



The future of TV-shopping: predicting user purchase intention through an extended technology acceptance model

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ABSTRACT

The shoppable TV, which allows the purchase of products appearing in TV programmes directly, is a digital trend that is not implemented in most markets, but companies such as Amazon and NBC Universal have proposed the first sales systems. The aim of this research is to forecast the adoption intention of this technology by applying the Technology Acceptance Model. Structural equation modelling (PLS-SEM) has been applied to a sample of 283 participants. The results indicate that shopping enjoyment is particularly important in generating attitudes toward this type of consumption, and this increases the intention to use Shoppable TV.

1. Introduction

In recent years, the consumer's shopping experience has become one of the main focuses of marketing management. This is because the shopping process has become increasingly integrated into the advertising experience, thanks to the opportunities afforded by the digital environment, such as the chance to buy directly through social media posts. Now, this trend is extending to television.

Toward the end of the 20th century, the literature addressed TV-shopping services from a communications perspective, generating debate about the convergence of information technologies. Interactive television, for instance, started offering on-demand programming, shopping, and banking, among other services (Gawlinski, 2013). With the advent of the Internet, researchers focused on studying the growth of online media purchases compared to offline teleshopping revenue streams, including telephone, television, and radio (Lin, 2007). Interest began to grow in understanding the factors determining consumer choice between the different channels available (Brand et al., 2020) and in describing cross-channel shopping behaviour, moderated by factors such as hedonic and utilitarian values and even gender (Lin, 2011).

The term 'TV shopping', although in the 1980s it referred to the presentation of live programmes to present products and answer consumers' questions by telephone (Wang et al., 2022), today, with the development of new technologies the term now widely adopted in the

media industry, alludes to the idea that the items featured in a television programme are available for immediate purchase (Wang et al., 2022). This requires advertising to be directly linked to sales by exploiting the marketing capabilities of mass media, creating interactive and transactional television systems (McGuigan, 2018). Thus, shoppability is made possible when the viewer owns a smart TV (that is, one that connects to the Internet via the home Wi-Fi system), through which they can easily and conveniently purchase any for-sale product they see on-screen simply by using the remote control or, sometimes, a QR code scanned with their mobile phone.

To understand the process of consumer adoption of TV-shopping (also known in some countries as shoppable TV) as an emerging technology, in the present work, we turn to the widely used Technology Acceptance Model or TAM (Davis, 1989), extending it to include a hedonic construct to balance-out the intrinsic values of a purchase behaviour. In addition to examining the theoretical adequacy of the model and furthering the debate on the appropriateness of its extension in technologies with a major hedonic component, the study also aims to predict adoption intention toward TV-shopping technology, providing valuable information for the agents involved in bringing this sales model to the market.

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2. Literature review

2.1. The present and future of TV-shopping: definition and modalities

The television sector is undergoing significant changes that are modifying television as a medium (Wayne, 2018), affecting production, and adapting to the demands of an increasingly segmented audience (Raya Bravo, 2016). This process can be understood as the latest of three major eras or 'golden ages' of television (Lotz, 2014), which can be broadly defined as: (1) TVI, the 'network era' or 'era of scarcity', from the 1950s to the early-1980s. In this age, the available technology was straightforward television, and advertising was generally based on thirty-second commercials; (2) TVII, the 'age of availability' or the 'multichannel age', from the 1980s to the late-1990s. Here, the video cassette recorder, remote control, and analogue cable appeared on the market, and advertising started to rely on the subscription model and other alternatives to 30-second spots; and (3) TVIII, the 'age of plenty' or 'third golden age of television', from the beginning of the 21st century. Digital video recording, video-on-demand technology, portable devices, mobile phones, tablets, and digital cable, together with multiple advertising models such as commercials, placement, and sponsorship, now coexist in complex models that include the growing presence of subscription.

Since the early days of television advertising, the progressive saturation of audiences with advertising and the need for advertisers to identify more innovative techniques to influence them led to the product-placement approach—that is, the subtle, non-invasive appearance of products on set, visible to viewers yet contextualised within the plot of the series or programme. Over the years, the change in consumer behaviour that derived from technological advancements was decisive for the emergence of the 'second screen' phenomenon, in which consumers converse with one another parallel to watching television, search in real time for information related to what they are watching, express their opinions about the content, read comments from others about it, and even search for products (Babu, 2021). This type of behaviour has led to the emergence of sales techniques directly involving the second screen. One example of this approach is the fashion programme *Making the Cut* (streamed by Amazon Prime), in which a group of designers compete to create garments, and the winning designs are put on sale via Amazon at the end of the programme. Another example is TV commercials that include personalised QR codes to take the viewer to the website for further information or make a purchase (Lafayette, 2021).

