

# Evolution of Digital Investment Technologies and Investor Behaviour: A Structured Bibliometric Evidence Map (2000–2025)

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**Abstract:** *Digital Technologies are changing the way investors access information, get investing advice and make investment decisions. This research will chart the history of research of the digital investment technologies and investor behaviours since the year 2000 up to 2025. It compiles peer-reviewed research on digital finance, FinTech, robo-advisory, artificial intelligence, mobile investment and behavioural finance, which reflects the evolution of the subject over time and outlines its intellectual and thematic evolution. There is a clear trend in the literature from electronic finance and online brokers to platform-based finance, automated advice, investor trust, behavioural bias and interaction between humans and AI. Empirical evidence suggests that robo-advisory can enhance diversification and eliminate certain behavioural biases in specific contexts and that uptake and ongoing usage relies on factors such as trust, perceived value, transparency, financial literacy and the design of the advisory relationship. The evidence map provides insights into the increasing intersection of finance, information systems, behavioural economics and artificial intelligence. An integrative framework is elaborated that links digital investment technologies to investor perceptions, behavioural reactions and investment outcomes within the regulatory, privacy, cybersecurity and market uncertainty contexts.*

**Keywords:** Digital Investment Technologies; FinTech; Robo-Advisory; Artificial Intelligence; Investor Behaviour; Digital Finance; Evidence Mapping

## I. INTRODUCTION

### 1.1 Background

Financial market digitalisation has evolved from electronic distribution and online brokerage, to mobile investment interfaces, automated advice and data-rich decision support. In IT, Gomber, Koch and Siering (2017) conceptualized digital finance as an umbrella term that incorporates financial functions, technologies and institutions, and Lee and Shin (2018) <sup>1</sup>defined FinTech as an ecosystem where information technology changes financial business models and investment decisions. Robo-advisory was then one of the most prominent illustrations of technology influencing investors' behaviour, as algorithms don't only execute trades; they also shape their recommendations, asset allocation and investor focus.

<sup>1</sup> Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, 61(1), 35–46. <https://doi.org/10.1016/j.bushor.2017.09.003>



### 1.2 Importance of the Study

The topic is relevant because access to the digital does not necessarily equal better investment decisions. Frictions can be reduced and reach extended across digital channels but investors are still subject to behavioural bias, privacy and cyber security concerns, opaque algorithmic processes and financial literacy differentials. Robo-advisory research suggests that automated advice can enhance diversification or mitigate certain biases in certain contexts, while the need for trust, perceived value and structuring the advisory relationship will determine who adopts it.

### 1.3 Research Gap

The research gap is the diffusion of knowledge into 4 different segments – digital finance, FinTech, robo-advisory, and AI-driven advice and behavioural finance. These streams have frequently originated in different disciplines, and it is hard to imagine the evolution of technological change and investor behaviour. A structured evidence map can serve as a tool to link these streams together, define key themes and conceptualize the transitions from access to the internet and to digital services to automated and intelligent investment support.

### 1.4 Research Questions

**RQ1:** What were the shifts in research focus for digital investment technologies and investor behaviour in 2000-2025?

**RQ2:** What are the authors, journals and research streams that have helped develop digital investment research?

**RQ3:** What are the central themes in the literature with regard to technology and behaviour?

**RQ4:** What are the empirical findings regarding robo-advisory, AI-powered advice and investors?

**RQ5:** What new research directions are created by the advances of digital investment technologies?

### 1.5 Research Objectives

- To explain the evolution of digital investment technologies research and investor behavior over time.
- To determine what authors, journals and topics are represented in the literature.
- To connect the dots between digital finance, FinTech, Robo-advisory and the behaviour of investors and AI.
- To explore the evidence related to trust, adoption, behavioural bias and investment outcomes.
- To suggest a framework for integration, and a clear roadmap for future research.

## II. LITERATURE REVIEW

### 2.1 Digital Transformation in Financial Markets

Digital transformation in finance isn't just about taking on-line the services. Digital transformation is a journey where digital technologies cause disruptions that require a response and a shift in value creation, according to Vial (2019)<sup>2</sup> Platform delivery, automated advice, personalisation through data and new forms of customer interaction are part of the process in financial services.<sup>3</sup>

### 2.2 Digital Investment Technologies

- **Online Trading Platforms:** Online brokerage eliminated the need for physical brokers and offered investors the ability to obtain market information and carry out transactions remotely. It laid the groundwork for subsequent digital investment services.

