CHAPTER 3

RESEARCH METHODOLOGY

Research methodology is the structure for a study to direct data collection and analysis (Pandey and Pandey, 2021). The technique used in the study, the development of a conceptual framework, and the formulation of hypotheses are all covered in this chapter. On this background, this chapter explain outline of the research procedures and techniques used to attain study objectives. The methodological components of the study are discussed below.

3.1 Research Design

Research design is defined as “a framework of methods and techniques that are applied by the researchers to address specific research question”. The study’s research design is outlined in the following sections.

Locale of the study

Kerala one of the States in India, was selected as the locale of the study purposively. Kerala is a State in southwest India (Figure 1), that has made significant progress in a number of areas, including banking penetration, education, literacy, and internet use (Joju & Manoj, 2019). Kerala is now the first "Digital State" in the nation, a feat made possible by the Government's forward-thinking initiatives to make digital literacy more accessible to its citizens through the introduction of the Akshaya Project and Digi-Keralam, by the Government of Kerala (LSGD, 2025).

The present study is conducted in Ernakulam district among the fourteen districts in Kerala and it is the prominent commercial and industrial centre in the state of Kerala. Specifically, the study focusses on e-banking users of selected private sector banks, and they become employees of IT&ITeS companies. The respondents selected are the employees working at Info Park, Kochi, one of the Kerala’s largest IT parks located in Ernakulam district. Info Park hosts number of national and multinational IT&ITeS companies, employing around forty-two thousands of professionals who are active users of digital banking technologies. IT sector employees, given their expertise with technology and digital platforms, are among the early adopters and frequent users of e-banking

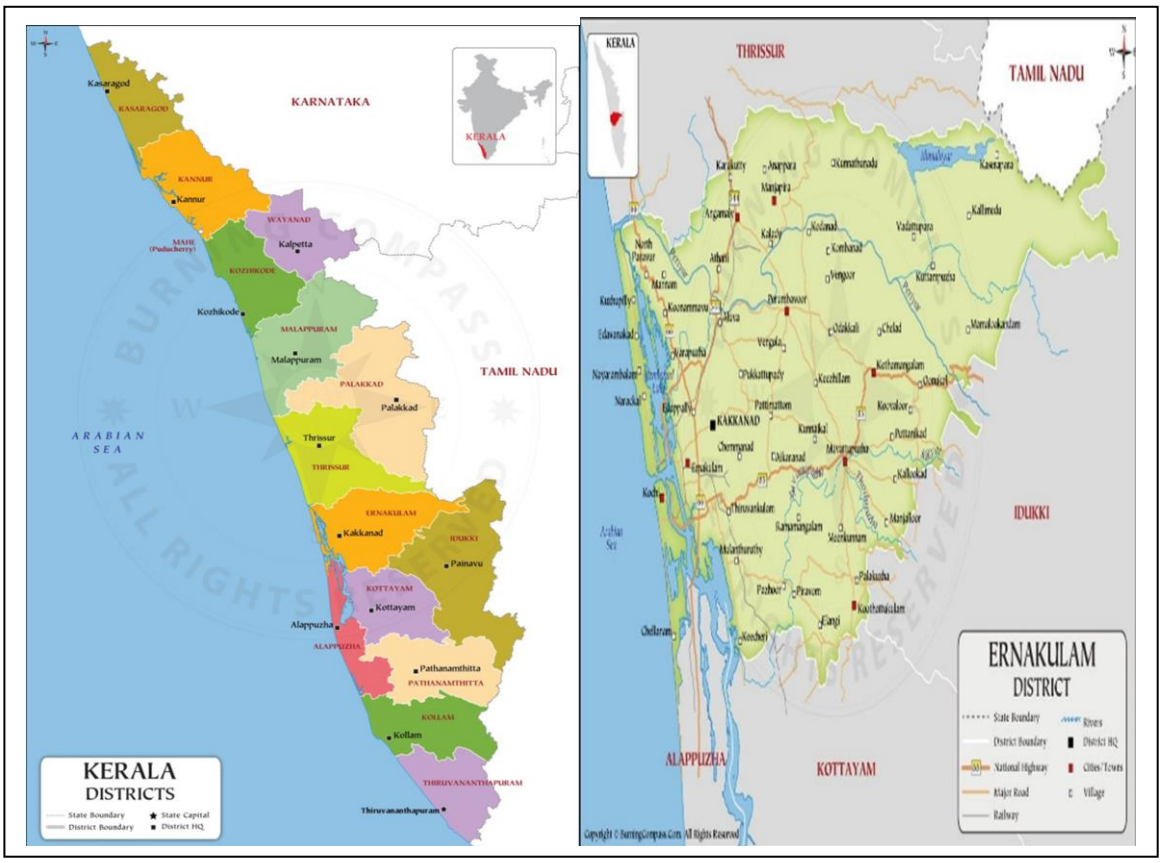
services. Their dependence on various e-services, including e-commerce, e-governance, and e-payments, line up closely with the usage patterns of modern banking facilities (Ganesh and Balaji, 2023). Hence, employees of Infopark represent an ideal segment for studying trends in e-banking usage, user satisfaction, and expectations from select private sector banks.

Within the Indian context, where banking is rapidly evolving with technological advancements, the study of e-service satisfaction and continued usage among IT professionals provides valuable insights into future banking trends. The e-banking adoption is growing rapidly, with more customers, especially from the tech-savvy younger generation, preferring digital modes for their banking transactions. This growth is further fuelled by the Government's initiatives towards a Digital India, encouraging citizens to embrace online financial services.

In recent years, e-banking has gained substantial importance in the Indian banking sector, with different modes such as internet banking, mobile banking and digital wallets becoming increasingly popular. In India, private sector banks have led the way in innovative digital banking practices. These banks use technology to provide their clients with an extensive array of digital banking services. Private sector banks, characterized by their customer-centric digital offerings, highly contributes to meet the demands of this evolving customer base. The customers of private sector banks were chosen for this study because these banks are more proactive in adopting digital technologies to attract and retain customers compared to public sector banks (Kaur and Rani, 2024). They focus extensively on customer-centric services and digital innovations as the key strategies to stand out in the cutthroat competition in the banking industry (Bansal et al., 2018).

Thus, Infopark, Ernakulam, offers a rich and relevant environment for analysing e-banking user perceptions, expectation, satisfaction and continued usage intention among IT&ITeS employees, a key demographic group that is shaping the future of the Indian banking sector.

Figure 1 Geographical Location of Study Area



Research Methods

Research methods are the systematic procedure and methods applied to collect, analyse and interpret data in order to answer research questions. Research methods provide the manner in which to develop a body of ordered knowledge (Newhart and Patten, 2023). Present study employed both descriptive and analytical research methods. In descriptive research, the researcher just describes the sample or the variables without changing it (Siedlecki, 2020). Descriptive research is the only design that can investigate multiple variables (Stangor and Wallings, 2014). The study is analytical in nature as it seeks to measure the influence of e-service quality on customers continued usage intention. The acquisition of quantitative data and statistical techniques are also important for determining the relationship.

