Impact of Service Delivery System Process and Moderating Effect of Perceived Value in Internet Banking Adoption

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Abstract

This study identifies the impact of Internet banking service delivery system (IBSDS) process on consumer behaviour; the mediating effect of customer satisfaction on the relationship between IBSDS process and behavioural intention; and the moderating effect of the customer's perceived value. The study uses a quantitative method using the data collected from 416 respondents. Mediated regression is used to examine the mediating effect of customer satisfaction. SPSS Process v2.16.3 is employed to analyse the moderating effect of the perceived value. The results indicate that IBSDS process impacts customer satisfaction and behavioural intention. Further, customer satisfaction plays a partial mediating role between the association of IBSDS process and behavioural intention. This study provides evidence that the technological capabilities embedded in the bank website processes are an important factor in determining customer satisfaction and ultimately behavioural intention. The study also reveals that perceived value moderates the relationship between IBSDS process and customer satisfaction, and between customer satisfaction, and, behavioural intention. It also adds to the existing knowledge on the adoption of Internet banking literature. Academicians and information systems researchers may use these findings for further research. Financial service providers or related agencies may consider the attributes of the IBSDS process (e.g., navigation, searching, transacting, etc.) while designing their Internet banking services to provide enhanced customer experiences. The paper also highlights the research limitations and scope for future research.

Keywords Internet banking, Process, Satisfaction, Perceived Value, Behavioural Intention, Mediation, Moderation, India

1 Introduction

Advances in information and communication technology (ICT) have radically changed the service delivery channels used by the financial services industry (Al-Somali, Gholami, & Clegg, 2009). Internet banking has revolutionized banking services (Kesharwani & Bisht, 2012) by providing customers round-the-clock availability and ease of transactions, and thus, ensuring that they are no longer limited to branch operating hours for services (Al-Somali et

al., 2009). Internet banking, also known as online banking or electronic banking (e-banking), refers to the use of Internet as a remote delivery channel for providing customers services, such as opening a deposit account or transferring funds from one account to another (Dhananjay & Chandra, 2015; Szopiński, 2016). The Internet banking system typically connects to its customers and is part of the core banking system. Information and Communication Technologies (ICTs) have influenced the way customers interact with banks. Unlike traditional banking services, Internet banking services do not require customer visits to the branch. Internet banking services also have a relative advantage over brick-and-mortar banks in terms of "timeliness and accuracy of information flow" that minimize information latency in an intense decision-making environment (Kesharwani & Bisht, 2012). Banks can leverage the Internet to attract new customers, retain their existing ones and provide enhanced services, leading to higher customer satisfaction (CS). The banks also gain in terms of higher market share and are able to reduce their administrative and operational costs. More importantly, they can improve their competitive positions (Al-Somali et al., 2009; Khalfan, AlRefaei, & Al-Hajery, 2006).

Internet banking was incepted in the 80s (Dhananjay & Chandra, 2015), however, it marked its presence in India in the mid-nineties (Kesharwani & Bisht, 2012). Currently, most brick-and-mortar banks have evolved to incorporate Internet banking capabilities (Kesharwani & Bisht, 2012) in their bouquet of services. A report by Facebook and The Boston Consulting Group (*Encashing on Digital: Financial Service in 2020*, 2017), finds that the demonetization by the Government of India in the year 2016 provided a major boost to online banking services, motivating people to adopt cashless channels to conduct their transactions. Another report (*Encashing on Digital: Financial Service in 2020*, 2017), estimated that the total urban banking users in India were expected to grow from 45 million to more than 150 million by 2020.

Despite the various benefits offered by Internet banking and the policy initiatives taken by the government and financial service providers, it is seen that financial industry in India has yet to harness the new channel to their advantage (*Encashing on Digital: Financial Service in 2020*, 2017). A report drafted by Facebook and The Boston Consulting Group (*Encashing on Digital: Financial Service in 2020*, 2017) asserts that "although digital influence is high during research and selection, adoption of Internet banking remains low." According to the report, only 12% of banking users actively use Internet banking facilities. More than half of the consumers are largely dissatisfied with their Internet banking and mobile apps experience (*Encashing on Digital: Financial Service in 2020*, 2017). People are hesitant/ reluctant to conduct banking/financial transactions through their banks' websites (Kesharwani & Bisht, 2012). Therefore, it is important to understand the factors that affect consumer behaviour while adopting Internet banking. It becomes necessary to study the acceptance or intention to use Internet banking through a user interface and glean insights that would help banks to review and fine-tune their Internet banking initiatives and achieve higher customer acceptability.

The web interface has several characteristics that are uncommon to brick-and-mortar banks. Service providers can differentiate themselves and create value for customers to enact superior service experiences during the service delivery process (Zeithaml, Berry, & Parasuraman, 1991). In general, the objective of a process strategy is to create a process that can produce an offering that meets customer requirements within cost and managerial constraints (Jay, Barry, Chuck, & Amit, 2017). Interaction with the customer often affects process performance adversely. But a service by its very nature implies that some interaction and customization is

needed (Jay et al., 2017). Given that the customer's unique desires tend to play havoc with a process, the more the manager designs the process to accommodate these special requirements, the more effective and efficient it will be (Jay et al., 2017). Technology adoption model (TAM) by Davis (1989) posits that the effect of external influences, such as system design characteristics and individual differences on the user intention is mediated by their perception of the ease-of-use and usefulness of the new system (Kesharwani & Bisht, 2012). Although academic research (e.g., Khalfan, AlRefaei and Al-Hajery, 2006; Al-Somali, Gholami and Clegg, 2009; Kaura, 2013; Bashir and Madhavaiah, 2015; Singh and Malhotra, 2015; Szopiński, 2016) has examined the dynamics of user intention to adopt Internet banking services, the subject of user service encounters while using technological interfaces, such as searching for information or conducting transactions through banking websites has not received adequate attention. While some research has been conducted on website design to improve user satisfaction, most studies, however, remain focused on factors such as information content, download speed, and information presentation (Alawneh, Al-refai, & Batiha, 2013; Papadomichelaki & Mentzas, 2012). Surveys of online users consistently indicate that a big percentage of the population is not satisfied with the interaction with the financial institutions (*Encashing on Digital: Financial Service in 2020*, 2017). Therefore, whether the service can achieve what users want in a bank website constitutes an important area of study. More research is needed to better understand how services delivered through technological interfaces such as the web affect user evaluation of the service value. Besides, there is a need to understand how banks can manage their technology-based service processes for higher user satisfaction and ultimately to influence user behavioural intention (BI).

