



A closer look at customer experience with bundle telecommunication services and its impacts on satisfaction and switching intention

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Abstract

The telecommunications sector faces a major challenge of high customer churn. Despite this, there is still a lack of research that explores the switching intention for telecommunication services, particularly with bundle services that currently dominate the market. This study aims to provide insight into consumer behaviour regarding bundle telecommunication services by examining the factors that impact satisfaction and switching intention, both directly and indirectly. Eighteen hypotheses were defined based on the literature, and were tested through a quantitative study with 910 bundle service customers using structural equation modelling with Smart-PLS. The results show that internet and television services have the strongest indirect impact on switching intention, mediated by overall satisfaction and loyalty. Additionally, the results indicate that switching costs and barriers do not significantly affect switching intention, and surprisingly, perceived contractual lock-in positively influences switching intention. This study provides a comprehensive understanding of the customer experience with bundled telecommunications services and offers relevant insights for telecommunication managers to prevent customer loss to competitors.

Keywords Bundle services · Telecommunications · Customer experience · Service quality · Satisfaction · Loyalty · Switching intention · SEM-PLS

Introduction

The telecommunications sector is marked by intense competition, with companies fighting for customers, market share, and long-term survival (Kyei and Bayoh 2017), in parallel with the high churn of customers, who repeatedly change operators (Kumar et al. 2018). Given that acquiring new customers is becoming increasingly difficult and expensive, several authors suggest that priority should be given to retaining the most valuable existing customers rather than trying to acquire new ones (Ahn et al. 2006; Hadden et al. 2007), i.e., reduce churn.

Despite the growing number of studies on switching intention in the telecommunications market, most of them use predictive models with algorithms to identify customers who are more likely to switch operators, based on data from the operators themselves, comprising customer profile variables (e.g. Amin et al. 2019; Ullah et al. 2019). These studies do not aim or help to identify the causes that lead to abandoning the operator but rather to identify who is more likely to switch operator. In fact, studies on the determinants of churn are still insufficient to provide

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a holistic view of the phenomenon and complement the perspectives provided by predictive algorithm-based studies. In addition, and while bundled services have become the dominant mode of consumption of telecommunications services (de Matos et al. 2018), most studies focus on mobile telecommunications, with some exceptions (e.g. Carrizo-Moreira et al. 2017; Prince and Greenstein 2014). Bundled services refer to selling two or more distinct services in a bundle for a single price (Prince and Greenstein 2014), often marketed at a discounted price (Lee 2017). Bundling services together can allow service providers to gain a competitive advantage by avoiding high churn rates (Uner et al. 2015). Hence, study of the determinants of switching intention, particularly of bundled services, is essential for companies to identify which factors have the greatest impact, and use that information to prevent losing customers (Oechsle 2022), in order to decrease the churn rate and increase customers' loyalty. This study aims to provide insight into consumer behaviour regarding bundle telecommunication services by examining the factors that impact satisfaction and switching intention, both directly and indirectly.

This article makes several contributions. Firstly, the present study fills a significant gap in the literature by investigating customer satisfaction and switching intentions in the context of bundle telecommunication services, which currently dominate the market but have received limited attention in prior research. The article presents a comprehensive tool that integrates multiple variables representing customer experience, providing a valuable resource for future research on customer behavior. The proposed model enables managers to identify which services have the greatest impact on customer satisfaction and prioritize indicators for resource management and customer retention efforts. The empirical findings of the study offer valuable insights into the Portuguese market and the services that significantly influence customer satisfaction, based on a robust sample size.

Next section synthesises the main contributions in the literature regarding switching intention determinants that supported hypotheses development.

Switching intention determinants

Satisfaction

Customer satisfaction is understood as the result of a complex psychological comparison between expected and received performance levels of the product/service (e.g. Johnson et al. 1995; Oliver and Swan 1989). The earliest theoretical models in satisfaction studies were based on the confirmation/disconfirmation paradigm (Oliver and

Swan 1989; Olshavsk and Miller 1972). According to this paradigm, customers assess their satisfaction levels by comparing their current experiences with previous ones and expectations and perceptions of product performance. Thus, satisfaction refers to customers' overall evaluation of their buying and consumption experiences (Johnson and Fornell 1991), which may evolve based on total purchases and consumption experiences of a good or service (Fornell 1992; Johnson and Fornell 1991). Customer satisfaction is considered one of companies' primary objectives (Becker et al. 2015) and is associated with a higher propensity for the customer to remain loyal (Caruana 2002).

Several studies point to satisfaction as the main predictor of the propensity to switch telecom operators (e.g. Calvo-Porrall et al. 2017; Dey et al. 2020; Eshghi et al. 2007; Garcia-Marinoso and Suarez 2019; Izogo 2015; Quoquab et al. 2018) and the main determinant of bundled services customer loyalty (Carrizo-Moreira et al. 2017). High levels of customer satisfaction significantly reduce the likelihood that customers will switch operators (e.g. Becker et al. 2015; Mannan et al. 2017; Martins et al. 2013; Mbarek and Baeshen 2019; Sweeney and Swait 2008). To provide a broad perspective of the phenomenon, this paper considers the different components of the bundled telecommunications service (television service, internet service, fixed telephone service, and mobile service). Thus, the following hypotheses were defined:

H1: Customer satisfaction with the mobile service is positively related to overall satisfaction with the telecommunications operator.

H2: Customer satisfaction with the television service is positively related to overall satisfaction with the telecommunications operator.

H3: Customer satisfaction with the Internet service is positively related to overall satisfaction with the telecommunications operator.

H4: Customer satisfaction with the landline telephone service is positively related to overall satisfaction with the telecommunications operator.

However, in addition to the core services included in the bundle, other factors, such billing, stand out as especially associated with telecommunications customer satisfaction (Ahn et al. 2006; Lunn and Lyons 2018). Billing is a traditional performance dimension upon which telecommunication operators are monitored for the satisfaction of their customers (Athanasopoulos and Iliakopoulos 2003). For many telecom customers, the



monthly bill is the main point of contact with the service providers. Also, according to the telecommunications regulator in Portugal (ANACOM 2021a), billing and the invoice itself is one of the main reasons for consumer complaints, so we postulate:

H5: Customer satisfaction with the invoice is positively related to overall satisfaction with the Telecommunications operator.

Additionally, interactions with different touchpoints are considered important in explaining satisfaction. According to Lemon and Verhoef (2016), the customer journey involves other points of contact with the company over time, which affect the entire customer experience, and are therefore associated with satisfaction. Previous studies show that transaction-specific satisfaction can be empirically distinguished from overall satisfaction (e.g. Jones and Jaebeom Suh 2000a, b; Keiningham et al. 2014), namely store interactions, which integrate activities (based on empirical evidence) such as payment of invoices, provision of services, acquisition of new products and handling of complaints. Also, overall satisfaction can be thought of as a function of prior transaction-specific satisfaction encounters (Jones and Jaebeom Suh 2000a, b; Keiningham et al. 2014). Overall satisfaction refers to “the consumer’s overall dis/satisfaction with the organization based on all encounters and experiences with that particular organization” (Bitner and Hubbert 1994, pp. 76–77). It can be viewed as a function of all previous transaction-specific satisfactions (Parasuraman et al. 1994; Teas 1993). As such, the following hypothesis is postulated:

H6: Customer satisfaction with in-store interactions is positively related to overall satisfaction with the telecom operator.

