

# A STUDY on the ADOPTION of E-PAYMENT SYSTEMS in INDIA: A LITERATURE REVIEW

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#### Abstract

This paper aims a literature review on the adoption of e-payment systems in India. The literature analysis till April 2022 has been reviewed using different electronic databases such as ACM digital library, EBSCO, Emerald Insight, Google scholar, JSTOR, ProQuest, SAGE Journal, Science Direct (Elsevier), Springer link, Taylor and Francis online, Wiley online library, Websites. Reviewed past research papers and different websites many studies were conducted around the world by research scholars on the adoption of e-payment systems. This study mainly concentrated on the Indian perspective and the findings of all literature will be discussed in the full paper. The study result can be useful for future research on using qualitative data on the adoption of e-payment systems.

Keywords: Adoption, E-Payment Systems, Technology

JEL Codes: https://ideas.repec.org/j/O10.html.

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# INTRODUCTION

Technology has played an important role in all human life, technology changes the human lifestyle (Ghana & Dr M., 2021). In the past era first, we can use the barter payment systems( the exchange of goods and services between two or more parties without the use of money) (Investopedia, n.d.) after the cash method was introduced and after cheques, credit cards and debit cards was introduced and now in the recent era, electronic payment is famous in India (Ghana & Dr M., 2021). In India after the COVID 19 virus pandemic, there have been a lot of Indian people use an E-Payment, and also increase the online activities in India (Bukvic, 2021). In India's recent times the number of internet users is increasing, (Agrawal & Bansal, 2018) and e-payment systems it's only based on online systems and e-payment is one of the systems that the provides payment tools for services or goods via the Internet, so Internet users it's the most important part of the adoption of e-payment systems (Yanuar, Imam, Agus, & Indira, 2018).

Adoption of e-payment systems in India year 2018 Government e-payment Adoption Ranking (GEAR) was 28<sup>th</sup> among 73 countries and Norway has topped in 2018 GEAR list scoring 89.7 points in seven categories. (https://www.gktoday.in/topics/government-e-payments-adoption-ranking/, n.d.). Indian people are afraid of the adoption of e-payment systems reason behind that the risk of online payments is theft of Payment data, Personal data, and fraud (T., N., & M., 2016). Nowadays Indian people are aware of the technology and now they are accepting the e-payment systems, and digital transactions have grown by 80 per cent from November 30, 2020, to August 6, 2021 (Business Standard, n.d.). So, now Indian people are aware of the benefits of the e-payment systems and that's the reason they are accepting the e-payment systems in regular life, and the other side we can say that the different fear is also available in consumers so the reason they are not easily accepting the e-payment systems in regular based life.

The first part of this research paper will discuss the various definitions of e-payment systems and also, the discussion of the different literature reviews. The main concentrate of this research paper provides a methodology with adopted different technology, adapted theories by different authors, used different theories and models to identify various variables and study aims and the last part of this research paper is the conclusion, limitations and future study on this topic.

## **E – PAYMENT SYSTEMS**

Definitions of E-Payment Systems

- Nowadays Electronic Payment Systems (E-payment Systems) play a vital role in human life for modernisation. And that's the reason many researchers are more attracted to this topic, As an Indian perspective e-payment transactions it's a very necessary part to develop the country and RBI also focused on this topic and encouraged the people to accept e-payment systems.
- E-payment systems are also known as online payment systems. E-payment is done through debit cards, credit cards, direct bank deposits, e-checks, and e-wallets (Lyra.com, n.d.).
- E-payment systems are a way of making transactions through electronic methods (Securionpay, n.d.).
- 'E-payment system is the means of making payments and/or transactions for goods and services on an e-commerce website or electronic environment without any need to use cash or checks. An e-payment system is also known as an online payment system' (igi-global, n.d.).

- E-payment systems are a crucial and practical monetary tool for transactions for consumers and businesses (Emrah, Gizem, & Wajid, 2017).
- E-payment processes have become standard practice for business and consumer financial transactions, it's based on electronic devices (Dwight, Merl, & Juita-Elena(WIE), 2013).
- E-payment systems as a form of fund transfer via the internet (Ogedebe & Babatunde, 2012).