Extant literature identifies that service process plays a critical role in influencing service quality and customer satisfaction (Ba & Johansson, 2008; Luu, Hau, Ngo, Bucic, & Cuong, 2016; Sachan, Kumar, & Kumar, 2018). However, to the best of our knowledge, no study has attempted to examine the effect of the Internet banking service delivery system (IBSDS) process on the adoption of Internet banking. Specifically, a service process is conceptualized as a configuration of technological capabilities through which service providers respond to user needs (Ba & Johansson, 2008), and perceived IBSDS process refers to the user's view of how the banking website's technological capabilities deliver service processes. Hence, a strong theoretical gap exists in the literature. This study aims to fill this gap by exploring the impact of the IBSDS process on the adoption of Internet banking. We build on theories from service management and propose viewing the interface between user and service provider (i.e., bank website) to identify and explain a possible determinant of Internet banking user adoption.

Studies in the context of Internet banking have focused on the relationship between customer satisfaction and behavioural intention (Bashir & Madhavaiah, 2015; Khalfan et al., 2006; Laukkanen, 2007; Sharma & Govindaluri, 2014; Singh & Malhotra, 2015; Tan & Teo, 2000). The relationship seems almost intuitive. However, the strength of the relationship between satisfaction and behavioural intention in Internet banking may vary significantly under different conditions. E-commerce literature highlights the different conditions in which the relationship between customer satisfaction and behavioural intention varies (Anderson & Srinivasan, 2003; Chang & Wang, 2011; Chang, Wang, & Yang, 2009). One such condition is the customer perceived value (PV) which has gained much attention (Chang & Wang, 2011; Chang et al., 2009). It is found to play an important role in predicting purchase behaviour and enabling banks to achieve sustainable competitive advantage (Zeithaml, 1988; Bolton and Drew, 1991; McDougall and Levesque, 2000; Mishra, 2009). As a website is an important

interface in Internet banking, it would be interesting to determine if perceived value has the potential to influence the relationship between customer satisfaction and behavioural intention. We also find that existing literature has not adequately examined the moderating effect of perceived value on the relationship between the IBSDS process and customer satisfaction.

Examining these relationships will not only strengthen the theoretical foundations of the proposed research model in measuring the demand-side perspective of customer satisfaction and behavioural intention but also allow policymakers to understand the extended facets of customer satisfaction and their behavioural intention based on the delivery process of the Internet banking services provided by the financial service providers. Summarizing, the study has three objectives: First, to develop and test the research hypotheses linking together IBSDS process, customer satisfaction, and customer behavioural intention; second, to examine the mediating effect of customer satisfaction on the relationship between IBSDS process and consumer behavioural intention; and third, to examine the moderating effect of consumer perceived value on the relationship between IBSDS process and customer value, and the relationship between customer satisfaction and behavioural intention.

2 Theoretical Framework

A banking website is an integrated system of banking service delivery and is critical for its value creation strategy (Gupta & Suri, 2017). It is argued that the more value a customer receives during the service delivery process, the more positive emotions it evokes toward the service provider, thereby strengthening the emotional attachment between the two parties (Luu et al., 2016; Zeithaml et al., 1991). In view of the lack of literature on the IBSDS process and its relationship with Internet banking adoption, this study attempts to develop insights into these aspects by reviewing relevant literature. This research is based on the reformation of attitude theory by Bagozzi (1992). It further introduces the IBSDS process and also incorporates customer satisfaction and behavioural intention as the research constructs. Bagozzi's (1992) model suggests that an initial service evaluation (i.e., appraisal) leads to an emotional reaction which, in turn, drives behaviour. We also adopt customer perceived value as our fourth research construct to test the moderating effect. The model is presented in Figure 1. Each construct is elaborated as follows and the model's conceptual development and research hypotheses are presented herein.

2.1 IBSDS process

As discussed in the previous section, perceived IBSDS process refers to customer views on how a banking website's technological capabilities deliver service processes. Service management literature identifies service process as a critical factor influencing service quality (Ba & Johansson, 2008). Roth and Jackson (1995) in their research provide evidence that the processes of a service delivery system have a more significant impact on service quality than people capabilities. People capabilities represent the stock of individual knowledge and skills possessed by the employees who interact with the customers (Roth & Jackson, 1995). A study by Sachan, Kumar and Kumar (2018) in the e-government context shows that service delivery system process significantly affects user satisfaction. They argue that as the service delivery system process improves, it allows the citizen to make more decisions and choices in the way they interact with the bank and conduct their transactions and related activities. In an Internet banking environment, the main channel of service delivery is the bank's website. Therefore,

we focus on IBSDS from the web process point of view. Although the online service delivery system process in the banking environment is of crucial importance, previous studies have omitted using it as a variable; hence, it is necessary to understand its role in Internet banking behaviour.

2.2 Customer satisfaction

Customer satisfaction refers to the overall positive or negative feeling about the net value of services received from a supplier (Woodruff, 1997). Customer satisfaction has been consistently used over the time in literature and conceptualized as an evaluation of emotion (Chang et al., 2009; Hunt, 1977). It is today the primary goal for most service firms (Jones & Sasser, 1995; McDougall & Levesque, 2000). Improved profits, lower marketing expenditures, and positive word-of-mouth are the outcomes of increasing consumer satisfaction and retention (Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994; McDougall & Levesque, 2000). A dissatisfied customer is more likely to search for information on alternatives and yield to competitor overtures than a satisfied one (Anderson & Srinivasan, 2003). Anderson and Srinivasan (2003) argue that "a dissatisfied customer is more likely to resist attempts by his or her current retailer to develop a closer relationship and more likely to take steps to reduce dependence on that retailer." Meuter et al. (2000) find that process failure and poor process design are two major factors that lead to customer dissatisfaction in a technology-based service setting.