In addition to stores, it should be noted that the vast majority of customer interactions with telecom operators occur through a contact centre, and these experiences are determinants of opinions about every company (van der Aa et al. 2015). There are several studies providing ample evidence of high customer dissatisfaction with contact centre services (Bennington et al. 2000; Jaiswal 2008), which culminate in disappointment and defection (Meyer and Schwager 2007). Therefore, the biggest challenge for contact centres is to fulfill their role of value creation and make a positive impact on long-term customer relationships through customer satisfaction (van der Aa et al. 2015). Hence, we postulate:

H7: Customer satisfaction with customer service interactions is positively related to overall satisfaction with the Telecom operator.

Reputation

Brand reputation refers to customers' perception of service quality associated with the brand name (Hess 2008). It is the aggregate perception of the salient features of companies or brands (Veloutsou and Moutinho 2009). It is formed as an aggregation of images, accumulating in customers' minds over time into an overall evaluation of a company. (Foroudi 2019). Brand reputation results from the brand's identity, its promises, and the extent to which consumers experience what the brand promises (Veloutsou and Moutinho 2009). Evidence has revealed that reputation is a result of high levels of customer satisfaction (Saeidi et al. 2015; Walsh et al. 2006). From this, it is possible to postulate:

H8: Overall satisfaction with the telecommunications operator is positively related to brand reputation.

Previous studies indicate that a favourable reputation protects companies by creating a shield during a crisis. Customers tend to attribute less responsibility for the crisis and give the organisation the benefit of the doubt. They tend to devalue negative information and focus on the positive aspects associated with the brand (Sengupta et al. 2015).

According to Davies et al. (2010), brand reputation shapes the customer's future behaviour with the company and can increase customer retention. Han and Hyun (2013) highlighted that reputation directly affected the future decision to repurchase from the service provider. Indeed, brand reputation has been seen as an antecedent of loyalty in different fields (Groth 2005; Loureiro and Kastenholtz 2011; Walsh and Beatty 2007). Therefore, we expect telecom brand reputation to enhance telecom brand loyalty:

H9: Telecom operator brand reputation is positively related to customer loyalty.

Switching costs & barriers

Switching costs are important constraints that prevent customers from freely switching to other service operators (Ahn et al. 2006; Su et al. 2012), playing an important role in switching behaviour and customer retention (Keaveney 1995; Kim and Yoon 2004). Switching costs include transaction costs, learning costs and artificial or contractual switching costs (Klemperer 1987, 1995). Transaction costs are the financial costs directly inherent to switching, such as installing/activating the services from the new operator. Learning to use one brand may not be transferable to other



brands of the same product/service, even if all brands are functionally identical. Learning costs refer to customers' efforts to reach the same level of comfort and ease with the new product or service (Seo et al. 2008). Hellier et al. (2003) explain that the higher the levels of satisfaction with the service, the greater the perception of lost satisfaction the customer can expect when switching service providers, and consequently the higher the predicted switching costs. Several authors validated this positive effect of satisfaction on switching costs (e.g. Edward and Sahadev 2011; Matzler et al. 2015). This positive effect of satisfaction on switching costs has been validated by several authors, who have also demonstrated that switching costs are one of the antecedents of switching intentions (e.g. Burnham et al. 2003; Dey et al. 2020; Edward and Sahadev 2011; Kumar et al. 2017; Mannan et al. 2017; Quoquab et al. 2018). Hence, we postulate:

H10: Overall satisfaction with the telecom operator is positively related to switching costs and barriers.

H11: Switching costs and barriers are negatively related to switching intention.

Finally, artificial, or contractual costs are deliberately created by a service provider. For example, the costs inherent to loyalty contracts penalize customers if they intend to break the contract before a predefined time (Caruana 2003; Gao et al. 2022; Joachim 2004; Klemperer 1987; Weiss and Anderson 1992). Thus, a customer who is administratively "tied" to a telecom operator is less likely to look at competing alternatives because they cannot change the operator without paying the associated penalty (Becker et al. 2015; Calvo-Porrall et al. 2017; Garcia-Marinosa and Suarez 2019), increasing in this way switching costs and barriers. Therefore, we postulate:

H12: The perception of "administrative prison" is positively related to switching costs and barriers.

Also, minimum contract durations, also known as binding contracts or "administrative prison", had an inverse influence on switching intention (Becker et al. 2015; Gao et al. 2022; Kumar et al. 2017; Mannan et al. 2017; Quoquab et al. 2018; Seo et al. 2008; Shin and Kim 2008; Svendsen and Prebensen 2013), and as such, we postulate that:

H13: The perception of "administrative prison" is negatively related to switching intention.

Perceived value

Customer perceived value is often described as a trade-off between what customers receive and pay for, when purchasing a service (Thaichon et al. 2014). The notion of value is generally viewed as the perceived benefits the customer receives from the offer provided by the company concerning the cost or sacrifice made to obtain those benefits (Zeithaml 1988). Based on a review of previous definitions, Chen and Dubinsky (2003, p. 326) define customer perceived value "as the consumer's perception of the net benefits obtained in exchange for the costs incurred in obtaining the desired benefits", so higher levels of satisfaction with the service received can lead to higher levels of perceived value (Loureiro et al. 2012). If a customer is satisfied with a product or service, they are more likely to perceive it as having high value, whereas if they are dissatisfied, they are more likely to perceive it as having low value. As some studies show these two variables are strongly related (Reichheld 1996; Woodruff 1997), and some postulate that perceived value is a consequence of consumer satisfaction (Loureiro et al. 2012), we postulate the following:

H14: Overall satisfaction with the telecom operator is positively related to customer perceived value.

In addition, in the case of higher perceived value, consumers will perceive the costs associated with changing that supplier as higher (Liu 2006; Thuy et al. 2016; Yang and Peterson 2004a). Customer-perceived value can increase switching costs and barriers, making it more difficult for customers to switch to a competitor. When customers perceive that a product or service has high value, they are more likely to invest time, money, and resources in learning how to use it effectively, integrating it into their lives, and building a relationship with the company. Hence, we postulate the following:

H15: Customer perceived value is positively related to switching costs and barriers.

Several studies (e.g. Cronin et al. 2000; Jiang et al. 2016; Kuo et al. 2009; Kusumawati and Rahayu 2020; Wang et al. 2004; Woodruff 1997; Yang and Peterson 2004a) identify perceived value as an important precursor to customer loyalty, so we postulate:

H16: Customer perceived value is positively related to customer loyalty.



