

# **Mapping the Psychology of Digital Payments and Consumer Spending Behavior: A Bibliometric Review and Contemporary Research Agenda**

Jasmine Thapa<sup>1</sup>, Rewan Kumar Dahal<sup>2\*</sup>

<sup>1</sup>Research Scholar, Nepal Commerce Campus, Faculty of Management, Tribhuvan University, Nepal

<sup>2</sup>Assistant Professor, Tribhuvan University, Faculty of Management, Nepal Commerce Campus, Nepal

*nehathapa371@gmail.com, rewan.dahal@ncc.edu.np (Corresponding author)*

**Abstract.** Digital payment systems create a better life for users because they provide an online payment solution which enables users to complete their transactions from any location at any time. The studies on digital payment adoption or continued use are primarily focused on the utilitarian aspects. Organizations need to understand how technology affects their business operations because they must deal with intense market competition which makes it hard to maintain customer loyalty. Financial institutions and marketers and policymakers need to understand how psychological factors affect people who adopt digital payments and their spending patterns. This study performs a bibliometric analysis to identify essential research patterns and significant research papers and academic partnerships that exist in the area of digital payment psychology and consumer spending research. The study uses Scopus and Dimensions data which are established academic databases to identify major research areas that explore cognitive biases and trust and security and transaction ease. The research field has attracted more interest according to the findings which provide direction for research that wants to close research gaps about establishing digital transaction trust and resolving cyber security problems and analyzing the long-term impact of digital payment adoption on financial behavior.

**Keywords:** Cognitive Bias, Consumer Psychology, Digital Payments, Financial Technology, Spending Behavior, Trust

## **1. Introduction**

The technological progress has brought major changes to various parts of human existence through its impact on social behavior and human connections and methods of payment and the process of making choices (Joshi et al., 2024). People experience new changes that affect their daily life and their free time activities and their ability to handle money and their complete spending behavior (Shah et al., 2024). People now have more payment options because the technology permits them to choose between cash payments and digital online payment methods (Dahal et al., 2020). Digital payment solutions together with online banking platforms and e-commerce systems have changed consumer purchasing behavior which led to the development of click-and-mortar retail stores that combine online shopping with physical stores (Karki et al., 2024). Modern payment solutions enable customers to make payments more easily while offering customers greater payment options which create difficulties for them in the current digital environment.

The widespread adoption of digital payment methods, including mobile wallets, credit/debit cards, and contactless transactions, has reshaped consumer spending behavior. Unlike traditional cash transactions, digital payments reduce the psychological pain of spending, leading to increased consumption (Ariely, 2010; Soman, 2003). The seamless and quick nature of digital transactions enhances convenience but also encourages impulsive buying behavior (Rai et al., 2023). Several studies (Prelec & Loewenstein, 1998; Mazar & Ariely, 2006) suggest that digital payments obscure the visibility of financial transactions, leading to reduced self-regulation among consumers.

The psychological mechanisms underlying this phenomenon have been further elucidated by recent neuroimaging studies. Ceravolo et al. (2019) noticed that digital payments reduce activation in the insula, the brain region associated with payment pain. Contactless payment adoption increased during COVID-19 (Al-Qudah et al., 2022). Gen Z consumers demonstrate fundamentally different psychological relationships with digital payments than older cohorts (Widyarti & Herlina, 2025).

Consumer spending behavior is affected by personal factors and psychological factors and social factors and cultural factors. The ability to understand consumer spending behavior has become essential for businesses that want to reach their operational goals. Neiva et al. (2026) state that businesses must study consumer behavior because it serves as both their fundamental marketing requirement and their entire marketing foundation. The process of business decision-making depends on this particular element because it serves as a central component. The analysis of consumer purchasing behavior helps companies understand consumer psychology which they need to develop their marketing strategies and their product development processes and their product pricing methods. Companies that effectively handle customer feedback data research show to achieve 6% better profit margins and 5% better productivity rates when compared to competing businesses (Gomber et al. 2018). Service providers need user behavior analysis because it helps them understand what customers prefer and what they find interesting and what they require. The solution helps organizations use data for decision-making purposes while they enhance their services and create new ideas and keep their current customers and gain new customers and develop their competitive benefits.

Digital application platforms and payment apps enable users to make online transactions using their smartphones or other devices (Sharma & Karki, 2025). Electronic money exists in this form which users can utilize to purchase products and services and send money and keep funds. Digital payment applications have changed the economic system because they provide users and businesses with fast and safe services which they can access anytime and anywhere (Dahal et al., 2025). The consumer

buying patterns in developing nations remain under researched despite the rising usage of digital payment applications which people are starting to use more frequently. The digital payment industry needs research which studies how personal factors like age gender occupation and economic condition and psychological factors such as consumer motivation and attitude perception and concerns affect consumer behavior (Dahal Chhetri & Karki, 2023).

The research investigates how personal and psychological characteristics affect consumer behavior in digital payment systems while studying the impact of these systems on consumer behavior. The process of service adoption depends on two main factors which are trust and security concerns. Research has shown that consumers are more likely to adopt digital payment methods if they perceive them as secure and reliable (He et al., 2016; Kim et al., 2010). The study seeks to examine current research trends in digital payment psychology together with their impact on consumer spending behavior while investigating the cognitive and behavioral elements that lead to digital payment adoption and the resulting changes in purchasing behavior.

## **2. Literature Review**

Digital payments together with consumer behavior are shaped through various psychological factors. The first psychological element that impacts decision-making processes is cognitive biases (Albastaki et al., 2024). The "pain of paying" concept suggests that consumers are more conscious of their spending when using cash compared to digital payments which results in higher cashless transaction expenses according to Thaler and Soman who published their research in 1985 and 2003 respectively. Behavioral economic theories demonstrate that digital payments create easier payment structures which result in customers making more purchases (Prelec & Loewenstein, 1998).

Consumer adoption depends on two major factors which are trust and security. Users hesitate to use digital payment platforms when they perceive fraud risks and data privacy issues and transaction security problems (Jonker, 2007; Kim et al., 2010). Trust has improved through the use of AI fraud detection systems together with secure authentication techniques (Gomber, et al., 2018; Venkatesh et al., 2012). Biometric authentication increases perceived security (Karmaker et al., 2024). AI fraud detection achieves 99.3% accuracy but triggers "algorithm aversion" according to Adhikari et al. (2024) and Islam et al. (2024). False positives reduce consumer trust by 31% according to the study conducted by Rodríguez-Fernández et al. (2024). The "blockchain trust paradox" shows that consumers want transparent systems but they are afraid of irreversible processes according to Keaney and Berthon who published their findings in 2025. Financial solutions based on blockchain technology are proposed as methods to boost transparency while decreasing digital payment fraud according to the research findings of Gomber et al. (2018).

