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Consumer Behaviour and Acceptance in Fintech Adoption: A Systematic Literature Review

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Abstract

The literature review was conducted systematically, following a rigorous process to address specific research questions. The review procedure was designed to provide guidance and minimize researcher bias. It outlined the study selection process, including inclusion and exclusion criteria, research questions, search methods, quality evaluation, and data extraction and synthesis. The Scopus database was utilized for this systematic literature review, and a comprehensive search was conducted to identify relevant studies. We used the Kitchenham systematic literature review (SLR) method required to process metadata at the time of processing this SLR, and PRISMA guidelines for reporting systematic literature reviews and meta-analyses. Additionally, VOSviewer analysis was employed to gather data on the sources used by individuals and organizations to access information about fintech products and services, and to understand their influence on acceptance behaviour. A total of 850 publications were identified and screened, with 70 fintech customer acceptance studies meeting the inclusion and exclusion criteria. These studies were published between 2012 and 2022 and were limited to Scopus indexed journals. To maintain focus, specific research questions (RQ) were developed, and data were gathered accordingly to address each RQ while adhering to quality standards. Reviews and quality checklists were used to extract relevant data, prioritizing the most comprehensive publication when multiple sources reported the same data. The primary studies analysed indicated that research into fintech acceptability spans various scientific disciplines, including computer science, information technology, business management and marketing. The technology acceptance model (TAM) emerged as the most used approach for measuring user acceptance of fintech services, as identified in 43 out of 70 publications. Furthermore, several researchers have incorporated additional factors such as performance, social influence, cultural and religious values, knowledge, and service quality to enhance the understanding of fintech acceptance.

Keywords

Fintech; Customer behaviour; Fintech adoption; Literature review; Scopus.

1   Introduction

Numerous studies utilizing empirical methodologies have been carried out to investigate the impact of consumer behaviour on perceived risk and advantages on the intention to use fintech services. Various kinds of perceived benefits have been identified as important factors in determining customer behaviour towards digital finance adoption (Kathiravan et al., 2021; Lubis et al., 2021). This literature review aims to: (1) determine the current fintech user behaviour; (2) identify what factors influence users in choosing and using fintech services; (3) identify the most widely used theory to evaluate service user acceptance; (4) propose theory improvements for fintech customer acceptance; and (5) find out how acceptance of fintech services affects a generation (in this article we use Generation Z as a case study).

We used the Kitchenham (Kitchenham & Charters, 2007) systematic literature review (SLR) method required to process metadata at the time of processing this SLR. Additionally, we adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which serve as a standardized set of principles for reporting systematic literature reviews and meta-analyses (Liberati et al., 2009). By following the PRISMA guidelines, we aimed to ensure a transparent, reliable and replicable approach to reporting our systematic review and meta-analysis. Adherence to PRISMA can contribute to enhancing the overall quality of these types of studies. Furthermore, this article aims to delve deeper into the utilization of the SLR method employed by past researchers (Kotarba, 2016; Utami et al., 2021).

Previous research into the adoption of fintech by customers has primarily focused on specific communities, such as individual countries, or specific types of fintech, such as sharia-compliant fintech. These studies have made generalized observations about customer behaviour within these contexts (Alam et al., 2022; Rahim et al., 2022; Shaikh et al., 2020; A. K. Singh & Sharma, 2022). On the other hand, fintech has emerged as a promising avenue for enhancing financial services over the past decade. This development has instilled hope in both low-income and developing economies, as they seek to leverage fintech opportunities to drive sustained progress on their financial markets (Bazarbash & Beaton, 2020). Currently, fintech can be an attraction for customers because it offers easier and more effective solutions (Fu & Mishra, 2022; Song & Thakor, 2010). An illustration of this is the implementation of fintech incorporating the branchless banking concept. This service model offers a financial system without physical branches, making it accessible to individuals residing in rural areas (Saputra & Supangkat, 2018). Within this model, individuals have the option to deposit a specific amount of money into their mobile wallet, which serves as a virtual wallet service provided by selected service providers (Hiew et al., 2022).

However, it is important to note that profiles of potential customers are often built on limited information, which can lead to customers not always benefiting from the most competitive products or services available (Chan, 2022). Fintech and big tech credit are more developed in countries with higher GDP per capita (at a declining rate), where banking sector mark-ups are higher and where banking regulation is less stringent (Cornelli et al., 2020). In less stable and highly concentrated banking sectors, research has found evidence showing that fintech could act as substitute to bank credit (Hodula, 2022). Nowadays, P2P platforms even operate as a substitute or complement to banks on the consumer credit market (Tang, 2019).

On the other hand, the primary users of fintech services are currently dominated by the younger generation, commonly referred to as Generation Z or Gen Z (Daqar et al., 2020; Safarudin et al., 2020). Gen Z individuals are currently aged between 10 and 25, born between 1997 and 2012. Numerous studies indicate that Gen Z is the most anxious generation to date (Rosariana, 2021). As the youngest generation, Gen Z is just entering the formal education system or joining the workforce. They tend to be more socially active in the virtual world rather than the real world. Gen Z shares some similarities with Generation Y and Generation X, but what sets them apart is their ability to multitask, such as using social media on smartphones, browsing on PCs, and listening to music with headphones, all simultaneously (Rodiana, 2020).

2 Methods

2.1 Review methods

SLR is a study concept using a lot of literature, which is widely adopted for research in fields relevant to the research field, within this scope is the adoption of fintech and is useful for determining the state-of-the-art research topics, until research gaps can be found (Kitchenham & Charters, 2007). We created inclusion and exclusion criteria for this review and how studies were grouped for the syntheses.

***Table 1.** Criteria for systematic review document inclusion and exclusion.*

| Criterion	Criterion dimension
Inclusion	1. Article is indexed in Scopus database. 2. Article simultaneously cites the phrases "Fintech" and "Acceptance" in title, abstract or keywords. 3. Article simultaneously cites the phrases "Fintech" and "Adoption" in title, abstract or keywords. 4. Article simultaneously cites the phrases "Fintech" and "Behaviour" in title, abstract or keywords. 5. Article was published between 2012 and 2022.
Exclusion	1. Document text not wholly written in English. 2. Text qualifies as either an article, editorial or review. 3. Record is older than ten years. 4. Record is not a part of Tier Q1, Q2, Q3, or Q4. 5. Text fails to meet the relevance criterion, which considers factors including accessibility, methodological restrictions, applicability of findings and coherence.