Loyalty

Loyalty is defined as a customer's intention or predisposition to repurchase from the same firm (Edvardsson et al. 2000). Customer loyalty has shifted from the traditional view of commercial transactions to a sophisticated view of interactions between customers and suppliers (Ozuem et al. 2016). The antecedents of customer loyalty have been extensively studied, with satisfaction emerging as one of the most significant predictors, including in the telecommunications literature (e.g. Calvo-Porrall et al. 2017; Dey et al. 2020; Eshghi et al. 2007; Garcia-Marinoso and Suarez 2019; Martins et al. 2013; Quoquab et al. 2018). Hence, we postulate:

H17: Overall satisfaction with the telecom operator is positively related to customer loyalty.

Eshghi et al. (2007) explained that loyalty encompasses an affective and behavioural dimension. As an affective state, loyalty represents a psychological reaction and conviction towards a product or service. The behavioural dimension manifests that affective state, which is sometimes equated with customer retention. Customer loyalty plays a key role in businesses, as loyal customers buy more, pay premium prices and promote the company through positive word-of-mouth (e.g. Calvo-Porrall and Levy-Mangin 2015; Carrizo-Moreira et al. 2017; Hanifati and Salehudin 2021; Mosavi et al. 2018) and are less likely to switch suppliers. Hence, we postulate:

H18: Customer loyalty to the telecom operator has a negative impact on switching intention.

Based on the hypotheses, Fig. 1 shows the conceptual model defined for this study.

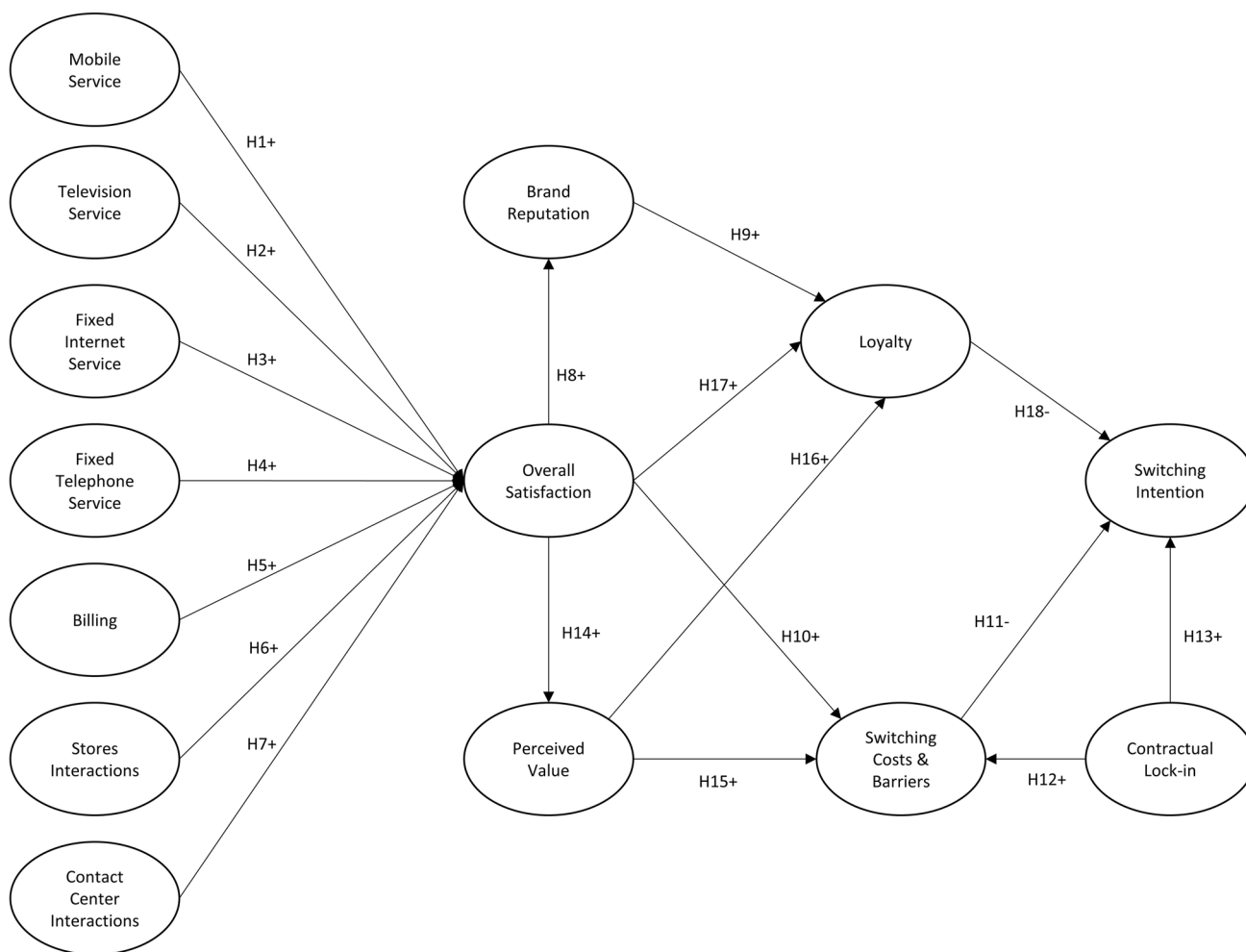


Fig. 1 Conceptual model



Method

Materials

An online self-administered questionnaire was used to test the hypotheses defined for this study. The questionnaire consisted of several sections. The first section gathered respondents' socio-demographic and service characterization data. In the second section, all service attributes, including television service, internet service, landline telephone service, and mobile service, were evaluated, along with the bill itself and the most recent interactions with the brand's different points of contact, such as the customer service (contact centre) or a visit to one of the respective operator's shops. The third section evaluated brand reputation and perceived value, followed by overall satisfaction with the operator and loyalty. The questionnaire also measured the constructs of switching intention, switching costs and barriers, and "contractual lock-in," or the perception of "administrative lock-in."

The items included in the American Customer Satisfaction Index (ACSI) Telecommunications Report were adapted to measure service attributes. The perceived value scale was constructed with three items adapted from Thaichon et al. (2014). To assess brand reputation, four items were used. Three items were adapted from those used by Veloutsou and Moutinho (2009) and an item for the perception of innovation was inserted: (1) loyalty reward, (2) honesty and fairness, (3) innovation and (4) brand trust. All of them were measured on the same scale mentioned above for perceived value.

Satisfaction was assessed with the ACSI multi-item scale (Fornell et al. 1996): (1) Customers' overall satisfaction with service delivery; (2) The extent to which the service met expectations; (3) and the extent to which the service provided compares to ideal service. This multi-item scale has been used in several studies (e.g. Angelova and Zekiri 2011; Dani 2014; Shi and Zhao 2007). ECSI multi-item scale (Committee 1998) (*European Customer Satisfaction Index*) was used to measure loyalty: (1) Intention to remain a customer in the future; (2) Intention to recommend the company to colleagues and friends; and (3) Competitor price sensitivity. This scale has also been used in several studies (e.g. Bayol et al. 2000; Eurico et al. 2018; Revilla-Camacho et al. 2017).