#### LITERATURE REVIEW

- (Ali, Ali, Ahmed, & Ali, 2019) The study main aims to investigate the factors that may hinder or facilitate consumers' adoption of mobile commerce [mobile commerce is one of the parts of e-payment systems] activities in Oman. 530 data collected with adopted mobile commerce Omani citizens. This study used the UTAUT model theory. This study discussed 12 hypotheses and factors influenced, after the discussion, the result showed that price value has a main factor to affect the adoption of mobile commerce, so m-commerce should more attention to the monetary aspects.
- (Mohamed Asmy, Anwar, Hassanudin, & Md Fouad, 2019) This research paper's main aim is to test the factors that influence the adoption of Islamic mobile banking services in Malaysia.
   250 users provided their own opinions about their intention to adopt that service. Various models and theories analysis by the researcher and five hypotheses were tested based on the final results, only two hypotheses were supported, risk and perceived usefulness. Risk is negatively affected, and perceived usefulness is positively affected to adopt mobile banking.
- (Barkhordari, Nourollah, Mashayekhi, Mashayekhi, & Ahangar, 2017) This study's objective is to assess the factors related to trust and security affecting the adoption of Internet banking; In a study conducted in Iran, a total of 246 samples of data were collected. TAM theory is used by researchers to analyse the adoption of e-payment systems. Total 9 hypotheses were formulated, and after analysis found that security and trust directly impact the adoption and usage of e-payment systems, and found the factors of technical and transaction procedures, security statements, and access to security guidelines, influential on perceived security.
- (Anna, Yen, & Siti, 2016) Stated that Convenience, Social influence, and trust are the main factors to adopt e-payment systems, the study on the e-BR1M [Bantuan Rakyan 1 Malaysia], is an e-government application. The main focus of this research study was on developing trust in government constructs. The study was conducted on Malaysian 102 citizens, those who have income less than RM 4000. The research shows that a trust-justice model is important in understanding e-government services with users who are particularly sensitive to their interactions and exchanges with the government.
- (Awani, 2015) Perceived usefulness and perceived ease of use these both main factors to indirect influence to adopt of internet banking, the researcher used a TAM theory to identify the adoption of internet banking in Jordan and 298 collected data on accountants. [E-payment systems are also known as Online payment systems, and Online banking, also known as internet banking, web banking, or home banking, any customer enables e-payment systems by doing that work via a bank or any financial institutes (Wikipedia, n.d.).].
- (Chun, 2015) The research paper mainly focused on the user adoption behavior of smart cardbased e-payment systems, this study was conducted in Hong Kong, and also included Octopus payment popularity in the city and this research adopted a TAM, and IDT models used to identify the adoption rate in the city. The study's major findings are that Octopus added the value service, reader/writer connect with point-of-sale, leisure facility providers, flexible for

payment, in schools for benefits for collecting fees and using school's canteen for the attendance, also for the rewards.

(Lin & Nguyen, 2011) This research paper's main aim was to analyse how related factors influence customers' e-payment adoption in Vietnam and Taiwan. In the study total of 692 samples were collected [323 for Taiwanese and 353 for Vietnamese]. The research added mainly four factors, Motivation [Perceived ease of use, Perceived Usefulness], Uncertainty [Perceived risk, Information on E-payment], Personal Innovativeness, and E-payment use, after analyzing the factors in both cities found that perceived ease of use and perceived usefulness both impacted the adoption of e-payment systems.

## **RESEARCH METHODOLOGY**

This study is based on an extensive literature review search conducted with ACM digital library, EBSCO, Emerald Insight, Google scholar, JSTOR, ProQuest, SAGE Journal, Science Direct (Elsevier), Springer link, Taylor and Francis online, Wiley online library, Websites in the month April 2022 for those researches carried out on the subject of Adoption of e-payment systems. In search mainly concentrated in India. This study chose papers between 2011 to 2021.

According to the search produced a total of 164 research papers were found. Out of the 22 papers used in this study, 142 research papers were excluded because those papers are irrelevant to this study. And researchers noticed that hardly some papers are Indian based.

### 1.1. Analysis of Those Research Papers

In the analysis of these studies, all research papers accepted different technologies in those studies, and the analysis was also location-wise.