2.3 Behavioural intention

Behavioural intention measures the future propensity of a customer to access a banking website (Chang et al., 2009). Consumers and organizations engage in behaviours that build relationships before, during and after the service encounters (Chang & Polonsky, 2012). Such relationships are important for repeat consumption (Chang & Polonsky, 2012). Service marketers often focus on activities that have the potential to build long-term relationships with consumers (Youngdahl & Kellogg, 1997). A number of studies have included behavioural intention as an outcome in service quality models (e.g., Cronin, Brady and Hult, 2000; Chang and Polonsky, 2012; Bressolles, Durrieu and Deans, 2015).

2.4 Customer perceived value

Perceived value refers to "the consumers' overall assessment of the utility of a product based on perceptions of what is received and what is given" (Valarie A Zeithaml, 1988). Perceived value has attracted interest in the literature because it is seen to be a key predictor of customer satisfaction and loyalty (Bressolles et al., 2015; Chang & Wang, 2011; McDougall & Levesque, 2000; Wang, 2014; Yang & Peterson, 2004). Most studies have examined customer value in the context of offline rather than online consumer behaviour (Bressolles et al., 2015). Although customer value in the Internet banking environment is of crucial importance, existing studies have not given it attention in the Internet banking context; hence, it becomes necessary to understand the role of customer perceived value in Internet banking behaviour.

2.5 Proposed hypotheses

2.5.1 IBSDS process and customer satisfaction

The importance of service delivery process aspects and outcome is clearly evident in the on-going scholarly interest devoted to them (Ba & Johansson, 2008; Grönroos, 1982; Luu et al., 2016; Sachan et al., 2018). It is argued that service process plays a greater role in determining

the overall customer satisfaction. Studies (e.g., Danaher & Mattsson, 1994; Luu et al., 2016) highlight that customers compare the time, cost and effort spent on the service during the service delivery process. It is also highlighted that positive experiences with the service delivery process enhance the cognitive strength of the relationship of the customer with the service provider (Luu et al., 2016). Ba and Johansson (2008) state that an improved electronic service delivery system process allows the customer to make more decisions and choices in the service process, which leads to increased web interactivity. They also find that the electronic service delivery system process has a positive influence on customer satisfaction. The above arguments lead us to think that it is possible that technology and the banking processes embedded in the IBSDS may have a significant impact on the adoption of Internet banking services. Sachan, Kumar and Kumar (2018) add service delivery system process as a construct in their adoption model in the e-government context and illustrate that it is one of the service dimensions factored into the consumer's satisfaction judgment. Luu et al. (2016) illustrate that a customer relationship can be affectively strengthened through positive experiences and interactions during a service process. These arguments suggest that IBSDS process is likely to affect customer satisfaction, and in turn, serve as a better predictor of their behavioural intention. This leads us to formulate the first research hypothesis:

H1: The IBSDS process is positively associated with customer satisfaction.

2.5.2 Customer satisfaction and behavioural intention

Many researchers (e.g., Chang and Polonsky, 2012; Lekhawipat, 2014; Bressolles, Durrieu and Deans, 2015) have focused on the relationship between customer satisfaction and behavioural intention. Customer satisfaction is of crucial importance in the online environment. With satisfied customers, online stores can achieve higher customer retention rates, higher profitability and long-term growth (Chen, Ling, Ying, & Meng, 2012). Anderson and Srinivasan (2003) illustrate the impact of customer satisfaction on loyalty in the context of e-commerce. They define e-satisfaction in the e-commerce context as "the contentment of the customer with respect to his or her prior purchasing experience with a given e-retailer." A large number of marketing researchers have incorporated satisfaction and behavioural intention as important variables in their theoretical framework and illustrated that service quality leads to satisfaction (Bressolles et al., 2015; Caruana, Money, & Berthon, 1998; Chang et al., 2009; Dabholkar, 2000), which, in turn, influences behaviour intention (Chang et al., 2009; Chang & Polonsky, 2012; Zeithaml, Berry, & Parasuraman, 1996). The above arguments highlight that satisfaction positively affects customer behavioural intention to use Internet banking, and hence, we propose the following hypothesis:

H2: Customer satisfaction is positively associated with customer behavioural intention.

2.5.3 Customer satisfaction, IBPS process and behavioural intention

Customer satisfaction has also been found to be a mediator of the association between service quality and behavioural intention (Bloemer, Ruyter, & Peeters, 1998). In Taiwanese leisure setting, Chang & Polonsky (2012) demonstrate the indirect and positive association between consumer perceptions of the convenience dimensions (benefit and post-benefit) and their behavioural intention towards the service provider, mediated by customer satisfaction. As discussed, the IBSDS process affects customer satisfaction, which, in turn, affects customer behavioural intention, thus, indicating that customer satisfaction may have a mediating effect in their relationship. Therefore, based on past literature, mediating effect of customer

satisfaction would be expected between the IBSDS process and behavioural intention in the Internet banking context. Hence, we formulate the following hypothesis:

H3. Customer satisfaction mediates the effect of IBSDS process on behavioural intention.

2.5.4 Perceived value, IBSDS process and customer satisfaction

Extant literature (e.g., Cronin, Brady and Hult, 2000) has tested the indirect relationship that exists between service quality and behavioural intentions via both service value and satisfaction. Literature (e.g., Caruana, Money and Berthon, 1998) also illustrates that perceived value has a moderation effect on the link between service quality and satisfaction. It is argued that high satisfaction can be achieved with a lower quality if value received is high (Caruana et al., 1998). As discussed, service process influences service quality. It therefore becomes important to explore if perceived value moderates the link between IBSDS process and customer satisfaction. Extant literature (e.g., Ba and Johansson, 2008; Sachan, Kumar and Kumar, 2018) provides support for a strong direct link between service delivery process and satisfaction but makes no such claim for the moderating effect of perceived value. Therefore, this research seeks to explore whether value moderates the relationship between IBSDS process and customer satisfaction. Hence, our next hypothesis is:

H4: Customer perceived value has a significant moderating effect on the relationship between IBSDS process and customer satisfaction.