Finally, switching intention scale was derived from Kim and Yoon (2004). The constructs switching costs and barriers were adapted from Chen and Hitt (2002) and "contractual lock-in" was based on the scale used by Jones et al. (2000). To standardise the scales, all the variables described above were measured using a 10-point Likert-type scale, i.e., there is no mid-point on the scale,

so respondents have to choose (Sarantidou 2017). Some literature supports using 10-point Likert-type scales, as no differences were observed for scales with other intervals (Coelho and Esteves 2007; Kalburan et al. 2019). In addition, respondents always had the option to select a category of "Not applicable/Do not know" in case of lack of knowledge or applicability.

Before distributing the questionnaire, a pre-test was conducted with 50 respondents to check whether the questionnaire was easy to understand and whether there was any difficulty in interpreting the items of the model. As a result of the pre-test, minor changes were made to some words for better understanding.

Participants

The population under study comprised all individuals aged ≥ 18 years, decision-makers and/or influencers in the decision-making process concerning packaged telecommunications services, residing in mainland Portugal. The study adopted proportional stratified sampling as recommended by Kothari (2004), as this is more efficient when the cost of selecting an item is the same for each of the strata and when the purpose is to estimate the value of the population or some characteristic. In this research, the strata identified and used were: customer seniority, time to end loyalty, internet speed, and geographical location. The data were collected through a market research agency in July 2021. Nine hundred and ten responses were collected from customers of 4P packages (television, Internet, fixed telephone and mobile service) from the main telecommunications operators in Portugal (Vodafone, NOS and MEO), which represent 96% of the market. The characteristics of the sample can be seen in Table 1. The data that support the findings of this study are available from the corresponding author upon request.

Procedures

This study used partial least squares structural equation modelling (PLS-SEM). PLS-SEM allows researchers to analyse the associations between theoretical constructs and assess the model's reliability and validity (Hair et al. 1998). This analysis has proven to be an excellent way to assess relationships between constructs in the social and behavioural sciences (de Souza Bido and da Silva 2019). The complexity of the model tested (many constructs and many observed variables), the use of constructs with formative variables, and the little-explored theoretical support for the model justify the use of PLS-SEM. In these situations, covariance-based structural equation modelling (CB-SEM) or maximum likelihood estimation (MLE) models are not recommended, and variance-based structural equation



Table 1 Sample characteristics

Characteristics	Number of respondents (n = 910)	
	Frequency (F)	Percentage (%)
Operator		
MEO	323	36
NOS	300	33
VODAFONE	287	32
Gender		
Female	470	52
Male	440	48
Age		
18–24	120	13
25–34	225	25
35–44	248	27
45–54	205	23
+55	112	12
Time to end contractual loyalty period		
No loyalty	146	16
< 6 months	185	20
< 12 months	193	21
< 18 months	166	18
≥ 18 months	220	24
Tenure		
< 6 months	34	4
< 12 months	57	6
< 18 months	53	6
< 24 months	88	10
≥ 24 months	678	75
Region		
Greater Lisbon	215	24
Greater Porto	104	11
North Interior	134	15
North Cost	172	19
Center Coast	172	19
South	113	12
Educational qualifications		
Without education	1	0
Primary Education incomplete	2	0
Primary Education complete	18	2
6th grade	34	4
9th grade	74	8
11th/12th grade	280	31
High School/Polytechnic	79	9
University	422	46
n=910		

modelling (VB-SEM) or partial least square (PLS) models are recommended (Hair et al. 2012).

As such, we used Smart-PLS3 (Ringle et al. 2015) software to assess the relationships of the structural model. Initial descriptive statistics were obtained using IBM SPSS 28.

Results

Measurement model

The measurement model analysis reveals that all indicators have factor loadings greater than 0.7, the minimum recommended value (Hair et al. 2005), except for one item of the loyalty construct and one item of the switching intention construct, which was removed. In Table 2, we can observe that all variables have CR and Cronbach alpha values greater than 0.7 and AVE values greater than 0.5, meeting the minimum acceptable values, according to Hair et al. (2005). Thus, the results present acceptable convergent validity.

Discriminant validity was assessed by observing that the AVE of each factor is greater than the square of the correlations between factors in all situations, complying with Fornell and Larcker (1981) and indicating acceptable discriminant validity (Table 3). A second criterion was also used, where the items were analysed in terms of factor loadings and cross-loadings. The factorial loadings are found to be higher than the cross-loadings (horizontally and vertically) in all the indicators, thus indicating acceptable discriminant validity. The analysis results show that the model has acceptable construct validity, convergent validity and discriminant validity, according to Tables 2 and 3.

Testing of hypotheses

Having validated the measurement model, we will now analyse the relationships between the variables and analyse the hypotheses based on the conceptual model mentioned above in Fig. 1. Figure 2 presents the conceptual model with the results of the relationships. All relationships were tested based on the examination of standardised paths. Significance levels were estimated using a bootstrap resampling method (Henseler et al. 2009) with 5000 interactions. The results illustrated in Fig. 2 demonstrate that the model explains 81.4% of the variance of overall satisfaction, 76.1% of the variance of reputation, 78.6% of the variance of perceived value, 83.2% of the variance of loyalty, 27.5% of the variance of switching costs and barriers and 37.7% of the variance of switching intention.

Table 4 presents all the hypothesis tests performed. Internet service ($\beta = 0.377$, $p < 0.001$), television service ($\beta = 0.230$, $p < 0.001$), billing ($\beta = 0.187$, $p < 0.001$), contact centre interactions ($\beta = 0.141$, $p < 0.001$), mobile service ($\beta = 0.082$, $p < 0.01$), and in-store interactions ($\beta = 0.052$,



