payment infrastructure and market usage. Digital payment, digital wallet, e-commerce, e-wallet, and financial technology are situated together. This cluster is strongly connected to the commercial and platform dimension of digital finance.

Cluster 3 captures the relationship between banking transformation and the pandemic period. The presence of COVID-19 reflects the acceleration of digital financial activity during a period when physical interaction and conventional transaction channels were disrupted.

Cluster 4 connects artificial intelligence, crowdfunding, cryptocurrency, FinTech, and innovation. It represents a broader technological-innovation stream rather than payment adoption narrowly defined.

Cluster 5 contains blockchain, cryptocurrency, digital currency, financial innovation, and sustainable development. Its presence indicates a connection between payment research and the wider evolution of digital money and financial architecture.

Cluster 6 is especially instructive for the argument developed in this paper. Cybersecurity and digital payment systems coexist with Indonesia and TAM-related behavioural analysis. Governance and security therefore appear, but they remain connected to the established adoption tradition rather than forming a clearly dominant independent intellectual core.

Cluster	Thematic Orientation
1	Financial inclusion and access expansion
2	Payment infrastructure and digital wallets
3	Banking transformation and pandemic effects
4	Emerging innovation technologies
5	Blockchain, digital currency, and sustainability
6	Cybersecurity and behavioural adoption

Table 10. Thematic Interpretation of Keyword Clusters

The centrality of adoption-related themes does not constitute a weakness. Digital platforms derive their economic usefulness from participation by multiple sides of the market. Understanding adoption is therefore essential.

The limitation emerges when behavioural frameworks become the dominant explanation of technologies that have already evolved into large-scale infrastructure. Once payment networks become widespread, the relevant questions expand. Competition between platforms, technical interoperability, regulatory authority, data concentration, and rules of participation become economically significant. These issues are emphasised in the broader platform and regulatory literature but remain comparatively less visible within the central keyword structure.

The results therefore provide direct bibliometric support for the paper's central proposition. The field has not abandoned adoption; rather, governance has begun to emerge around an adoption-centred core

Country Collaboration and the Geography of Knowledge Networks

Publication volume does not reveal whether countries collaborate with one another. Figure 9 therefore presents the country co-authorship network constructed using a minimum threshold of two publications per country.

Of the 68 countries represented in the validated dataset, 42 met the inclusion threshold. The network confirms the central positions of India and Indonesia but also reveals that publication leadership and network position are not identical.

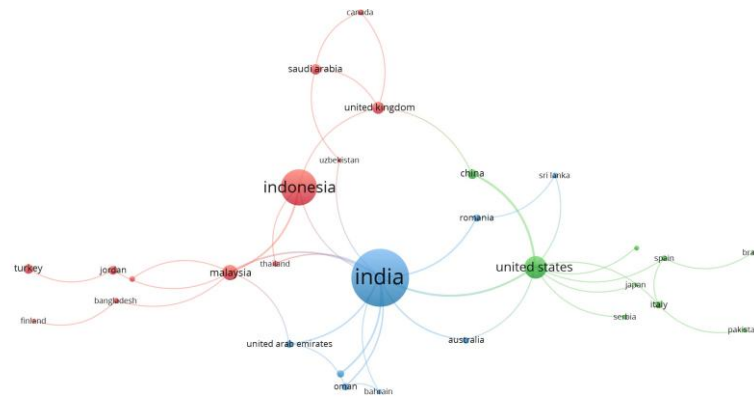


Figure 9. Country co-authorship network

The previous network classification identified the following principal country groups.

Cluster	Reported Size	Illustrative Countries
1	12	Bangladesh, Canada, Finland, Indonesia, Jordan
2	9	Brazil, China, Italy, Japan, Pakistan
3	8	Australia, Bahrain, India, Oman, Romania

Table 11. Principal Country Collaboration Clusters

The network is characterised by identifiable regional groupings rather than a single globally integrated research community. India occupies a highly visible central position, while Indonesia constitutes another important node connected to several other countries.