During the process of conducting the SLR, we opted to utilize the Scopus database as the primary information source. The choice of Scopus was made due to its widely recognized reputation as a highly extensive and inclusive database for indexing journals on a global scale. Several factors influenced our decision to select Scopus as a reliable and appropriate reference tool for this research. Notable advantages of employing Scopus include its extensive coverage, offering a wide range of high-quality content, the ability to conduct citation analysis and its user-friendly interface (Mengist et al., 2020).

To highlight the theoretical convergence points in the articles, we streamlined the in-formation we found. The Kitchenham technique was employed to categorize the conceptual findings of the review, and it may also be possible to build a model with an examination of the studies that were created analytically. By using this approach, we were able to develop a conceptual framework for this issue with theoretical nodes that considered the development of effects of the fintech phenomenon on institutional theory.

Our data collection process was guided by the PRISMA guidelines (refer to the Appendix), which ensured transparency and consistency in identifying and defining the variables of interest. The methods used to collect data from reports were outlined following the PRISMA methodology. To ensure accuracy and reliability, two independent reviewers conducted the data collection. Through systematic extraction of data on participant characteristics, intervention details and funding sources, and addressing missing or unclear information using assumptions, our aim was to provide a comprehensive overview of the collected data (Page et al., 2021). PRISMA was chosen above other existing protocols because it is widely used in many areas and is recognized for being comprehensive, improving the accuracy and transparency of literature reviews (Bao & Roubaud, 2022).

These methods involved multiple steps to ensure accuracy, consistency and transparency in the data collection process. The PRISMA method is outlined in Figure 1. The requirements for an SLR are

determined in the first phase (Step 1). The goals for conducting the SLR were covered in the Introduction. Then, the systematic reviews that have already been conducted on consumer approval of fintech activity were found and evaluated. The review procedure was created to provide direction for conducting the review and to lessen the chance of researcher bias (Step 2). It specified the study selection procedure with inclusion and exclusion criteria, the research questions, the search method, the quality evaluation and, ultimately, the data extraction and synthesis process (Step 3).
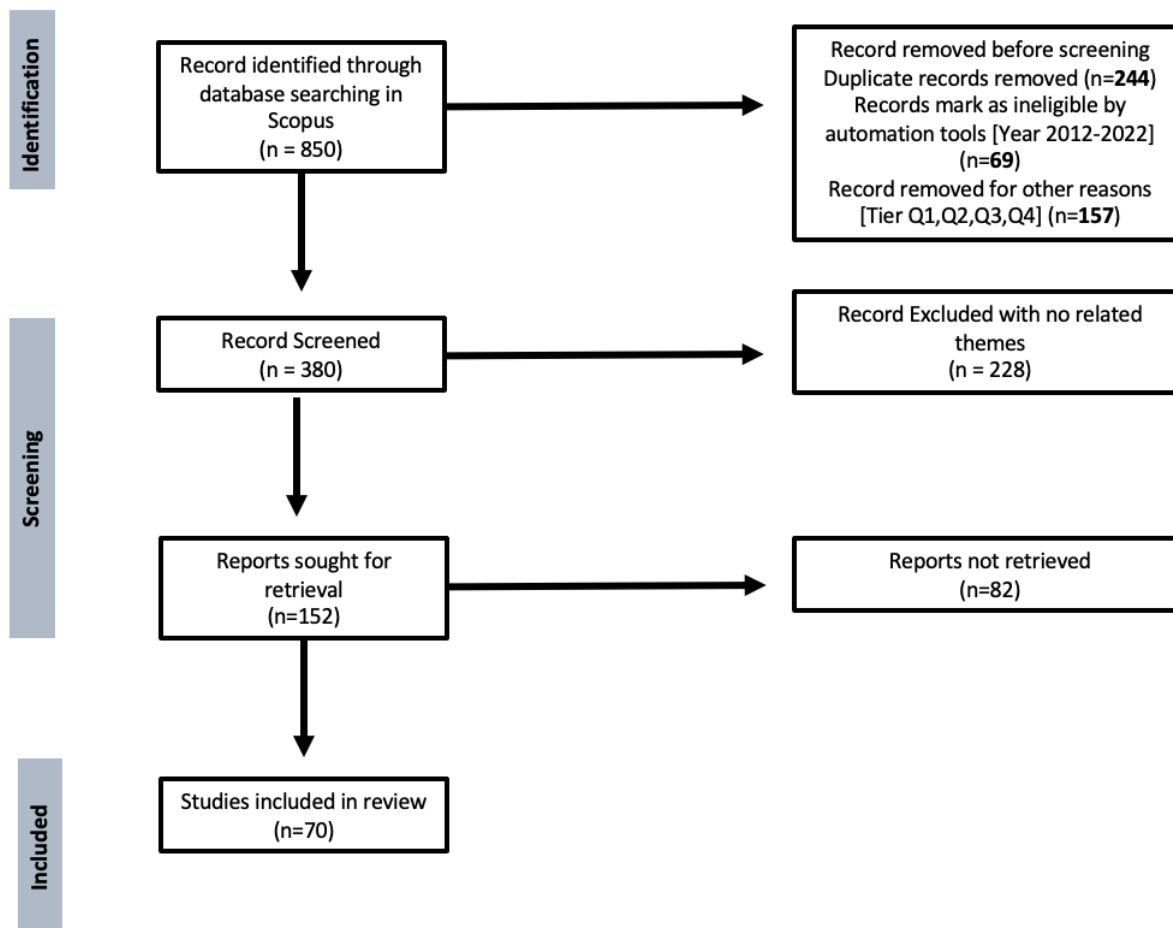
Figure 1. *Flow chart of study selection SLR process using PRISMA.*

2.2 Research questions

In this research, we made use of AI tools to gain valuable perspectives while formulating our research questions. Specifically, we employed natural language processing (NLP) algorithms and the AI Chat GPT to analyse an extensive collection of textual data pertaining to our research topic. The AI Chat GPT, a generative pre-trained transformer, was utilized to extract insights into emerging trends and subjects within the scope and coverage of our study, aligned with the PICOC (Population, Intervention, Comparison, Outcome and Context) framework. By inputting pertinent keywords, the AI Chat GPT generated responses that refined our research questions and ensured comprehensive coverage. We further validated the AI-generated insights through manual data analysis and cross-referencing with existing literature. The integration of the AI Chat GPT complemented traditional methods, enhancing the comprehensiveness and depth of our study, leading to more robust findings and recommendations. Additionally, we gathered insights from diverse sources, including "population trends in fintech", " influence of fintech on customer behaviour", "comparisons between fintech and traditional method acceptance", "techniques for fintech adoption analysis" and the "context of fintech study", further enriching our research exploration. The Population, Intervention, Comparison, Outcomes and Context (PICOC) criteria were used to create them. The PICOC structure of the research topics is displayed in Table 2.