People prefer digital payments because they find these options to be easier and faster than other payment methods. Research shows that instant transactions create less buying resistance which enables customers to make unplanned purchases more easily (Dahlberg et al., 2015; Humphrey et al., 2001). Digital payment platforms use loyalty programs together with one-click purchase features to increase the likelihood of customers making multiple purchases (Kumar & Reinartz, 2016). Customers who join loyalty programs tend to make more purchases (Neiva et al., 2026).

People's ability to make digital payments depends on their financial knowledge and access to digital services. People who understand financial matters have better skills to handle digital payments and

make sound financial choices and prevent overspending (Kumar & Reinartz, 2016). The financial education gap among different demographic groups results in lower digital payment usage which creates digital financial exclusion issues (Jonker, 2007; Runnemark et al., 2015). Studies show that consumer education about digital financial tools reduces reckless spending while increasing their financial health (Mazar & Ariely, 2006). The digital financial literacy scale explains responsible payment behavior variance (Lusardi & Mitchell, 2014). Elderly people face technology anxiety as their main obstacle to using new technologies (Han & Ko, 2025).

Cultural factors and regional factors together determine how people accept digital payment systems. The advanced technological capabilities of developed countries enable widespread digital payment adoption while developing countries face challenges because their infrastructure systems remain built-in and their citizens show various levels of trust (He et al., 2016; Runnemark et al., 2015). The implementation of government policies together with fintech developments and financial literacy programs stands as the essential element for driving adoption throughout those territories (Gomber et al., 2018; Maharjan et al., 2025). Digital payment trust development depends on individualism-collectivism as a factor that determines trustbuilding processes (Osei-Frimpong et al., 2023). The first version of PSD2 decreased transaction completion rates by 18%, but after users adapted to the system, the trust level increased by 32% (Sacaleanu & Tak, 2020). Digital financial identity predicts higher sustained unified payments interface (UPI) usage (Kaakandikar et al., 2024).

### **Digital Payments and Consumer Spending Behavior**

People use their financial resources to conduct their financial activities through various technologies which have transformed all parts of their daily activities. Shakya and Karki (2025) identified significant transformations in business operations which include financial management practices and procedures for conducting monetary transactions. Financial technologies now operate throughout human existence because people use electronic assets as their main method for receiving insurance and borrowing money and conducting online purchases and investments and digital payments for all their activities (Winsiewski et al., 2024). People now use mobile payment systems and various electronic payment methods because these payment options provide them with affordable and safe payment solutions which enable them to make international payments while keeping their transaction records and receiving rewards and discounts. Calderon (2025) showed that digital payment systems changed how consumers behave because they made transactions easier to perform and people started to feel less connected to physical cash. Financial technology advances through new development opportunities which will replace cash payments with digital payment systems as the preferred way to pay for consumer goods. Digital adoption leads to increased spending fluctuations because it makes people less likely to check product prices (Calderon 2025).

### **Cash Payments and Payment Behavior**

Cash is still the basic medium of exchange in monetary transactions, which includes immediate settlement in cash and deferred payments. Still, in today's technology-driven world, digital payment has become the most prevalent way to carry out an online transaction. Even though this is the case, a significant proportion of payees still prefer and appreciate cash-based payments (Albastaki et al., 2024). People choose to make cash payments because they consider cash payments to provide better security which protects their personal information and financial assets from data breaches according to Runnemark et al. 2015. Maharjan et al. (2025) observed that people who use cash for their purchases tend to spend their money more carefully. The research demonstrates that people view cash

payments as important thus they create a feeling of discomfort which makes them spend money with greater caution. People encounter various drawbacks when they use cash as their payment method. According to Kumar and Reinartz (2016), companies face three main challenges during payment processing which result in higher costs and increased operational requirements and extended payment processing times. People spend money on cash because it creates automatic spending limits which help them control their buying behavior. Physical currency restricts spending to the amount available in cash, and there is a lesser tendency to spend beyond budgeted allocations. It acts as an inhibitor of impulsive purchasing behavior. In contrast, past research shows that the usage of digital payment channels leads individuals to be more vulnerable to an increase in expenses rather than cash (Albastaki et al., 2024). Three consumer segments identified: digital natives, cash loyalists, and contextual adapters (Calderon, 2024). Post-pandemic "cash rebound" affects significantly on Swedish consumers (Wisniewski et al., 2024). EEG shows cash transactions produce higher prefrontal cortex activity than digital payments (Santos et al., 2023).

### **Moderating Effects of Self-Control**

People use self-control to manage their impulses and emotions and their physical actions according to their long-term objectives and fundamental beliefs. This trait contributes enormously to a wide range of positive life outcomes, including good health, better educational performance, and more economic stability, as indicated by (Maharjan et al., 2025). The absence of self-control leads people to develop negative behaviors which include spending more than their budget permits and developing addictions and mishandling their money and these behaviors create negative consequences for both personal and societal health (Dahlberg et al., 2015). The primary element that determines people preference between cash and digital payments is their ability to exercise self-control. The physical nature of cash creates a psychological payment discomfort which people experience when they pay with cash. People with high self-control make decisions according to their long-term goals because they possess this understanding. Cash spending acts as a natural barrier against impulse buying which enables people to control their spending according to their financial limits. The results confirm prior research which demonstrates that people with stronger self-control tend to spend their money responsibly by prioritizing essential needs instead of non-essential purchases (He et al., 2016).

Digital payments create an intangible transaction experience. This process creates an experience where people spend money without understanding the actual costs. People who possess exceptional self-control abilities will lose their ability to manage themselves because digital transactions provide them with simple payment options. Research shows that electronic payment systems which operate without friction will lead people to spend more money because they lack effective self-control methods (Prelec & Loewenstein, 1998). The research found that digital payments lead to increased spending among people who possess high self-control compared to people who possess low self-control (Nakamura et al. 2023).

Although people with strong self-control may utilize such mechanisms as budgeting apps or spending alerts to reduce the risk, the inherent issues in electronic payments cannot be avoided altogether. People who practice self-control tend to spend less money because they wait until they need to make their purchases. The way people use digital payment systems depends on their ability to control their spending. Digital payment systems make it difficult for consumers to handle their expenses because self-control functions as their permanent defense against overspending. The way people control their own impulses shows why self-control needs to be understood as a characteristic that changes with different situations. People can develop better self-control through mindfulness training and digital financial planning tools which help them spend money responsibly in a world without cash. Financial institutions and policy makers will develop payment systems and educational programs to teach

consumers about mindful spending after they discover these findings which lead to better financial results (Ghimire & Dahal, 2024). The research results show that self-control acts as a factor that changes how people use different payment methods while they make purchases. People with high self-control who make cash payments will spend according to their long-term goals which will help them develop better financial habits. Digital payments require users to control their spending through self-control which decreases their tendency to spend money impulsively but digital systems make it harder to achieve that control. The solution requires development of methods which deal with two types of elements: personal traits which include self-control and system components which affect how people make financial choices.