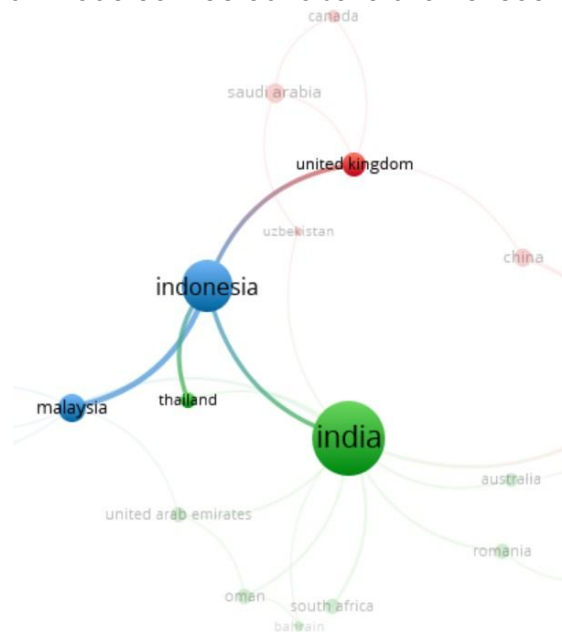


Figure 10. Indonesia-centred country collaboration network

The validated dataset contains 2,834 cited references. Applying a minimum threshold of two citations reduced the mapped intellectual core to 253 references. These references form 11 clusters.

Cluster	Items	Intellectual Domain
1	43	Technology acceptance theory
2	30	Financial inclusion frameworks
3	28	Digital banking adoption
4	28	Innovation diffusion theory
5	27	Blockchain governance
6	19	Digital currency economics
7	17	Institutional theory
8	14	Risk and cybersecurity
9	11	E-commerce systems
10	8	Sustainable finance
11	8	Regulatory economics

Table 12. Co-citation clusters and intellectual domains

The relative sizes of the clusters provide one of the strongest results of the study. The four largest intellectual domains are technology acceptance, financial inclusion, digital banking adoption, and innovation diffusion. Together, they constitute the dominant intellectual foundation of the literature.

Governance-related domains are present but smaller. Blockchain governance, digital currency economics, institutional theory, cybersecurity, sustainable finance, and regulatory economics appear as recognisable intellectual communities, yet they do not occupy the same structural scale as adoption-oriented clusters.

This pattern is consistent with the keyword evidence. Two independent forms of bibliometric mapping – co-occurrence and co-citation – therefore point toward the same conclusion. Digital-payment scholarship has developed primarily through micro and middle level questions concerning adoption, financial access, and technological diffusion.

The approved empirical QRIS literature illustrates how this intellectual foundation operates in practice. Consumer preference, merchant intention, purchasing behaviour, customer adoption, usage intentions, and enterprise digitalisation all address important behavioural or participation-related outcomes.

The smaller governance clusters point toward the next stage of intellectual development. Platform economics emphasises that the organisation of interactions among participants matters for market outcomes. Competition scholarship highlights the governance implications of platform-based initiative. Payment-system research demonstrates that law and digital platforms jointly structure the functioning of payment arrangements. The public-interest perspective further provides a rationale for examining why intervention may be required when private market incentives do not fully coincide with wider social objectives.

The intellectual structure therefore appears asymmetric. The established literature is strong at explaining participation but comparatively less consolidated in explaining institutional control. This distinction is increasingly consequential because digital-payment systems are evolving from optional technological interfaces into infrastructure through which large shares of economic transactions may occur.

Author Collaboration and the Social Structure of the Field

Figure 12 presents the author co-authorship network. The validated corpus contains 1,067 authors across 368 documents.