Population and Sampling strategy

In tune with the research objectives, the target population are the employees of IT&ITeS sector working at Infopark located in Ernakulam district. The sample respondents are selected from customers those who are employees from IT&ITeS sector and using

majority of the e-service offered by the select private sector banks. IT&ITeS sector employees are more tech-savvy and frequently use e-banking platforms due to their familiarity with technology (Singh & Srivastava, 2018). Thus, the IT&ITeS employees are the most apt customer segment to evaluate e-service quality of banks. Meeting expectation of this customer segment enables the banks to set a benchmark for customer expectation. Hence, the sample respondents in this study is represented by the employees of IT&ITeS sector who are the customers of select private sector banks and use most of the e-banking services.

Determination of Sample Size

Size of the sample is the number of units chosen for the study out of the population. Sampling is the method of choosing respondents from the population. The factors considered for selecting samples are nature of population and the type of information required. The process of sample selection is identification of population, sample size and sample selection. The standard deviation from a pilot study with 60 participants were applied to calculate the sample unit which is calculated using the Israel algorithm to make sure the standard error stayed within allowable bounds at a five percent significance level (2009):

Sample size (n) = $(Z \times S / E)^2$

- **Z** = Standard value corresponding to a 95% level of confidence (1.96)
- **S** = Standard deviation from the pilot study (0.505)
- **E** = Acceptable margin of error (5%, or 0.05)

Using these values, the sample size was calculated as:

$$n = (1.96 \times 0.505 / 0.05)^2 = 395.92$$

Therefore, the calculated sample size was approximately 396, and the study collected data from **398** participants accordingly.

For data analysis, the researcher evaluated the sample size requirements for performing Covariance-Based Structural Equation Modelling (CB-SEM). According to Tanaka (1987), a sample unit equivalent to a 5:1 ratio of observations to independent parameters is adequate for CB-SEM analysis with multivariate normal data using

Maximum Likelihood Estimation. Consequently, 398 sample was deemed suitable for running CB-SEM models in this study.

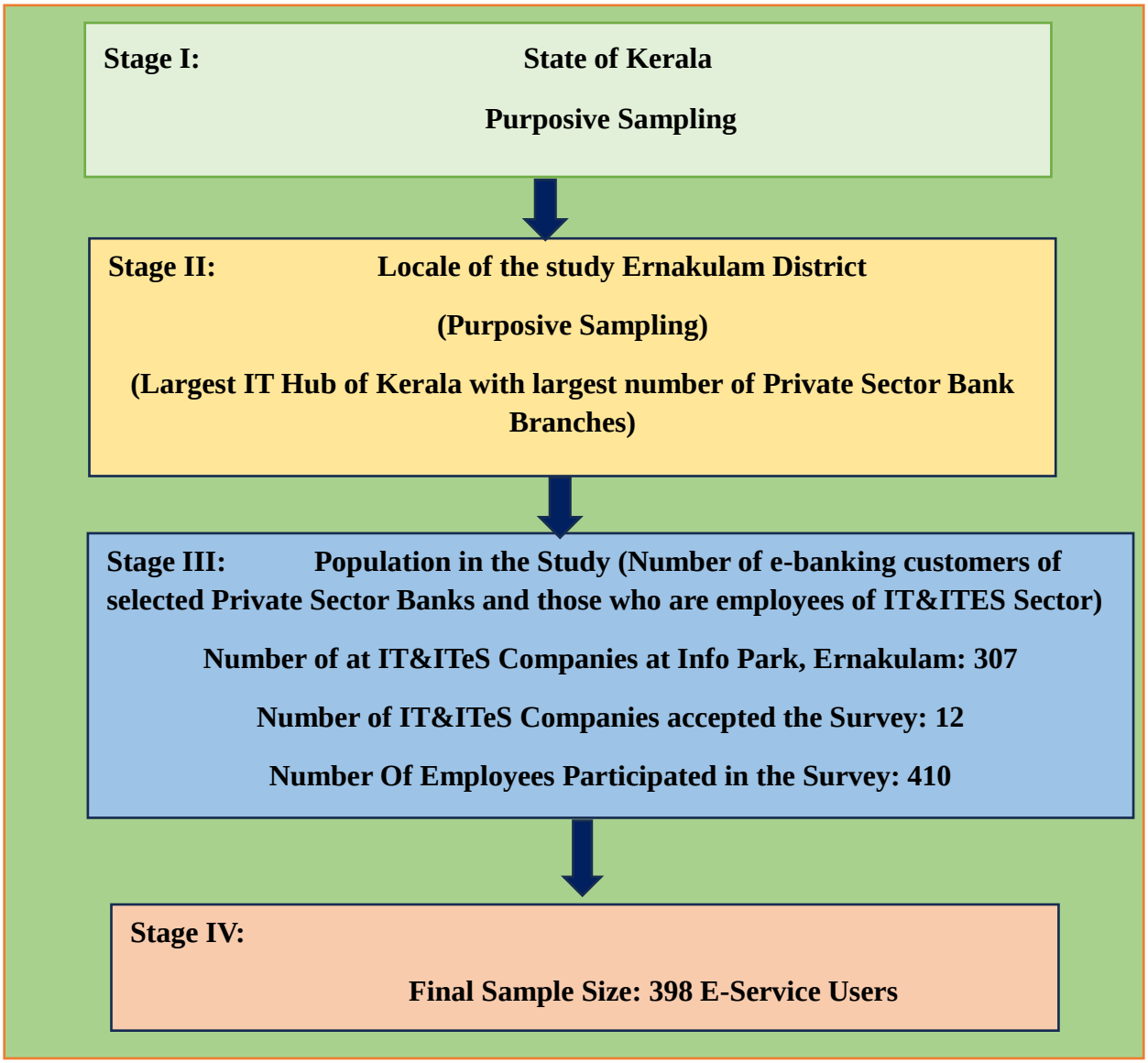
Sampling method

This study utilises Multistage sampling method (Figure 2). Kerala was selected purposively as the locale of the study because the state has a highest literacy rate and digital literacy, leading to greater adoption of e-banking services compared to many other states (Sajan et al., 2025). Data were obtained from the employees of IT&ITeS companies who were the customers of selected private sector banks and are using majority of the e-services offered by the bank and who are proficient with technology for profession and banking operations. In the second stage of sampling, Ernakulam was selected as it has highest number of select private sector bank branches compared to other districts in Kerala and it is also the premier IT hub of Kerala.

In the third stage of sampling, convenience sampling method was adopted. There are 307 companies situated under IT&ITeS sector in Info Park as per the Government of Kerala Info Park report 2021-2022. The researcher approached all the companies through e-mail for seeking permission for data collection from the employees. Of the 54 companies responded to the e-mail and among them 12 companies have given positive reply. The researcher personally visited the companies and met the employees with the support of HR managers. Ten companies granted permission to collect data personally from the employees and allotted slots to meet them. About 410 responses were obtained by issuing questionnaires. After eliminating incomplete responses 398 responses were considered as the final sample size consisting of 141 responses from HDFC bank, 92 responses from ICICI bank, 55 from AXIS bank, 41 from Kotak Mahindra bank, 34 from YES bank and 35 from IndusInd bank.