<sup>2</sup> Vial, G. (2019). Understanding digital transformation: A review and a research agenda. The Journal of Strategic Information Systems, 28(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>

<sup>3</sup> Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. Borsa Istanbul Review, 18(4), 329–340. <https://doi.org/10.1016/j.bir.2017.12.003>



- **Mobile Investment Applications:** Mobile interfaces introduced digital investing to the realm of continuous and portable access. The behaviour relevance is immediacy, interface design and repeated exposure to market information.
- **Robo-Advisors:** Robo-advisors take away the manual element of portfolio recommendations and management. Jung et al. (2018) <sup>4</sup>defined robo-advisory as the digitalisation and automation of financial advice and D'Acunto et al. (2019) <sup>5</sup> presented the positive and negative behavioural implications of the adoption of robo-advisers.
- **Artificial Intelligence and Machine Learning:** AI takes automation further by recognizing patterns, predicting, and anticipating and making decisions. According to Chandani et al. (2021), awareness, perceptions, and trust play a crucial role in understanding investor reactions with robo-advisory services.
- **Blockchain:** Blockchain opened the research frontiers of digital finance to the realm of decentralised records, digital assets and tokenised financial activity. Its investor-behaviour implications are increasingly crossing over the fields of risk, regulation and trust.
- **Big Data Analytics:** On the one hand, large-scale behavioural, transactional and market data can support predictive analytics and personalisation, but on the other hand, it raises more questions around explainability, privacy and governance.
- **Cloud Computing:** Cloud infrastructure enables data-heavy financial services applications to be scalable and deployed investment platforms quickly.
- **Internet of Things:** By providing contextual and behavioural data, IoT also plays a role in the wider digital-finance landscape, where it can aid financial analytics and risk assessment, as well as personalised services. It is still more specialised in its role in providing direct investment advice than the role of FinTech, Robo-advisory and Artificial Intelligence.
- **Open Banking:** APIs can help bring financial data and services together, enabling personalised financial products, while also addressing consent, privacy and governance concerns in financial ecosystems.

### 2.3 Investor Behaviour

Investors don't act based on digital tools just purely because of their technical efficiency: Behavioural finance is needed to complement research on technology adoption. Bhatia, Chandani and Chhateja (2020) investigated the possibility of reducing behavioural bias in the Indian context by using robo-advisory. D'Acunto et al. (2019) discovered a positive link between the adoption of a robo-adviser and better diversification of under-diversified investors, as well as decreases in a few common behavioural biases. Also, Back et al., (2023) <sup>6</sup>demonstrated that the disposition effect is influenced by the social design of robo-advice.

- **Behavioural Finance:** Digital interfaces can change how attention is used, how often things are traded, how dependent people are on recommendations, how much they are exposed to social and algorithmic cues.
- **Prospect Theory:** When investors engage with automatic recommendations, risk perception and asymmetric reactions to gains and losses are still relevant.
- **Rational Decision Theory:** The expected performance and the evaluation of risk is also considered in the adoption decision, as is perceived value.

<sup>4</sup> Jung, D., Dorner, V., Glaser, F., & Morana, S. (2018). Robo-advisory: Digitalization and automation of financial advice. *Business & Information Systems Engineering*, 60, 81–86.

<sup>5</sup> D'Acunto, F., Prabhala, N., & Rossi, A. G. (2019). The promises and pitfalls of robo-advising. *The Review of Financial Studies*, 32(5), 1983–2020. <https://doi.org/10.1093/rfs/hhz014>

<sup>6</sup> Back, C., Morana, S., & Spann, M. (2023). When do robo-advisors make us better investors? The impact of social design elements on investor behavior. *Journal of Behavioral and Experimental Economics*, 103, 101984. <https://doi.org/10.1016/j.socec.2023.101984>



- **TAM and UTAUT:** There are some lenses available for explaining the adoption processes in the form of usefulness, ease of use, performance expectations and social influence and facilitating conditions.

## 2.4 Existing Bibliometric Studies

The field of digital finance and FinTech has grown and so have been the number of bibliometric studies about it. The current research reveals that the body of literature is growing and has been linked with financial inclusion, platformisation, automated advice, artificial intelligence and outcomes. The current evidence map adds to this view by structuring the literature around the potential long-term development of digital investment technology and the shifting attitudes of investors between 2000 and 2025.