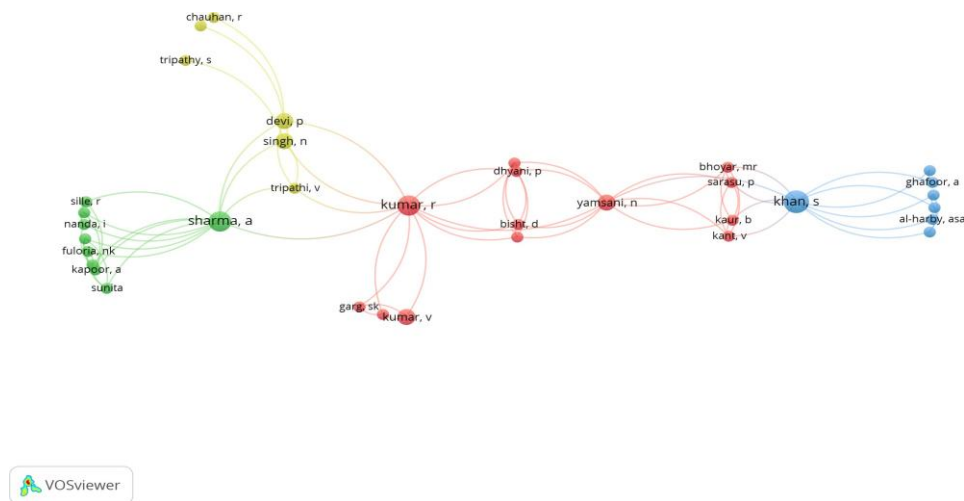


Figure 12. Author co-authorship network

The validated corpus contains 1,067 authors across 368 documents. This corresponds to broad scholarly participation but relatively limited repeated publication by individual authors. The network therefore displays a different structure from a mature research field dominated by a few longstanding research teams. Four principal collaborative groups were identified in the previous analysis.

Cluster	Items	Intellectual Domain
1	13	Bhojar, M.R.; Bisht, D.; Dhyani, P.; Garg, S.K.; Kant, V. – Indian FinTech adoption-oriented group
2	9	Fuloria, N.K.; Kapoor, A.; Nanda, I.; Sahoo, S.; Sharma, S. – digital banking and behavioural studies
3	7	Al-Harby, A.S.A.; Atif, M.; Ghafoor, A.; Hassan, M.K.; Khan, H.H. – Middle Eastern financial technology research
4	6	Chauhan, R.; Devi, P.; Jain, R.; Singh, N.; Tripathi, V. – emerging digital-payment modelling studies

Table 13. Principal Author Collaboration Clusters

Three characteristics emerge. First, the collaboration structure is moderately fragmented. There are identifiable author communities, but the network does not contain a single dominant global consortium.

Second, collaboration displays geographical and thematic overlap. Some research groups appear closely associated with national or regional academic communities, while others are organised around topics such as digital banking or payment modelling.

Third, the social structure of knowledge production appears less consolidated than the thematic structure itself. Financial inclusion, adoption, and digital payments are already recognisable conceptual cores, but the authors producing that literature remain widely distributed.

This distinction is consistent with the broader bibliometric observation that scientific productivity and group organisation do not necessarily develop simultaneously. The digital-payment field appears to possess a relatively coherent set of dominant themes without yet possessing an equally centralised scholarly community.

This finding may also help explain the persistence of conceptual fragmentation. When research is produced through dispersed regional groups, theoretical traditions may develop locally or within disciplinary boundaries rather than through sustained cross-disciplinary collaboration. Stronger collaboration among economists, information-systems researchers, regulatory scholars, and technology researchers could therefore contribute not merely to greater internationalisation but to deeper theoretical integration.

Integrated Discussion: From Adoption to Governance

The combined evidence from publication trends, keyword networks, co-citation structures, and collaboration analysis provides a coherent picture of the field's development. Digital payment and FinTech research is expanding rapidly, but quantitative growth has proceeded more quickly than theoretical reorientation. The field can be conceptualised through five increasingly broad levels of analysis, illustrated in Figure 13.