Figure 2 Sample Design

Multi Stage Sampling



Sources of data collection

Primary and secondary data served as the foundation for this research. Primary data were gathered from e-banking users through structured questionnaires. Books, journals articles, reports and websites serve as the sources of secondary data.

Data collection tools and measures

Primary data were gathered by using well-structured questionnaire, consists of three parts. First section includes six questions on personal information of the respondents while, next section identifies the e-banking transactions of the respondents with six questions. The

remaining sections include various construct identified from the literature review. Third and fourth section constitute the customers experience and expectation on e-service quality respectively. For measuring experience and expectation of e-service quality, same construct and statements are used, which include ease of use (6 statements), efficiency (7 statements), safety (4 statements), reliability (7 statements), responsiveness (6 statements), interoperability (3 statements), service charges (3 statements), service portfolio (3 statements) and personalized services (3 statements). The last section deals with statements related to customer trust (3 statements), e-service satisfaction (4 statements) and continued usage intention (4 statements) in the selected banks. Totally 33 statements on E-S-QUAL dimension, 9 statements on BSQ dimensions and 11 statements for measuring customer trust, satisfaction and continued usage intention were entered in the questionnaire. A five-point Likert scale was employed to examine each dimension in order to measure the effect of e-service quality on customers' intentions to continue using the e-service. The sources of research constructs are listed in the table 3.1.

Table 3.1 Research Constructs and Sources

Research Constructs	Sources
Ease of use	Parasuraman et al. (2005), Ladhari (2010), Zavareh (2012), Simon et al. (2016), Ketema and Selessie (2020), Martínez-Navalón et al. (2023)
Efficiency	Njane (2013), Malviya (2015), Hashemi and Abbasi (2017), Kesharwani (2020),
Safety	Mojoodi et al. (2013), Shared (2019), Haq and Awan (2020), Egala et al. (2021)
Reliability	Agrawal et al. (2015), Vazifehdoost et al. (2015), Bengül and Yilmas (2018), Kaur et al. (2020), Shafi and Reddy (2022)
Responsiveness	Al Hawary and Al Semran (2017), Agrawal et al. (2018), Shankar and Jebarajakirthy (2019),

Research Constructs	Sources
Interoperability	Hoehle et al., (2012)
Service charges	Bahia and Nantel (2000), Narteh (2018), Hamzagic and Tournoise (2021), Ahmed and Mostafa (2021)
Service Portfolio	Bahia and Nantel (2000), Oni and Adewoye (2016), Ayo (2018), Putri et al. (2019), Hosen et al. (2021),
Personalized Services	Hamzagic and Tournoise (2021), Tamuliene and Gabryte (2014), Moenardy et al. (2016), Mokhtar and Sjahruddin (2019),
Customer Trust	Hamakhan (2020)
e-Service Satisfaction	Kaur et al., (2021), Zouari and Abdelhedi (2021)
Continued Usage Intention	Hashemi and Abbasi (2017), Langat et al., (2021)

Source: Compiled data

Collection of data

The period of study was from September 2022 to April 2023. The survey was carried out through questionnaires. The clients of select Private sector banks and those who are working at IT&ITeS companies, Infopark, Ernakulam constitute the sample respondents. As per the time slot arranged by the HR managers, the researcher met the employees and collected data by issuing questionnaires. A sum of 425 questionnaires was directed and 410 were returned as completed. After eliminating incomplete responses 398 valid surveys resulted. A total of 398 responses, were used for analysis and this forms the sample size.

Pretesting and Pilot study

Pretesting was done to examine potential issues and problems with the questionnaire. To assess the appropriateness of the content, the clarity and phrasing of the questions, their order and other factors, a pilot study was carried out by using sample of 60

e-banking users of select private sector banks. Appropriate statistical analysis was conducted to measure the association between study constructs.

Common Method Bias

To examine the potential existence of Common Method Bias in the dataset, Harman's Single Factor test was applied and results are shown in table 3.2.

Table 3.2 Harman's Single Factor Test: Assessment of Common Method Bias

Result Obtained	Threshold Value	Inference
39.23%	≤ 50%	CMB is not a concern

The analysis (table 3.2) showed that the first unrotated factor explained 39.23 percent of the total variance, which is below maximum limit of 50 percent, as suggested by Podsakoff et al. (2003). This suggests that common method variance is unlikely to create a major risk to the validity of the outcomes. As a result, the dataset can be considered reasonably free from the influence of a single-source bias, enhancing the credibility of the study outcomes.

Reliability test

Testing reliability of a measuring instrument is crucial since it pertains to the consistency of the instrument's components as a whole (Taherdoost, 2016). The elements on a scale are said to "hang together" and measure the same construct if it has good internal consistency and reliability (Huck 2007, Robinson 2009). It refers to the consistency or uniformity of scores across time or between raters (Miller et al. 2009). The Cronbach Alpha coefficient is the most suitable reliability indicator of internal consistency statistic when using Likert scales (Whitley 2002, Robinson 2009). A reliability coefficient (alpha) of 0.70 or more is regarded as satisfactory (Bolarinwa 2015).

Table 3.3 Reliability coefficients

Constructs	Alpha value
Ease of use	0.88
Efficiency	0.90
Safety	0.90
Reliability	0.89
Responsiveness	0.87
Interoperability	0.77
Service Charge	0.88
Service Portfolio	0.88
Personalized Services	0.83
e-Service Satisfaction	0.89
Customer Trust	0.88
Continued Usage Intention	0.89

Source: Computed data

Content Validity

Validity is a crucial aspect to consider while evaluating the quality of the research. Content validity provides evidence of how well-suited and representative an instrument's components to construct for a specific assessment purpose (Almanasreh et al. 2019). In order to verify content authenticity and assess the influence of e-service quality on continued usage intention, the measurement items are gathered from previous literature. In order to guarantee content validity, researchers, subject matter experts, and statistical analysts carefully examined the questionnaire. On the basis of their recommendations, the questionnaire was refined with a few small adjustments.

Normality Testing

Kolmogorov-Smirnov test was carried out to determine the normality of the distribution (Sarstedt & Mooi, 2014) and result illustrated in table 3.4.

Table 3.4 Normality test

SI No.	Constructs	Statistic	Sig.
1	Ease of Use	0.032	0.200*
2	Efficiency	0.039	0.200*
3	Safety	0.041	0.200*
4	Reliability	0.039	0.200*
5	Responsiveness	0.045	0.200*
6	Interoperability	0.033	0.200*
7	Service changes	0.034	0.200*
8	Service portfolio	0.032	0.200*
9	Personalized Services	0.045	0.200*
10	e-Service Satisfaction	0.039	0.200*
12	Customer Trust	0.029	0.200*
13	Continued Usage Intention	0.043	0.200*

Source: Computed data * *This is a lower bound of the true significance*

To assess normality of the distribution as recommended by Sarstedt and Mooi (2014), the Kolmogorov-Smirnov test was conducted for all constructs. The results indicate that all constructs recorded significance values of 0.200. This value represents the lowest limit of the true significance level and exceeds the threshold of 0.05, suggesting that the assumption of normality is not violated. Therefore, the data for all measured constructs can be considered as normally distributed.