Table 2 Measurement items, Factor loadings, Cronbach alpha, CR and AVE

Constructs	#	Mean	SD	Factor Loading	Cronbach's alpha	CR	AVE
Television					0.935	0.948	0.721
Range of channels available	TV_1	7.98	1.86	0.829			
Image quality	TV_2	8.23	1.73	0.868			
Design and appearance of the box	TV_3	7.71	2.09	0.787			
Flashback e restart Tv service	TV_4	7.55	2.06	0.850			
Ease of using on-screen menus and program guides	TV_5	7.77	1.96	0.851			
Box performance	TV_6	7.37	2.26	0.884			
Ability to keep service interruptions and outgages to a minimum	TV_7	7.54	2.14	0.873			
Internet					0.965	0.973	0.878
Performance of contracted speed	NET_1	7.16	2.42	0.953			
Performance during peak hours	NET_2	6.99	2.47	0.952			
Overall data transfer speed	NET_3	7.36	2.32	0.961			
Video-streaming quality	NET_4	7.43	2.26	0.939			
Ability to keep service interruptions and outgages to a minimum	NET_5	7.23	2.32	0.876			
Fixed telephone				0.941	0.936	0.959	0.886
Sound quality of calls	TEL_1	7.80	2.09	0.941			
Call plan contracted	TEL_2	7.98	2.03	0.937			
Ability to keep service interruptions and outgages to a minimum	TEL_3	7.83	2.04	0.946			
Mobile service					0.912	0.934	0.739
Call quality (clarity, strenght)	MOV_1	8.31	1.70	0.890			
Network coverage	MOV_2	7.61	2.14	0.851			
Call quality (dropped-call frequency)	MOV_3	8.33	1.76	0.871			
Data upload/download speed and reliability	MOV_4	7.66	2.07	0.867			
Call plan/mobile data contracted	MOV_5	7.98	1.96	0.819			
Contact center					0.900	0.926	0.715
Easy selection of different menus to access the telephone support area	CARE_1	7.00	2.57	0.821			
Waiting time	CARE_2	6.02	2.78	0.816			
Availability and sympathy shown by the employee who answered it	CARE_3	7.90	2.25	0.822			
Knowledge demonstrated by the employee	CARE_4	7.52	2.36	0.905			
Resolution of the question	CARE_5	7.14	2.77	0.861			
Billing					0.919	0.943	0.806
Ease of reading and understanding the invoice	BILL_1	7.92	1.94	0.896			
Invoice accuracy	BILL_2	7.87	1.99	0.921			
Timely invoice delivery	BILL_3	8.28	1.80	0.858			
How NOWO manages your doubts about the invoice	BILL_4	7.66	2.08	0.914			
Stores					0.900	0.926	0.716
Store location	LOJ_1	8.32	1.95	0.764			
Waiting time	LOJ_2	7.52	2.34	0.791			
Availability and sympathy shown by the employee who answered it	LOJ_3	8.33	1.97	0.865			
Knowledge demonstrated by the employee	LOJ_4	8.13	2.01	0.897			
Resolution of the issue	LOJ_5	7.83	2.37	0.906			
Perceived value					0.961	0.975	0.928



Table 2 (continued)

Constructs	#	Mean	SD	Factor Loading	Cronbach's alpha	CR	AVE
I consider my services a good "buy"	VALUE_1	7.06	2.29	0.964			
I feel that I have contracted a good package of services at a reasonable price	VALUE_2	6.80	2.36	0.963			
The service provided is worth the money	VALUE_3	6.73	2.41	0.964			
Reputation					0.926	0.947	0.818
Do you think your operator does enough to reward customer loyalty?	REPUTATION_1	5.94	2.82	0.873			
Does your operator has an honest and fair business policy?	REPUTATION_2	6.80	2.40	0.918			
Does your operator gives enough importance to the innovation of its products?	REPUTATION_3	7.31	2.20	0.901			
Does your trust in your operator allow you to be free of brand-related concerns?	REPUTATION_4	7.02	2.50	0.925			
Overall satisfaction					0.967	0.978	0.938
Tell us your overall satisfaction level	SAT1	7.46	2.15	0.969			
To what extent the service provided meets your expectations	SAT2	7.07	2.15	0.970			
Imagine what an ideal service would be for you. On a scale of 1 to 10, please rate your operator, where 1—Very far from ideal and 10—Very close to ideal	SAT3	6.98	2.20	0.966			
Loyalty					0.928	0.965	0.933
Your intention to remain a customer of your operator in the future is high	FID1	7.01	2.62	0.965			
Advices colleagues and friends to use your operator's services	FID2	7.11	2.45	0.967			
Contractual lock-in					0.782	0.871	0.693
I feel stuck with this operator.	CONTRACTUAL LOCK-IN1	4.22	2.97	0.856			
I will not change operators because I would pay a penalty for violating contractual agreements.	CONTRACTUAL LOCK-IN2	5.26	3.31	0.789			
There are difficulties in the switching procedure.	CONTRACTUAL LOCK-IN3	4.80	2.94	0.851			
Switching costs & barriers					0.859	0.914	0.780
It takes a long time to get information about other operators	SWITCHING_COSTS1	4.66	2.52	0.812			
It would take a long time to change operators	SWITCHING_COSTS2	4.80	2.67	0.930			
It would take a lot of effort to change operators	SWITCHING_COSTS3	4.72	2.78	0.903			
Switching intention					0.844	0.905	0.761
Though I am used to this SP, I can still stop using it	SWITCHING_INT1	7.09	2.67	0.787			
I often think about changing from my current operator	SWITCHING_INT2	5.94	2.95	0.938			
I would not continue to have service from my current service provider	SWITCHING_INT3	4.41	2.82	0.886			

$p < 0.05$) are positively related to overall satisfaction with the telecom operator, thus supporting H1, H2, H3, H5, H6, and H7. Contrarily, the results indicate that landline phone service has an insignificant effect on overall satisfaction, so H4 is not supported.

Similarly, overall satisfaction ($\beta = 0.872$, $p < 0.001$) with the operator has a positive effect on brand reputation, supporting H8. Satisfaction ($\beta = 0.886$, $p < 0.001$) also positively affects perceived value, supporting H14. Likewise, satisfaction ($\beta = 0.596$, $p < 0.001$), brand reputation ($\beta = 0.251$, $p < 0.001$), and perceived value ($\beta = 0.097$,



Table 3 Inter-construct correlations and discriminant validity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1—Billing	0.898													
2—Reputation	0.731	0.905												
3—Contact center	0.493	0.588	0.846											
4—Contractual lock-in	-0.165	-0.133	-0.062	0.834										
5—Fixed internet	0.682	0.758	0.490	-0.136	0.937									
6—Fixed telephone	0.696	0.642	0.424	-0.134	0.624	0.941								
7—Loyalty	0.719	0.852	0.554	-0.217	0.758	0.623	0.966							
8—Mobile service	0.724	0.701	0.450	-0.160	0.743	0.685	0.715	0.860						
9—Overall satisfaction	0.767	0.872	0.589	-0.197	0.831	0.661	0.901	0.767	0.968					
10—Perceived value	0.717	0.827	0.497	-0.180	0.787	0.642	0.833	0.722	0.886	0.963				
11—Stores	0.389	0.425	0.417	-0.052	0.369	0.368	0.411	0.400	0.440	0.387	0.847			
12—Switching costs & barriers	0.143	0.303	0.196	0.389	0.241	0.144	0.249	0.161	0.254	0.273	0.148	0.884		
13—Switching intention	-0.301	-0.425	-0.253	0.435	-0.346	-0.265	-0.515	-0.312	-0.464	-0.425	-0.126	0.067	0.872	
14—Television	0.740	0.750	0.479	-0.166	0.756	0.678	0.762	0.791	0.808	0.751	0.360	0.177	-0.362	0.864

Bold indicates all correlation coefficients are significant at $p < 0.01$ level

N = 910. Diagonal elements are the square root of the average variance extracted from each construct