Figure 13. Conceptual transition from adoption to governance

The first level concerns *technology adoption*. This is the most established domain and encompasses consumer intention, merchant acceptance, perceived benefits, behavioural preferences, and technology usage. The dominance of this level is demonstrated by both keyword co-occurrence and co-citation analysis.

The second level concerns *financial inclusion and economic participation*. Digital payments are evaluated in terms of their capacity to expand access, facilitate commerce, and support the digitalisation of businesses. This layer is especially visible in the strong financial-inclusion cluster and in studies connecting payment technologies to MSME outcomes.

The third level concerns *platform organisation*. Once adoption expands, payment systems increasingly operate as multi-sided networks. At this point, platform economics becomes important because the value and competitive position of the system depend on interactions among consumers, merchants, financial institutions, and providers. Platform expansion and strategic positioning may also extend across geographical markets.

The fourth level concerns *institutional governance*. Interoperability, competition rules, standardisation, regulatory authority, and legal structure become significant because payment systems increasingly function as common infrastructure. Regulatory intervention may also be understood through broader public-interest considerations.

The fifth level concerns *data and algorithmic governance*. As financial systems incorporate artificial intelligence, automated monitoring, digital currencies, and sophisticated data infrastructures, questions concerning algorithmic trust, ethical responsibility, and regulatory accountability become increasingly important.

The bibliometric evidence suggests that the first two levels are already mature components of the literature, the third is becoming strongly visible, and the fourth and fifth remain emerging research fronts.

Importantly, the framework should not be interpreted as a chronological sequence in which one literature replaces another. Consumer adoption will remain relevant even in highly developed digital-payment systems. Instead, the sequence represents an expansion in the *unit of analysis*. Research moves from individual users toward firms and markets, from markets toward platforms, and from platforms toward institutional and data governance.

Why Governance Remains Less Developed

Several features of the bibliometric results may explain why governance-oriented research remains comparatively smaller.

First, adoption is empirically easier to observe at the individual level. Surveys of consumers and merchants can generate measurable variables concerning intention, trust, convenience, and usage. Governance, by contrast, often involves complex institutional arrangements, technical standards, platform rules, legal structures, and regulatory objectives that are less easily reduced to standard behavioural models.

Second, the interdisciplinary composition of the field can create methodological separation. Computer scientists may focus on system design, business scholars on user behaviour, economists on inclusion and market outcomes, and regulatory scholars on institutional arrangements.

Although all examine the same broad technological transformation, they may employ different vocabularies and publication outlets.

Third, payment governance is frequently jurisdiction specific. Regulatory rules, central-bank mandates, market structures, and technical standards differ across countries. This may contribute to the regional fragmentation visible in the country and co-authorship networks.

Fourth, governance problems often become more visible only after adoption reaches scale. Early research naturally asks whether a system can attract users. Questions of interoperability, concentration, platform power, and data control become more urgent once the system has already acquired economic significance. The expansion of innovation research provides an instructive comparison.

Blockchain initially generated considerable technological interest before increasingly attracting managerial and governance-oriented analysis. Digital payment research appears to be following a similar intellectual trajectory.

Interoperability, Platform Power, and Regulatory Research

The comparatively small regulatory and institutional clusters should not be interpreted as evidence that governance questions are unimportant. On the contrary, their emergence may signal a shift toward issues that become increasingly consequential as digital payment systems mature.

Platform economics suggests that network size and participant interaction can generate strong advantages for established platforms. Without interoperability, such advantages can contribute to fragmented networks in which consumers and merchants are effectively tied to specific providers.

Platform governance therefore intersects directly with competition policy. Platform-based digitalisation creates challenges for conventional approaches to governing competition. Applied to payments, this raises questions concerning whether interoperability should be market-driven, contractually negotiated, or institutionally mandated.