The fact that consumers can now take an active role in seeking information about the products that appear in the content they are consuming at that moment has revolutionised the television advertising landscape. This is evidenced by the steady growth in the popularity of the subscription model and the corresponding gradual decline of traditional advertising revenue. All these changes have led to the emergence of technology that allows viewers to purchase products that appear in the programme or scene they are watching at the click of a button, using a remote control or by scanning a QR code: this is TV-shopping.

Selling via smart TV can take several forms: (1) as a streaming platform, e.g., Amazon Prime Video, which was at the forefront of attempts at providing TV-shopping (Pitta, 2020); (2) via video applications embedded in the TV. Romana Pawar, YouTube's Director of Advertising-product Management, revealed that >120 million people streamed YouTube or YouTube TV on their TVs in December 2020 in the US alone. YouTube has also announced that it will expand video campaigns through Google Ads for smart TVs (Malik, 2021). Platforms such as Facebook and Instagram have also invested in video-based shopping features (ibid.). In this case, when viewers watch videos on social media via their TV, the URL of the brand's website appears on the screen, inviting them to purchase relevant products without interrupting the viewing session; (3) Livestream shopping: This refers to real-time virtual shopping events (Apasrawirote and Yawised, 2022). Sales are spontaneous, not edited videos, and viewers can interact with the seller. China

is the pioneering country that has shown the most growth in the market with the development of various live streaming shopping platforms such as Taobao.com, JD.com, Mogujie.com, and Sina Microblog (Sun et al., 2019), and sales through this medium are expected to increase by 20 % in the United States by 2026 (Molina, 2022). Livestream shopping can be conducted from a Smart TV as long as it has internet browsing capability and access to live streaming websites or applications. Depending on the TV's compatibility, the viewer could interact with the seller using the remote control, which is why the understanding of livestream shopping has started to become a topic of scientific interest (Chen and Zhang, 2023). (4) specific sales channels, such as the US-based Home Shopping Network or Taiwan's ETMallTV, and direct sales broadcasts such as The Take (a shoppable ad-platform collaborating with manufacturer LG to integrate software offering a catalogue of over 200 million products on their smart TVs). In this model, the products that are placed on TV programmes are then made available in real time via pop-up ads so that users can purchase them directly, as clicking on the pop-up takes them to the retailer's website. US-based media company NBC Universal also created its own TV-shopping software in 2019, which alerts viewers during a broadcast that a shopping opportunity is approaching in the programme. A code is then generated and displayed on the TV screen, through which the purchase can be made. In this research, the first three scenarios described above are considered. For this, the basic premise for participating in the research is to be a regular user of streaming platforms and to have a Smart TV (which was measured in the questionnaire). Specific sales channels via TV are not explicitly considered as this option is not developed in the study population.

This is the new paradigm of TV-shopping. In the future, the successful company will be the one that can marry shopping, entertainment, and content in a way that adds value to the customer's life without coming across as inauthentic or unrelatable (Morgan, 2020). As well as striving for mutual and emotional interaction (Ju, 2021).

2.2. The extended TAM applied to TV-shopping: research hypotheses

From 1991 to the present day, the TAM has generated >1000 publications in the management field. The TAM is the most widely used technology acceptance model, thanks to its consistency and parsimony (Tao et al., 2019). Its valuable predictive nature—focusing on consumers' intention to use new technologies—has led to the growth of its application in parallel with the birth of the various technologies that have evolved over this period, such as mobile commerce (Kasilingam, 2020; Natarajan et al., 2017; Tseng, 2015), mobile apps (Engström and Strimling, 2020; Kumar et al., 2018), virtual try-on (Pantano et al., 2017), intelligent personal assistants (Liu et al., 2022; Sánchez-Franco et al., 2021), the use of sophisticated payment methods (Yan et al., 2021; Zhong et al., 2021) and recently, the COVID-19 tracing app (Shahidi et al., 2022). However, to date, there has been no study that has sought to validate the TAM in the TV-shopping context. The work of Wagner et al. (2017) comes the closest to this objective, proposing a behavioural model based on Deci's (1975) Motivational Theory and the TAM (Davis et al., 1992) for a sample of 193 consumers in an online shopping experiment via a TV-hosted shopping app.