3.2 Development of Conceptual Framework

The study is given a distinct focus and logical direction by the conceptual framework, the variable included and their anticipated correlation can be fully understood. A theoretical framework has been proposed on the basis of review of literature, the Cognitive Motivational Relational (CMR) theory, E-S-QUAL and BSQ scale to measure the resultant change of e-service quality on continued usage intention. The researchers utilise the CMR theory to characterise the relationship between customer reactions such as satisfaction, intention to continue usage, and customer loyalty (Sivapalan and Jebarajakirthy, 2017; Shankar and Jebarajakirhty, 2019). CMR theory explains how cognitive appraisal leads to emotional response. The customer's emotional response by means of satisfaction and continued usage initiated as a result of their cognitive appraisal

of e-services offered by the bank. The E-S-QAUL dimensions and BSQ dimensions used in this study are the cues in the e-banking environment for cognitive evaluation. As a result, an emotional response is created to decide whether to remain or not in a particular bank.

This study argues that a convergence of the E-S-QUAL and BSQ models would offer a thorough grasp of the different variables that influence customers' continuous usage intention through satisfaction based on prior research. The E-S-QUAL model identifies the constructs as "ease of use, efficiency, safety, reliability, responsiveness and interoperability". The BSQ model explains construct such as service charges, service portfolio and personalized services. Efficiency, Safety and Reliability are applied from the E-S-QUAL framework (Parasuraman et al. 2005), interoperability and ease of use incorporated as these are key determinants of e-service quality (Hoehle et al. 2000; Al Garaibah, 2020). BSQ dimensions service charge and service portfolio developed by Bahia and Nantel (2000) utilised along with personalized services is influencing factor of e-service satisfaction (Mokhtar and Sjahruddin, 2019). E-service satisfaction is identified as dependent variable while studying the influence of e-service quality dimensions on e-service satisfaction. Continued usage intention of customers is the dependent variable as it depends on e-service satisfaction and e-service quality. Figure 3 describes the variables employed in the present study.

Figure 3. List of variables

<table>
<tr><th>Independent Variables</th><th>Mediating Variable</th><th>Moderating Variable</th><th>Dependent Variable</th></tr>
<tr><td>E-S-QUAL Dimensions
• Ease of use
• Efficiency
• Safety
• Reliability
• Responsiveness
• Interoperability</td><td rowspan="2">e-Service Satisfaction</td><td rowspan="2">Customer Trust</td><td rowspan="2">Continued Usage Intention</td></tr>
<tr><td>BSQ Dimensions
• Service Charge
• Service Portfolio
• Personalized services</td></tr>
</table>

Source: Compiled data

Independent Variables

Ease of use, efficiency, safety, reliability, responsiveness, interoperability, service charges, service portfolio and personalized services are the independent variables.

Ease of use

Ease of use pertains to the web search capabilities, accessibility, design and organisation. Customers are more satisfied with e-services when it is simple to use, pleasure to use and a feel of new relationships when evaluating quality of services (Cobelli et al. 2019). This is the degree of easiness to use and understand the e-channel. It refers to a customer's ability to do a transaction or find information with the least amount of effort. It has been identified as important influencing factors of quality of e-services (Narteh, 2013; Narteh, 2015). Hence, these digital banking platforms need to have features that enable users to swiftly and easily access what they're looking for, have an effective search engine, and backwards through the pages. One of the main factors influencing customers' choice to make online transactions is the convenience of accessing the available information (Masoud and Abu Taqa, 2017). Ease of use facilitates convenience of using e-services to customers, which will enhance satisfaction (Jahan et al., 2020). As few customers find online transaction to be frightening and confusing and the key element in evaluating the quality of an e-service is how easy it is to use (Bressolles, 2014).

Efficiency

Efficiency covers accessibility, speed, and usefulness of the e-banking service, which makes it possible to complete all transactions quickly and easily (Kesharwani ,2020). The website is easy to navigate, well organised, and only asks customers for the absolute least amount of data (Alshamayleh et al. 2015). In digital banking, website efficiency is described as the ratio of completed banking transactions to abandoned banking transactions. When their transactions are successfully completed each time with expediency, users are prone to be enlightened and remain loyal (Ranchi and Khudjanoy, 2011). When their highest expectations are met, the users are expected to be gratified and retain to the e-banking services (Kheng et al. 2010). Efficiency is one of the most determinant factor of continued usage intention and customer loyalty (Mendoza et al. 2020; Sardana and Bajpai 2020).

Safety

Safety is safeguarding of customer's private information as well as their protection from fraud and financial loss (Narteh 2013). This indicate the level of customers' belief that, the internet is secure and free from infringement (Alshamayleh et al. 2015). Due to the increased incidence of internet fraud, customers perceive considerable dangers in the virtual market environment, making safety a crucial component of e-service (Kaur and Sharma, 2022). Customer's perception of risks is frequently high when it comes to online financial services, because they think that online payment platforms are insecure and easily interceptable, which lowers their confidence. Safety is a very crucial feature for developing a secure digital payment platform and transacting without information loss (Li et al., 2021). This has the tendency to deter them from conducting online financial transactions (Zhengwei and Jinkun, 2012). Safety and security of the financial information is the foremost dimension influencing e-service quality in banking industry (Shankar and Dutta, 2020).

Reliability

Reliability refers to an online platform's capacity to deliver the promised service consistently, precisely, and dependably (Narteh, 2015). Reliability relates to the online retailer's willingness to fulfil their obligations, adhere to the conditions of the sale, and deliver the goods with a specified service standard (Bressolles et al. 2014). It implies that the company keep its word of commitment. It entails maintaining proper records, accuracy in charges and offering the service whenever it is requested. The website should run constantly and is accessible any time as promised. Reliability is a prerequisite for upholding quality of e-services and e-service satisfaction (Mwatsika, 2016; Al-Hawary and Alsmeran, 2017; Tan et al. 2018).

Responsiveness

In the banking sector, responsiveness is a critical aspect of e-service quality since it demonstrates how service providers respond to consumer issues (Liang and Pei-Ching, 2015; Mahmoud et al. 2019). It refers to speedy and accurate response to customer requests (Ayo et al. 2016). A prompt response to a technical issue and the availability of technical support ensures responsiveness (Alshamayleh et al. 2015). Response time, information retrieval, and navigation speed are used to describe responsiveness, which is a crucial

determinant of how satisfied customers are with a product or service (Kesarwani, 2020). E-Service satisfaction and purchase intention are primarily affected by response. Customers and the business can work together to address issues or clear up confusion when a firm is responsive. On the other side, if this feature is not present, there will be a communication gap between the client and the business when trying to solve problems (Faisal et al. 2020). Responsiveness significantly influences e-service satisfaction (Slack et al. 2020). For evaluating e-service quality, responsiveness is considered as an inevitable element (Narteh, 2015; Al-Hawary and Al-Smeran ,2017; Tan et al. 2018).