All correlations are statistically significant at 1%

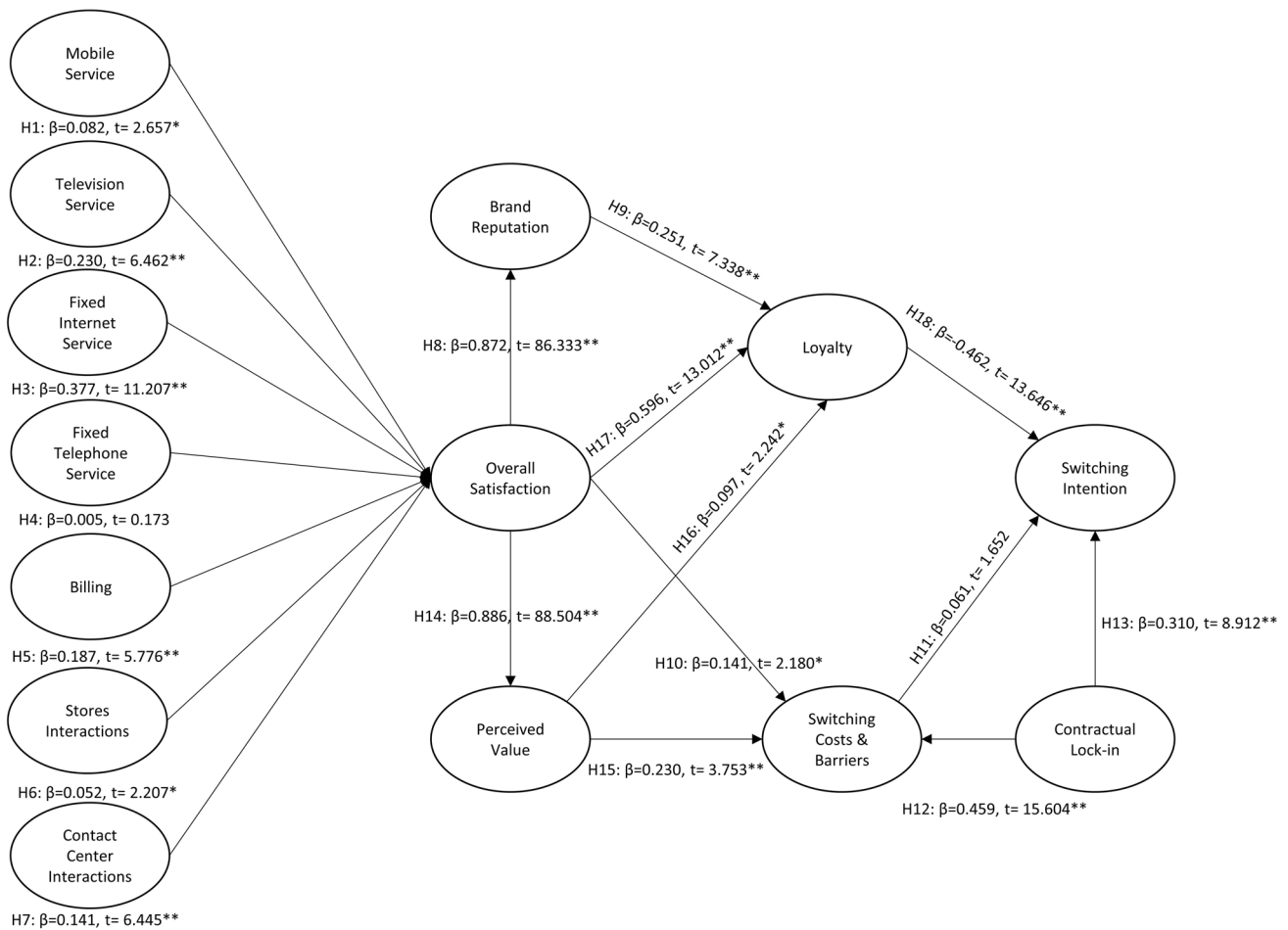


Fig. 2 Conceptual model with results. * $p < 0.05$; ** $p < 0.001$

$p < 0.05$) have a positive impact on customer loyalty, thus supporting H17, H9 and H16.

The results also indicate that the perception of “contractual lock-in” to the operator ($\beta=0.459, p < 0.001$), perceived value ($\beta=0.230, p < 0.001$), and overall satisfaction ($\beta=0.141, p < 0.05$) have a positive impact on switching costs and barriers, thus supporting H12, H15 and H10. Regarding H13, although the effect of “administrative prison” ($\beta=0.310, p < 0.001$) is significant on switching intention, its sign is positive, and not negative, as postulated, not confirming the proposed hypothesis. Regarding loyalty ($\beta = -0.462, p < 0.001$), this has a significant negative impact on switching intention, thus finding support for H18. Contrarily, the results show that switching costs and barriers do not significantly affect switching intention, thus not finding support for H11.

As seen above, loyalty emerges as the best predictor of switching intentions. However, when we analyse the indirect effects, overall satisfaction with the operator ($\beta = -0.396, p < 0.001$) and fixed internet service

($\beta = -0.149, p < 0.001$) stand out with the highest indirect effects on switching intention, as shown in Table 5.

To understand these indirect effects better, the specific indirect effects of these variables on switching intention were calculated, and the results can be seen in Tables 6 and 7.

Findings reveal that satisfaction influences switching intention through brand reputation, perceived value, and loyalty. It is through loyalty that it has a greater influence ($\beta = -0.276, p < 0.001$). Concerning fixed Internet service, the greatest impact on switching intention occurs through satisfaction and loyalty ($\beta = -0.104, p < 0.001$), as shown in Table 7.

Specific indirect effects are highlighted in Table 8. The internet service, the television service, the bill itself, and interactions with the contact centre have indirect effects on perceived value, brand reputation and loyalty through overall satisfaction with the operator.