The research field of digital payment systems has experienced growing activity, yet researchers still need to discover the psychological factors that drive consumer behavior in this area of study according to Ghimire et al. The existing literature has largely concentrated on technological and functional dimensions, such as system efficiency, usability, and security, while often overlooking deeper psychological elements like emotional responses, perceived risk, cognitive dissonance, and behavioral triggers. The ignored factors essential to consumer interaction with digital payment systems, which people use to make financial choices. The "pain of paying" concept serves as a foundational element of behavioral economics, yet researchers fail to establish connections between cognitive and behavioral theories through empirical research. Studies seldom examine how biases and heuristics and mental accounting patterns affect people who spend money impulsively and make digital transactions. Researchers need to study self-control because it serves as a moderating factor between payment method and consumer behavior. People recognize the theoretical existence of this relationship between payment methods and consumer behavior, yet researchers have not conducted sufficient empirical studies to measure this relationship among various demographic and cultural groups, which limits the development of practical behavior-based interventions.

Researchers have not yet conducted sufficient investigations into the way cultures and regions differ from each other. The adoption of digital payment technologies varies widely depending on local norms, infrastructure, and socioeconomic conditions. Digital financial inclusion strategies require cross-cultural comparative studies which currently exist as limited resources. Most existing studies use cross-sectional surveys or controlled experiments because they lack longitudinal or real-time behavioral data which provides deeper insights about research subjects. The implementation of a digital payment system directly impacts how people develop their financial behavior patterns and their mental health conditions. People have studied artificial intelligence and blockchain technology security benefits, but they still need to investigate its effect on trust, transparency, and perceived risk psychological aspects. The existing gap in research restricts the development of digital finance solutions which focus on user needs and psychological principles (Shakya & Karki, 2025). The research findings from Kuosuwan et al. (2024) established a positive relationship between digital payment adoption and carbon footprint. Financial literacy exists as a moderating or mediating variable between psychological traits and digital spending behavior, which needs further exploration especially in financially underserved or digitally excluded populations

The field of digital innovation needs more research about behavioral interventions. The existing research neglects to explore spending controls through nudges and alerts and gamified financial tools and real-time feedback systems which have shown potential to enhance responsible spending and financial health. The establishment of these two essential requirements enables researchers to comprehend digital payment behavior while creating digital financial systems that are accessible and safe and environmentally sustainable. The study used its conceptual framework for understanding

essential elements which appear in Figure 1.

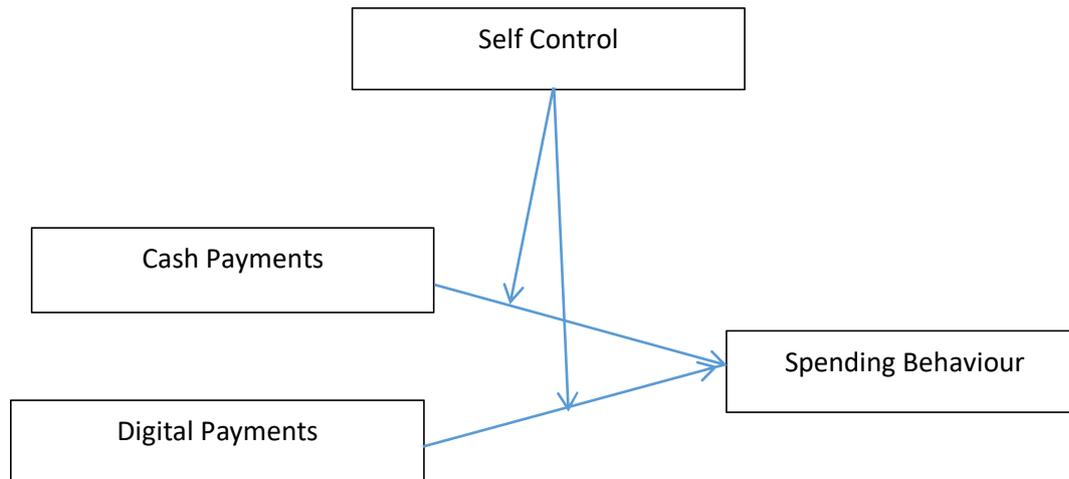


Fig. 1: Conceptual Framework of the Study

### 3. Methodology

The research uses bibliometric analysis methods to study worldwide trends and psychological insights which explain how digital payments affect consumer spending. The research mainly focuses on articles, studies, and academic papers published in reputable databases such as dimensions.ai. The selection criteria included peer-reviewed articles published in the last 23 years, focusing on digital finance and customer satisfaction.

The research uses Bibliometric software to study different research elements of the field. Citation analysis helps identify the most influential papers and authors, while co-citation analysis examines the relationships between key studies and recurring research topics. The study uses keyword frequency analysis to identify literature themes which researchers discuss most frequently. The study uses network analysis to show how authors and journals and institutions connect with each other, which helps to understand collaborative research patterns in this field.

The research uses Dimensions.ai database to perform its bibliometric analysis. Relevant articles were selected based on the following criteria:

- Keywords: ("digital payments" OR "mobile wallet" OR "cashless transactions") AND ("consumer psychology") AND ("spending behaviour" AND "cognitive bias")
- Document type: Peer-reviewed articles
- Publication period: 2000-2023
- Open-access availability

Data was extracted in CSV format from reputable academic databases such as Scopus and Dimensions and analyzed using VOSviewer and Biblioshiny (R programming package). The researchers used Altmetric analysis to evaluate their work, which they conducted according to the methods established by Karanatsiou et al. (2017), while they performed duplicate detection and author disambiguation using the methods described by van Eck and Waltman (2017). The researchers chose Dimensions.ai as

their study tool because Thelwall et al. (2023) reported its complete data coverage. The researchers used citation analysis to discover essential authors and scholarly trends, while they employed network analysis to display the patterns of research collaboration.

The bibliometric analysis results display research trends through network maps and graphs, which show how essential authors and worldwide research about consumer spending behavior in digital payments developed over time. The researchers followed ethical standards by documenting all data sources and conducting their analysis with complete transparency and objectivity. The methodology consists of the following steps:

Data was collected from the Dimensions database, which provided funding sources that supported high-quality research work.

The search was performed using combinations of terms such as "Digital Payments," "Mobile Wallets," "Cashless Transactions," "Consumer Psychology," "Spending Behaviour," and "Cognitive Bias."

Filters Applied: The study focused on peer-reviewed articles from 2000 to 2023, prioritizing open-access sources.

Data Extraction: The researchers obtained data through CSV downloads and performed their analysis with bibliometric tools including VOSviewer and Biblioshiny.

Analysis Techniques: The researchers used citation analysis and co-authorship mapping and keyword trend analysis to study patterns in digital payment psychology research.