Given the utilitarian nature of the TAM, in that it captures, by definition, aspects such as perceived usefulness and perceived ease of use, authors such as Driediger and Bhatiasvi (2019), Rese et al. (2020) and Tao et al. (2019) incorporated the hedonic construct of enjoyment, hypothesising that this factor also affects behaviour. Indeed, as early as 1980, Triandis (1980) had already postulated that pleasure and joy have an impact on behaviour. It has been found, then, that enjoyment is a reaction that affects individuals' performance and is an essential element to consider when developing a website (Cheema et al., 2013). It is also important when designing online shopping experiences.

If a technology is perceived as useful (as an efficient way to shop online, for instance), this generates a positive attitude toward its use (Groß, 2018). Similarly, the less effort it takes to use that technology, the

greater its perceived ease of use and the greater the positive attitude toward it. Intrinsic motivations, such as enjoyment of the purchasing process, may markedly influence consumer attitudes toward a given technology (Wagner et al., 2017). The causal relationship between enjoyment and perceived ease of use (in both directions) has also been theorised throughout the literature. According to Sun and Zhang (2006), this is not arbitrary; rather, the causal direction depends on the specific context under study—that is, it varies according to whether the system in question is utilitarian (such as banking) or hedonic (such as hospitality). This suggests that the inverse relationship (the effect of perceived ease of use on enjoyment) will be stronger in hedonic systems such as shopping. Based on the above literature review, the following research hypotheses are thus proposed:

H1. The perceived usefulness of TV-shopping has a positive and direct effect on consumers' attitudes toward it.

H2. The perceived usefulness of TV-shopping has a positive and direct effect on consumers' enjoyment of it.

H3. The perceived ease of use of TV-shopping has a positive and direct effect on consumers' attitudes toward it.

H4. The perceived ease of use of TV-shopping has a positive and direct effect on consumers' enjoyment of it.

It is also postulated in the scholarship that the more users perceive the purchasing technology to be enjoyable, the more likely they are to adopt it, and this is where the intrinsic hedonistic value of the enjoyment of TV-shopping becomes especially important. This value can be understood as the satisfaction the individual derives from using the technology, as well as from the consequences of that use (Davis et al., 1992), and it is considered one of the most important predictors of attitudes toward online shopping (Kim and Forsythe, 2010). On this point, many researchers have examined the question of whether the enjoyment construct would constitute a valid addition to the TAM (Groß, 2018; Tao et al., 2019). Enjoyment has been shown to stimulate the individual to use a new technology (Tao et al., 2019). Moreover, enjoyment not only influences behaviour directly but also indirectly, through attitude (Wagner et al., 2017); and the more enjoyable the experience, the more favourable the attitude toward the purchase (Jarvenpaa and Todd, 1997). Therefore, the following hypotheses are proposed:

H5. Enjoyment of TV-shopping has a positive and direct effect on TV-shopping purchase attitude.

H6. Enjoyment of TV-shopping has a positive and direct effect on the intention to purchase via TV-shopping.

H7. Attitude toward TV-shopping has a positive and direct effect on purchase intention.

Fig. 1 summarizes the proposed behavioural model.

3. Method

3.1. Data-collection

To collect the data, a pre-coded online questionnaire was designed, the suitability of which was evaluated by five expert researchers. Data were collected by convenience sampling through social networks in Spain. The sample was composed of potential TV-shopping users, based on two criteria: that the individual was a regular user of streaming platforms and a smart TV owner. A pilot test was carried out to ensure the correct understanding of the items and the robustness of the measurement scales. The final sample consisted of 283 participants; 57.2 % were female; 51.2 % of the total were between 18 and 24 years old; and 53 % of the total were university graduates (53 %). The majority had no independent source of income (50.8 %). Table 1 summarizes the main characteristics of the sample.

3.2. Measurement scales

The questionnaire opened with a series of control questions, together with questions concerned with sociodemographics (see Table 1). Next, the variables under study were presented on Likert scales ranging from 1 ("completely disagree") to 7 ("completely agree"). Table 2 details each scale, its items, and the source from which it was adapted.