Authors	Place/ Country	Sample Size	Adoption Systems
(Rabaaí & Zhu, 2021)	Kuwait (American University-Online mode)	311	Adoption of Wearable payment
(Ghana & Dr M., 2021)	India (Madurai district – Online mode)	250	Adoption of electronic payment systems
(Lin, Lin, & Ding, 2020)	Taiwan – Online mode	342	Adoption of Mobile Payment Systems
(Liu, et al., 2019)	China (Chengdu -Offline mode)	245	Adoption of Mobile Payment Systems
(Putri, Wiryono, Nainaggolan, & Cahyono, 2019)	Indonesia (Age 20-30 years- Residents)	492	Adoption of Payment method (e-commerce)
(Mohamed Asmy, Anwar, Hassanudin, & Md Fouad, 2019)	Malaysia (Islamic banking customers)	250	Adoption of Islamic Mobile banking Services
(Ali, Ali, Ahmed, & Ali, 2019)	Oman (Omani M- Commerce Users')	430	Adoption of Mobile Commerce
(Yanuar, Imam, Agus, & Indira, 2018)	Indonesia (Universities of Indonesia)	261	Adoption of e-payment systems

**Table 1:** Summary of Different Adopted Technology

(Emrah, Gizem, & Wajid, 2017)	Eastern Mediterranean University (Students)	299	Electronic Payment Systems
(Barkhordari, Nourollah, Mashayekhi, Mashayekhi, & Ahangar, 2017)	Iran (Internet banking users' customers)	246	Adoption of E-Payment Systems
(Gao & Waechter, 2017)	Australia (Online mode)	851	Adoption of mobile payment services
(Anna, Yen, & Siti, 2016)	Malaysia (Online and Offline mode - e-BR1M users' Urban area within Kuala Lumpur- Income less than RM 4000)	102	Adoption of an e- payment system
(Awani, 2015)	Jordan (Jordanian accountants – via postal service and e-mail)	298	Adoption of Internet Banking
(Chun, 2015)	Hong Kong (Octopus for retaining payments users'- Hong Kong - Islan, Kowloon peninsula and New Territories)	515	Adoption of a smart card- based e-payment system
(Teoh, Chong, Lin, & Chua, 2013)	Malaysia (Malaysian consumers')	183	Consumers' perception of electronic payment
(Lin & Nguyen, 2011)	323 – Taiwanese customers, 353 – Vietnamese customers'	676	Adoption of e-payment

Many theories and models are established for the adoption of e-payment systems. Many authors adopt their model in their research papers and articles, these studies are helpful to the adoption of e-payment systems.

Model and Theories of adoption of e-payment	Citations	Authors
adoption of e-payment systems		
Innovation diffusion theory [IDT]	3	(Rabaaí & Zhu, 2021), (Lin, Lin, & Ding, 2020), (Chun, 2015)
Technology acceptance model [TAM]	10	(Rabaaí & Zhu, 2021), (Ghana & Dr M., 2021), (Haryanti & Subriadi, 2020), (Liu, et al., 2019), (Mohamed Asmy, Anwar, Hassanudin, & Md Fouad, 2019), (Gao & Waechter, 2017), (Barkhordari, Nourollah, Mashayekhi, Mashayekhi, & Ahangar, 2017), (Chun, 2015), (Awani, 2015), (Lin & Nguyen, 2011)
Unified theory of acceptance and use of technology [UTAUT]	5	(Rabaaí & Zhu, 2021), (Haryanti & Subriadi, 2020), (Lin, Lin, & Ding, 2020), (Ali, Ali, Ahmed, & Ali, 2019), (Putri, Wiryono, Nainaggolan, & Cahyono, 2019)
Theory of planned behavior [TPB]	3	(Rabaaí & Zhu, 2021), (Haryanti & Subriadi, 2020), (Chun, 2015)
Theory of reasoned actions [TRA]	3	(Rabaaí & Zhu, 2021), (Haryanti & Subriadi, 2020), (Chun, 2015)
Hofstede's Cultural Model	1	(Chun, 2015)
Trompenaars's Cultural Model	1	(Chun, 2015)
Conceptual Model	4	(Ghana & Dr M., 2021), (Liu, et al., 2019) (Emrah, Gizem, &