2.5.5 Perceived value, customer satisfaction, and behavioural intention

Researchers have established a positive relationship between perceived value and behavioural intention (Bressolles et al., 2015; Chang et al., 2009; Cronin et al., 2000). Extant literature (Cronin et al., 2000; Kim, 2014) has examined the indirect relationship between service value and behavioural intentions via satisfaction. Past studies demonstrate that perceived value contributes to customers' loyalty for an e-business and reduces their need to seek alternative service providers or alternative modes for accessing services. When the perceived value is low, customers will be more inclined to switch to an alternate mode or competing businesses in order to increase perceived value, thus leading to a decline in loyalty (Chang et al., 2009). Even satisfied customers are unlikely to patronize an e-business if they feel that they are not getting the best value (Chang et al., 2009). Instead, they will seek out other sellers in an ongoing effort to find a better value (Anderson & Srinivasan, 2003). They may also switch to alternate modes of accessing services such as visiting the bank branch to find better value. The relationship between customer satisfaction and loyalty appears the strongest when customers feel that their current e-business vendor provides higher overall value than that offered by competitors (Chang et al., 2009). Chang et al. (2009) illustrate the moderating effect of customer perceived value on customer satisfaction and loyalty in an e-commerce context and show that low satisfied customers with high perceived value would have higher customer loyalty than high satisfied customers with low perceived value. Based on this argument, this study proposes that customer perceived value may have a significant moderating effect on the relationship between customer satisfaction and their behavioural intention in the Internet banking context. This leads to the fifth research hypothesis:

H5: Customer perceived value has a significant moderating effect on the relationship between customer satisfaction and behavioural intention.

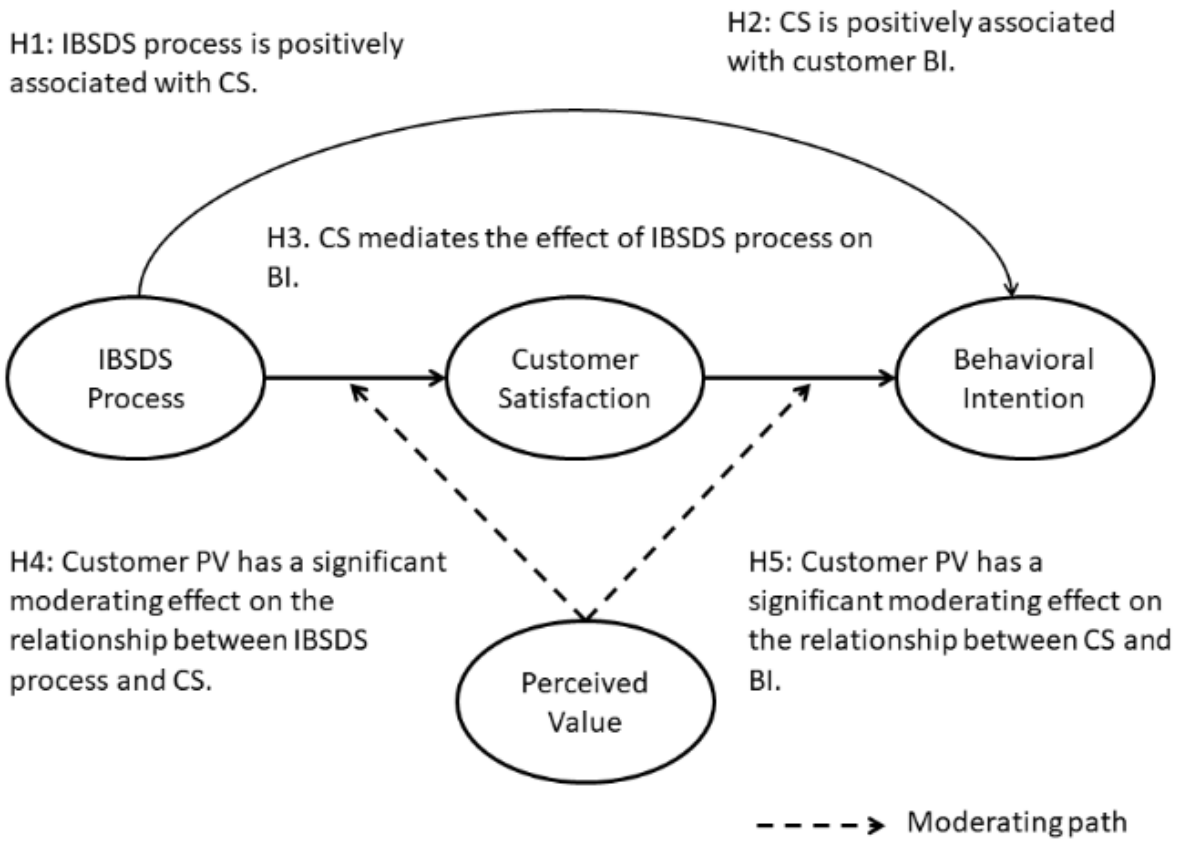

Fig. 1. Research model and hypotheses

3 Methodology

For this study, which focuses on Internet banking adoption, we surveyed the customers who use Internet banking services. A conceptual model (see Fig. 1) has been proposed based on the detailed literature review. Most of the literature was reviewed at the initial stage. However, the activity was continued throughout the study for refinement at various stages. The research was conducted between December 2017 and May 2018 in India. SPSS 20 was used to analyse the data.