Interoperability

Interoperability in ICT is "the capability of a system to communicate, execute programs or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units" (ISO/IEC 2382:2015). Interoperability features allows the customers to transfer money from anyone quickly and cheaply (Arabehety et al., 2016). Interoperability facilitates cross-institutional activities including bill payment, financial transfers, and mobile banking services through common networks. Therefore, interoperability drastically reduces customer switchover and related expenses (Bourreau and Valetti, 2015).

Service Charge

Price is the monetary value assigned by service providers to the goods and service they deliver to their clients. e-Service satisfaction is considerably increased by lower service charges and it influence customer's decision to acquire and use digital banking application (Huei et al. 2018). Cost is a factor that could make an impact on customer's attitude regarding system utilisation (Wu & Wang, 2005). Prices will affect customer service quality expectation in the bank and future behavioural intention (Narteh, 2018; Venkatakrishnan 2023). Price perceptions are crucial for behavioural intention and e-service satisfaction in service industries because consumers frequently compare prices across brands and determine whether the prices companies charge accurately reflect the value of the services they offer (Fornell and Wernerfelt, 1987)

Service Portfolio

A service portfolio is a range of novel financial services that meet the requirements of the purpose (Bahia and Nantel, 2000), including platforms for equities trading, loan

calculators, investment analysis tools, spending analysis, financial planning capabilities and tax preparation services (Khan, 2017). It is clear that e-service satisfaction and continued usage intention with a company are highly predicted by service portfolio (Petridou et al. 2007; Oni et al, 2016; Narteh, 2018).

Personalized services

Provision of personalised service aims to build enduring, mutually beneficial connections with clients in order to gain and retain their business (Kotler and Keller, 2012). It thrives on making the customer happy at every stage of the interaction (Pahuja and Verma, 2008). If the customer has a close contact with a firm and is generally satisfied with its products and services, they are more likely to overlook a minor irritation. It follows that e-service satisfaction and relationship quality are correlated with one another (Tamuliene and Gabryte, 2014). A happy and devoted customer become loyal and retain in the company (Hayathi et al. 2020; Saglam et al. 2021; Alshurideh et al. 2023). Personalized services is a tactic that can be used to increase long term customer engagement, interaction and continued usage intention (Nakhleh, 2012; Jeng and Bailey, 2012). Customers anticipate interacting with their banks through time-built experiences that are quick, tailored, and effective (Kumar et al., 2022). Strong customer relationships will benefit the bank, since they will allow it to gather invaluable information about how to effectively service its customers and keep them from switching to competitors (Nyadzayo and Khajehzadeh, 2016; Olavarria et al. 2018). Establishing enduring and durable connections with individuals, groups, or companies would impact a company's marketing campaigns directly or indirectly which is a crucial aspect of service marketing.

Mediating variable

In this study e-service satisfaction mediates the relationship between e-service quality and continued usage intention.

e-Service Satisfaction

All business, particularly service providers, should focus on attracting and keeping customers through preserving their pleasure (Shayestehfar and Yazdani, 2019). According to the definition of satisfaction, new capabilities or other qualities could satisfy any customer’s need or want on a regular basis by using superior methods than those of the competitors (Shafiq, 2012). Electronic banking services are now essential for achieving

client satisfaction. As a result, banks provide their services to clients through a variety of media to satisfy customer needs (Shared HA, 2019). Banks should concentrate on enhancing digital infrastructure, protecting data, providing individualised services, and keeping dependable platforms in order to increase customer satisfaction (Ahmad et al. 2020). E-service satisfaction was found to be significantly associated with e-service quality (Kundu and Dutta, 2015). It shows positive association with continued usage intention (Rita et al, 2019). Excellent interaction with customers and consistent delivery of quality services significantly strengthen customer loyalty (Muharam et al. 2021). Additionally, satisfaction serves as a mediator between continued usage intention and trust, with satisfied clients more inclined to stick with the service provider (Li, 2023).

Moderating Variable

Customer Trust

Customer trust is the belief that customers will act in accordance with their own expectations, as well as the expectation that those who have been chosen to be trusted will not act opportunistically or exploit the situation (Kamtrain, 2012). In digital banking, customer trust becomes particularly crucial where physical interaction is absent (Shao et al. 2024). Customer trust is described as customers willingness to rely on service provider's present and future act (Markova and Gillespie 2007). It is the customer's beliefs that the service provider will honestly and reliably providing services (Randall et al. 2011). It is the confidence that customer honestly engaging with the service provider (Peltier et al. 2006). To get the desired results in a relationship, there must be a certain degree of customer trust (Tandiono et al 2020). The customer's readiness to depend on e-services is crucial in developing trust and continued usage intention (Ginting et al. 2023). Online trust might be inferred as customer's confidence in engaging in online transactions (Rahmawaty et al. 2021). Trust improves customer confidence in using the service and positively impacted customer satisfaction, which is the overall evaluation of customer's digital service experience (Aboalganam and Alzghoul, 2025). Recent studies show that trust and satisfaction significantly predict continued usage intention and reduce the likelihood of customer switching in highly competitive e-service markets (Arora and Kaur, 2018).

Dependent Variable

Continued usage intention of customers is the dependent variable in this study which is explained below.