Table 2: Different Theories and Models that the Adapted in Research Papers

		Wajid, 2017) (Lin & Nguyen, 2011)
Integrated model	3	(Rabaaí & Zhu, 2021), (Ali, Ali, Ahmed, & Ali, 2019), (Liu, Ben,
		& Zhang, 2019)
Own model	2	(Anna, Yen, & Siti, 2016), (Teoh, Chong, Lin, & Chua, 2013)
No Model/ Theory	3	(Bukvic, 2021), (T., N., & M., 2016), (Dwight, Merl, & Juita-
		Elena(WIE), 2013)
Review-based paper	2	(Haryanti & Subriadi, 2020), (Agrawal & Bansal, 2018)

Table 3: Used Different Theories and Models to Identify Various Variables and Study Aims

Different theories/models identify variables and study aims in research this study also analysis those things.

Variables	Theory/Model	Study	Positive/Negative affected on the adoption of e- payment systems	Study aims	Authors
Security, Trust, Social Influence, Internet connectivity, Perceived ease of use, Perceived usefulness, Intention to use e-payment	Technology acceptance model (TAM)	A Study on Users' Adoption of Electronic Payment Systems in India	Positively associated with to use of e- payment	This study mainly concentrated that the seven variables that measure the adoption of e-payment systems in the Madurai district.	(Ghana & Dr M., 2021)
Perceived Usefulness, Perceived ease of use, Perceived security, Trust	Conceptual Model	Understanding the determinants of wearable payment adoption: An empirical study	Positively associated with to use of wearable payment	This study's main aim is to determine the variables which affect the intention to use Near Field Communication (NFC)-enabled smart wearables payments.	(Rabaaí & Zhu, 2021)
Perceived cost, Attractive of alternatives	Conceptual Model	Understanding the determinants of wearable payment adoption: An empirical study	Negatively associated with to use of wearable payment	This study's main aim is to determine the variables which affect the intention to use Near Field Communication (NFC)-enabled smart wearables payments.	(Rabaaí & Zhu, 2021)
Performance expectancy, effort expectancy, social influence, Facilitating condition, Henodnic motivation, Price value	Unified Theory of Acceptance and use of technology (UTAUT)	Factors affecting the behavioral intention to adopt mobile payment: An empirical study in Taiwan	Positively associated the adopt mobile payment	This study mainly concentrated that the variables that measure positive influence on consumers' intention to use mobile payment in Taiwan.	(Lin, Lin, & Ding, 2020)
Compatibility, Innovation, Relative advantage, Complexity, Observability	Diffusion of Innovation (DOI)	Factors affecting the behavioral intention to adopt mobile payment: An empirical study in Taiwan	Positively associated the adopt mobile payment	This study mainly concentrated that the variables that measure positive influence on consumers' intention to use mobile payment in Taiwan.	(Lin, Lin, & Ding, 2020)
Perceived Mobility, Perceived ease of use, Perceived usefulness	Technology acceptance model (TAM)	The impact of mobility, risk, and cost on the users' intention to adopt mobile payments	Positively affect the intention to use mobile payments.	acceptance of mobile payments in China.	(Liu, et al., 2019)
Perceived risk, Perceived cost	Technology acceptance model (TAM)	The impact of mobility, risk, and cost on the users' intention to adopt mobile payments	Negatively affect the intention to use mobile payments.	This study's main aim is to explore user acceptance of mobile payments in China.	(Liu, et al., 2019)