Legal structures are equally important. The functioning of payment systems depends on both platforms and law. Digital payments are consequently not self-governing technological networks. Participation rights, liability, access, settlement arrangements, and regulatory responsibilities all depend on institutional rules.

The public-interest perspective provides a further conceptual basis for analysing regulatory intervention. Digital payment governance may involve trade-offs among innovation, competition, inclusion, security, and systemic coordination. No single private actor necessarily has incentives to optimise all these objectives simultaneously.

Innovation policy therefore becomes relevant. Governments and regulators can influence the direction and conditions of technological development rather than acting only after market

failures occur. The organisation of innovation also depends on relationships among firms and broader communities of participants. Payment governance should therefore be conceptualised as an interaction between market innovation and institutional architecture rather than as a simple opposition between regulation and technology.

Emerging Themes: Cybersecurity, Blockchain, Digital Currency, and AI

The keyword and co-citation networks reveal several emerging technological themes that may accelerate the movement toward governance research.

Cybersecurity appears within the keyword structure and as a distinct co-citation domain. This is unsurprising because increased digital-payment participation expands the importance of system integrity, identity protection, trans-action security, and resilience. Security is initially relevant to adoption because users must trust a system sufficiently to participate. At scale, however, cybersecurity becomes an infrastructural governance issue.

Blockchain and cryptocurrency form another identifiable intellectual domain. The development of blockchain scholarship demonstrates how technological architecture can quickly generate questions concerning organisational design, governance, and institutional transformation. Within the digital-payment literature, blockchain therefore serves as a bridge between technological innovation and broader questions of financial architecture.

Digital currency economics appears as a separate co-citation cluster. This suggests that digital-payment scholarship is increasingly intersecting with research concerning the nature and organisation of digital money. While the present corpus is not specifically a CBDC review, the presence of a distinct digital currency cluster indicates that payment-system research is progressively connected to wider transformations in monetary and financial infrastructure.

Artificial intelligence also appears in the keyword network. Its current position is smaller than the dominant FinTech and inclusion nodes, but its emergence is conceptually important. AI-enabled financial infrastructure introduces governance problems associated with algorithmic transparency, accountability, trust, and regulation.

The emerging technological themes therefore reinforce the governance transition. Technologies such as AI, digital currencies, and blockchain do not merely introduce new payment instruments; they change the institutional conditions under which payment systems operate.

Summary of Results and Discussion

The bibliometric evidence provides a consistent answer to the questions posed in this study. Digital payment and FinTech research expanded rapidly during 2021–2025 and developed across a broad interdisciplinary base. India and Indonesia occupy central positions in publication output, while collaboration remains partly organised through regional research communities.

Thematic mapping shows that financial inclusion, digital payments, digital wallets, FinTech, and behavioural adoption form the conceptual centre of the literature. Co-citation analysis independently confirms that technology acceptance, financial inclusion, digital banking adoption, and innovation diffusion constitute its largest intellectual foundations.

At the same time, technological and institutional diversification is clearly visible. Blockchain, digital currencies, cybersecurity, artificial intelligence, sustainable finance, institutional theory, and regulatory economics form smaller but identifiable knowledge domains. These areas represent the principal direction in which the intellectual boundary of the field is expanding.

The resulting structure is therefore neither a purely adoption-centred literature nor a fully governance-centred one. It is a literature in transition. Adoption explains how participants enter digital payment systems; governance increasingly determines how those systems operate once they become economically significant.

The principal implication is that future research should connect these levels rather than treat them separately. Digital payment scholarship will become theoretically richer when user behaviour is analysed together with platform organisation, market structure, interoperability, institutional regulation, cybersecurity, and data governance. In this sense, the progression *from adoption to governance* represents not a rejection of the established literature, but the next stage in its intellectual development.