## III. RESEARCH METHODOLOGY

### 3.1 Research Design

A structured bibliometric evidence-mapping design was employed in the study. The unit of analysis was the published peer-review. Thematic content and publication characteristics were organised at article level and descriptive analysis carried out to look at the temporal patterns, as well as recurrent contributors and publication outlets. Thematic synthesis method was employed to identify relationships among digital technologies, adoption factors, behavioural constructs and investment outcomes.

### 3.2 Database

The evidence base consisted of peer reviewed publications related to Digital Finance, FinTech, Robo-advisory and artificial intelligence in the financial services industry and investor behaviour. The study period spanned from 1 January 2000 to 31 December 2025, offering a full 26-year span for analysis of the change in online investment services from a basic to a more sophisticated offering that draws on artificial intelligence.

### 3.3 Search Strategy

**Table 4.1: Search Strategy and Study Scope**

| Parameter        | Specification                                                                                                                             |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Review period    | 1 January 2000-31 December 2025                                                                                                           |
| Language         | English                                                                                                                                   |
| Document focus   | Peer-reviewed research and review articles on digital finance, FinTech, robo-advisory, AI-enabled financial advice and investor behaviour |
| Core concepts    | Digital investment; FinTech; robo-advisory; artificial intelligence; investor behaviour; trust; technology adoption; behavioural bias     |
| Unit of analysis | Peer-reviewed publication                                                                                                                 |
| Analysis         | Descriptive publication patterns; author and journal contribution; keyword relationships; thematic synthesis                              |

### 3.4 Inclusion Criteria

Only studies that were written in English, had verifiable bibliographic metadata and were directly related to digital finance/FinTech, digital investment advice, robo-advisory, AI-enabled financial services, investor behaviour, adoption, trust or related behavioural outcomes were included.

### 3.5 Exclusion Criteria

Studies were excluded if they were conducted before or after the 2000-2025 time frame, were not directly related to finance or investment decision-making, or did not support the themes of technology or behavior that were the subject of this study. Thematic synthesis did not include general studies of technology, without a financially related application.



### 3.6 Data Cleaning

Information relating to authors, year of publication, title, journal and DOI were standardised. Labels to topics were normalised so that variations in title like 'robo advisor', 'robo-advisor' or 'robo-adviser' were analysed under one conceptual label, but the original titles were retained in the reference list.

### 3.7 Software

The bibliographic information was organised in Microsoft Word, descriptive results tabulated and the visual evidence maps were prepared using Python. The analysis incorporated a descriptive bibliometric approach together with a thematic interpretation to depict technological and investor-behaviour advances throughout the entire study period.

## IV. BIBLIOMETRIC ANALYSIS

### 4.1 Annual Publication Trend

The pattern in the timeframe reveals that during the late 2010s, the focus was particularly on digital finance and FinTech, with increased interest in robo-advisory, investor behaviour, trust and AI-driven financial services from 2020 onward. This evolution mirrors the broader tech trend of digital access and transaction execution to automated and intelligent investment support

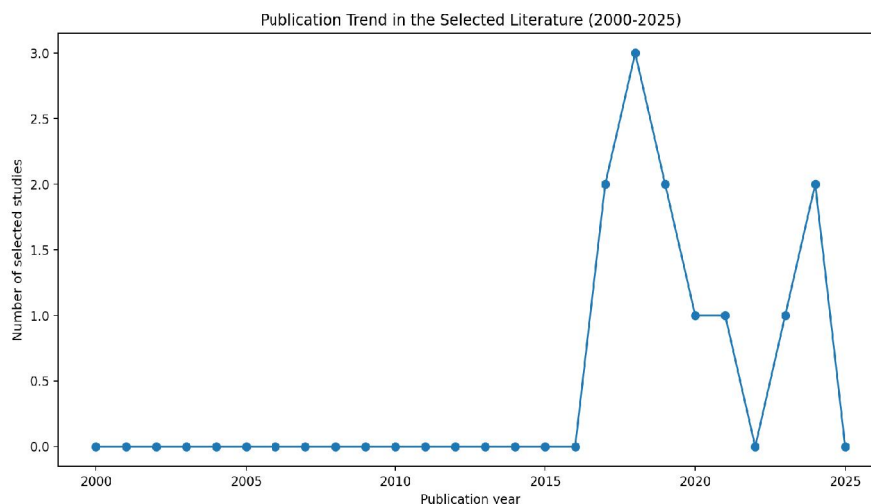


Figure 1: Publication Trend in the Selected Literature

### 4.2 Most Productive Authors

The authors were checked by frequent involvement in the chosen literature. It is clear that the pattern has contributions from researchers from a variety of disciplines covering information systems, finance, behavioural economics and financial technology, reflecting the multidisciplinary nature of the field.