Table 2. *PICOC structure.*

Structure	Scope and coverage
Population	fintech, internet, digital finance, information system
Intervention	modelling, acceptance, behaviour, adoption, method, technique
Comparison	TAM, UTAUT, ServQual, TBP , TRB
Outcomes	successful model acceptance, technology behaviour
Context	studies in digital finance perception

The research questions in this article are as follows:

RQ1: Which journal is the most significant publication for customer acceptance on fintech?

RQ2: What theory adoption approaches are used most often for fintech acceptance?

RQ3: What are the factors or constructs that most influence customer behaviour in fintech acceptance?

RQ4: What theory improvements are proposed for fintech customer acceptance?

RQ5: What publications discuss fintech adoption by Gen Z?
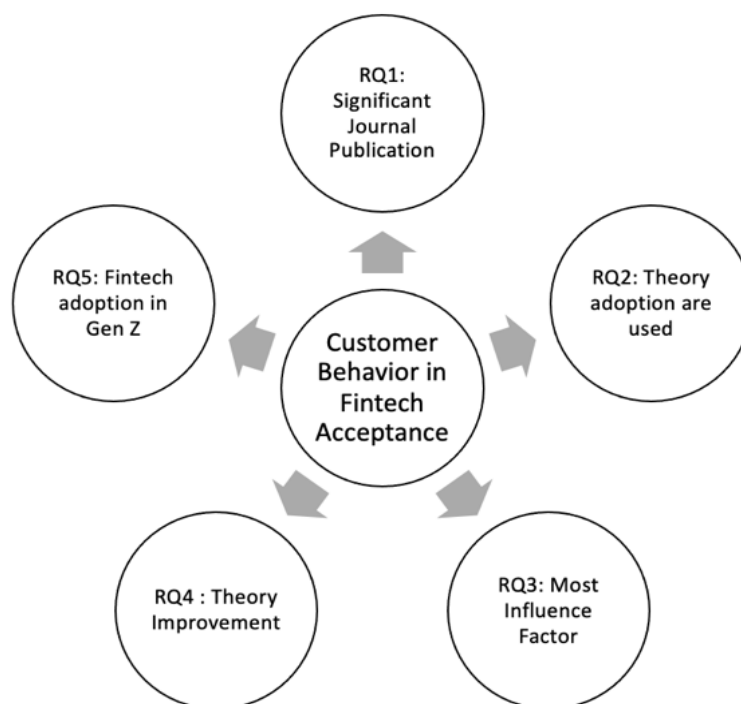
Figure 2. *Mind map of systematic literature review.*

We used the inclusion standards listed in Table 2 to answer the research question. By using the "AND" operator with the phrases "fintech", "adoption", "customer behaviour" and "acceptance" in the main search strategy, we were able to locate articles, editorials and reviews in the Scopus database. These were chosen based on the document selection criteria and their credibility. While well-established procedures can be briefly stated and properly attributed, protocols should be defined in length**.** Figure 2 displays the fundamental mind map for the comprehensive literature review (Wahono, 2016). The main goal of this systematic literature review is to identify customer acceptance behaviour regarding financial technology services.

2.3   Data collection process

In this literature review, we examined trends, approaches and methods for improving external construction research between 2012 and 2022. Following the PRISMA guidelines, we defined specific outcomes on which we sought to obtain data for this study. These outcomes were predetermined based on our research objectives and questions. To evaluate the risk of bias in the included studies, we employed specific methods in accordance with the PRISMA guidelines. This assessment involved assessing the internal validity and quality of each study. Initially, we identified 850 publications that met the predetermined criteria, which were then narrowed down to 70 publications from Scopus indexed journals. Among these, 40% were categorized as Q1, including journals such as Journal of Behaviour and Information Technology, International Journal of Human-Computer Interaction, Internet Research, Computers in Human Behaviour, Technological Forecasting and Social Change, and Technology for Society. Additionally, 36% fell under Q2 and included journals such as Journal of Global Information Management, Journal of High Technology Management Research and Journal of Islamic Marketing. Finally, 20% were classified as Q3 and included journals such as Banks and Bank Systems, International Journal of Electronic Commerce Studies, International Journal on Advanced Science Engineering, and Information Technology. The distribution of quartiles of articles based on journals is shown below.
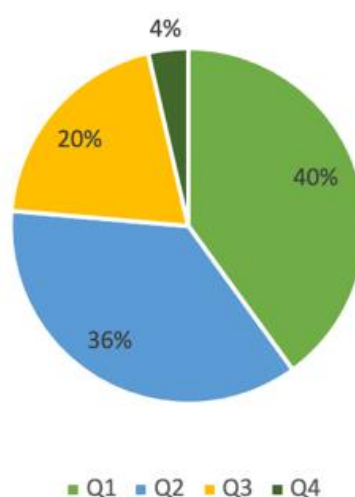
Figure 3. Quartile distribution of journals for this article.