3.1 Measurement scale

To test the model in the most realistic way possible, the study was conducted through a survey (a self-administered questionnaire) of a broad diversity of Internet banking customers in several communities and regions. To test the proposed model, validated items were adapted from previous studies. The measure for behavioural intention was drawn from Yang and Peterson (2004). Customer behavioural intention has three survey items that are common in measuring future intention as indicators of actual behaviour. The three-item measure of customer satisfaction was adapted from Bressolles, Durrieu and Deans (2015) study. The six-item measure for customers' perceived value was adapted from Bressolles, Durrieu and Deans (2015) study. Finally, the measure for IBSDS process with six items was adopted from Ba and Johansson (2008). The items are modified (minor changes) for the Indian banking context. The items were revalidated before conducting the survey for this study. Five-point Likert scale with a rating from (1) "strongly disagree" to (5) "strongly agree." has been used to facilitate measurement. The list of items used in the survey is given in Appendix A.

3.2 Sample profile and data collection

The participants selected for the survey were the bank customers with prior experience (minimum of six months) of Internet banking. The purpose of using these samples was to capture their Internet banking service experience and also their future intentions. A paper-based survey was conducted in India, and a total of 600 questionnaires were distributed. The respondents participated voluntarily, and the purpose of the survey was disclosed to them while distributing the questionnaires. We have received 439 responses out of which only 416 (response rate 69.33%) responses were found eligible for inclusion in the study process.

Of the eligible respondents, 136 are female. As women have lesser representation compared to the mean in Internet banking, their numbers are low in the sample (Sanghera, 2018). The majority of the respondents were younger than 35 years of age. The majority of the respondents were highly educated, with 61.5 percent holding a graduate degree and 26.2 percent holding a post-graduate degree. The primary rationale for selecting these age group participants was that they were more tech savvy and likely to use Internet-based services. Table 1 illustrates the sample profile details.

Demographic Variables	Category	Frequency	Percentage
Gender	Male	280	67.3
	Female	136	32.7
Age	18-24	174	41.8
	25-34	207	49.8
	35-44	11	2.6
	45-55	24	5.8
Education	High school	4	1.0
	Undergraduate	20	4.8
	Graduate	256	61.5
	Post-graduate	109	26.2
	Others	27	6.5
Income (Annual)	<INR 5L	231	55.5
	INR 5L-10L	93	22.4
	INR 10L-15L	57	13.7
	INR 15L-20L	22	5.3
	>INR 20L	13	3.1
Internet experience	Less than 2 year	28	6.7
	Between 2 and 4 years	51	12.3
	Between 4 and 6 years	105	25.2
	Greater than 6 years	232	55.8
Internet banking experience	Less than 2 year	47	11.3
	Between 2 and 4 years	131	31.5
	Between 4 and 6 years	200	48.1
	Greater than 6 years	38	9.1

Table 1: Sample profile

3.3 Reliability and construct validity

Reliability of the constructs in the model is tested using Cronbach's alpha (see Table 2) and composite reliability. An exploratory factor analysis (EFA) was conducted to validate the measurement model (see Table 3). Two items of IBSDS process (IBSDSP2 & IBSDSP5) and two items of perceived value (PV3 & PV5) were dropped due to low factor loading (loading <0.5).

Convergent validity of the constructs was estimated by the average variance extracted (see Table 4). The Cronbach's alpha and composite reliability for all constructs were found to be above the recommended 0.70 level (Hair, Black, Babin, Anderson, & Tatham, 2006). AVEs of all constructs were found to be above the recommended 0.50 level (Fornell & Larcker, 1981), which meant that more than half of the variances observed in the items are accounted for by their hypothesized constructs (Chang et al., 2009). Convergent validity can also be assessed by factor loading. All the factor loadings of the items in the research model were greater than 0.70, which also confirms the convergent validity. Therefore, all constructs in the model have adequate reliability and convergent validity.

Dimensions	Cronbach's alpha	Composite Reliability (CR)
IBSDS Process	0.800	0.856
CS	0.899	0.826
PV	0.900	0.826
BI	0.780	0.865

Table 2: Reliability test of the constructs

Rotated Component Matrix[a]				
	Component			
	1	2	3	4
PV1	.606			
PV2	.752			
PV5	.810			
PV6	.772			
CS1	.321	.745		
CS3		.809		
CS4		.794		
IBSDSP1			.839	
IBSDSP3			.860	
IBSDSP4	.421		.690	
IBSDSP6	.376		.694	
BI1				.815
BI2				.874
BI3	.335			.786

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Table 3: Exploratory factor analysis

Table 4 shows the correlations between all constructs in the model. None of the correlation values exceed the 0.80 cut-offs proposed by Hair et al. (2006). Therefore, it passes the multicollinearity test. The diagonal elements represent the square root of AVE, and all are found to be greater than the correlation values of the corresponding column and row, which confirms discriminant validity. The reliability and validity test suggest that the constructs are suitable for further analysis (Butcher, Sparks, & O'Callaghan, 2002).

Constructs	IBSDS Process	PV	CS	BI
IBSDS Process	**0.775**			
PV	.519**	**0.739**		
CS	.395**	.516**	**0.783**	
BI	.389**	.526**	.498**	**0.826**

Table 4: Constructs correlation matrix

3.4 Data analysis procedure and methods

The study uses mediated regression to examine the direct effects of the IBSDS process on customer satisfaction and behavioural intention, and the mediating effect of overall customer satisfaction on the association between IBSDS process and behavioural intention. As suggested by Baron & Kenny (1986) and used in by extant study Chang & Polonsky (2012), to test for mediation, we have estimated following four regression equations: 1) regressing the mediator (customer satisfaction) on the independent variable (IBSDS process); 2) regressing the dependent variable (behavioural intention) on mediator (customer satisfaction); 3) regressing the dependent variable (behavioural intention) on the independent variable (IBSDS process); and 4) regressing the dependent variable (behavioural intention) on both the independent variable (IBSDS process) and the mediator (customer satisfaction). We have estimated and tested separate coefficients for each equation. To test for mediation, the following conditions need to be met (Baron & Kenny, 1986; Chang & Polonsky, 2012):

Condition 1: There is a statistically significant relationship between independent variables (IBSDS process) and the mediating variable (customer satisfaction), i.e., testing H1;

Condition 2: There is a statistically significant relationship between the mediating variable (customer satisfaction) and the outcome variable (behavioural intention), i.e., testing H2;

Condition 3: There is a statistically significant relationship between independent variables and the outcome variable (behavioural intention);

Condition 4: The statistically significant relationship between the independent variables (IBSDS process, as per Condition 1) and the outcome variable (behavioural intention) changes as a result of including the mediating variable (customer satisfaction), i.e., testing H3.