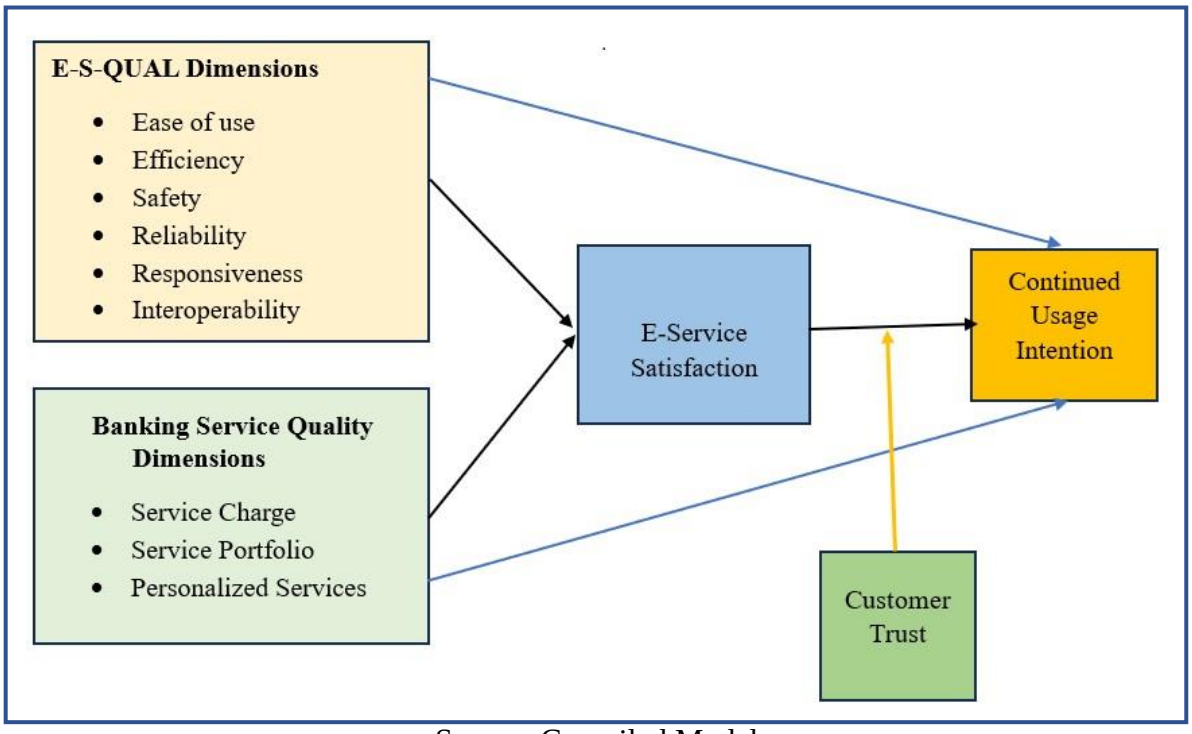
Continued Usage Intention

In this competitive era, customers' intention to continue to use e-banking increasingly becomes a managerial issue in banking sector. Customers are quality conscious, get fascinated by competitors and decide to switch or stay based on rational thinking and emotional influences (Langat et al. 2021). Continued usage intention associated with the increase of revenue and reduction in cost becomes an important managerial issue to the service provider (Stauss et al. 2001). Continued usage intention was characterised as "the customers liking, identification, commitment, trust, willingness to recommend, and intent to repeat transaction" (Babu and masthanvali, 2017). When a user is happy with a website, they will be eager to use it more frequently in the future and stick around as repeat visitors' continued usage intention results in customer loyalty (Fang et al. 2011). E-Service satisfaction and continued usage intention both grow significantly with increased levels of e-service quality (Amin, 2016). In e-banking, dimensions like ease of use, efficiency, reliability, responsiveness, safety and interoperability contribute to building trust and satisfaction which together foster continued usage (Alalwan et al. 2025). Continued usage intention assesses how emotionally connected and committed customers are to a brand, often leading to repeated purchase and advocacy. In contrast, continued usage intention measures a business's ability to keep customers over a period, which not necessarily involve deep loyalty or satisfaction (Zhou et al. 2019). The cost of retaining existing customers is less as compared to the cost of acquiring new customers. This implies that investment in promoting continued usage intention strategies will improve the bank's profitability. Enhancing customers' continued usage intention will raise profits and boost a company's worth because it is inexpensive to keep customers than finding new ones (Alshurideh et al. 2019).

Hypotheses Development

The Cognitive Motivational Relational theory is applied to determine the relationship between e-service quality, e-service satisfaction, and continued usage intention in order to develop the conceptual model (Figure 4).

Figure 4 Conceptual framework of the study



Source: Compiled Model

Influence of E-S-QUAL Dimensions on e-Service Satisfaction

The e-service quality dimensions such as ease of use, efficiency, safety, reliability, responsiveness and interoperability have an influence on e-service satisfaction. In order to examine this relationship, the hypotheses were framed based on the discussion below.

Ease of use

Ease of use is a person's beliefs that an information system is comfortable to use and does not require much effort to transact with it (Nugroho et al, 2023). It reduces the mistakes while using e-services (Windasari et al, 2022). Ease of use is the extent to which new technology is easy to understand and use. Therefore, digital banking platform must include features that enable users to quickly and efficiently navigate through the pages, discover what they're looking for, and have a strong search engine (Masoud and Abu Taqa, 2017). Perceived ease of use is significantly related with e-service satisfaction (Wilson, 2019). An e-channel that is easy to use could be important for enhancing customers' utility, hence raising the likelihood of acquiring loyal customers (Ighomereho et al., 2022). Ease of use affect attitude towards e-banking; attitudes then positively influence behavioural intention to use e-banking (Ahmad et al. 2020). Hence, hypotheses were put forth:

H_1: Ease of use of e-banking have positive influence on e-service satisfaction

Efficiency

Efficiency in e-service is the capacity to perform online transactions quickly and accurately. The efficiency of the e-services significantly impact e-service satisfaction and loyalty (Beshir & Zelalem, 2020). The efficiency consists of full time accessibility, perfect site organisation, efficient queue management system, prompt website interface which significantly influence the actual use of e-banking platforms. Customers prefer platforms that allow quick and easy navigation with minimal disruptions (Ahamed et al. 2020). Service efficiency positively influences e-service satisfaction and continued usage intention (Raza et al, 2020). The following hypothesis is formulated based on the discussion.

H_2: Efficiency of e-banking services have positive influence on e-service satisfaction

Safety

Safety consists of the protection of customer's personal and financial information against unauthorised access. Transaction security is one of the primary challenges with using e-banking. Customers of banks are concerned with unauthorised access or hack of their accounts. Additionally, there is concern that the money they send might not get to the right person (Bahl, 2012). It was shown that safety is a crucial factor in luring customers to carry out online transactions (Alshurideh, 2018). Thus, safety in e-banking influences e-service satisfaction and continued usage intention. Therefore, following hypothesis was made.

H_3: Safety of e-banking services have positive influence on e-service satisfaction

Reliability

The capacity of digital platform to deliver promised services accurately and dependably is termed as reliability. If an e-banking platform consistently updates e-services, processes fund transfers without delays, provides relevant information in the website and is accessible at all times without errors, it is considered reliable (Narteh, 2018). Any downtime or incorrect transaction processing can severely affect customer trust. Successful online transactions depend on the reliability of electronic services, and e-service satisfaction impacted by the reliability of service quality (Pradnyadewi and Giantari, 2022). Customer loyalty and satisfaction are positively impacted by reliability on e-banking services (Ladhari, 2010; Raza et al. 2020). The following hypothesis is framed based on the above discussion.