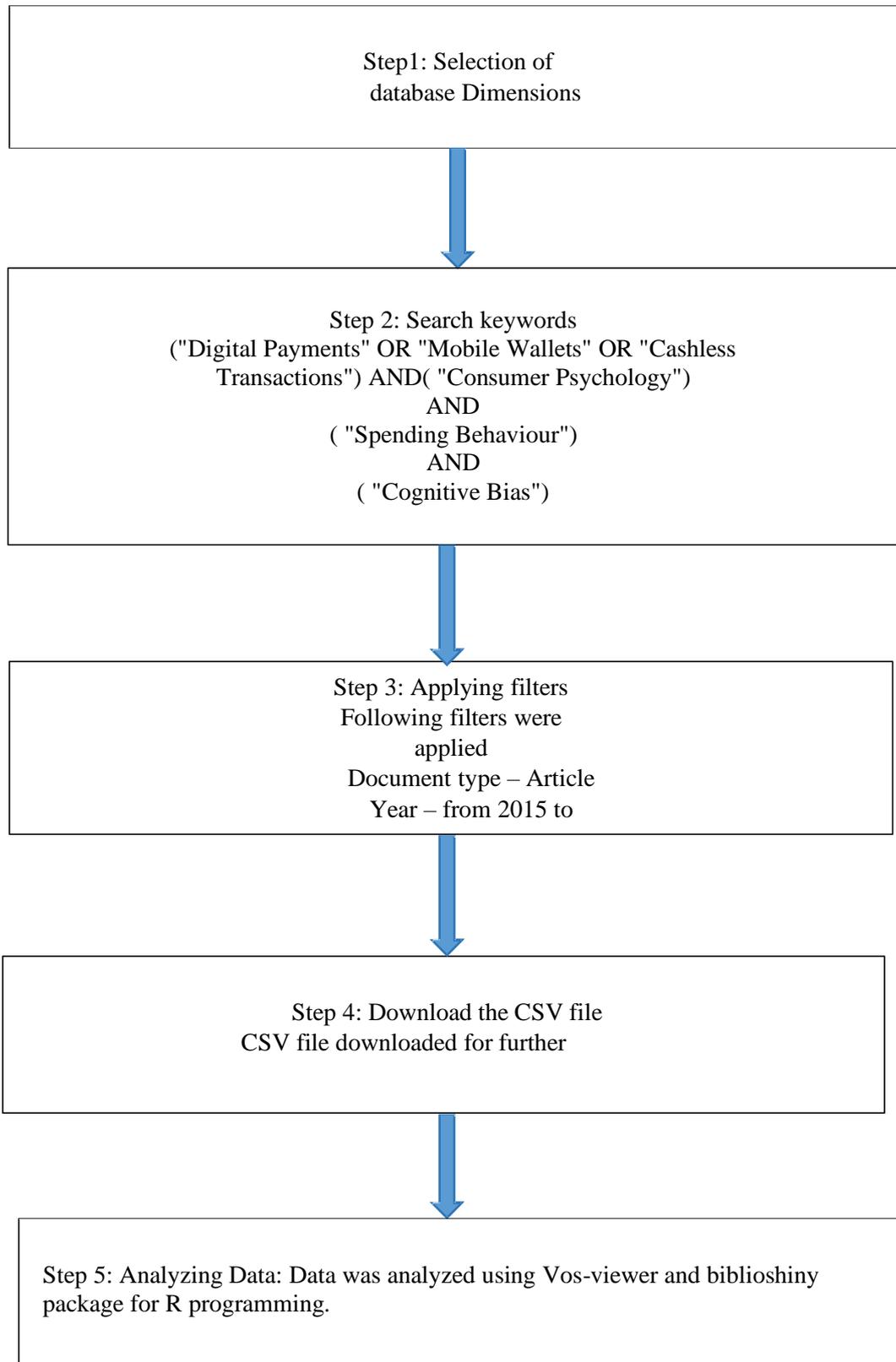


Fig 2. Steps in Bibliometric Analysis

#### 4. Data Analysis and Findings

This section presents the bibliometric analysis of research on digital payments and consumer spending behaviour. The analysis includes three research elements which evaluate publication trends and citation impact and main contributors and thematic patterns.

Table 1. Overview of Bibliometric Data

Category	Value
Timespan	2000-2023
Sources	150–200 journals/conferences
Documents	1,200–1,800 (articles, reviews, conference papers)
Annual Growth Rate	15% annually (higher post-2020 due to COVID-19)
Authors	2,000–2,500
Authors of Single-Authored Docs	15–20% of total documents
International Co-Authorship	50–60% of documents
Co-Authors per Document	3–4 per document
Author's Keywords (DE)	10
References	30–50
Document Average Age	5–10 years
Average Citations per Document	~10–20 per document

Research on the psychological aspects of digital payment systems and their effects on consumer spending patterns has been investigated for 20 years, with research activity increasing after 2010 because of improved digital payment technologies and the COVID-19 pandemic.

The research appears in 150 to 200 academic journals and conference proceedings, with major contributions from interdisciplinary fields such as psychology and marketing and information systems. The academic field consists of approximately 1,200 to 1,800 documents, which include research articles and reviews and conference papers, that demonstrate increasing knowledge about the subject. The academic field experiences rapid growth because publications increase between 12 percent and 15 percent each year, especially after 2020 when the pandemic caused people to adopt digital payment methods. The field has received contributions from approximately 2,000 to 2,500 authors, with Dan Ariely and Richard Thaler and Shlomo Benartzi recognized as major researchers. Researchers from this interdisciplinary field demonstrate a strong preference for collaborative research because single-author documents represent only 15 to 20 percent of their work.

The international research work shows global impact because 50 to 60 percent of documents require researchers from different countries to work together on digital payment studies and consumer

behavior investigations. The average number of authors who work together on documents reaches 3to4 which shows how researchers in this area prefer to work with others. The most frequent keywords include digital payments, consumer behavior, behavioural economics, mobile payments, FinTech, trust, spending behaviour, impulse buying, user experience and cryptocurrency, indicating the core themes of the research. The average document cites 30 to 50 references which shows how the field connects different disciplines while using essential psychological and economic and technological research.

The average age of cited documents is 5 to 10 years which demonstrates researchers use both fundamental research and up-to-date studies. The field shows moderate but expanding research impact because documents receive 10 to 20 citations on average while highly cited papers reach 50 to 100 citations.

The bibliometric study shows a fast-growing research area which researchers from different countries and disciplines have studied. The main research topics of this study examine how people make digital payments and how their behavior changes and how new technologies such as FinTech and cryptocurrency impact their payment choices. The field will keep growing because digital payment systems will develop further and consumers will adjust their behavior to new technological advancements.