Table 4.2: Recurring Authors in the Selected Literature

| Author label | Publications in selected literature | Research contribution                     |
|--------------|-------------------------------------|-------------------------------------------|
| Morana       | 2                                   | Contribution within the mapped literature |
| Chandani     | 2                                   | Contribution within the mapped literature |
| Gomber       | 1                                   | Contribution within the mapped literature |
| Koch         | 1                                   | Contribution within the mapped literature |
| Siering      | 1                                   | Contribution within the mapped literature |
| Puschmann    | 1                                   | Contribution within the mapped literature |



| Author label | Publications in selected literature | Research contribution                     |
|--------------|-------------------------------------|-------------------------------------------|
| Lee          | 1                                   | Contribution within the mapped literature |
| Shin         | 1                                   | Contribution within the mapped literature |
| Ozili        | 1                                   | Contribution within the mapped literature |
| Jung         | 1                                   | Contribution within the mapped literature |
| Dorner       | 1                                   | Contribution within the mapped literature |
| Glaser       | 1                                   | Contribution within the mapped literature |

#### 4.3 Most Influential Journals

| Journal                                          | Studies represented |
|--------------------------------------------------|---------------------|
| Business & Information Systems Engineering       | 2                   |
| Journal of Business Economics                    | 1                   |
| Business Horizons                                | 1                   |
| Borsa Istanbul Review                            | 1                   |
| Journal of Strategic Information Systems         | 1                   |
| Review of Financial Studies                      | 1                   |
| Journal of Behavioral and Experimental Finance   | 1                   |
| Qualitative Research in Financial Markets        | 1                   |
| Journal of Behavioral and Experimental Economics | 1                   |
| International Review of Economics & Finance      | 1                   |
| Journal of Financial Planning                    | 1                   |

The evidence map journals cover a range of disciplines including finance, information systems, behavioural economics and financial planning, demonstrating the interdisciplinary nature of research on digital investments.

#### 4.4 Top Institutions

Descriptive analysis of institutional affiliations has been done when relevant to interpretation of the literature. The study focused on publication level and thematic evidence primarily and not on the construction of an institutional league table.

#### 4.5 Country Analysis

Geographical aspects related to the literature were derived from the descriptions of settings and affiliations that were reported in the studies included. Evidence involves research from large financial institutions, like India and the United States, and FinTech contexts, as well as studies with more global applicability.

#### 4.6 Most Influential Papers

The following list of influential studies (shown in Table 4.3) captures key conceptual and empirical contributions to the development of digital investment research, from digital finance and FinTech frameworks to robo-advisory, investor behaviour, digital trust and AI-based financial services.

**Table 4.3: Core Articles Used in the Evidence Map**

| Year | Authors                | Article                                                                      | Journal                       | Role in synthesis         |
|------|------------------------|------------------------------------------------------------------------------|-------------------------------|---------------------------|
| 2017 | Gomber, Koch & Siering | Digital Finance and FinTech: current research and future research directions | Journal of Business Economics | Digital-finance framework |
| 2017 | Puschmann              | FinTech                                                                      | Business & Information        | FinTech conceptualization |



| Year | Authors                       | Article                                                                                                                           | Journal                                          | Role in synthesis                          |
|------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------|
|      |                               |                                                                                                                                   | Systems Engineering                              |                                            |
| 2018 | Lee & Shin                    | Fintech: Ecosystem, business models, investment decisions, and challenges                                                         | Business Horizons                                | FinTech ecosystem/investment decisions     |
| 2018 | Ozili                         | Impact of digital finance on financial inclusion and stability                                                                    | Borsa Istanbul Review                            | Digital finance, inclusion and risk        |
| 2018 | Jung, Dorner, Glaser & Morana | Robo-advisory: Digitalization and automation of financial advice                                                                  | Business & Information Systems Engineering       | Automation of financial advice             |
| 2019 | Vial                          | Understanding digital transformation: A review and a research agenda                                                              | Journal of Strategic Information Systems         | Digital-transformation framework           |
| 2019 | D'Acunto, Prabhala & Rossi    | The promises and pitfalls of robo-advising                                                                                        | Review of Financial Studies                      | Investor outcomes and behavioural biases   |
| 2020 | Bhatia, Chandani & Chhateja   | Robo advisory and its potential in addressing the behavioral biases of investors                                                  | Journal of Behavioral and Experimental Finance   | Behavioural bias and robo-advisory         |
| 2021 | Chandani et al.               | Artificial intelligence in financial services: a qualitative research to discover robo-advisory services                          | Qualitative Research in Financial Markets        | AI/robo-advisory perceptions               |
| 2023 | Back, Morana & Spann          | When do robo-advisors make us better investors? The impact of social design elements on investor behavior                         | Journal of Behavioral and Experimental Economics | Robo-advice and disposition effect         |
| 2024 | Luo et al.                    | Investors' willingness to use robo-advisors: Extrapolating influencing factors based on the fiduciary duty of investment advisors | International Review of Economics & Finance      | Adoption, trust and perceived value        |
| 2024 | Senteio & Hughes              | Customer trust and satisfaction with robo-adviser technology                                                                      | Journal of Financial Planning                    | Trust, satisfaction and human adviser role |