2.4   Data extraction and reporting

The data needed to answer the research questions raised by this review are taken from the chosen primary studies. The data extraction form was completed for every one of the 70 primary studies that were chosen. The primary studies that provided the information required to address the study questions were the focus of the data extraction form. We gathered all the data necessary to address the RQ and the study quality standards. Data from reviews and quality checklists can both be provided in the same manner. We referred to the most thorough publication if there were multiple ones reporting the same data. We used the GRADE (Grading of Recommendations, Assessment, Development and Evaluation) approach to assess the certainty of evidence (Guyatt, 2008). It involves evaluating the quality of individual studies and considering factors such as risk of bias, imprecision, inconsistency, indirectness and publication bias. GRADE provides a framework to assign a level of certainty to the body of evidence, which can range from high to very low. The various steps in this approach are interconnected and may not follow a strict sequential order. It begins by framing the research question using the PICOC criteria and continues with a systematic search to identify all relevant evidence pertaining to the topic at hand.
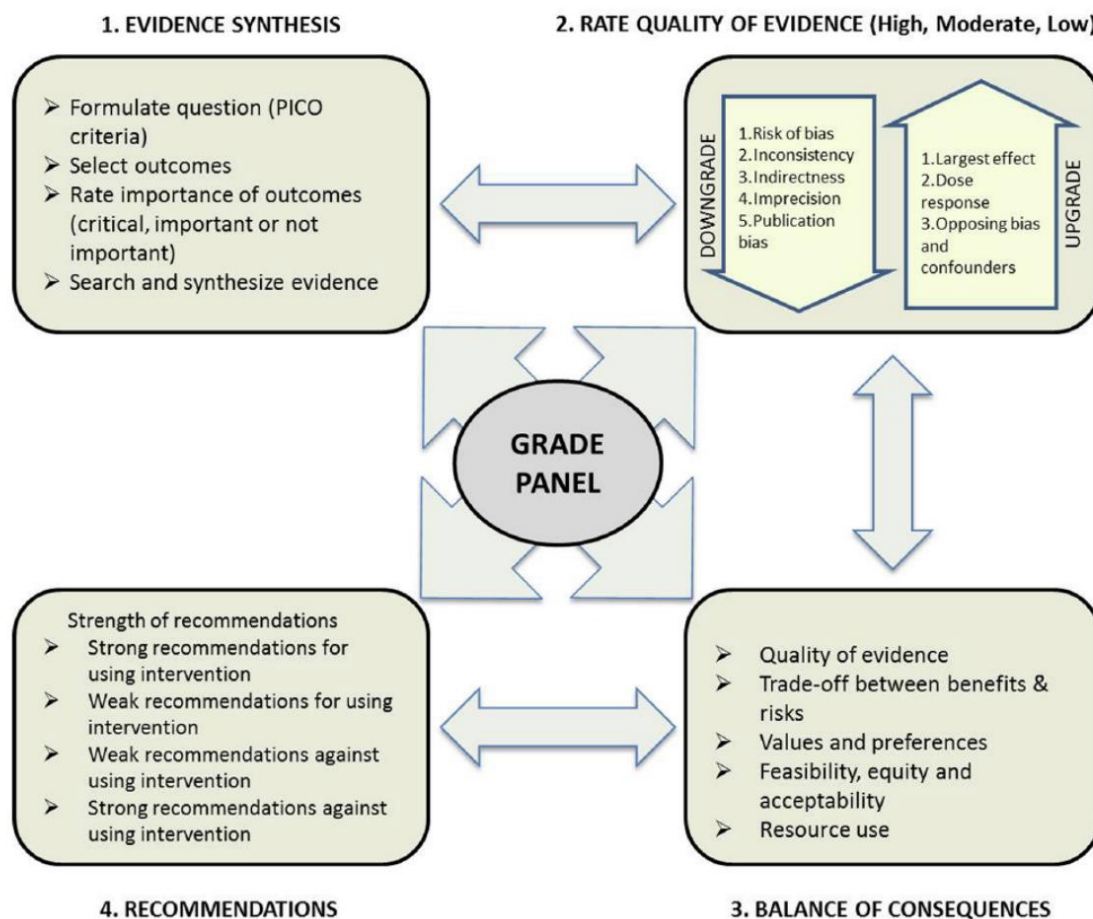
Figure 4. Overview of GRADE approach. Source: (Rafiq & Boccia, 2018).

2.5 Data analysis

All the papers pertaining to the fintech research trend were subjected to a keyword mapping exercise. We identified terms that frequently arose using the VOSviewer program, including fintech, usage, approach, process, finance, risk, need, problem, adoption and investment. We assessed selective outcome reporting: evaluating whether studies selectively report outcomes can also help identify reporting biases. This involves comparing pre-specified outcomes in the study protocol or registration of reported outcomes in the published studies. Any discrepancies may indicate selective reporting of outcomes. The analysis of VOSviewer may be applied to studies on consumer acceptability of fintech. The adoption of fintech in terms of technology and data analysis, such as blockchain, is the subject of extensive research (Frederiks et al., 2022; Ku-Mahamud et al., 2019; Kuo Chuen, 2017) and machine learning (Almuzaini et al., 2022; Chen & Chang, 2021; Warjiyono et al., 2019)

3 Results

3.1 RQ1: Significant journal publications

Based on Figure 1, 70 primary studies that examine customer behaviour acceptance in fintech are considered in this literature study. The distribution over the years is presented to demonstrate how consumer behaviour changes over time in relation to fintech interest. Figure 5 displays a brief history of the distribution studies through the years. More studies have been published since 2012, indicating that there are now more recent and pertinent studies included. Additionally, Figure 5 demonstrates how current research into consumer behaviour and fintech acceptance is still highly relevant.
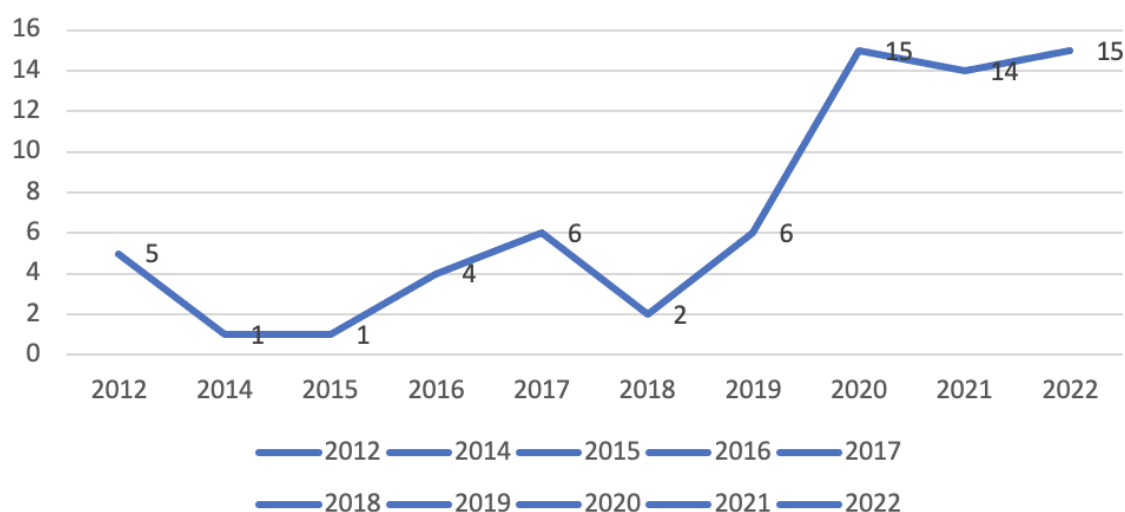
Figure 5. Publications by year among 70 articles identified.

The most significant consumer behaviour in fintech acceptance journals is shown in Table 3, per the chosen primary studies. Table 3 also displays the most significant reader behaviour in fintech journals along with the Scimago journal rank (SJR) score and Q categories (Q1–Q4). Journal articles are ranked in descending order by their SJR value.

Table 3. Scimago journal rank (SJR) of selected journals.