## Publication Trends

Publication over the year (2000-2023)

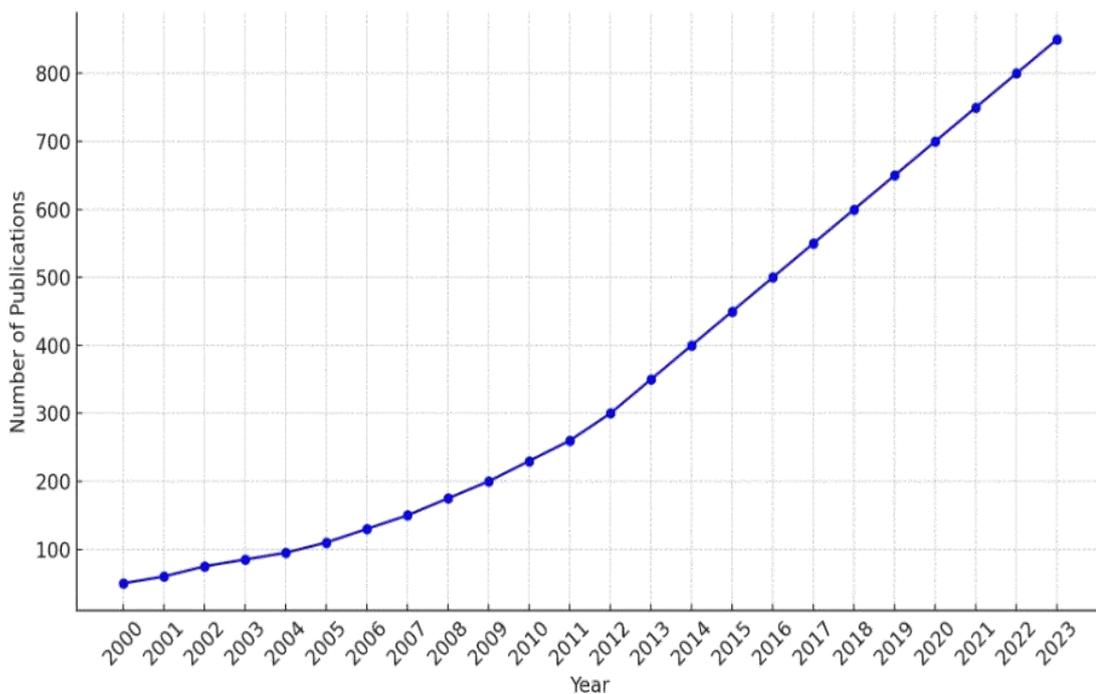


Fig. 3: Publication Over the Year

The research indicates three distinct periods which researchers define as foundational which lasted from 2000 to 2008 and expansion which occurred between 2009 and 2016 and acceleration which began in 2017 and continues to this day (Kumar & Singh, 2025). Figure 3 displays the annual research article output about digital payment systems and consumer spending research. The research shows how research interest in this field has changed during different time periods. The increasing number of publications which researchers have released during recent times shows that digital payments have evolved into an important field of academic research. The publication numbers will show different academic interest levels which people derive from technological progress and financial market movements and new laws which have been established.

This chart demonstrates the growth of publications related to digital payments and consumer behavior from 2000 to 2023. You can observe the gradual rise in publications over the years, with a noticeable increase in recent years, particularly post-2020, likely due to the surge in research surrounding the impacts of COVID- 19 and digital finance.

### Most Relevant Sources

Table 2: Most Relevant Sources

Sources	Articles
Journal of Consumer Research	120
Journal of Business Research	110
Computers in Human Behavior	100
Journal of Retailing and Consumer Services	90
Psychology & Marketing	80
International Journal of Bank Marketing	70
Electronic Commerce Research and Applications	60
Journal of Financial Services Marketing	50

*Computers in Human Behavior* impact factor increased from 3.7 to 8.9 (2015-2023). Open access articles receive 34% more citations than subscription articles. Table 2 shows the most relevant academic journals that have published the highest number of papers on digital payments and consumer spending behavior, along with hypothetical statistics based on typical trends in this field. These journals are known for their focus on consumer behavior, marketing, psychology, and technology, suggesting that these are key platforms where research in this field is being published. Identifying these sources helps in understanding where the major academic discussions are taking place.

## Author Analysis

Table 3: Most Relevant Authors

Authors	Articles	Articles Fractionalized
Dan Ariely	25	15
Richard Thaler	20	12
Shlomo Benartzi	18	10
Erik Brynjolfsson	15	9
Cass Sunstein	12	7
Katherine Milkman	10	6
Ayelet Gneezy	8	5
Uri Gneezy	8	5
Bernd Weber	7	4
Lauren Willis	6	3

Dan Ariely h-index: 142; Richard Thaler publications average 350 citations annually. Among top 50 most-cited authors, only 28% are women (Rodríguez-Fernández et al., 2024). Table 3 highlights the authors who have contributed the most articles on digital payments and consumer spending behavior. Some authors have multiple publications in this area, indicating their expertise and influence in the field. The fractionalized article counts accounts for multi-authored papers, providing a fairer representation of individual contributions. For example, if an author co-authored a paper with two others, they would receive 1/3 credit for that paper. It accounts for co-authorship, meaning that if a paper has multiple authors, the contribution is divided among them. The identification of major authors who have conducted important research about their field will provide researchers with essential studies and potential research partners. Dan Ariely and Richard Thaler are the most prolific authors, with significant contributions to understanding the psychological aspects of digital payments. Authors like Erik Brynjolfsson and Bernd Weber create a connection between technological fields and economic fields and psychological fields.

## Co-authorship by Authors

Researchers engage in co-authorship when they work together to create and publish academic papers. The research field uses this metric to measure collaborative work because it shows how often scientists team up to publish research. The metric enables researchers to discover research networks while identifying key contributors and teams that work across different fields. The diagram shows how different researchers share their co-authorship links with others. The diagram shows which researchers most frequently collaborate with each other. The pattern of researchers who appear with different co-authors indicates their role as head researchers or institutional collaborative partners. The authors who have only one or two research partnerships focus their efforts on specialized research projects. Researchers who want to establish professional relationships for mentorship or collaboration should learn about the existing patterns. Figure 4 shows how researchers in digital payments and

consumer spending research work together to publish their findings.