Table 4 Hypotheses test results

Structural relationships	Hypotheses	Study results	Path coefficient	Standard error	t-value	P-value	VIF	f ²
H1: mobile service → overall satisfaction	H1 (+)	Supported	0.082	0.031	2.657	0.008	3.477	0.010
H2: television → overall satisfaction	H2 (+)	Supported	0.230	0.036	6.462	0.000	3.649	0.078
H3: internet → overall satisfaction	H3 (+)	Supported	0.377	0.034	11.207	0.000	2.862	0.267
H4: fixed telephone → overall satisfaction	H4 (+)	Not Supported	0.005	0.027	0.173	0.863	2.339	0.000
H5: billing → overall satisfaction	H5 (+)	Supported	0.187	0.032	5.776	0.000	2.912	0.065
H6: stores → overall satisfaction	H6 (+)	Supported	0.052	0.024	2.207	0.028	1.317	0.011
H7: contact centre → overall satisfaction	H7 (+)	Supported	0.141	0.022	6.445	0.000	1.511	0.071
H8: overall satisfaction → brand reputation	H8 (+)	Supported	0.872	0.010	86.333	0.000	1.000	3.184
H9: reputation → loyalty	H9 (+)	Supported	0.251	0.034	7.338	0.000	4.430	0.085
H10: overall satisfaction → switching costs & barriers	H10 (+)	Supported	0.141	0.065	2.180	0.030	4.699	0.006
H11: switching costs & barriers → switching intention	H11 (-)	Not Supported	0.061	0.037	1.652	0.099	1.367	0.004
H12: contractual lock-in → switching costs & barriers	H12 (+)	Supported	0.459	0.029	15.604	0.000	1.041	0.280
H13: contractual lock-in → switching intention	H13 (-)	Not Supported	0.310	0.035	8.912	0.000	1.346	0.115
H14: overall satisfaction → perceived value	H14 (+)	Supported	0.886	0.010	88.504	0.000	1.000	3.667
H15: perceived value → switching costs & barriers	H15 (+)	Supported	0.230	0.061	3.753	0.000	4.668	0.016
H16: perceived value → loyalty	H16 (+)	Supported	0.097	0.043	2.242	0.025	4.940	0.011
H17: overall satisfaction → loyalty	H17 (+)	Supported	0.596	0.046	13.012	0.000	6.551	0.324
H18: loyalty → switching intention	H18 (-)	Supported	-0.462	0.034	13.646	0.000	1.217	0.282

Estimated p-values by bootstrapping with 5000 repetitions

Caption: f² Cohen effect size (1988), VIF variance inflation factor

Table 5 Path coefficients of total, indirect and direct effects on switching intention

	Direct coefficients (t-values)	Indirect effects (t-values)	Total effects (t-values)
Billing → switching intention		-0.074 (5.478)*	-0.074 (5.478)*
Brand reputation → switching intention		-0.116 (6.323)*	-0.116 (6.323)*
Contact centre → switching intention		-0.056 (5.655)*	-0.056 (5.655)*
Fixed internet → switching intention		-0.149 (8.515)*	-0.149 (8.515)*
Loyalty → switching intention	-0.462 (13.646)*		-0.462 (14.172)*
Mobile service → switching intention		-0.032 (2.65)**	-0.032 (2.65)**
Overall satisfaction → switching intention		-0.396 (13.464)*	-0.396 (13.464)*
Stores → switching intention		-0.021 (2.040)**	-0.021 (2.040)**
Contractual lock-in → switching intention	0.310 (8.912)*	0.028 (1.723)	0.339 (8.912)*
Television → switching intention		-0.091 (5.900)*	-0.091 (5.900)*
Perceived value → switching intention		-0.031 (1.450)	-0.031 (1.450)
Switching costs & barriers → switching intention	0.061 (1.762)		0.061 (1.762)

*p-value < 0.001; **p < 0.05

Estimated p-values by bootstrapping with 5000 repetitions

Discussion and conclusions

This study shows that the components of bundled telecommunication services that most impact on switching

intentions (mediated by overall satisfaction) are internet, television, billing issues, interactions with the contact centre, mobile service, and lastly, in-store interactions. The importance of the internet service has been increasing in recent years, especially during the COVID-19 pandemic.



Table 6 Specific indirect effects of overall satisfaction on switching intentions

	Path coefficient	Standard error	t-value	p-value
Overall satisfaction → brand reputation → loyalty → switching intention	- 0.101	0.016	6.286	0.000
Overall satisfaction → loyalty → switching intention	- 0.276	0.030	9.063	0.000
Overall satisfaction → perceived value → loyalty → switching intention	- 0.040	0.018	2.161	0.031
Overall satisfaction → perceived value → switching costs & barriers → switching intention	0.013	0.008	1.601	0.110
Overall satisfaction → switching costs & barriers → switching intention	0.009	0.007	1.310	0.190

Estimated p-values by bootstrapping with 5000 repetitions

Table 7 Specific indirect effects of internet service on switching intentions

	Path coefficient	t-value	p-value
Fixed internet → overall satisfaction → brand reputation → loyalty → switching intention	- 0.038	5.513	0.000
Fixed internet → overall satisfaction → loyalty → switching intention	- 0.104	6.814	0.000
Fixed internet → overall satisfaction → perceived value → loyalty → switching intention	- 0.015	2.170	0.030

Estimated p-values by bootstrapping with 5000 repetitions

Table 8 Specific indirect effects

Specific indirect effects	Path coefficient	t-value	p-value
Internet → overall satisfaction → perceived value	0.334	10.929	0.000
Internet → overall satisfaction → brand reputation	0.329	11.047	0.000
Internet → overall satisfaction → loyalty	0.225	7.873	0.000
Television → overall satisfaction → perceived value	0.204	6.536	0.000
Television → overall satisfaction → brand reputation	0.200	6.585	0.000
Television → overall satisfaction → loyalty	0.137	5.865	0.000
Billing → overall satisfaction → perceived value	0.166	5.885	0.000
Billing → overall satisfaction → brand reputation	0.163	5.804	0.000
Billing → overall satisfaction → loyalty	0.112	5.399	0.000
Contact centre → overall satisfaction → perceived value	0.125	6.422	0.000
Contact centre → overall satisfaction → brand reputation	0.123	6.373	0.000

Note 1: Estimated p-values by bootstrapping with 2000 repetitions

In Portugal, the global effect of COVID-19 on average traffic per access during the six quarters in which the pandemic occurred was, on average, + 36.1% per quarter (ANACOM 2021b). Although the current strategies of telecommunication companies tend to place the maximum number of services within the bundled service, including the fixed telephone, we would say that in the short term, this service could be removed from these commercial offers, thus challenging operators to develop other types of services that consumers perceive as added value. Instead, bundled services should focus on exceptional customer experience of internet and television services. The billing issues should also be looked at very closely by operators. It is not only the antecedent with the third-highest impact on overall satisfaction with the operator but is also one of the main

reasons for complaints in the telecommunications sector (ANACOM 2021a).

The results also showed that the perception of contractual lock-in to an operator is the determinant with the greatest impact on the switching costs and barriers, which is expected in Portugal, as the telecommunications sector is characterised by the predominance of services that include minimum contractual terms and charges for consumers arising from early termination of the contract on their initiative. These conditions discourage consumers from changing operators, weakening the dynamics of competition in the sector and make consumers more vulnerable to the exercise of market power. Looking at the results obtained in the study, and considering that in the future, there will be legislative restrictions on the practice of loyalty-contracts, it is recommended that operators focus on customer



satisfaction and the perceived value of their services instead of "administratively imprisoning" their customers. If customers are extremely satisfied and perceive a high service value, their costs and barriers to switching will naturally be higher.