Based on the above conditions, we find the outcomes described below:

- Fully mediated: If the independent variables become statistically non-significant in Condition 4 (whereas they were significant in Condition 3) (Baron & Kenny, 1986; Chang & Polonsky, 2012).
- Partially mediated: If the independent variables remain statistically significant, but their influence is reduced, they are partially mediated (Olkin & Finn, 1995), and some of the effects of independent variables are transferred to the mediator (i.e., satisfaction) (Baron & Kenny, 1986; Chang & Polonsky, 2012).

To determine the moderation effect, Process v2.16.3 by Andrew F. Hayes (Hayes, 2012) was employed to help to analyse the moderating effect of the perceived value on the relationship between IBSDS process and customer satisfaction and the relationship between customer satisfaction and behavioural intention.

4 Results

4.1. Mediation: Table 5 shows the results of the mediation regression analysis. It can be seen that in the first condition (condition 1), we found that the IBSDS process has a statistically significant influence on overall customer satisfaction. The second phase of the process examines the relationships between overall customer satisfaction and behavioural intention, and finds it to be significant. This satisfies the second mediating condition (condition 2). The third phase of analysis tests whether IBSDS process influences consumer behavioural intention and this also found to be significant. The fourth phase of analysis (condition 4) determines whether customer satisfaction mediates the association between the IBSDS process and consumer behavioural intention. Full mediation exists when the direct path (i.e., beta coefficients) from the IBSDS process becomes non-significant (i.e., full mediation). Partial mediation exists if there is a reduction in the beta coefficients of the IBSDS process after adding the overall customer satisfaction (i.e., mediator) to the regression (i.e., the difference in beta coefficients between condition 2 and 4 indicates partial mediation). The result suggests that beta coefficients of both IBSDS process and overall customer satisfaction are found to be significant, and the beta coefficient of IBSDS process is reduced. This indicates that IBSDS process partially mediates the relationship.

Conditions	Standard coefficients				
	Independent variable	**Dependent variable**	**Beta**	**Sig (p<0.05)**	**Results**
1	IBSDS Process $R^2_{adj.}$= 0.154	CS	0.395	0.00	H1: Supported
2	CS $R^2_{adj.}$= 0.223	BI	0.498	0.00	H2: Supported
3	IBSDS Process $R^2_{adj.}$= .150	BI	0.389	0.00	Supported
4	IBSDS Process, CS $R^2_{adj.}$= 0.292	BI	IBSDS Process - 0.229 CS-0.408	IBSDS -0.00, CS-0.00	H3: Partially Mediated

Table 5: Regression estimates of the conditions

4.1 Moderation

In SPSS Process v2.16.3 by Andrew F. Hayes (Hayes, 2012), we have selected model 1 to test moderation for both the cases and the output is shown in Table 6 and Table 7. The model in both cases indicates that zero doesn't lie between the lower limit of confidential interval (LLCI) and upper limit of confidential interval (ULCI) of "int_1" (see Table 6 and 7), which indicates perceived value has a moderating effect on the relationship between customer satisfaction and

behavioural intention, and the relationship between IBSDS process and customer satisfaction (supporting H4 and H5).

Model Summary	**R**	**R-sq**	**MSE**	**F**	**df1**	**Df2**	**P**
	.5475	**.2998**	**.3738**	**58.7969**	**3.0000**	**412.0000**	**.0000**
		coeff	se	t	p	LLCI	ULCI
	constant	.9465	.4754	1.9912	.0471	.0121	1.8810
	PV	.7277	.1319	5.5156	.0000	.4684	.9871
	IBSDS	.5235	.1469	3.5638	.0004	.2347	.8123
Model	int_1	-.0997	.0378	-2.6361	.0087	-.1740	-.0254
	Product terms key: int_1 IBSDSP X PV						
	Y = CS						
	X = IBSDSP						
	M = PV						
	VALUE	Effect	se	t	p	LLCI	ULCI
Conditional effect of X on Y at values of the moderator(s):	2.8798	.2364	.0529	4.4651	.0000	.1323	.3405
	3.6514	.1595	.0425	3.7562	.0002	.0760	.2429
	4.4231	.0825	.0501	1.6492	.0999	-.0158	.1809

Table 6: Moderation analysis output (Perceived value on the relationship between IBSDS process and customer satisfaction)

Model Summary	**R**	**R-sq**	**MSE**	**F**	**df1**	**Df2**	**P**
	.5943	**.3532**	**.3334**	**74.9815**	**3.0000**	**412.0000**	**.0000**
		coeff	se	T	P	LLCI	ULCI
	constant	.5251	.5906	.8891	.3744	-.6358	1.6860
	PV	.6986	.1788	3.9065	.0001	.3470	1.0501
	CS	.5885	.1453	4.0499	.0001	.3028	.8741
Model	int_1	-.0860	.0416	-2.0661	.0394	-.1678	-.0042
	Product terms key: int_1 CS X PV						
	Y = BI						
	X = CS						
	M = PV						
Conditional effect of X on Y at values of the moderator(s):	VALUE	Effect	se	t	p	LLCI	ULCI
	2.8798	.3409	.0489	6.9653	.0000	.2447	.4371
	3.6514	.2745	.0475	5.7766	.0000	.1811	.3680
	4.4231	.2082	.0647	3.2186	.0014	.0810	.3354

Table 7: Moderation analysis output (Present value on the relationship between customer satisfaction and behavioural intention)

In order to test how the different levels of customer perceived value influence the relationships, we plot graphs (Fig. 2 and 3) from the SPSS process output (Data for visualizing conditional effect of X on Y). According to Fig. 2 and Table 6, we can confirm that when IBSDS process quality is low, a consumer with low perceived value is significantly less satisfied than the consumer with high perceived value. This supports H4, that is, customer perceived value has a significant moderating effect on the relationship between IBSDS process and customer satisfaction. Also from Fig. 3 and Table 7, we can confirm that customers with low perceived value have significantly lower behavioural intention to continuance use of Internet banking than customers with high perceived value. This supports H5, that is, customer perceived value

has a significant moderating effect on the relationship between customer satisfaction and customer behavioural intention.