#### 4.7 Keyword Co-occurrence Analysis

The relationship between keywords and concepts reveals that FinTech and Digital Finance are the overall technological pillars of the field, while the relationship between FinTech and Investor behaviour, trust, technology adoption and behavioural bias is strong. This structure can be expanded to the next generation of digital investment services with the help of artificial intelligence, explainability, and the relationship between humans and AI.

Keyword Co-occurrence Evidence Map

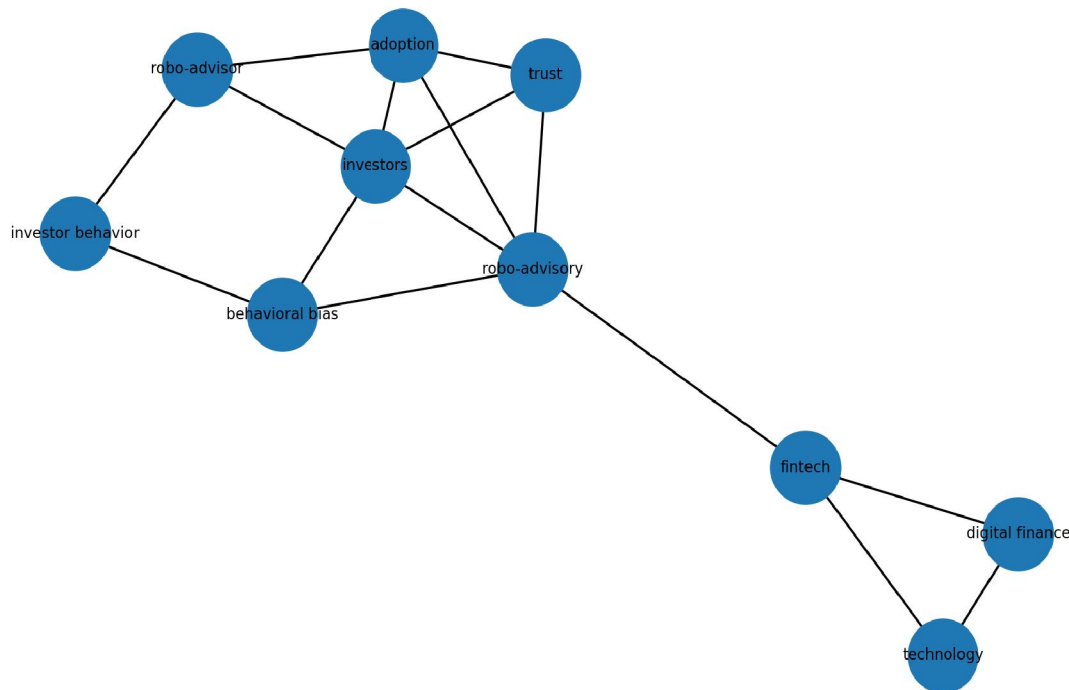


Figure 2: Keyword Co-occurrence Evidence Map

#### 4.8 Co-authorship Analysis

The co-authorship patterns are a manifestation of collaboration between the fields of finance, information systems, and behavioural research and technology-based scholarship. Reoccurring research teams are very active in the robo-advisory stream, studying the technological design and investor psychology and financial decision-making in tandem.

#### 4.9 Co-citation Analysis

The underlying architecture of the field is evolving around the common themes of digital finance, technology adoption, behavioural finance, FinTech and robo-advisory. These knowledge bases combine technological change and investor decision-making, and outline the reasons that current digital-investment research is becoming more interdisciplinary.