Data-analysis was performed using partial least squares structural equation modelling (PLS-SEM). In recent years, numerous papers have applied PLS-SEM in different areas of knowledge, including marketing (Hair et al., 2012). It takes a causal-predictive approach to SEM that emphasises prediction by estimating statistical models, whose structures are designed to provide causal explanations (Sarstedt et al., 2017). This technique is appropriate for samples that are not very large (Hair et al., 2017a). If the dataset size is limited, covariance-based SEM can produce abnormal results when the data are not normal (Reinartz et al., 2009), whereas PLS-SEM offers greater robustness in these cases (Sarstedt et al., 2016). Finally, as this is an exploratory investigation dealing with a service (TV-shopping) that is not yet available in the country under analysis (Spain), PLS-SEM is particularly suitable (Nitzl, 2016).

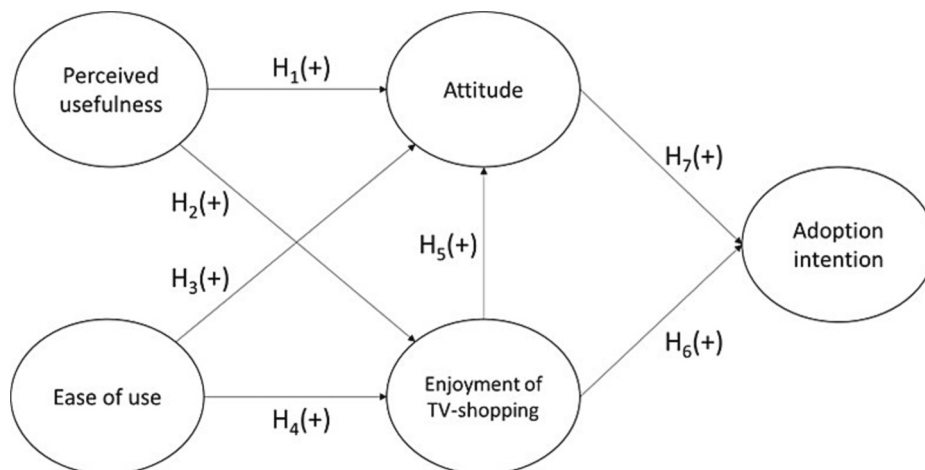


Fig. 1. Proposed behavioural model.
Source: own elaboration.

Table 1
Descriptive sample statistics.

Variable	Cases
Gender	
Female	162 (57.2 %)
Male	121 (42.8 %)
Age bracket	
<18	18 (6.4 %)
18–24	145 (51.2 %)
25–34	42 (14.8 %)
35–44	22 (7.8 %)
45–54	20 (7.1 %)
55–64	14 (4.9 %)
65 or over	22 (7.8 %)
Educational level	
Primary only	8 (2.8 %)
Compulsory secondary	56 (19.8 %)
Intermediate vocational training	8 (2.8 %)
Advanced vocational training	25 (8.8 %)
University degree	150 (53 %)
Master's degree or higher	36 (12.7 %)
Monthly income	
No income	144 (50.9 %)
€500–€1000	23 (8.1 %)
€1001–€1500	26 (9.2 %)
€1501–€2000	22 (7.8 %)
€2001–€2500	19 (6.7 %)
Over €2500	18 (6.4 %)
Household size	
One person	27 (9.5 %)
2–3 people	122 (43.1 %)
4–6 people	132 (46.6 %)
7–8 people	2 (0.7 %)

4. Results

4.1. Measurement model

First, common method bias (CMB) was analysed using Harman's single factor, whereby all items load on a single common factor. According to the literature, CMB does not influence the data if the total variance for a single factor is <50 %. The results showed that the items could explain 43.05 % of the variance, indicating that there was no CMB.

Next, the measurement model was analysed using reliability, convergent analysis, and discriminant analysis. The following indicators and the recommended threshold in each case were considered in this analysis: Cronbach's alpha (critical acceptance value = 0.7); composite reliability (threshold value = 0.7); and average variance extracted (threshold value = 0.5) (Fornell and Larcker, 1981; Hair et al., 2017b). All values exceeded the recommended threshold (see Table 2). Therefore, internal consistency and convergent validity were confirmed. Also, the loadings of each item were examined and were found to be significant and >0.7 (Hair, 2011).

Next, discriminant validity was measured using the Fornell-Larcker criterion (Henseler et al., 2014) and the discriminant matrix was calculated. The square roots of the AVE exceeded the construct's relationships to the other components (see Table 3). Therefore, discriminant validity was supported (Fornell and Larcker, 1981).