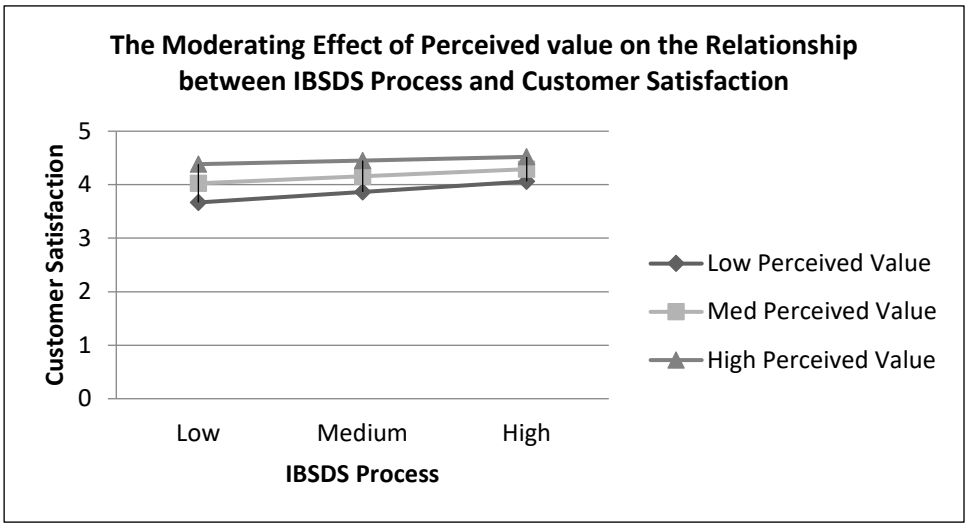

Fig. 2. Moderating effect of perceived value on the relationship between IBSDS process and customer satisfaction.

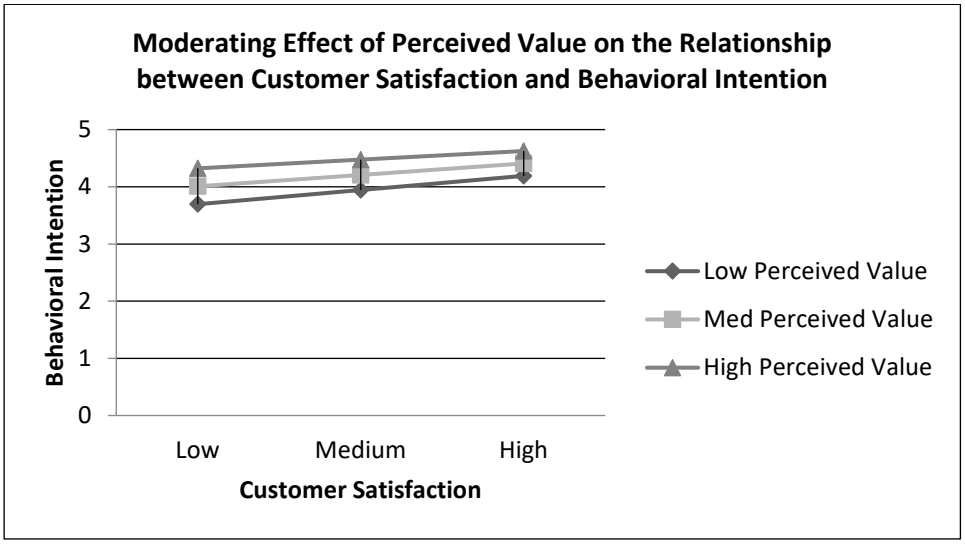

Fig. 3. Moderating effect of perceived value on the relationship between customer satisfaction and behavioural intention.

5 Discussion and Conclusion

We build on theories from service management and propose viewing the interface between user and service provider (i.e., bank website) to identify and explain the possible determinants of Internet banking user adoption. We introduce a new variable, IBSDS process, to the Internet banking adoption literature. Our study aims to address the following three questions: First, what role does the IBSDS process play in determining consumer behavioural intention in using Internet banking services?; second, does customer satisfaction mediate the relationship between the IBSDS process and consumer behavioural intention?; and finally, does consumer perceived value moderate the relationships between the IBSDS process and customer satisfaction, and between customer satisfaction and behavioural intention?

Our results are encouraging and provide theoretical and practical insights into the adoption of Internet banking beyond those specified in existing literature (e.g., Tan and Teo, 2000; Bauer, Hammerschmidt and Falk, 2005; Khalfan, AlRefaei and Al-Hajery, 2006; Al-Somali, Gholami and Clegg, 2009; Kesharwani and Bisht, 2012). Overall, the results support the significance of IBSDS process, which exhibits reasonable accuracy and statistical significance. Based on the mediated regression and SPSS process for moderating effect, as described in this study, three primary conclusions are drawn from this research as discussed below.

The first aim of this study is to examine the effect of IBSDS process on customer satisfaction. The result of the mediated regression analysis is consistent with our hypothesis. Besides, it is also consistent with past studies (e.g., Ba & Johansson, 2008; Sachan et al., 2018) which state that the service delivery process acts as an antecedent of customer satisfaction. Our research demonstrates that as the IBSDS process improves, it provides consumers more control and choices in the service process, leading to greater satisfaction.

The second conclusion is that customer satisfaction mediates the relationship between the IBSDS process and consumer behavioural intention. This is consistent with previous findings (e.g., Chang & Wang, 2011; Chang et al., 2009). The results illustrate that pleasant experience with the IBPS process translates into enhanced customer satisfaction, which in turn, motivates customers to adopt Internet banking. The results are encouraging and provide theoretical and practical insights into the acceptance and use of Internet banking services beyond those specified in the existing literature.