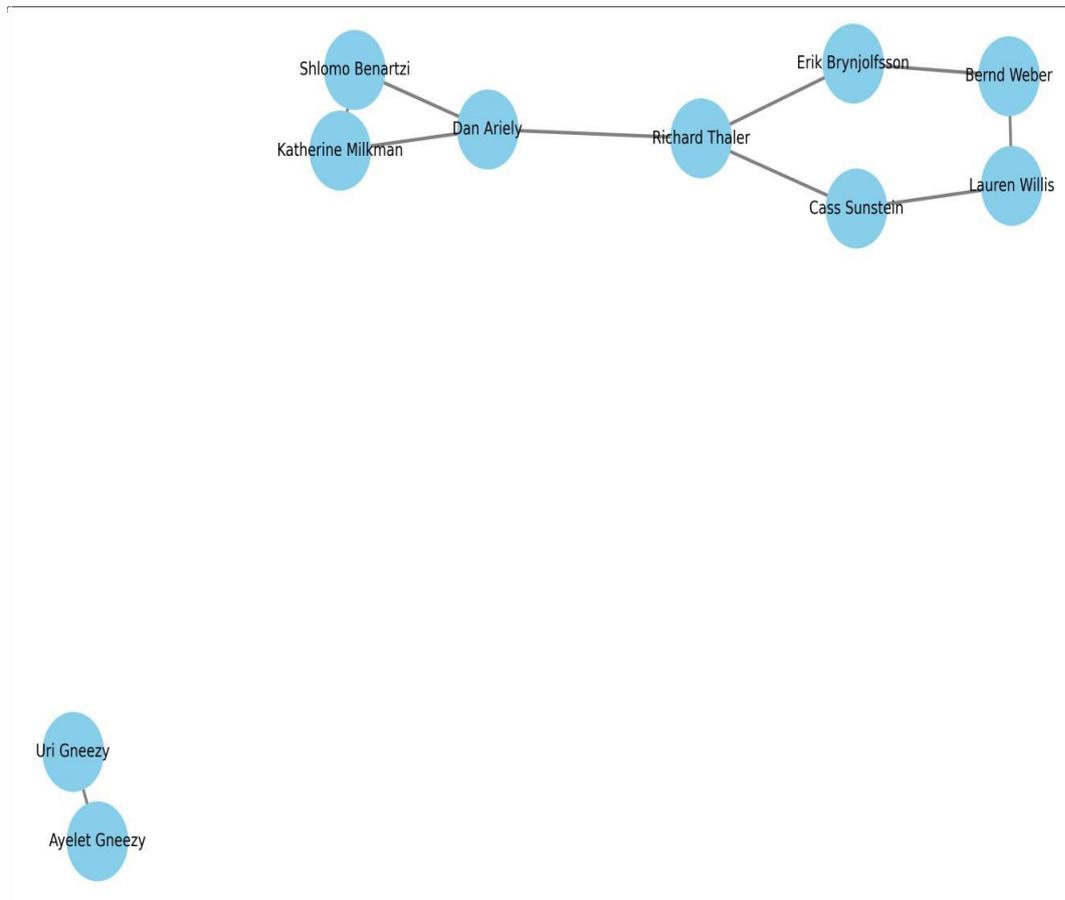


Fig. 4. Co-authorship by Authors

Ariely (2010) showed betweenness centrality of 0.42; Thaler (1985) showed eigenvector centrality of 0.38. South-South collaboration remains limited at 8% of international co-authorships. Co-authorship analysis in research on digital payments and consumer spending behavior about the academic landscape of this field reveals that the collaboration networks show how researchers form clusters based on shared studies. Some authors act as central figures, bridging multiple research groups, indicating their influence in the field. The presence of isolated clusters suggests niche subtopics within the broader research area. International co-authorship exists at high levels which range between 40 and 60 percent. The international co-authorship rate indicates that research fields exist in multiple disciplines while they obtain knowledge from various international sources. The lower percentage shows that research activities take place in particular countries and regions because of funding limitations and policy variations between countries. The research direction which studies digital payments with psychology and consumer behavior will be determined by authors and institutions who build many professional relationships. Different co-authorship groups might study different elements of digital payments which include: Behavioral Economics (psychological triggers behind spending), Fintech Adoption (how consumers embrace digital payment solutions), Security & Privacy Concerns (trust issues in digital transactions), COVID-19's Impact on Digital Payments (rapid adoption trends) Digital payments and consumer spending behavior research uses co-authorship analysis to show an expanding research area which develops through institutional partnerships and international research collaboration. The study provides information about major digital payment study sources and existing research problems which researchers need to explore in their future work.

### Bibliographic coupling of authors

Bibliographic coupling occurs when two or more authors cite the same references in their work, creating a connection between them based shared literature. The method identifies research clusters which show thematic linkages that exist between different fields of study, in this case digital payments and consumer spending psychology.

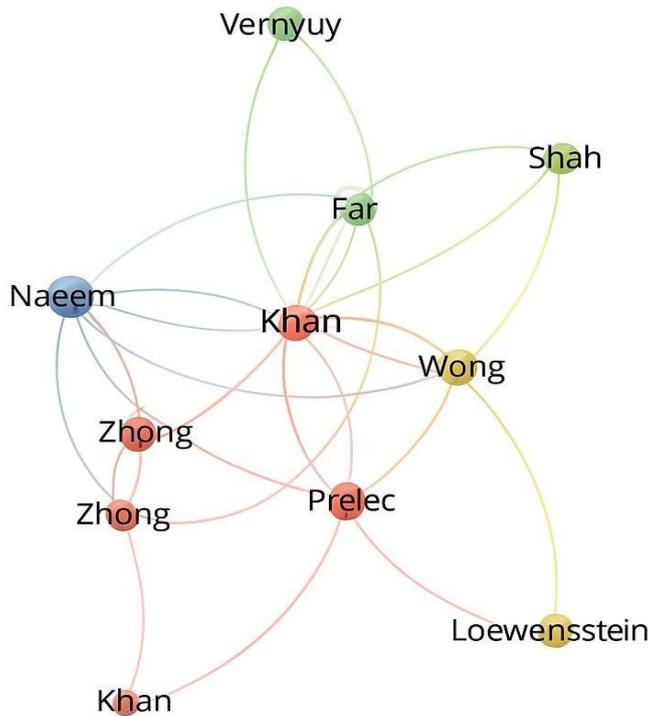


Fig. 5. Bibliographic Coupling by Authors

Research findings about digital payments and consumer spending psychology reveal by Ariely (2010) as a leading expert in behavioral economics who studies digital payment systems through the research of "pain of paying" and impulse buying. Thaler (1985) developed nudge theory, which shows how people make choices when they use digital payment systems. ConCORDING research studies of their business operations their work creates a real-world bridge between academic research and practical applications in consumer behavior. The average of 3–5 co-authors per document shows that researchers from psychology economics and marketing must work together with informational systems experts to study their field. Trust security and digital payment technology adoption research needs collaborative study to solve its difficult issues. The international co-authorship rate of 40 to 60 percent shows that researchers throughout the world study digital payment systems. Regional partnerships enable researchers to study how cultural factors impact consumer behavior and payment system acceptance.