Finally, the collinearity test was applied to observe whether multicollinearity existed between the dependent variables. All variance inflation-factor values turned out to be less than five, thus confirming the lack of multicollinearity (Hair et al., 2017b).

Table 2
Standardised loadings, composite reliability, and average variance extracted.

Constructs and items measured	Standardised loadings
PERCEIVED USEFULNESS (Cronbach's α = 0.851; CR = 0.910; AVE = 0.771; adapted from Sánchez et al., 2007)	
I find the TV-shopping functions useful.	0.870
Using TV-shopping encourages interaction with other users.	0.877
Using TV-shopping gives me access to a lot of information.	0.887
EASE OF USE (Cronbach's α = 0.947; CR = 0.955; AVE = 0.679; adapted from Venkatesh, 2000)	
It would be possible for me to shop on TV without the help of an expert.	0.713
Learning to shop on TV is easy.	0.834
It is easy to get what you want to buy on TV.	0.838
It takes little time to learn how to use television for shopping.	0.849
It is easy to remember how to use the TV for shopping.	0.869
Interaction with TV-shopping is clear and understandable.	0.888
It would be easy to be an expert in TV-shopping.	0.810
TV-shopping is easy for anyone to handle.	0.751
TV-shopping requires little mental effort.	0.762
In general, I find TV-shopping easy.	0.903
ATTITUDE (Cronbach's α = 0.918; CR = 0.942; AVE = 0.802; adapted from Rodríguez et al. (2009))	
It is fun to shop on TV.	0.888
I am in favour of the existence of TV-shopping.	0.873
It is nice to shop on TV.	0.923
Using TV-shopping is a positive idea.	0.897
ENJOYMENT OF TV-SHOPPING (Cronbach's α = 0.930; CR = 0.956; AVE = 0.878; adapted from Seock and Bailey, 2008)	
I enjoy shopping on TV.	0.944
TV-shopping puts me in a good mood.	0.950
I like to spend time shopping on TV.	0.916
ADOPTION INTENTION (Cronbach's α = 0.905; CR = 0.940; AVE = 0.840; adapted from Hsiao et al., 2010)	
I think television offers a good opportunity to shop. I would consider buying the products via the TV.	0.894
I am likely to buy the products via the TV.	0.926
I am willing to buy the products via the TV.	0.929

Table 3
Discriminant validity.

	Attitude	ENJ	EU	Intention	PU
Attitude	0.895				
ENJ	0.786	0.932			
EU	0.332	0.252	0.824		
Intention	0.660	0.647	0.227	0.917	
PU	0.710	0.660	0.220	0.810	0.878

Note: The diagonal elements (in bold) are the square roots of the AVE. Values below the diagonal are the inter-construct correlations (Fornell & Larcker's test). ENJ: enjoyment of TV-shopping; EU: ease of use; PU: perceived usefulness.

4.2. Structural model

To test the proposed model, we used structural equation modelling with SmartPLS software. The research hypotheses were tested by means of comparative analysis of the structural coefficients. Bootstrapping was performed on a total of 5000 subsamples randomly extracted from the original dataset, and the effect sizes (f^2 or Cohen's indicator) were examined. According to Hair et al. (2017b), f^2 values of 0.35 can be considered strong; values of 0.15, moderate; and 0.02, weak.

The analysis concluded that all the hypotheses are supported because their p -value was <0.05. The strongest relationships were found in relation to H2 ($\beta_{PU \rightarrow ES}$ = 0.635; p -value = 0.000; f^2 = 0.697), H5 ($\beta_{ES \rightarrow ATT}$ = 0.538; p -value = 0.000; f^2 = 0.528), and H1 ($\beta_{PU \rightarrow ATT}$ =

0.328; p -value = 0.000; f^2 = 0.199). Table 4 shows all the results.

The predictive capacity of the model was evaluated by the multiple squared correlation coefficient (R^2). The value for adoption intention was 0.479; it therefore explains a high proportion of the model variance. The R^2 for 'attitude' was 0.697, meaning that perceived usefulness, ease of use, and enjoyment of TV-shopping explain 70 % of attitude. The R^2 for 'enjoyment of TV-shopping' was 0.448, indicating that perceived usefulness and ease of use explain 44.8 % of enjoyment.