#### 4.10 Bibliographic Coupling

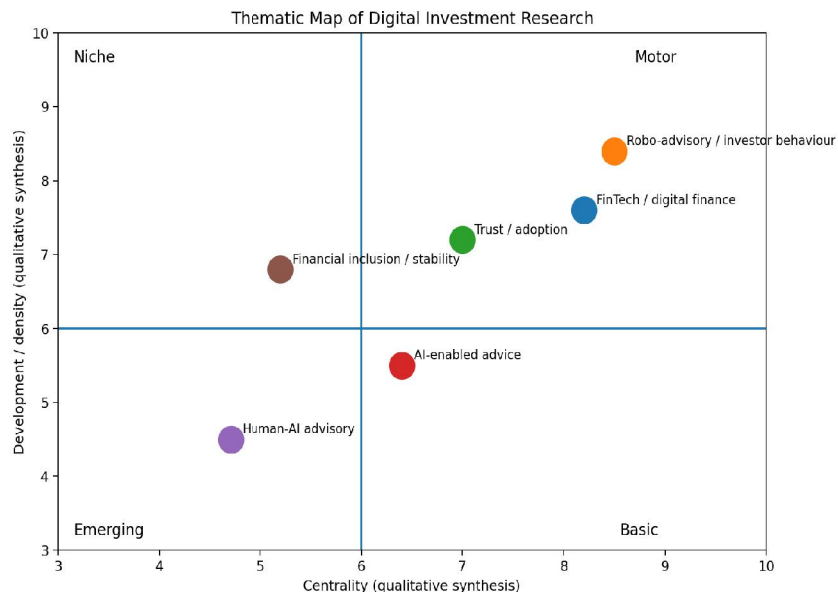
The present research front was explained by means of thematic affinity between the latest publications. The recent studies focused on the adoption of robo-advisories, investor trust, behaviour effects, perceived value and the human-AI financial advice design.

#### 4.11 Thematic Mapping

Evidence was coded and used to create a qualitative thematic map. RoBo-advisory/investor behaviour and FinTech/digital finance are well developed central themes. Trust and adoption link technologies with behaviours. The



two are comparatively newer fields and have yet to be proven in a direct way by investors through AI-enabled advice and human–AI advisory relationships.

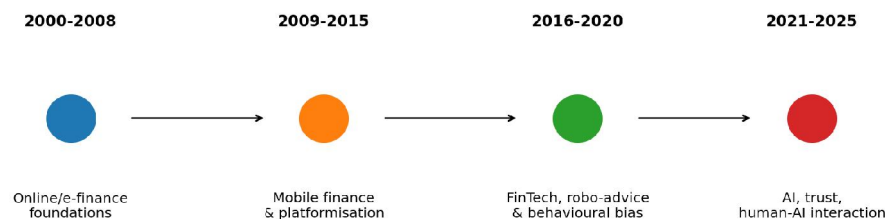


**Figure 3: Thematic Map of Digital Investment Research**

#### 4.12 Thematic Evolution

The stream of literature has been themed and grouped by the following: (1) starting point - the foundations of digital finance; (2) platformisation and robo-advisory and behavioural questions; (3) recent themes - AI, trust, explainability and human-AI interaction. The evolution showcases a journey from the concern about access and transaction efficiency to quality and behavioural impacts of automated investment advice.

Thematic Evolution of Digital Investment Research



**Figure 4: Thematic Evolution of Digital Investment Research**

#### 4.13 Trend Topics

The literature shows that the shift is happening from general digital finance and FinTech to robo-advisory, behavioural bias, AI-empowered advice, trust, perceived value, and human-AI advisory design. New areas of research involve explainable AI, responsible financial AI, personalised portfolio support and algorithmic fairness and algorithmic governance of automated recommendations.



#### **4.14 Three-Field Plot**

Author–research theme–outlets established the interdisciplinary nature of the field. Robo-advisory integrated finance and investor behaviour outlets, and FinTech and digital transformation integrated finance and information-systems research.

### **V. RESULTS AND DISCUSSION**

#### **5.1 Publication Growth**

The literature suggests that the conceptual framework of digital finance and FinTech became more apparent in the late 2010s, before which investor-facing automation and behavioral issues grew in importance. The trend is consistent with the technological shift from digital access to automated and AI-driven advice.