Conclusion

This study examined the evolution and intellectual structure of digital payment and FinTech research through a bibliometric review combining descriptive performance analysis with science-mapping techniques. The evidence demonstrates that the field has expanded rapidly, particularly since 2023, and has developed into a strongly interdisciplinary research domain spanning business and management, computer science, economics and finance, social sciences, engineering, and decision sciences. Geographically, knowledge production is concentrated strongly in emerging economies, with India and Indonesia occupying particularly prominent positions. At the same time, the author and country collaboration networks remain moderately fragmented and regionally clustered, indicating that publication growth has proceeded faster than the consolidation of stable international research communities.

The thematic and co-citation results reveal an equally important intellectual pattern. Digital payment and FinTech scholarship remains anchored primarily in financial inclusion, technology acceptance, digital banking adoption, digital wallets, consumer behaviour, merchant participation, and innovation diffusion. These perspectives have established the empirical and theoretical foundation of the field and remain essential for understanding how digital payment systems diffuse among users and firms. However, the mapping also identifies a progressively broader research frontier involving artificial intelligence, blockchain, digital currencies, cybersecurity, sustainable finance, institutional theory, and regulatory economics. The field is

therefore not conceptually static; rather, it is beginning to move beyond questions of whether digital-payment technologies are adopted toward questions concerning how increasingly important digital financial infrastructures are organised and governed.

This transition provides the central contribution of the paper. The findings suggest that digital payment scholarship is moving from adoption to governance, although that transition remains incomplete. Adoption-focused research continues to dominate the intellectual centre of the literature, while governance-oriented perspectives remain comparatively smaller and less consolidated. Yet the economic significance of digital-payment systems increasingly depends on issues that extend beyond individual technology use, including interoperability, platform competition, regulatory coordination, cybersecurity, data governance, and institutional responsibility. As payment platforms become embedded more deeply in commercial and financial activity, their governance becomes inseparable from their technological development.

The results consequently point to the need for a more integrated research agenda. Future studies should continue to examine consumer and merchant adoption, but these questions should increasingly be linked to wider institutional out-comes. Research on digital wallets, for example, can be extended toward platform concentration, switching costs, and interoperability. Financial-inclusion studies can investigate whether greater digital access generates durable improvements in economic participation. Regulatory research can assess how different institutional arrangements influence innovation, competition, security, and public objectives. The emergence of artificial intelligence and digital currencies also creates new opportunities to examine algorithmic accountability, trust, regulatory capacity, and the interaction between existing payment infrastructures and new forms of digital finance.

The findings additionally highlight the importance of emerging economies as sources of both empirical evidence and theoretical development. The prominence of countries such as India and Indonesia suggests that digital-payment transformation is being studied intensively in environments where financial inclusion, rapid technological adoption, regulatory coordination, and national payment infrastructure development interact closely. These settings should therefore not be viewed merely as applications of theories developed elsewhere. They can also contribute to broader explanations of how digital financial infrastructures are created, standardised, scaled, and governed.

Several limitations should nevertheless be acknowledged. The study is based on Scopus-indexed, English-language publications within the 2021–2026 period, and the 2026 observation represents only a partial publication year. Relevant studies published outside Scopus, in other languages, or in policy and grey-literature formats are therefore not represented in the network. Bibliometric findings are also sensitive to the search strategy and threshold settings used in network construction. In addition, science mapping identifies structural relationships among publications, keywords, authors, countries, and cited references but does not directly establish the economic effectiveness of digital-payment technologies or regulatory arrangements.

Despite these limitations, the study provides a systematic account of a research field undergoing rapid intellectual and institutional transformation. Digital payment and FinTech scholarship has developed from a strong foundation in adoption and inclusion toward a wider agenda involving platforms, infrastructure, regulation, security, and data-intensive governance. The next stage of research should therefore focus less on treating digital payments as isolated technological products and more on analysing them as components of increasingly interconnected financial systems. In this sense, the movement from adoption to governance represents not the displacement of earlier research, but the natural expansion of the field toward the institutional questions created by its own technological success.

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