Effort expectancy, Perceived security, Performance expectancy, Deal Proneness, Financial benefit	Unified Theory of Acceptance and use of technology (UTAUT)	Method of Payment Adoption in Indonesia E- Commerce	Positively affect the intention to adopt the method of payment in Indonesia.	This study aims to explore the behaviors of Indonesian e- commerce customers based on their ownership and preferred method of payment.	(Putri, Wiryono, Nainaggolan, & Cahyono, 2019)
Perceived risk	Unified Theory of Acceptance and use of technology (UTAUT)	Method of Payment Adoption in Indonesia E- Commerce	Negatively affect the intention to adopt the method of payment in Indonesia.	This study aims to explore the behaviors of Indonesian e- commerce customers based on their ownership and preferred method of payment.	(Putri, Wiryono, Nainaggolan, & Cahyono, 2019)
Perceived ease of use, Perceived usefulness, Relative advantage, social norms	Technology acceptance model (TAM)	Factors influencing consumers' adoption of Islamic mobile banking services in Malaysia	Positively affect the adoption of Islamic mobile banking services	This study's objective is to investigate the potential predictors of the adoption of Islamic mobile banking services in Malaysia.	(Mohamed Asmy, Anwar, Hassanudin, & Md Fouad, 2019)
Perceived risk	Technology acceptance model (TAM)	Factors influencing consumers' adoption of Islamic mobile banking services in Malaysia	Negatively affect the adoption of Islamic mobile banking services	This study's objective is to investigate the potential predictors of the adoption of Islamic mobile banking services in Malaysia.	(Mohamed Asmy, Anwar, Hassanudin, & Md Fouad, 2019)
Perceived usefulness, trust, compatibility, perceived ease of use, personal innovativeness	Integrated model	Factors affecting consumers' mobile payment behavior: a meta-analysis	Positively affect the behavior of mobile payment	This study main to encourage consumers' adoption of mobile payment, especially in western countries like the US.	(Liu, Ben, & Zhang, 2019)
Perceived risk	Integrated model	Factors affecting consumers' mobile payment behavior: a meta-analysis	Negatively affect the behavior of mobile payment	This study main to encourage consumers' adoption of mobile payment, especially in western countries like the US.	(Liu, Ben, & Zhang, 2019)
Performance expectancy, effort expectancy, social influence, hedonic motivation, habit, price value, facilitating conditions, self- efficacy, trust, information quality, system quality, service quality	Integrated model	An analysis of the factors affecting mobile commerce adoption in developing countries: Towards an integrated model	Positively affect the adoption of mobile commerce in developing countries	This study aims to investigate the factors that may facilitate consumers' adoption of mobile commerce activities in (developing countries) such as Oman.	(Ali, Ali, Ahmed, & Ali, 2019)
Perceived ease of use, perceived usefulness, attitude to use, behavioural intention	Technology acceptance model (TAM)	Willingness to adopt an e-payment system to increase the effectiveness of the budget disbursement in the public sector in Indonesia	Positively affect the adopt an e-payment system	The main objective of this study of e- payment system development in government agencies in Indonesia is to overcome problems arising in financial management.	(Yanuar, Imam, Agus, & Indira, 2018)
Technical protection, Transaction procedure, Security statement, Past experience, Perceived security, Perceived trust	Conceptual model	The determinant of electronic payment systems usage from consumers' perspective	Positively affect the usage of electronic payment systems	In this study, an attempt has been made to identify the determinants of perceived security and perceived trust and their effect on electronic payment systems use.	(Emrah, Gizem, & Wajid, 2017)