No	Journal name	Publisher	SJR	Q in category
1	Computers in Human Behaviour	Elsevier Ltd	2.17	Q1 in computer science
2	Technology in Society	Elsevier Ltd	1.14	Q1 in business and international management
3	International Journal of Human-Computer Interaction	Taylor and Francis	0.96	Q1 in computer science
4	International Journal of Bank Marketing	Emerald Group Publishing	0.89	Q2 in marketing
5	Journal of Science and Technology Policy Management	Emerald	0.59	Q2 in industrial relations
6	Journal of Islamic Marketing	Emerald	0.55	Q2 in marketing
7	Journal of Financial Service Marketing	Palgrave Macmillan Ltd	0.51	Q2 in finance
8	Journal of Global Information Management	IGI Publishing	0.47	Q2 in business and international management
9	Global Business Review	SAGE Publication India	0.45	Q2 in business and international management
10	Banks and Bank Systems	Business Perspective	0.19	Q3 in business management and accounting

The analysis of the selected primary studies reveals the distribution of research publications pertaining to fintech consumer behaviour across various academic disciplines. These disciplines include business, computer science or information systems, marketing, and management. Notably, three articles from the

International Journal of Bank Marketing and the Journal of Islamic Marketing were the most frequently encountered in this literature review. For more detailed information, please refer to Table 4. This demonstrates that research into fintech spans multiple scientific fields, indicating its interdisciplinary nature. This is according to Takeda's statement (Takeda & Ito, 2021) that most studies focused on how new entrants used fintech innovation to address social problems or create new financial ecosystems.

Table 4. Journal publications and distribution of selected studies.

No.	Journal name	Quartile	Amount	Source
1	International Journal of Bank Marketing	Q2	3	(Chan et al., 2022; Chawla & Joshi, 2019; Kesharwani & Bisht, 2012)
2	Journal of Islamic Marketing	Q2	3	(Darmansyah et al., 2020; Haider et al., 2016; Jamshidi & Hussin, 2016)
3	Computers in Human Behaviour	Q1	2	(Baptista & Oliveira, 2015; Yen & Wu, 2016)
4	European Journal of Finance	Q1	2	(Giovanis et al., 2012; Philippas & Avdoulas, 2020)
5	F1000Research	Q1	2	(Dawood et al., 2022; Nayak Kini & Basri, 2022)
6	International Journal of Human-Computer Interaction	Q1	2	(Lim et al., 2019; Sharif & Naghavi, 2021)
7	Technology in Society	Q1	2	(Albayati et al., 2020; Balakrishnan & Shuib, 2021)
8	Global Business Review	Q2	2	(Çera et al., 2021; Hasan et al., 2021)
9	Journal of Financial Services Marketing	Q2	2	(Majumdar & Pujari, 2022; S. Singh & Srivastava, 2020)
10	Journal of Global Information Management	Q2	2	(Khan et al., 2017; Wamba et al., 2021)

3.2 RQ2: Most used theory adoption approach

Figure 6 depicts the examination of 19 techniques that have been tested and recommended as effective approaches for assessing consumer acceptability of fintech usage since 2010. The figure presents a list of the most recent techniques utilized to determine consumer behaviour in fintech acceptance. According to Figure 6, two prominent methodological approaches stand out: the technology acceptance model (TAM) and the unified theory of acceptance and application of technology (UTAUT).

The popularity of these methods can be attributed to several factors. TAM, being one of the most well-known theoretical frameworks, has been extensively employed in research into the acceptance and usage of fintech products and services. It provides a structured framework for comprehending the various factors that influence user behaviour. Similarly, UTAUT has gained significant traction in the field, contributing to its wide usage in the study of fintech acceptance (Julianto et al., 2021; Nanggala, 2020; S. Singh et al., 2020). As a result, TAM is a popular theory in the field of fintech acceptance research and is frequently used as a foundation for developing and testing hypotheses and models.
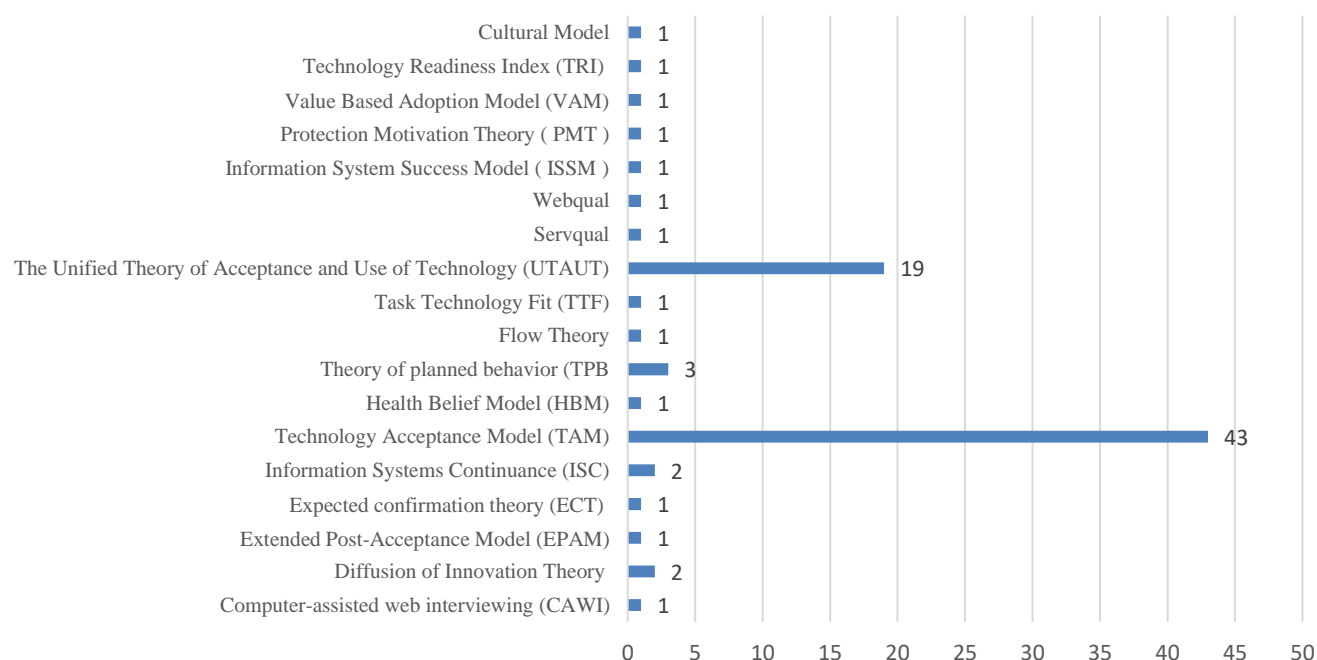
Figure 6. *Distribution of theories used to analyse consumer behaviour in fintech adoption.*

3.3 RQ3: Factors or constructs that most influence customer behaviour in fintech acceptance

There are several factors that can influence consumer acceptance of fintech products and services. By understanding these and other factors that influence consumer acceptance of fintech products and services, researchers can develop strategies for promoting the adoption of fintech and improving user behaviour. Some of the key factors that have been identified in selected articles on fintech user behaviour are shown in Table 5.