In the same line of thought, the results show that the perception of contractual lock-in is positively related to the switching intention. The same is not true if this was expected to be the case with costs and barriers to change. When consumers feel that they are somehow tied to the operator, they have a greater intention to switch. In reality, consumers who have a loyalty contract cannot do so without paying the penalties arising from early termination of the contract. However, these results indicate that this construct raises the switching intention, which, after the end of the loyalty contract, may materialize in a real change. Hypothesis 16 was not validated since there was the same assumption that the greater the perception of "*administrative prison*", the lower the switching intention. It is also interesting to note that switching costs and barriers do not significantly affect switching intention. The same result was obtained by Martins et al. (2013) and Garcia-Marinoso and Suarez (2019). Finally, the results confirm that loyalty significantly affects switching intention. The higher the consumer's loyalty, the lower their switching intention, and a similar result was obtained by Mahajan et al. (2017).

Telecommunication operators offer a similar service, so the differentiating factor must be high quality of service and customer satisfaction. As identified in the study, the quality of service for Internet and television, but especially for the Internet, due to the exponential growth of its use, should be a target for continuous improvement by the operators. As the data also indicate, the fixed telephone service does not have any significant impact on general satisfaction with the operator, and it will tend to be used less and less. As such, we recommend that operators introduce other services in their packages, to increase the switching costs, essentially the learning costs. For example, if 5G technology penetration is expected to grow, IoT services will be an opportunity.

Theoretical implications

The study offers a holistic view of the customer experience with bundled telecommunications services, providing a comprehensive framework for understanding the determinants of customer satisfaction and switching intention. This article makes several theoretical contributions. Firstly, the study fills a gap in the literature by providing a specific focus on telecommunications bundle services. By examining the interactions between customer experience, overall satisfaction, perceived value, brand reputation, loyalty, switching costs and barriers,

"administrative lock-in", and switching intention, the study offers a comprehensive framework for explaining customer satisfaction and switching intention. The study highlights not only the direct effects of customer experience as antecedents of satisfaction, but also the direct and indirect effects on switching intention. Hence, this study extends the extant literature to examine multiple mediators that affect switching intention in the telecommunications industry among consumers in Portugal.

The results also contribute to the theoretical discussion on the relationships between the variables in the proposed model. The antecedents of satisfaction, constructed from various indicators, account for 81.4% of the variation in customer satisfaction, which is the variable with the greatest impact on customer loyalty in bundled telecommunication services. This finding is consistent with earlier studies (Carrizo-Moreira et al. 2017) and reinforces the results of several researchers who have identified customer satisfaction as a significant factor in reducing the intention to switch providers (Calvo-Porrall et al. 2017; Dey et al. 2020; Eshghi et al. 2007; Garcia-Marinoso and Suarez 2019; Izogo 2015; Quoquab et al. 2018). Furthermore, satisfaction is found to significantly impact brand reputation (Saeidi et al. 2015; Walsh et al. 2006) and perceived value (Loureiro et al. 2012), contributing to the ongoing discussion on these variables.

Regarding customer loyalty, the proposed model accounts for 83.2% of its variance, with satisfaction being the antecedent that has the greatest impact, in line with earlier studies in the telecommunications field (Calvo-Porrall et al. 2017; Dey et al. 2020; Eshghi et al. 2007; Garcia-Marinoso and Suarez 2019; Martins et al. 2013; Quoquab et al. 2018). Additionally, the model identifies brand reputation as a significant predictor of customer loyalty, which corroborates previous research (Groth 2005; Loureiro and Kastenzholz 2011; Walsh and Beatty 2007).

The model accounts for 37.7% of the variation in switching intention for bundle services in the telco industry, which is consistent with prior research in telecommunications (e.g. Dey et al. 2020; Mannan et al. 2017; Quoquab et al. 2018; Sweeney and Swait 2008). The findings also indicate that customer loyalty negatively affects the intention to switch operators, supporting earlier studies (e.g. Calvo-Porrall and Levy-Mangin 2015; Carrizo-Moreira et al. 2017; Hanifati and Salehudin 2021; Mosavi et al. 2018).

The study provides novel insights into the impact of binding contracts on switching behavior, revealing a positive effect on switching intention despite the perception of being trapped in an 'administrative prison.' This finding contradicts previous research on the telecommunications industry, which demonstrated negative effects of binding contracts (Garcia-Marinoso and Suarez 2019; Martins et al.



2013) and opens up avenues for future studies to explore this relationship further. One potential explanation is that customers, feeling obligated to stay with their current operator due to contractual obligations, are more inclined to seek out experiences with other providers.

The findings of the study also contribute to corroborating the results of studies and theoretical propositions by authors such as Gianfranco Walsh et al. (2006), Keramati and Ardabili (2011), Loureiro and Kastenholz (2011), Quoquab et al. (2018), Garcia-Marinoso and Suarez (2019) and Dey et al. (2020).

Managerial implications

The present research offers significant contributions to practitioners in the highly competitive telecommunications industry by providing insights on the customer experience. The proposed model serves as a useful guide for management to gain a deep understanding of the services that have the most significant impact on customer satisfaction, and the indicators that should be prioritized for resource management. By analysing the entire customer experience, marketing managers can develop effective strategies to improve customer experience, loyalty, profitability, and market share.

The results indicate that internet and television have the strongest indirect impact on switching intention, mediated by overall satisfaction and loyalty. Surprisingly, perceived contractual lock-in positively influences switching intention, while switching costs and barriers do not significantly affect it. The findings suggest that management must consider the entire customer experience when analysing switching behaviour. Furthermore, satisfaction influences switching intention through brand reputation and perceived value, highlighting the importance of these constructs in customer retention.

The study also reveals that problems with billing, interactions with contact centers and brand stores, and mobile services have a positive impact on overall satisfaction, while the fixed telephone service does not. These results provide guidance on developing effective strategies to improve customer experience and retention. Rather than relying on contractual obligations, management must focus on delivering customer experiences that exceed expectations to retain customers.

To make informed decisions on resource allocation and service improvement, it is recommended that the evaluation of the customer experience be conducted over time to monitor the effectiveness of the strategies implemented and identify emerging trends and issues that need to be addressed. Overall, the insights gained from this study can be used to develop effective strategies to improve customer

experience and loyalty, ultimately leading to increased profitability and market share.

Limitations and suggestions for future research

While this study offers valuable insights into switching intention in bundled telecommunication services, there are several limitations and opportunities for future research worth noting. Future research could involve adapting the holistic model proposed in this article to different contexts, including cross-cultural comparisons between countries. While the present study included specific service components, such as internet and television, future research could consider using an index to synthesize customer service, thus creating a more parsimonious model. This would be particularly useful when investigating the indirect impacts of services, which may not be the primary focus of the study. Given the importance of understanding change decisions over time, longitudinal studies could be undertaken to examine how switching intention develops over extended periods. Another interesting avenue for future research would be to investigate the relationship between switching intention and actual behavior, verifying to what extent intention translates into action. In addition, future research could explore other variables that may affect switching behavior, such as demographics and personality traits, to enhance the current model.

Data availability The data that support the findings of this study are available from the corresponding author upon request.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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