Lastly, the standardised root mean squared residual (SRMR) ratio was tested to contrast the difference between the observed correlation and the predicted correlation as an indicator of model fit (Henseler et al., 2014). The SRMR value was 0.056, which is below the recommended threshold of 0.08 (see Fig. 2).

5. Conclusion

5.1. Theoretical implications

This study makes important contributions to retail research and, more specifically, to scientific research on TV-shopping since no previous studies have analysed consumer behaviour toward TV-shopping. The primary conclusion that can be drawn is that the proposed behavioural model offers good predictive ability for TV-shopping adoption intention. All the proposed antecedents significantly influence the individual's intention to make purchases via this method, either directly (in the case of attitude and enjoyment) or indirectly (in the case of perceived usefulness and ease of use). These findings therefore contribute theoretically to identifying consumers' motivations for engaging in this activity.

Moreover, the literature demonstrates the application of different behaviour theories to examine intentions and behaviors related to purchases and payments through technological means. The Unified Theory of Acceptance and Use of Technology has been employed for mobile purchases (Chopdar et al., 2018). The Technology Acceptance Model has been used for mobile tourism purchases (Gu et al., 2019), mobile app technology (Vahdat et al., 2021), the use of food ordering apps (Song et al., 2021), mobile banking (Muñoz-Leiva et al., 2017), online shopping (Fernandes et al., 2021), e-commerce platforms like Alibaba (Kwak et al., 2019), and the intention to purchase low-consumption appliances (Hua and Wang, 2019). However, to date, there is no study that attempts to address the intention to adopt purchasing technologies specifically through television. Therefore, in line with previous and recent literature, the Technology Acceptance Model has been considered as a consolidated underlying theory on which to base the research line.

The inclusion of the enjoyment variable is part of the extension of TAM that began to be used in the context of online shopping, as seen in the study by Perea et al. (2004). It has even been adapted to samples from specific geographic regions such as Turkey (Çelik and Yilmaz, 2011), Malaysia (Wong et al., 2014), and Pakistan (Akhlak and Ahmed, 2015). It has also been addressed for specific cases such as Virtual Try-on (Kim and Forsythe, 2008), the adoption of product virtualization technology (Kim and Forsythe, 2010), mobile shopping (Groß, 2015; 2018), instant shopping (Brusch and Rappel, 2020), and virtual commerce (Luna-Nevarez and McGovern, 2021). Although enjoyment has been of

interest to researchers for two decades, there are still many questions about its effect on the intention to use technologies involving electronic payment, and even more so in the case of purchasing through Smart TVs, an area where there is currently no existing research. Its inclusion is also unavoidable since the act of purchasing inherently involves significant hedonic motivations (Pop et al., 2023; Kautish et al., 2023).

The study reveals that the perceived usefulness of TV-shopping positively and directly influences attitudes toward it, a finding in line with previous studies such as that of Upadhyay et al. (2018). At the same time, perceived usefulness also has a positive impact on enjoyment of TV-shopping, this relationship being the strongest in the entire model. This result is in line with the findings of Aren et al. (2013) in the context of online shopping. In other words, individuals will have a more positive attitude toward TV-shopping and enjoy it more if they perceive it to be useful to them.

Meanwhile, ease of use is proposed as an antecedent of attitude and enjoyment, and the present results confirm that it does, indeed, exert a positive influence on both variables. This finding aligns with that of Zuniarti et al. (2020), who find that ease of use has a positive influence on attitudes toward online shopping. Ease of use was also found to exert a positive impact on TV-shopping and was confirmed to positively influence enjoyment of TV-shopping, which is in line with the findings of Aren et al. (2013).

Another important finding is the positive impact of enjoyment of TV-shopping on attitude, which echoes the study by Swilley and Goldsmith (2013) in the context of Black Friday shopping. This is the second-strongest relationship in the proposed model. These results highlight the importance of the 'enjoyment' construct for TV-shopping and, therefore, in the extension of the TAM model.

Finally, attitude and enjoyment were found to be directly and positively related to TV-shopping purchase intention, as anticipated. The appropriateness of incorporating the hedonic variable in the model is unquestionable, as it plays a particularly relevant role in attitudes toward TV-shopping. In line with this conclusion, one recommendation for the promotion of this sales model is to use advertising campaigns that emphasise the enjoyment dimension, positioning this method of shopping as a fun, pleasurable activity. Other recommendations for management are set out below.