Technical and transaction procedures, Access to security guidelines, Usability, Perceived security, Perceived trust	Technology acceptance model (TAM)	Factors influencing adoption of e- payment systems: an empirical study on Iranian customers	Positively affect the adoption of e-payment systems	This study aims to develop and validate a measurement tool for assessing the factors related to trust and security affecting the adoption of Internet banking and also to encourage the adoption of e-payment systems.	(Barkhordari, Nourollah, Mashayekhi, Mashayekhi, & Ahangar, 2017)
Perceived system quality, Perceived information quality, Perceived service quality, Initial trust, Perceived benefit, Perceived convenience	Modified Technology acceptance model (TAM)	Examining the role of initial trust in user adoption of mobile payment services: an empirical investigation	Positively affect the adoption of mobile payment services	This study aims to propose an initial trust theoretical model for user adoption of m- payment in Australia.	(Gao & Waechter, 2017)
Perceived uncertainty, Perceived asset specificity	Modified Technology acceptance model (TAM)	Examining the role of initial trust in user adoption of mobile payment services: an empirical investigation	Negatively affect the adoption of mobile payment services	This study aims to propose an initial trust theoretical model for user adoption of m- payment in Australia.	(Gao & Waechter, 2017)
Convenience, Social influence, Trust, Distributive justice, Procedural justice, Trust in G2C online service, Websites factors	Own model	Trust and justice in the adoption of a welfare e-payment system	Positively affect the adoption of a welfare e- payment system	This study aims to examine the interaction between citizens' perception of justice and their trust in the government agency that provides services.	(Anna, Yen, & Siti, 2016)
Perceived usefulness, Perceived ease of use, Perceived web privacy, Attitude toward the use	Technology acceptance model (TAM)	Factors affecting adoption of internet banking in Jordan: Chartered accountant's perspective	Positively affect the adoption of internet banking in Jordan.	This study aims to investigate the Jordanian accountant's behavioural intention of using Internet banking services.	(Awani, 2015)
Masculinity, Confucian dynamism, Relative advantage, Perception of Compatibility, prior experience, Perception of Image, Perception of subjective norm, Perceived usefulness, Prior experience	Innovation diffusion theory [IDT], Technology acceptance model [TAM], Theory of planned behavior [TPB], Theory of reasoned actions [TRA], Hofstede's Cultural Model, Trompenaars's Cultural Model	Adoption of a smart card-based e- payment system for retailing in Hong Kong using an extended technology acceptance model	Positively affect the adoption of smart card-based e-payment systems for retailing	This study mainly focused on why a smart card-based e-payment system results in a failure or how the system could have grown into success.	(Chun, 2015)
Uncertainty avoidance, Cultural tendency, Prior experience	Innovation diffusion theory [IDT], Technology acceptance model [TAM], Theory of planned behavior [TPB], Theory of reasoned actions [TRA], Hofstede's Cultural Model, Trompenaars's Cultural Model	Adoption of a smart card-based e- payment system for retailing in Hong Kong using an extended technology acceptance model	Negatively affect the adoption of smart card- based e-payment system for retailing	This study mainly focused on why a smart card-based e-payment system results in a failure or how the system could have grown into success.	(Chun, 2015)

Benefit, trust, self-efficacy, ease of use, security	Own model	Factors affecting consumers' perception of electronic payment: an empirical analysis	Positively affect the consumers' perception of electronic payment	This study aims to discover the factors influencing perception towards e-payment from the Malaysian consumers' perspective.	(Teoh, Chong, Lin, & Chua, 2013)
Perceived ease of use, Perceived usefulness, level of information, personal innovativeness	Technology acceptance model [TAM], Conceptual model	Exploring e- payment adoption in Vietnam and Taiwan	Positively affect the adoption of e-payment	The purpose of this paper is to analyse how related factors influence customers' e-payment adoption in Vietnam and Taiwan.	(Lin & Nguyen, 2011)
Perceived risk	Technology acceptance model [TAM], Conceptual model	Exploring e- payment adoption in Vietnam and Taiwan	Negatively affect the adoption of e-payment	The purpose of this paper is to analyse how related factors influence customers' e-payment adoption in Vietnam and Taiwan.	(Lin & Nguyen, 2011)

## CONCLUSION

This study uses a literature review approach, in future any researchers that are helpful in quality research on this topic. On a whole, the study had an extensive literature review on the focused-on adoption of epayment systems In India. In this research paper location-based analyses, all over the world parts. But, mainly focused on India. Indian people easily accepted digital technology in their lives, but some inhibitors factors also affected so, which is why they are not accepting the technology. This study analysis all the positive and negative variables to affect the adoption of e-payment systems. Most Indian people accept e-payment systems because they use that technology to save their time, energy, and effort and add that the e-payment systems are user-friendly (Ghana & Dr M., 2021). Researchers noticed that the many research papers are based on the TAM model and UTAUT model. And after analysing all the theories trust is the main factor to adopt e-payment systems (Haryanti & Subriadi, 2020). This study is helpful for the literature review as well as to model and theories, different variables are affected that the positive and negative also analyzed, and also the study objective with the location wise. This study is based in India, but researchers analysed several papers and found that hardly some papers are based on the Indian perspective.

#### Limitation of This Study

The present study also has its limitations. Researchers have used selected papers in the year of 2011 to 2021. This paper mainly concentrated on the Indian perspective. And this paper is fully based on secondary data.

#### **Future Research**

Further studies are needed based on the primary data and proposed a new model with additional variables from an Indian perspective. Nowadays Indian government mainly concentrated on digitalization. So, this topic is a challenging topic for new researchers. Nowadays mainly internet users are increasing in India, and also different apps and internet banking systems are available so, the adoption of e-payment systems is a prominent topic for new researchers.

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