H_4: Reliability of e-banking services have positive influence on e-service satisfaction

Responsiveness

Responsiveness is the degree of response to customer inputs (Jalil et al. 2021). Responsiveness includes the readiness to help customers, provide immediately available service offering on demand (Cheng et al. 2019). Responsiveness is a key determining factor of e-banking service quality which has a significant positive effect on customer satisfaction and behavioural intention to use e-services continuously (Imouokhome and Akenzua, 2025). Fast response, quick issue resolution and facility for online interaction will enhance perceived service quality in digital platform (Singh and Srivastava, 2023). Responsiveness significantly influence e-service satisfaction and continued usage intention (Pandey, 2012; Ogbechi et al. 2018). To test it is hypothesized as

H_5: Responsiveness of e-banking services have positive influence on e-service satisfaction

Interoperability

Interoperability is a critical feature ensuring the success of digital banking. In digital banking, interoperability refers to 'the ability of e-banking systems, applications, and networks to work together seamlessly' (Mashiri et al., 2017). It enables customers and merchants to transact across different third-party digital platforms. Interoperability allows seamless digital payment across fintech applications and legacy banking system (Raj et al, 2024). Interoperability is a technological factor affecting e-service adoption, enhancing customer experience, satisfaction and continued usage intention (Saxena et al. 2024). Therefore, it is hypothesized that

H_6: Interoperability of e-banking services have positive influence on e-service satisfaction

Dimensions of Banking Service Quality and its influence on e-service satisfaction

Service charge, service portfolio and customer relationship are the BSQ dimensions. The influence of BSQ dimensions on e-service satisfaction was analysed by framing the following hypotheses.

Service Charge

Service charges are the costs incurred by customers in order to access or use digital services, including money transfers, e-wallet transactions, internet and mobile banking, and other value-added services offered via electronic platforms (RBI, 2022). It is levied in the form of transaction based, subscription based and penalty based (Kumar, 2025). Unclear service charge causes dissatisfaction even if the technical quality is high. Service charges

are a major factor in why people are motivated to embrace and utilise online banking applications (Huei et al. 2018). Service charge is one of the driving factors of customers' continuous usage (Senyo and Osabutey, 2020). Service charge also influences e-service satisfaction (Narteh, 2018). Hence, it is hypothesised that

H_7: Service charges of e-banking have positive influence on e-service satisfaction

Service Portfolio

A service portfolio is a combination of advanced services and offerings that fit the requirements of the mission (Bahia and Nantel, 2018). A well-structured service portfolio enhances customer experience and sustainable competitive advantage (Kotler and Keller, 2020). In response to changing customer demands, banks are diversifying their service offerings to include UPI, digital loans, robo-advisors, and open banking APIs (Kaur and Singh, 2024). It is shown that e-service satisfaction and continued usage intention are highly predicted by service portfolio (Narteh, 2018) and hypothesized that

H_8: Service portfolio of e-banking services have positive influence on e-service satisfaction

Personalised Services

Personalised services are the customised offering designed for each customer based on their financial behaviour, transaction history and preferences. Personal touchpoints, like human support agents, video chats, or tailored follow-ups, improve user confidence, satisfaction, and trust even in highly automated services like e-banking especially in case of critical financial issue (Sahoo et al. 2025). Maintaining personalized services is a management practice of building relationship with the customers by recognizing, attracting and increasing continued usage intention of lucrative customers. It provides personalized services to develop and maintain relationship with the customers (Adeniyi, 2023). After resolving a system failure, personalized services are essential to build trust among customers (Rahi et al. 2022). Building customer relationship enhances e-service satisfaction (Hassan et al. 2015). Hence, it is hypothesised that,

H_9: Personalized services in e-banking have positive influence on e-service satisfaction

Influence of e-Service Quality on e-Service Satisfaction and Continued Usage Intention

Ease of use, efficiency, safety, reliability, responsiveness and interoperability are the factors used to measure e-banking service quality.

The extent to which a user believes in utilising an online banking system as effortless is recognised as ease of use (Ketema and Selessie, 2020). Easy navigation allows visitors to access all of the features, options, and services on the website in a seamless, comfortable, and straightforward manner. Additionally, it makes content information which must be expressed clearly, easier to understand and provides easily navigable internal tools (Li and Suomi, 2009). It is the degree of easiness and understandability of an innovation (Ziethaml et al., 2000). The customers would be ready to avail online services if it becomes easily accessible (Masoud & Abu Taqa, 2017). Ease of use is the belief of customers that the system usage is simple (Li et al., 2020). Customer will use a system repeatedly if they feel that the system is easy to use (Tahar et al., 2020).

Efficiency in e-service quality ensures seamless and hassle-free online experience to customers. The speedy and flexible transaction in the digital platform indicates its efficiency (Ariff et al. 2013). Efficiency become an important evaluator of e-service quality both in developed and developing countries (John and Rotimi, 2014; YuSheng and Ibrahim, 2019).

Safety is bank's assurance to protect customers' personal and financial information from fraud, unauthorized access, and cyber threats during online transactions (Egala et al.,2021). The bank's online platform needs to be able to efficiently assist with payment and information security in order to compete in the industry (Sahi, 2022). Payment safety refers to the sense of security that consumers experience throughout digital payment transactions (Prete, 2022).

The reliability is the willingness to deliver promised services within the time specified and accuracy of the services (Kaur et al.,2020). Reliability consists of problem free links, availability of contact information of branches in the website, easy page download and proper functionality of web pages.

Responsiveness measures the bank employee's willingness to assist the customers in a timely manner. So, the essential feature of responsiveness is the deployment of timely and best service to its customers (Ananth et al. 2018). Customers will choose to use a different service provider due to the website's delayed loading time (Donath et al., 2024). Generally, customers don't like to wait, so, they prefer prompt response immediately as responsiveness play most important role to maintain relationship and retain the customers (Nsiah and Mensah, 2014).

Interoperability is a cornerstone of modern digital banking which enables seamless, efficient, and inclusive financial services by allowing systems to communicate and operate in harmony. As digital banking continues to evolve, strengthening interoperability will be compulsory to delivering a unified and user-friendly financial ecosystem. Increased interoperability has been shown to improve user experience, ease of account usage, decrease network effects, and encourage the circulation of digital values (Razis and Mitropoulos 2022). On the basis of the above discussion, it is hypothesized that,

H_{10}: e-Service quality has a positive effect on e-service satisfaction
H_{12}: e-Service quality has a positive effect on continued usage intention

Banking Service Quality and its influence on e-Service Satisfaction and Continued Usage Intention

Service charges are the fees levied for the e-banking services offered by the bank which influences e-service satisfaction. A diverse and well-managed product portfolio meets varied customer needs, enhancing value. Today, banks realized the significance of personalized services and its effect on e-service satisfaction and continued usage intention. Developing long-term relationships through personalised services will improve continued usage intention of customers (Siyal et al., 2024). Strong customer-company relationships will help the business since they will provide it with extremely useful information about how to have best service to consumers and keep them from switching to competitors (Olavarria, 2018). From this discussion it is hypothesized that

H_{11}: Banking service quality has a positive effect on e-service satisfaction
H_{13}: Banking service quality has a positive effect on continued usage intention

Mediating effect of e-Service Satisfaction in the relationship between e-Service Quality and Continued Usage Intention

"E-service satisfaction" describes how a business reacts when its customer's demands are fulfilled (Zhang et al. 2020). The continued usage is the practise of consistently purchasing goods or services from the same company (Veleso et al. 2017). Previous research indicated that the business will have more satisfied consumers if it provides higher-quality electronic services (Goutam and Gopalakrishnan, 2018; Khan et al. 2019). Businesses that offer top-notch e-services have a tendency to please their customers, which influences their decision to buy and plans to repurchase (Ataburo et al. 2017).