Table 5. *New factors that can influence customer acceptance of fintech products.*

Variable	Description	References
Trust	Customers who trust a fintech provider are more likely to use their products and services.	(Agyei et al., 2022; Akinwale & Kyari, 2022; Candra et al., 2020; Chan et al., 2022; Chawla & Joshi, 2019; Chiou & Shen, 2012; Dawood et al., 2022; Jamshidi & Hussin, 2016; Kesharwani & Bisht, 2012; Najib & Fahma, 2020; Namahoot & Jantasri, 2022; Bongomin & Ntayi, 2020; Sembiring et al., 2022; S. Singh et al., 2021; Tomić et al., 2022; Wang et al., 2019; Chen et al., 2021)
Satisfaction	Customers' desire to spend specific assets in the fintech industry was positively and significantly impacted by their satisfaction with them.	(Adjei et al., 2020; Chiou & Shen, 2012; Jünger & Mietzner, 2020)
Security/Privacy	Customers who have fairly extensive IT knowledge will always feel that various kinds of online-oriented services are risky services, especially in terms of trust, security, privacy concerns.	(Chawla & Joshi, 2019; Giovanis et al., 2012; Lim et al., 2019; Majumdar & Pujari, 2022; Moorthy et al., 2020; Munikrishnan et al., 2022; Nasri & Charfeddine, 2012; S. Singh et al., 2020; S. Singh & Srivastava, 2020; Thakur & Srivastava, 2014; Tomić et al., 2022)
User experience	Better user experience in the field of administration in general and the financial sector will determine	(Agyei et al., 2022; Biucky et al., 2017; Giovanis et al., 2012; Kesharwani & Bisht, 2012; Reith et al., 2020; Winarno & Putra, 2020)

Variable	Description	References
	their perceived usefulness and perceived ease of use of fintech.	
Perceived risk	The perceived risk of fintech adoption is the potential loss or negative consequences that individuals or businesses may face when using financial technology. This can include concerns about the security of their personal or financial information, the reliability and stability of the technology, and the potential for financial loss due to fraud or other risks.	(Akturan & Tezcan, 2012; Balakrishnan & Shuib, 2021; Chan et al., 2022; Daragmeh et al., 2021; Kesharwani & Bisht, 2012; Lee et al., 2019; Namahoot & Jantasri, 2022; Singh & Sharma, 2022; Sukwadi et al., 2022; Chen et al., 2021)
Performance	One performance variable in fintech adoption is the level of user satisfaction with the fintech product or service. Other performance variables in fintech adoption may include the number of users, the amount of money being handled by the fintech service and the overall financial performance of the fintech company.	(Akturan & Tezcan, 2012; Baptista & Oliveira, 2015; Çera et al., 2021; Chan et al., 2022; Jain & Chowdhary, 2021; Khan et al., 2017; Munikrishnan et al., 2022; Reith et al., 2020; Tomić et al., 2022; Chen et al., 2021)
Benefit	There are several benefit factors that can affect fintech acceptance. One of the key benefits of fintech is that it can make financial services more convenient and accessible for users. This can be particularly beneficial for individuals who live in remote areas or who have difficulty accessing traditional financial services.	(Akturan & Tezcan, 2012; Namahoot & Jantasri, 2022; Kini & Basri, 2022; Wamba et al., 2021)
Readiness	One readiness factor that can affect fintech acceptance is the level of digital literacy and familiarity with technology among potential users. In general, individuals who are more comfortable with technology and have experience using digital tools are more likely to be open to using fintech products and services.	(Balakrishnan & Shuib, 2021; Thakur & Srivastava, 2014)
Innovation	One innovation factor that can affect fintech acceptance is the level of novelty and uniqueness of the fintech product or service. In general, people are more likely to be interested in using fintech products and services that offer something new and different, and that can provide them with a better or more convenient experience compared to traditional financial services.	(Balakrishnan & Shuib, 2021; Dawood et al., 2022; Deb & Agrawal, 2017; Ho et al., 2020; Jünger & Mietzner, 2020; Solarz & Swacha-Lech, 2021; Thakur & Srivastava, 2014)
Social influence	One social influence factor that can affect fintech adoption is recommendations and opinions of friends, family and other people in a potential user's social network. If someone has a positive experience with a fintech product or service, they may be more likely to recommend it to others, and this can help increase the adoption of the product among their contacts.	(Akhtar et al., 2019; Akinwale & Kyari, 2022; Akturan & Tezcan, 2012; Biucky et al., 2017; Çera et al., 2021; Djimesah et al., 2022; Matemba et al., 2018; Muñoz-Leiva et al., 2017; S. Singh, 2020; Solarz & Swacha-Lech, 2021; Sukwadi et al., 2022; Thakur & Srivastava, 2014; Wang et al., 2019; Chen et al., 2021)
Hedonic motivation	Hedonic motivation refers to the enjoyment or pleasure that people experience when using a product or service. In the context of fintech adoption, hedonic motivation can affect how likely people are to use fintech products and services.	(Baptista & Oliveira, 2015; Çera et al., 2021; Kamdjoug et al., 2021; Khan et al., 2017)
Price value	Price value is the perceived relationship between the price of a product or service and its perceived benefits. In the context of fintech adoption, price	(Baptista & Oliveira, 2015; Khan et al., 2017; Sukwadi et al., 2022)