5.2. Management implications

This research contributes to the expansion of TV-shopping as a new, interactive shopping method. It provides private companies and government institutions alike with empirical evidence on the feasibility of adopting this technology, enabling them to undertake their technological and infrastructural development projects to implement TV-shopping with greater certainty.

TV-shopping holds many advantages for advertisers who decide to link up with this emerging sales technique. Like social media channels such as Facebook or Instagram or search engines such as Google, smart TV enables brands to target specific audiences based on demographics and behaviour, while optimising user data, providing the data in real time, and identifying the marketing attribution for ROI calculation. Hence, advertisers' switch from advertising to TV-shopping offers great

Table 4
General model resolution by SmartPLS (bootstrapping = 5000).

Research hypothesis		Path coeff.	Std dev.	t-Value	p-Value	f ²	Result
H1(+)	PU → ATT	0.328	0.061	5.336	0.000	0.199	Supported
H2(+)	PU → ENJ	0.635	0.048	13.134	0.000	0.697	Supported
H3(+)	EU → ATT	0.125	0.036	3.467	0.001	0.048	Supported
H4(+)	EU → ENJ	0.113	0.044	2.570	0.010	0.022	Supported
H5(+)	ENJ → ATT	0.538	0.060	8.952	0.000	0.528	Supported
H6(+)	ENJ → INT	0.334	0.080	4.164	0.000	0.082	Supported
H7(+)	ATT → INT	0.397	0.075	5.319	0.000	0.116	Supported

Note. PU: perceived usefulness; ATT: attitude; ENJ: enjoyment of TV-shopping; EU: ease of use; INT: adoption intention.

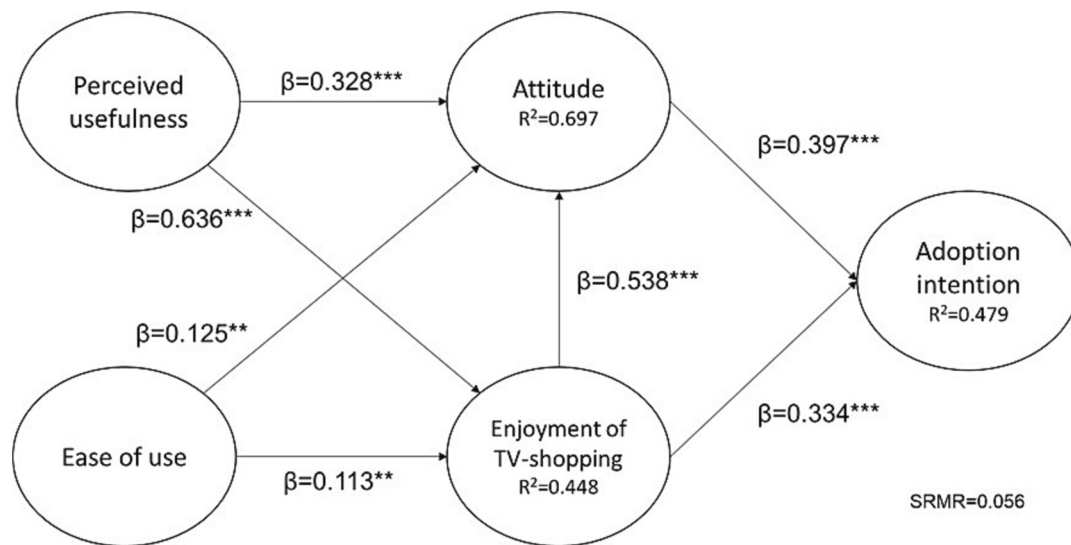


Fig. 2. Results of the proposed theoretical model.
Source: own elaboration.

advantages in terms of the management and control of performance metrics, as well as a clear positioning on the consumer side, because this format bridges the gap between TV and mobile, facilitating and creating multi-platform experiences.

As a result, brands that decide to join TV-shopping will be able to access more specific audience targets depending on the TV programme viewed, bringing their products closer to viewers and facilitating their purchase. The selective presence of advertisers in certain programmes can therefore be defined by a meticulous study of audience profiles. In this regard, another advantage of TV-shopping is that campaigns can be designed to achieve both communications objectives (such as awareness) and promotional objectives (such as direct-response sales) simultaneously. To this end, two alternatives are proposed to facilitate the linkage between programmes and products advertised for direct sale through TV-shopping: (1) the inclusion of a distinctive sign during the TV broadcast indicating that the purchase of the products appearing is available, in such a way that the viewer can access their purchase through Smart TV or through a second screen or mobile device via QR code or similar way of direct access; (2) the indication by the advertising company that the advertised product has appeared in the immediately preceding TV space, in such a way that allows the viewer to access its immediate purchase through the means proposed above.