The third conclusion of this study is that consumer perceived value moderates the relationships between IBSDS process and customer satisfaction, and between customer satisfaction and behavioural intention. The results are consistent with our hypotheses. Extant research (e.g., Caruana, Money and Berthon, 1998) has examined the moderating effect of perceived value on the relationship between service quality and customer satisfaction. The results provide a basis for understanding the role of IBSDS process and perceived value on customer satisfaction. It can be argued that while the technical capability may not be high in terms of a superior service delivery process, the fact remains that high perceived value contributes to a good level of customer satisfaction. The results indicate that customers may be more satisfied with a basic level of quality provided if they receive a higher value from online banking services. Hence, it can be inferred that even if the perceived quality of the service delivery process is somewhat lower, a good level of satisfaction can still be achieved with the high received value. Extant research (e.g., Anderson & Srinivasan, 2003; Chang & Wang, 2011; Chang et al., 2009) also shows that consumer perceived value has a moderating effect on the relationship between customer satisfaction and behavioural intention. Our results also support this relationship in the context of Internet banking. Besides, they also highlight that low satisfied customers who have low perceived value will have a low behavioural intention to continuance use of Internet banking compared to low satisfied customers who have high perceived value. The results indicate that even if the consumers are less satisfied with Internet banking, they may continue its use if the perceived value is high.

The established relationships not only strengthen the theoretical foundations of the proposed research model in measuring the demand-side perspective but also allow policymakers to understand the extended facets of user satisfaction and their behavioural intention based on the delivery process of Internet banking. This study provides a new direction for consumer

behavioural research by considering the service delivery system process characteristics of the Internet banking environment.

It also contributes to the extant literature by considering IBSDS process in the proposed model, a feature not considered in the erstwhile studies, and, thus, advances the e-service theories related to the adoption of Internet banking. The study also presents an integrated model of the determinants of Internet banking adoption and use. The model develops a new theory by identifying a new variable, the IBSDS process, in the integration of customer satisfaction and behavioural intention, and applying it to the Internet banking context. It is worthy to note that this research is based on the reformation of attitude theory by Bagozzi (1992) and the new variable, IBSDS process, which is specific to the online environment. The findings suggest that it is crucial for consumer behaviour researchers to examine the role of the service delivery system process and consumer's perceived value, which is likely to affect its use.

Excellent electronic service (e-service) quality is essential for successful Internet banking. From a managerial standpoint, this study provides website designers and financial service providers a new perspective which is that they should ensure that their website is well-designed and that it incorporates all the necessary features and tools to provide their customers an easy-to-use, secure, reliable and enhanced experience. Our findings also demonstrate the impact of IBSDS process on user satisfaction and behavioural intention. Hence, it may be true that the quality of the online interaction process affects users' access decisions, satisfaction, and behavioural intention in the context of Internet banking services. Moreover, consumers' perceived quality of an Internet banking service is reflective of not only the service quality but also the quality of the online interaction process. Hence, financial service providers or related agencies must consider the IBSDS process to enhance customer satisfaction and ultimately the adoption of Internet banking while implementing their online banking strategy. Customer service also needs to be given due attention. It is in the interest of the banks to offer their customers diverse contact channels for communication. The findings are significant and cannot be overlooked in practice.

6 Limitations and Suggestions for Future Research

The study has some limitations, which provide a direction for future research. Our research does not consider several other factors, such as the effect of involvement, and convenience orientation, which could moderate the relationships under study. Future research could also study the effect of demographic characteristics like age, gender, and experience on the adoption of Internet banking services. Besides, the data sample used in this study, which is 416, is limited and cannot be used to represent the entire population of a country as diverse as India. A larger sample may strengthen the results obtained. Another limitation is that this study considers perceived value as a one-dimensional variable. However, literature (e.g., Sheth, Newman and Gross, 1991; Sweeney and Soutar, 2001) shows this value to be a multidimensional element. Different dimensions of perceived value may have a different impact on the relationships. Hence, a study considering different value dimensions may give more detailed insights. This work is only a first step in trying to understand the IBSDS process and its impact on customer satisfaction and behavioural intention. We believe that this is a promising research area for researchers in the management of technology domain. To generalize the study to the other countries, research must be validated in other countries.

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Appendix A:

Measurement scales

Constructs	Scale Items	Source
Perceived IBSDS Process	IBSDSP1: The Internet banking site is difficult to navigate through.	(Ba & Johansson, 2008)-adopted and modified
	EBSDSP2: The number of choices at each step of the Internet banking service access process doesn't need to be changed.	
	IBSDSP3: The Internet banking website ordering process wasn't complicated.	
	IBSDSP4: I did not experience any errors (e.g., web pages that did not load the first time) while accessing Internet banking services.	
	IBSDSP5: I had trouble finding what I was looking for on the Internet banking website.	
	IBSDSP6: The entire process of searching and transacting in Internet banking takes a reasonable amount of time.	
Perceived Value	PV1: Using Internet banking is a waste of my time. (R)	(Bressolles et al., 2015)-adopted and modified
	PV2: The service provided through the bank website is very efficient.	
	PV3: The bank website requires a lot of effort to use. (R)	
	PV4: I am treated fairly by the bank website.	
	PV5: Very little thought is required to use this bank website.	
	PV6: The bank website doesn't provide value. (R)	
Customer Satisfaction	CS1: I am satisfied with my decision to use the Internet banking service.	(Bressolles et al., 2015)-adopted and modified
	CS2: My choice to access Internet banking service is a good one	
	CS3: I am confident it is the right thing to access banking services from banking web site.	
Behavioral Intention	BI1: I intend to continue to do online business with my present bank also in the future	(Yang & Peterson, 2004)-adopted and modified
	BI: I say positive things about the Internet banking to other people.	
	BI3: I encourage friends and relatives to use Internet banking.	

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