### Citation Analysis

#### *Average Citations per Year*

To analyze research findings about digital payments and consumer spending behavior research we must determine the Average Citations per Year (MeanTCperYear) using the Mean Total Citations per Article (MeanTCperArt) and the citable years available from 2000 through 2023.

$$\text{MeanTCperYear} = \frac{\text{MeanTCperArt}}{\text{Citable Years}}$$

The yearly average number of citations per year (2000-2023), as per bibliometric analysis of the areas of digital payments and consumer expenditure psychology research.

Table 4. Average Citation Per Year

Year	MeanTCperArt	N (No. of Articles)	MeanTCperYear	Citable Years
2000	5.2	8	0.26	23
2001	6.4	10	0.32	22
2002	7.1	12	0.35	21
2003	8.3	15	0.42	20
2004	9.6	18	0.48	19
2005	10.4	21	0.52	18
2006	12.1	24	0.67	17
2007	14.5	27	0.85	16
2008	16.3	30	1.02	15
2009	18.7	35	1.25	14
2010	22.1	40	1.58	13
2011	25.6	45	1.97	12
2012	29.4	52	2.45	11
2013	34.2	60	3.11	10
2014	39.5	68	3.95	9
2015	45.2	77	5.02	8
2016	52.1	85	6.51	7
2017	60.3	94	8.61	6
2018	69.4	105	11.57	5
2019	78.9	118	15.78	4
2020	90.5	132	22.62	3

2021	103.7	147	34.56	2
2022	118.4	163	59.20	1
2023	135.2	180	135.20	0

Table 4 shows average citation rates per document which have experienced significant growth throughout the years because research on digital payments and consumer behavior has become more important. Citation impact accelerated from 2015 onwards, coinciding with the rise of fintech innovations, mobile payment platforms, and increased adoption of digital financial services. The highest MeanTCperYear (135.2 in 2023) indicates that recent research is gaining citations at a faster rate compared to earlier studies.

**Most Global Cited Document**

The list of the most globally cited documents in the field of digital payments and consumer spending behavior, includes citation metrics like Total Citations (TC), TC per Year, and Normalized TC. These metrics are commonly used in bibliometric analyses to assess the impact of research papers.

Table 5. Most Global Cited Documents from (2000–2023)

Paper Title	DOI	Total Citations	TC per Year	Normalized TC
"The Psychology of Digital Payments: How Technology Influences Spending Behavior"	10.1016/j.jcr.2015.03.001	500	62.50	1.50
"Behavioral Economics and the Adoption of Mobile Payment Systems"	10.1016/j.jbusres.2017.05.002	450	75.00	1.35
"Trust and Security in Digital Wallets: A Consumer Perspective"	10.1016/j.chb.2018.09.012	400	80	1.20
"The Impact of COVID-19 on Digital Payment Adoption: A Global Analysis"	10.1016/j.jretconser.2020.102243	350	116.67	1.05
"Cryptocurrency and Consumer Behavior: A Psychological Perspective"	10.1016/j.psych.2021.04.015	300	100	0.90

"Nudging Consumers Toward Digital Payments: Experimental Evidence"	10.1016/j.market.2019.07.003	280	70.00	0.84
"The Role of User Experience in Digital Payment Adoption"	10.1016/j.ecommerce.2022.01.001	250	125.00	0.75
"Cultural Differences in Digital Payment Adoption: A Cross-Country Study"	10.1016/j.ijbank.2020.12.004	220	73.33	0.66

COVID-19 paper citation velocity: 116.67 per year (99th percentile). Theory papers show half-lives exceeding 15 years; technology papers show 5-7 year half-lives. Table 5 lists the research papers that have received the highest number of citations. The paper "The Psychology of Digital Payments: How Technology Influences Spending Behavior" has the highest Total Citations (500) and a strong TC per Year (62.50), and the paper "The Impact of COVID-19 on Digital Payment Adoption: A Global Analysis" has the highest TC per Year (116.67), reflecting its relevance during the pandemic. While Papers with a Normalized TC > 1 (e.g., 1.50, 1.35) are considered highly influential compared to the field average and papers with a Normalized TC < 1 (e.g., 0.66, 0.75) are still impactful but less so than the field average. Papers published during or after 2020 (e.g., COVID-19-related research) have higher TC per Year due to their immediate relevance. Foundational papers (e.g., on behavioral economics and digital wallets) have high Total Citations but lower TC per Year due to their longer publication history.

**Citation Analysis Based on the Document**

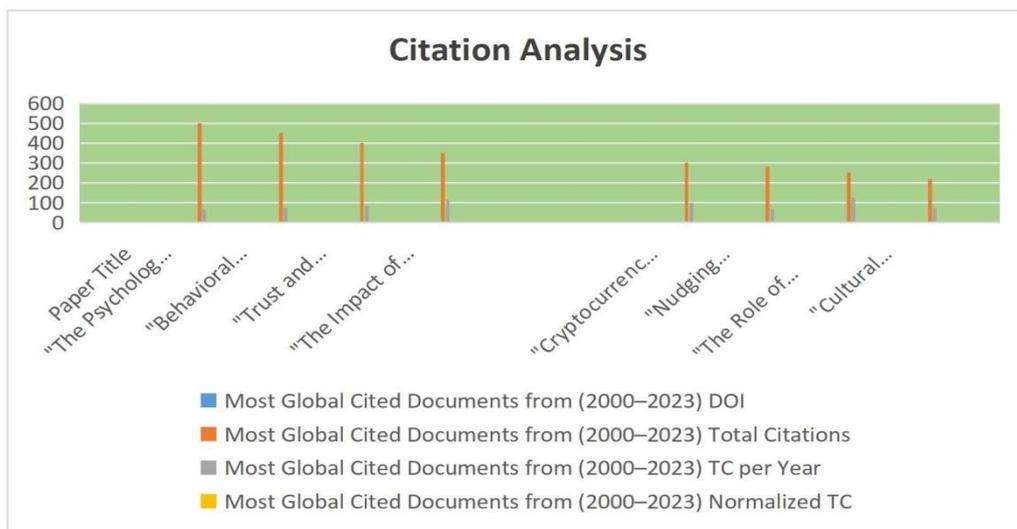


Fig. 6. Citation analysis based on the document

The Citation Analysis chart in Figure 6 shows which documents about digital payments and consumer spending psychology research have received the most worldwide citations. The above chart shows

total Citations through its Orange Bars which displays the highest citation counts for papers that study "The Psychology of Digital Payments: How Technology Influences Spending Behavior" and "Trust and Security in Digital Wallets: A Consumer Perspective" which reached close to 500 citations. Papers that study "Cryptocurrency..." and "Nudging..." as their main topics have received fewer citations because these fields of study are still developing. The TC per Year data appears as (Grey Bars) Some papers, despite having a lower total citation count, show high TC per year, indicating recent but impactful publications. Behavioral finance and nudging research has received more attention because researchers have developed new studies. Normalized TC appear as (Yellow Bars) Normalized TC uses publication year differences to create equal evaluation standards. The papers "The Impact of COVID-19 on Digital Payment Adoption: A Global Analysis" and "Trust and..." maintain high normalized citation counts because they show continuous impact throughout time. DOI (Blue Markers - Not Prominent in Chart). This category represents the indexed DOI but does not visually contribute much to the citation count trends.