Direct access to shopping through TV programmes and advertisers will be perceived by viewers as useful for shopping, which will result in a more positive attitude toward this type of shopping in line with the results of this research. Neither should we forget that this purchase process should be easy for the viewer, as our results show that ease of use influences both the attitude toward this type of purchases and the enjoyment.

Our results have also shown that the inclusion of the construct enjoyment of shopping on television plays an important role in both attitude formation and intention to make purchases of this type. Therefore, given the hedonic nature of television viewing, we consider that the agents involved in TV-shopping should make a creative and technical effort to make the purchase simple but attractive in terms of enjoyment so as not to be cumbersome for the viewer and not to break the enjoyment of television watching itself.

Given the optimistic outlook for the development of this technology in Spain (and in other markets where TV-shopping is only just emerging or has not yet fully taken off), advertising platforms should provide the necessary technology for operating TV campaigns within the portfolio of services offered to their advertisers. An example of this approach is the

unified video-ad software package offered by MadHive, a US company specialising in programmatic advertising. This package enables companies to measure customer-intent data on TV, mobile devices, and the Web.

Turning to the user experience, this is fundamental to customer satisfaction, as is positive word-of-mouth (Barari et al., 2020). Hence, a special emphasis on enjoyment of this new shopping medium is recommended, as this factor is essential in TV-shopping. Moreover, being a novel method, the fun and pleasure of using a new approach is one of the main incentives for the consumer. The perception of this service as distinctive in its novelty helps to generate positive attitudes and use-intention toward it. To stimulate this feeling—enjoyment of TV-shopping and a positive attitude toward it, leading to increased use intention—perceived usefulness and ease of use are fundamental. When well-managed, both variables enable companies to sell and promote their product more easily, providing an advantage over other methods. In other words, if companies can successfully show consumers that TV-shopping is a straightforward and stress-free method that delivers results, those consumers will form a better impression of the service and a more positive attitude toward it. In turn, they will enjoy the *process* of shopping this way, and this will foster sustained use intention.

All those who are set to gain by expanding their sales channels through TV-shopping this incipient means of purchasing and with a potential future, are advised to a) present their products, especially those aimed at your target audience, and promote this method as a new, entertaining, and fun way to shop compatible with enjoyment of television viewing, as study results have shown the importance of enjoyment in the viewer's intention to adopt the technology; b) raise awareness among potential users that this is a simple method, explaining the basic steps to follow to reduce any possible uncertainty and indicating that shopping via the TV is simple and user-friendly; and c) demonstrate the practical benefits and usefulness of choosing this shopping method so that consumers understand its advantages over traditional channels. All of this will facilitate the inclusion of companies in a new commercial landscape.

5.3. Limitations and future lines of research

This study has certain limitations that can be considered for future research. First, the sample comprised a single nationality (Spanish), given the researchers' interest in applying the study to a population where TV-shopping technology has yet to be introduced. Future studies

could examine users from other countries and cultures to test the validity of the proposed behavioural model and establish cross-cultural comparisons. In addition, the sample is mostly composed of relatively young participants (up to 24 years old), which may partly shape the results, given the subjects' previous experience with smart devices and technologies. This fact entails a limitation, as some of the sample participants report having no income. However, it is proposed as future research to expand it in order to obtain a complete sample with income to strengthen the findings.

Future research may also advance an additional, comprehensive model by including more antecedent and moderating variables. Furthermore, as this is a preliminary study, TV shopping is studied in a general way, either through streaming platforms or video applications via TV, which implies concluding the purchase intention in a global way. It is therefore proposed that future studies should directly and uniquely study the different TV purchase methods to find similarities or differences in adoption.

CRedit authorship contribution statement

María Eugenia Rodríguez López: Conceptualization, Investigation, Writing Original Draft, writing-reviewing, Supervision.

Elena Higuera Castillo: Methodology, Formal Analysis, writing-reviewing.

Álvaro José Rojas-Lamoren: Resources, Data curation, Writing Original Draft, writing-reviewing.

Juan Miguel Alcántara Pilar: Writing Original Draft.

Data availability

Data will be made available on request.

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