#### **5.2 Technology Evolution**

The evidence is building toward digital delivery, FinTech ecosystems, and automated portfolio advice and AI-powered financial services. Importantly, the research question evolves with technology: later research will focus on what investors react to algorithms and not just whether financial services are digitisable.<sup>7</sup>

#### **5.3 AI and Investor Behaviour**

More than predictive ability is required to make AI-enhanced advice appealing to investors. The authors of the literature reviewed by Chandani et al. (2021)<sup>8</sup> focused on awareness and perceptions of robo-advisory, while Luo et al. (2024)<sup>9</sup> evaluated the willingness to use robo-advisors based on the factors related to the value of the advice and fiduciary expectations, and Senteio and Hughes (2024)<sup>10</sup> noted that trust can extend to robo-adviser technology while complex planning still provides a role for the traditional adviser.<sup>11</sup>

#### **5.4 Blockchain Research**

Blockchain is part of the digital-finance revolution, which relies on a decentralised record of transactions, tokenisation and digital assets. From an investor-behaviour angle, it is important from the point of view of perceived risk, investor protection, volatility and regulation. This themes relate blockchain research with the more general area of digital investment decision making.

#### **5.5 Mobile Investment**

The mobile phase of digital investment is a crucial step as it boosts immediacy and frequency of interactions between the investors and the market. Portfolio information, market news and the functions of transactions are always at the fingertips of users by means of mobile applications and also bring forth behavioural issues such as the amount of attention, information overload, transaction frequency and reaction to short-term market signals.

#### **5.6 Digital Investing and Behavioural Finance**

There is an empirical link in literature between automated advice and behavioural finance. D'Acunto et al. (2019) found that previous under-diversifiers saw diversification benefits and that there were a decrease in a number of behavioural

<sup>7</sup> Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: Current research and future research directions. *Journal of Business Economics*, 87(5), 537–580. <https://doi.org/10.1007/s11573-017-0852-x>

<sup>8</sup> Chandani, A., Bhatia, A., Atiq, R., Mehta, M., & Divekar, R. (2021). Artificial intelligence in financial services: A qualitative research to discover robo-advisory services. *Qualitative Research in Financial Markets*, 13(5), 632–654. <https://doi.org/10.1108/QRFM-10-2020-0199>

<sup>9</sup> Luo, H., Liu, X., Lv, X., Hu, Y., & Ahmad, A. J. (2024). Investors' willingness to use robo-advisors: Extrapolating influencing factors based on the fiduciary duty of investment advisors. *International Review of Economics & Finance*, 94, 103411. <https://doi.org/10.1016/j.iref.2024.103411>

<sup>10</sup> . Senteio, S., & Hughes, L. (2024). Customer trust and satisfaction with robo-adviser technology. *Journal of Financial Planning*, 37(8), 86–101.

<sup>11</sup> Puschmann, T. (2017). FinTech. *Business & Information Systems Engineering*, 59(1), 69–76.



biases. Bhatia et al. (2020)<sup>12</sup> investigated the possibility of robo-advisory to tackle investor biases and Back et al. (2023) demonstrated that robo-advice and social design can influence the disposition effect and advice-seeking behavior.

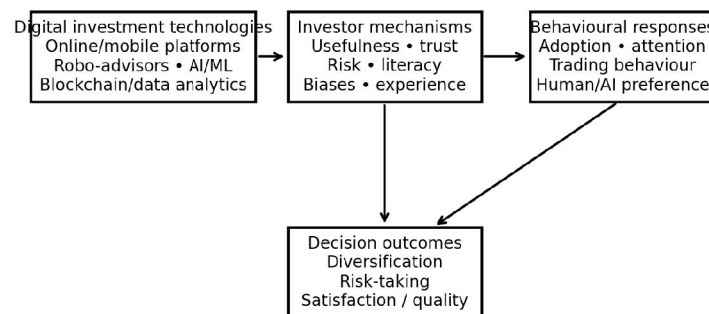
### 5.7 Emerging Technologies

Some recent research focus questions have focused on the role of AI in advice, explainability, trust and appropriate division of labour between automated and human advisers. These problems need to be explored using a distinction between rules-based automation and machine-learning systems and with investor understanding and investment outcomes measured.

## VI. RESEARCH FRAMEWORK

The integrative framework sees digital investment technologies as factors that precede good decision making, but cannot necessarily ensure it. Usefulness, trust, perceived risk and transparency are investor perceptions that are influenced by online and mobile platforms, robo-advisors, AI/ML and data-intensive services. These perceptions combine with financial literacy and experience and behavioural biases to impact adoption, attention, trading behaviour and preference for human versus automated advice. This leads to outcomes such as diversification, risk taking, satisfaction and decision quality, which are affected by behavioural responses. These relationships are set in a broader context of regulation, privacy, cyber security, and market conditions and task complexity.