Companies should prioritise e-service satisfaction since satisfied customers are devoted and a key component of any successful business. Customers' intention to stay with banks or depart primarily depend on how satisfied or unsatisfied they are with the customers. Additionally, greater customer happiness will result in a decreased desire to end the relationship (Kesharwani, 2020). For the sake of their long-term survival and prosperity, banks should work to enhance their customer service offerings in an effective and efficient manner in order to draw in new business and hold onto current customers (Firdous and Farooqi, 2017). The e-service quality offered by the bank have an effect on its e-service satisfaction (Li et al., 2023). If users are pleased with the banking service quality, they will probably retain in the bank (Hudson et al., 2017). Slack et al., (2020) concluded that service satisfaction leads to customer continued usage intention. From the above it is clear that e-service satisfaction mediates the connection between e-service quality, banking service quality and continued usage intention.

H_{16}: E-service satisfaction mediates in the relationship between e-service quality and continued usage intention

H_{17}: E-service satisfaction mediates in the relationship between banking service quality and continued usage intention

Moderating Role of Customer Trust

Customer Trust is demonstrated by the customer's positive transaction experience, their long-term consumption of the products or services, and their eagerness to make another purchase, willing to provide product recommendations and inquire about alternatives (Ziaullah, 2014). Customers tend to see online financial services as having high risks because they think online payment methods are unreliable and vulnerable to interception which makes them less trusting.

This tends to discourage customers from transacting with online banks (Paulo et al., 2019). Lack of confidence is a significant barrier to the quicker development of digital exchanges (Chatterjee et al, 2020). Regarding the security of the banking system and the confidentiality of respondent records, customer trust was seen as crucial in the context of digital banking. The respondents reluctant to provide a lot of personal information online due to their concern regarding security and potential misuse of this information (Apau et al., 2025). Customer trust significantly influence customer's intention to engage in digital services continuously (Bitkina et al, 2022). Customer trust significantly influences

e-service quality, e-service satisfaction and continued usage (Destari et al. 2020; Widodo et al. 2022). Customers look at alternative banking options if their trust declines (Zouari and Abdelhedi, 2021). It significantly influences e-service satisfaction and their continued usage intention (Rizan et al. 2019). The empirical findings of various studies, conclude that customer trust act as a relationship builder and positively influencing continued usage intention (Jafri et al. 2024, Anabila et al. 2012, Robert and Petzer, 2025). The link between e-service satisfaction and the intention to continue using it is moderated by customer trust (Rahman et al., 2019; Al Graibah, 2020). From this, it is hypothesised as

H_{18}: Customer trust in e-banking services strengthen the relationship between e-service satisfaction and continued usage intention.

Framework of analysis

- **Descriptive statistics** were used to determine the distribution of respondents depending on their socio-economic status, the type of e-services used, mode of banking service, experience with bank and type of account.
- **Rank analysis** was carried out to identify the main benefits of using e-services.
- **Paired t test** was conducted to measure the gap between customer experience and expectation on e-service quality and banking service quality dimensions.
- **Chi-square test** was used to test the association between socio-economic variables and level of e-service satisfaction, level of customer trust and level of continued usage intention.
- **ANOVA and Post-hoc analysis** were employed to test the significant difference between experience of e-service quality across socio economic variables.
- **Structural Equation Modelling** were employed to analyse the influence of E-S-QUAL dimensions and BSQ dimensions on e-service satisfaction and the impact of e-service quality on continued usage intention with mediating role of e-service satisfaction and the moderating role of customer trust.

Operational Definition of the terms used

Ease of use

It is the magnitude to which a customer thinks accessing an information system would be effortless (Ketema and Selessie, 2020), which influence attitude of customers towards online banking (Ahmad et al. 2020).

Efficiency

Efficiency is the degree to which the digital banking system enables customers to perform banking transactions quickly and accurately (Kesharwani, 2020). Efficiency measures content of website, easy navigation, website protection and require minimal customer information. These factors determine whether to buy or not in online platforms.

Safety

Safety is the bank's ability to protect customers' personal and financial information from fraud, unauthorized access, and cyber threats during online transactions (Egala et al.,2021). When customers use digital payments, they experience safety in the form of transactional security.

Reliability

The reliability is the willingness to deliver promised services within the time specified and accuracy of the services. Satisfaction on e-service depends on the reliability of e-banking services (Kaur et al.,2020).

Responsiveness

Responsiveness is the prompt reaction when a technical issue occurs or when a query needs to be addressed as well as the availability of technical support. How quickly and effectively the bank addresses customer queries, issues, or service requests through digital channels ensures responsiveness (Agrawal et al., 2018). For customers to perceive an e-service as being of high quality, it must be able to handle their inquiries, complaints and frustrations.

Interoperability

It is the ability of different banking systems, platforms, and applications to work together seamlessly, allowing customers to perform transactions across banks and services without compatibility issues (Berg, 2024).

Service Charge

The service charge is concerned with the cost of delivering the service that the e-service provider has promised to provide, and it must be acceptable and competitive. Service charge is a vital factor influencing e-service satisfaction and continued usage intention (Narteh 2018).

Service Portfolio

Service portfolio is a collection of premium services that continuously adjusts to the needs of users of banking services (Putri et al., 2019).

Personalized Services

Personalized services refer to banking services that are tailored to meet the specific needs, preferences and behaviour of individual customers rather than offerings a one size fits all approach. Personalized services ensure that the customers feel connected to the bank through humanised touchpoints, either directly or simulated through digital platforms.

Customer Trust

Customer trust is the belief that the bank's digital platform is reliable, secure, and acts in their best interest when handling personal and financial information (Zouari and Abdelhedi, 2021). It relates customers willingness to depend on e-service and which leads to e-service satisfaction and continued usage intention.

e-Service Satisfaction

e-Service satisfaction is defined as "all actions taken to guarantee that customers are happy with the e-services they have availed". It is the degree to which a customer's expectations are met or exceeded by the bank's digital services, resulting in a positive experience with online banking.

Continued Usage Intention

It is defined as the promise to consistently conduct business or transaction with a specific entity". It is the customer's willingness or likelihood to continue using the same bank's digital services over time due to positive experiences and satisfaction (Langat et al., 2021). E-service satisfaction, e-service quality and continued usage intention are closely related.

Ethical consideration

In marketing research an ethical consideration is required to conduct research impartially. It is the precautions to guarantee that the collected data are kept confidentially and used for the study purposes. As the data comprises of demographic features and other data are gathered throughout the survey, though the privacy of the data should be maintained.

By complying the ethical guidelines, the permission from HR mangers of IT&ITeS companies at Info Park Ernakulam was acquired and met the employees and ensured their consent for data collection. The researcher agreed to keep the customer's information confidential and did not gather any other data which beyond the scope of study objectives. Accordingly, the institutional ethical clearance was obtained. **IHCC Ethical Clearence No. AUW/IHEC/COM-21-22/XPD-01**