Variable	Description	References
	value can affect how likely people are to use fintech products and services.	
Habit/psychological factor	Habit is a behaviour that is performed regularly and automatically, often without conscious thought. In the context of fintech adoption, habit can affect how likely people are to use fintech products and services.	(Baptista & Oliveira, 2015; Çera et al., 2021; Folkinshteyn & Lennon, 2016; Huang et al., 2021; Khan et al., 2017; Yen & Wu, 2016)
Perceived enjoyment	In general, fintech products and services with a high mean perceived enjoyment are more likely to be adopted and used by a larger number of people, while those with a low mean perceived enjoyment may have lower adoption rates.	(Agyei et al., 2022; Folkinshteyn & Lennon, 2016; Sharif & Naghavi, 2021; Yen & Wu, 2016)
Mobility	Mobility can affect how likely people are to use fintech products and services. For example, if a fintech product or service is mobile-friendly and can be accessed easily from a smartphone or other mobile device, it is more likely to be adopted by users who value mobility.	(Folkinshteyn & Lennon, 2016; A. Singh & Sharma, 2022; Sukwadi et al., 2022; Yen & Wu, 2016)
Gender	Gender can affect how likely people are to use fintech products and services. It is important for fintech companies to consider the gender-specific needs and preferences of their potential users, and to design products and services that are inclusive and accessible to all genders.	(Çera et al., 2021; Giovanis et al., 2012; Jain & Chowdhary, 2021; Haider et al., 2016; Lee et al., 2019; Winarno & Putra, 2020; Yen & Wu, 2016)
Cultural and religious value	Cultural and religious values can affect how likely people are to use fintech products and services. It is important for fintech companies to be aware of these potential issues and to take them into account when designing and promoting their products and services.	(Agyei et al., 2022; Akhtar et al., 2019; Baber, 2021; Balakrishnan & Shuib, 2021; Biucky et al., 2017; Deb & Agrawal, 2017; Haider et al., 2016; Jamshidi & Hussin, 2016; Munikrishnan et al., 2022; Nayak Kini & Basri, 2022; A. K. Singh & Sharma, 2022; Wamba et al., 2021)
Features and conditions	Features and conditions refer to the features and capabilities of a fintech product or service, and the conditions under which it can be used. These features can help facilitate the use of the product or service, making it more likely to be adopted by users.	(Çera et al., 2021; Chawla & Joshi, 2019; Deb & Agrawal, 2017; Khan et al., 2017; Thakur & Srivastava, 2014)
Knowledge	Knowledge can affect how likely people are to use fintech products and services. Fintech companies can help increase adoption rates by providing education and information about their products and services, and by making them easy to use and understand.	(Khan et al., 2017; Majumdar & Pujari, 2022; Matemba et al., 2018; Munikrishnan et al., 2022; Bongomin & Ntayi, 2020; Philippas & Avdoulas, 2020; Sharif & Naghavi, 2021; Solarz & Swacha-Lech, 2021)
Service quality	Service quality can affect how likely people are to use fintech products and services. If a fintech product or service provides a high level of service quality, with fast and reliable transactions and responsive customer support, it is more likely to be adopted by users who value these qualities.	(Adjei et al., 2020; Chan et al., 2022; Deb & Agrawal, 2017; Matemba et al., 2018; Nasri & Charfeddine, 2012; Singh & Srivastava, 2020; Wang et al., 2019)

3.4 RQ4: Proposed method improvements for fintech customer acceptance

There are several ways in which existing theories of consumer acceptance of fintech products and services could be improved. Some possible improvements that have been identified in this article are shown in Table 6.

Table 6. *Theory improvement for analysis of customer behaviour in fintech acceptance.*

No.	Theory improvement	Extended behaviour factor (incorporates several external variables)	Sources
1	Integrating TAM with IDT	security, it experience, gender, age	(Giovanis et al., 2012)
2	Integrating TAM with TPB	security and privacy, self-efficacy, government support, and technology support	(Nasri & Charfeddine, 2012)
3	Integrating UTAUT and cultural model	hedonic motivation, price value, habit	(Baptista & Oliveira, 2015)
4	Integrating TAM, UTAUT, Servqual and Webqual	social influence, responsiveness, security	(Singh et al., 2020)
5	Integrating DOI, TAM, DTPB	innovativeness	(Ho et al., 2020)
6	Integrated TAM, TPB, flow theory, TTF	enjoyment, concentration, online trading skills, challenge	(Sharif & Naghavi, 2021)
7	Integrating TAM, UTAUT2, ISSM, PMT	utilitarian expectation (UE), hedonic expectation (HE), status gains (SG) and status loss avoidance (SLA)	(Kala Kamdjoug et al., 2021)
8	Integrating UTAUT and FRI	optimism, innovativeness, lack of awareness, cashless readiness, intrinsic motivation, risk	(Balakrishnan & Shuib, 2021)
9	Integrating EPAM, ECT	fintech service knowledge, security	(Lim et al., 2019)
10	Integrating TAM and HBM	perceived susceptibility, government, support	(Hiew et al., 2022)

3.5 RQ4: Significant journal publications on fintech adoption by Gen Z

The pragmatic mindset of Gen Z consumers is often reflected in their approach to money and education. Additionally, their affinity for technology, dedication to social causes and strong individualistic tendencies are significant factors shaping their behaviour.

Table 7. *Significant publications identified discussing fintech behaviour in Gen Z.*

No.	Publication title	User behaviour finding	Sources
1	Mobile banking adoption by youth, perceptions and intentions	Perceived usefulness, perceived social risk, perceived performance risk and perceived gain all have a direct impact on attitudes towards mobile banking, which is a key factor in determining whether a person will utilize mobile banking.	(Akturan & Tezcan, 2012)
2	Determinants of adoption of innovative fintech services by millennials	Innovative services, direct opinions of relatives and friends, social media	(Solarz & Swacha-Lech, 2021)
3	Online financial trading among young adults: integrating the theory of planned behaviour, technology acceptance model, and theory of flow	Enjoyment, concentration, online trading skills, challenge	(Sharif & Naghavi, 2021)
4	Financial literacy and financial well-being among generation-Z university students: evidence from Greece	Financial literacy, financial fragility and financial well-being	(Philippas & Avdoulas, 2020)

No.	Publication title	User behaviour finding	Sources
5	FinTech payments in the era of COVID-19: Factors influencing behavioural intentions of "Generation X" in Hungary to use mobile payment	Perceived COVID-19 risk (PC19R)	(Daragmeh et al., 2021)
6	A study of Indian Gen X and millennial consumers' intention to use fintech payment services during COVID-19 pandemic	Subjective norms, individual mobility, perceived severity, perceived COVID-19 risk (PC19R)	(Singh & Sharma, 2022)
7	Fintech in the eyes of millennials and Generation Z (financial behaviour and fintech perception)	-	(Abu Daqar et al., 2020)

Unfortunately, the number of publications that specifically focus on the acceptance of fintech services among Gen Z consumers remains limited. Out of the 70 publications examined in this study, only 7 publications addressed the behaviour of Gen Z consumers in utilizing fintech services. The research question at hand seeks to identify the variables and constructs that drive Generation Z consumers to adopt fintech, aiming to bridge the existing knowledge gap in this area.

3.6 Analysis of consumer behaviour and acceptance in fintech

In recent years, there has been a significant increase in the acceptance and adoption of fintech by both consumers and businesses. This is due in part to the convenience and accessibility of fintech services, as well as the growing awareness of the potential benefits of using these technologies.