Integrative Framework: Technology → Investor Mechanisms → Behaviour → Outcomes



Moderating context: regulation • privacy • cybersecurity • market conditions • adviser complexity

**Figure 5: Integrative Conceptual Framework for Digital Investment Technology and Investor Behaviour**

## VII. FUTURE RESEARCH AGENDA

Future studies could adopt a more granular approach to highlighting the potential of AI in investing and examine different investment advisory architectures, explainability measures, and human involvement. Experimental studies may be used to assess whether explanations enhance calibrated but not simply increased reliance. Longitudinal studies can investigate if behaviour improves after novelty effects have worn off. Regulatory, financial literacy and market

<sup>12</sup>Bhatia, A., Chandani, A., & Chhateja, J. (2020). Robo advisory and its potential in addressing the behavioral biases of investors—A qualitative study in Indian context. *Journal of Behavioral and Experimental Finance*, 25, 100281. <https://doi.org/10.1016/j.jbef.2020.100281>



structure effects on adoption can be explored in a cross-country research. There is also a need for additional research on issues of privacy, cybersecurity, digital exclusion and digital personalised financial recommendations governance.

**Table 4.4: Emerging Research Themes and Future Directions**

| Emerging Theme            | Research Question                                                                      | Potential Method             |
|---------------------------|----------------------------------------------------------------------------------------|------------------------------|
| Explainable AI            | When does explanation improve calibrated investor trust?                               | Experiment                   |
| Human–AI advice           | Which tasks should remain human-led, automated or hybrid?                              | Experiment / field study     |
| AI portfolio management   | Do AI-supported portfolios improve risk-adjusted outcomes for retail investors?        | Longitudinal empirical study |
| Digital literacy          | Does literacy reduce over-reliance on automated recommendations?                       | Survey + experiment          |
| Cybersecurity and privacy | How do perceived data risks affect adoption and continued use?                         | SEM / panel survey           |
| Algorithmic fairness      | Do advisory systems generate systematically different outcomes across investor groups? | Audit / empirical modelling  |
| Regulatory design         | Which disclosure and governance mechanisms improve accountability?                     | Comparative policy research  |

## VIII. PRACTICAL IMPLICATIONS

### 8.1 Implications for Investors

When considering automated advice, investors need to consider goals, assumptions, costs, diversification, risk and the size of the system as well as not taking the automation as a magic pill for making better decisions. Digital financial literacy should cover the method of generating recommendations and the need for human guidance.

### 8.2 Implications for Policymakers

Transparency, privacy, cybersecurity, suitability and investor understanding, along with accountability. Additionally, the regulatory landscape needs to differentiate between simple rule-based automation and more sophisticated, adaptive AI systems where explanations and model governance can have greater impact.

### 8.3 Implications for Financial Institutions

Digital investment services need to be built on calibrated trust. Disclosures, explanation that is usable, and escalation to qualified human advisers and tracking of customers' results can help avoid the misuse of convenience as well as suitability.

### 8.4 Implications for Researchers

The results of the bibliometric analysis should be used in conjunction with the behavioural and empirical research, in order to be able to link technological trends with the actual investor reaction. The study could model technology characteristics together with investor characteristics, compare the performance of human, automated and hybrid advice, and investigate the influence of trust, of literacy, of explainability and of regulation on investment outcomes for future studies.

## IX. LIMITATIONS

There are a few constraints of the study. First, investment research is spread throughout a variety of finance, economics, information systems, management and technology journals, making it challenging to delineate thematic boundaries. Second, the terminology also evolved significantly between 2000-2025; previously, the terms used were often electronic finance and online investment, whereas later years, terms like FinTech, robo-advisory and AI-enabled financial services became more common. Thirdly, emerging technologies like generative AI, tokenised assets and decentralised finance could be developing at a quicker rate than traditional academic publication cycles. Lastly, the



significance of citations is a dynamic process and newer studies could be relevant to the new research agenda even if they have not been cited as much.

## **X. CONCLUSION**

Investor-centric automation, robo-advisory, AI-powered services and the behavioural dynamics of accepting and using these technologies have surfaced from the bigger picture of electronic finance and FinTech. The results of empirical research indicate that automated advice can enhance diversification and mitigate some selected investor biases in specific settings, depending on investor characteristics, trust in the system, system design and context. The main message is that technology and investor behavior should be analysed as a whole. The digital investment research journey from access to automation and intelligent interaction brings explainability, responsible AI, calibrated trust, financial literacy and human-AI collaboration to the forefront of future investment research.

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