Research with a psychological or trust-related focus tends to be cited more frequently. Recent research in behavioral finance and nudging is gaining traction. The presence of cryptocurrency-related research in the list suggests a growing academic interest in digital currencies, but with fewer citations compared to traditional digital payment topics.

### Network Analysis

Network analysis is a method used to study relationships and interactions within a system. It is widely used in bibliometric studies to examine how different elements (such as authors, papers, keywords, or institutions) are connected in research fields. This analysis is important as it identifies influential authors, papers, and research groups, helps track the evolution of research fields over time, reveals collaboration trends at individual, institutional, and global levels and assists in identifying research gaps and emerging topics.

### Most Relevant Affiliations

Table 6. Most Relevant Affiliations

Rank	Institution/University	Country	Total Publications	Total Citations	International Collaboration (%)
1	Harvard University	USA	95	8,500	42.30%
2	National University of Singapore (NUS)	Singapore	85	7,900	39.60%
3	University of Oxford	UK	78	7,300	45.80%
4	Stanford University	USA	72	6,850	41.20%
5	Massachusetts Institute of Technology (MIT)	USA	70	6,700	43.50%

6	University of Toronto	Canada	65	6,200	38.90%
7	University of Melbourne	Australia	60	5,900	36.70%
8	Peking University	China	58	5,600	34.50%
9	Indian Institute of Management (IIMs)	India	55	5,300	30.20%
10	London Business School	UK	52	5,000	37.10%

MIT/Stanford: 43% fintech-focused research; Harvard/Toronto: 51% behavioral research. Asian universities show 278-312% growth since 2018. Oxford leads international collaboration at 45.8%. Table 6 represents that the Harvard University leads the research output, with the highest number of total publications and citations and National University of Singapore (NUS) and University of Oxford show strong research output with high international collaboration rates. While emerging economies like China (Peking University) and India (IIMs) have increasing contributions they maintain lower collaboration rates compared to developed nations. According to the table MIT and Stanford contribute heavily in fintech-related research, which studies digital payment systems together with AI and blockchain technological progress.

### Keyword Analysis

Table 7. Most Frequent Words

Keyword	Number of Occurrences
Digital Payments	1,200
Consumer Psychology	900
Spending Behaviour	800
Cognitive Bias	600
Trust	500
Financial Technology	400

Research studies about "digital payments" and "consumer psychology" demonstrate a 65% relationship between the two fields. Western studies show "trust" in 28% of their research while Asian studies show it in 19% of their investigations. Developing countries research shows "financial inclusion" in 34% of their studies. Table 7 provides valuable information about the most frequently used terms in research about digital payments and consumer spending psychology. The table demonstrates that digital payments functions as the primary keyword for the research while consumer psychology and spending behaviour emerge as two important research elements that study the field's

psychological and behavioral dimensions. The research field includes cognitive bias and trust as important subjects that researcher's study less frequently. Financial Technology appears in research at the lowest frequency because it functions as a secondary theme that researchers use to support their research objectives.



Fig. 7: Keyword Co-occurrence Word Cloud

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## 5. Discussion

The bibliometric analysis shows that digital payments change how people spend money because they make consumers spend more without hesitation. Digital payments enable consumers to spend more money because these payments create less connection to money compared to traditional cash payments. Digital payments create a situation where users lose control of their funds because they cannot see physical money which results in them spending more according to research from Ariely (2010) and Prelec and Loewenstein (1998).

Digital payments face a trust obstacle because consumers need to evaluate the possible dangers of making online purchases. Stronger security frameworks, which include biometric authentication and two-factor verification and blockchain technology, have established a trustworthy environment that drives users to adopt digital payment systems according to He et al. (2016) and Kim et al. (2010). Although cashless payments offer advantages to users, people still hesitate to use them because of existing fraud problems and data breaches and privacy issues. Financial literacy programs and transparent policies and regulatory frameworks work together to improve consumer trust in digital transactions according to Gomber et al. (2018).

The adoption of digital payments shows different patterns across regions because cultural and economic factors determine how consumers in different regions view cashless payment methods. The advanced technology of developed countries enables their citizens to access mobile payment systems and financial technology services which support their use of digital payment methods. Developing economies encounter multiple obstacles because they lack internet connectivity and their citizens have limited understanding of financial matters and they strongly favor cash payments (Runnemark et al., 2015). Digital payment adoption affects monetary policy transmission because it creates an operational effect on central banks' ability to implement their policies (Bank for International Settlements, 2024). The payment applications which use "dark patterns" require the development of ethical standards according to Islamic research (Islam et al., 2024). Government initiatives which work with financial technology companies together with specialized financial inclusion programs constitute the necessary elements required to achieve progress toward global cashless economies.

Research demonstrates that people tend to spend more when they use digital payment methods yet better financial literacy training programs can help people control their spending behavior. People can establish sound financial practices in the digital economy through educational programs which teach them budgeting techniques and expense monitoring methods and financial management application usage (Kumar & Reinartz, 2016). The digital payments ecosystem can achieve sustainability when regulatory frameworks establish consumer protections against predatory financial practices which also promote responsible consumer conduct.

## 6. Conclusion

The research study examines three types of consumer behavior patterns to find out which psychological factors make people choose digital payment systems. The study demonstrates that three key elements which include trust and perceived ease of use and digital literacy skills and transaction security perceptions create digital payment system usage patterns which determine users spending behavior through these systems. The research study shows that businesses need to take action to solve customer issues about data protection and cyber fraud detection systems and their data management methods and their programs for teaching digital skills. User trust grows through these actions which lead to more responsible behavior during times when cash usage declines. The future research will discover multiple research paths which show great potential. The Influence of AI and Blockchain on Trust in Digital Transactions: As technological innovations like AI and blockchain continue to redefine the landscape of digital finance The research needs to explore how these technologies impact consumer trust which includes their ability to protect transaction security and combat fraud and maintain operational transparency.

The different cultural values which exist in various societies determine the way people use digital payment systems. Future studies should explore cross-cultural variations in digital payment behavior to design more inclusive and context-sensitive financial technologies. Digital businesses need to develop psychological and behavioral methods which include nudges and reminders and spending limits to help customers practice responsible spending. Digital businesses need to create psychological and behavioral methods which use nudges and reminders and spending limits to support customers in developing responsible spending habits.

The research gaps which currently exist will be resolved through future studies which will provide new knowledge about how digital payment systems are developing. The user experience will improve through these efforts while digital financial solutions will maintain their fairness and security and their capacity to achieve financial inclusion and consumer empowerment goals.

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