Figure 7. *Overlay of VOSviewer results VOSviewer regarding topics in fintech acceptance.*

Overall, the acceptance and adoption of fintech is likely to continue to grow as more people become aware of the benefits of using these technologies (Cornelli et al., 2020). As the use of fintech becomes more widespread, it is likely that traditional financial institutions will need to adapt and incorporate these technologies to remain competitive (Hodula, 2023). If we look more specifically at fintech adoption in the VOSviewer, we get the following results.

Based on the results of the analysis of the overlay visualization in the VOSviewer, we can see that research discussing consumer acceptance and behaviour in new fintech emerged in 2020; this may be due to the massive use of fintech in that year as an impact on the COVID-19 pandemic, which made all banking services become digitized. This proves that research into user acceptance of fintech services has become a trend in recent years. This is because in the past few years research conducted on fintech only focused on developing technology and new business models.

Figure 8. *Research trends in fintech using VOSviewer.*

Giovanis (2012) conducted a study to examine the factors that influence Greek customers' intentions to adopt internet banking services. The research aimed to enhance the technology acceptance model (TAM) by incorporating principles from the innovation diffusion theory (IDT) and customers' perceived risk. The study included examination of various individual differences and their effects on consumer attitudes, which were integrated into a research model based on TAM and IDT. The findings indicated significant relationships between consumers' individual constructs of differences and compatibility, a key factor in their acceptance of internet banking services. The authors argue that Davis (1985) suggested that other factors need to be considered in TAM research to understand how consumers' perceptions of a system's usefulness and usability are affected. Risk perception, self-efficacy, trust/credibility and task familiarity have a significant influence on customer beliefs about TAM constructs.

The same research was also conducted by Ho et al. (2020). Their study suggests that individuals who are more innovative with new technologies tend to have positive views on innovation, perceiving it as useful and easy to use, and are more likely to adopt mobile banking. The diffusion of innovation theory (DOI) is commonly used to examine factors influencing acceptance of new technologies. Both models used in this study show that three variables affect attitudes towards mobile banking, with compatibility being the strongest factor and perceived risk being the weakest. These findings align with other studies, highlighting the importance of compatibility with personal values and experiences in the adoption of innovations.

Research into the acceptance of fintech among Generation Z remains limited, posing a future challenge. This group is known for their digital savviness and social consciousness, making their acceptance of fintech an important consideration. Fintech companies can enhance customer acceptance by prioritizing user needs, offering reliable services that meet expectations. Fintech also complements traditional banking systems, with peer-to-peer (P2P) lending, for instance, enabling greater access to financing and reducing disparities in credit accessibility. Therefore, P2P lending can effectively promote financial inclusion and support more inclusive economic growth (Bartlett et al., 2022; Hodula, 2022).

4   Discussion and Future Work

This review covers earlier studies on consumer behaviour and acceptance of fintech adoption. To preserve consistency in the multitude of reviews, the articles were chosen based on a higher level. Firstly, researchers in the discipline urgently need to create more theoretical studies, in our opinion. Secondly, the publications evaluated in this work are limited to the fields of human-computer interaction and finance due to the limitations of our research area, which affects how well the worldwide fintech research trend is reflected. There is room to broaden this study and include more literature from different fields. Based on designed inclusion and exclusion criteria, finally the remaining 70 fintech customer acceptance studies published between 2012 and 2022 were investigated.

This literature review was made in a methodical manner. To provide answers to specific research questions, a systematic literature review is the process of locating, analysing and interpreting all the study materials that are currently available. The examination of the primary studies that were chosen demonstrates that research into the acceptability of fintech is cross-study research that incorporates elements of many different scientific disciplines, including computer science, information technology, business management, marketing, etc. TAM is the most widely used approach so far to measure user acceptance of fintech services (43 out of the 70 publications were identified to apply it). There are several additional factors used by several researchers to modify acceptance of fintech, the most widely used including performance, social influence, cultural and religious values, knowledge, and service quality.

Overall, fintech and traditional banking can complement each other and collaborate to create a better financial ecosystem. Combining the strengths of fintech and traditional banking experience and trust, there is potential to deliver better innovation, more inclusive financial services and an overall better customer experience. Fintech and banks can collaborate to expand the scope of financial services to rural areas, increase financial inclusion and support economic growth. Some of the successes that have been made include using agent-based financial services (Saputra & Supangkat, 2018) and big tech credit (Cornelli et al., 2020).

In our opinion, researchers in this field should prioritize the development of more theoretical studies. Their findings indicate that fintech default rates are significantly lower compared to banking, with a reduction of approximately 25% (Bartlett et al., 2022). Moreover, the scope of the publications reviewed in this work was restricted to the fields of human-computer interaction and finance, which may limit the reflection of the global fintech research trends. There is an opportunity to expand the study by including literature from other disciplines.

Additional Information and Declarations

Conflict of Interests: The authors declare no conflict of interest.

Author Contributions: M.S.: Conceptualization, Methodology, Data Collection, Writing – Original draft preparation. P.I.S.: Supervision, Writing – Reviewing and Editing. A.E.P.: Supervision, Writing – Reviewing and Editing.

Data Availability: The data that support the findings of this study are available from the corresponding author.

Appendix

Figure A1. *Shortened version of PRISMA 2020 checklist for abstracts based on (Page et al., 2021).*

Section and Topic	Item #	Location where item is reported
TITLE		
Title	1	Tittle
ABSTRACT		
Abstract	2	Abstract
INTRODUCTION		
Rationale	3	Introduction
Objectives	4	Introduction
METHODS		
Eligibility criteria	5	Review Methods
Information sources	6	Review Methods
Search strategy	7	Review Methods
Selection process	8	Review Methods
Data collection process	9	Data Collection
Data items	10a	Data Collection
	10b	Data Collection
Study risk of bias assessment	11	Data Extraction ana Report
Effect measures	12	Result
Synthesis methods	13a	Data Collection Process
	13b	Data Collection Process
	13c	Data Collection Process
	13d	Data Collection Process
	13e	Data Collection Process
	13f	Data Extraction ana Report
Reporting bias assessment	14	Data Extraction ana Report
Certainty assessment	15	Data Extraction ana Report
RESULTS		
Study selection	16a	Results
	16b	Result
Study characteristics	17	Results
Risk of bias in studies	18	Result

Section and Topic	Item #	Location where item is reported
Results of individual studies	19	Results
Results of syntheses	20a	Result
	20b	Results
	20c	Result
	20d	Results
Reporting biases	21	Result
Certainty of evidence	22	Results
DISCUSSION		
Discussion	23a	Discussion
	23b	Discussion
	23c	Discussion
	23d	Discussion
OTHER INFORMATION		
Registration and protocol	24a	None
	24b	None
	24c	None
Support	25	Funding
Competing interests	26	Conflict of Interest
Availability of data, code and other materials	27	References

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