

# Evaluation of Electronic Programme Guide Adoption Using UTAUT2 Based Model

Domagoj FRANK, Marin MILKOVIĆ

**Abstract:** In this paper we describe research in the ways in which consumers reach the information on television programme schedule and what motivates them to use the electronic programme guide service. The research was carried out using the Unified theory of acceptance and use of technology 2 (UTAUT2) model on a sample of N=234 respondents in the Republic of Croatia. The survey found that, when consumers want to get information about programme scheduling or event information, 55.5% of them first choose to use the electronic programme guide (EPG), and that the rest of them rather use teletext, Internet portals and smartphone applications or printed programme guides as a first choice. The research model based on UTAUT2 explained almost 90% of the variance in behavioural intention to use the electronic programme guide and 78% of the variance in use of the EPG. The intention to use the EPG is driven mainly by the user's habit with more than 50% of influence on the behavioural intention, followed by the users' perception that the EPG as a solution gives them high quality information which they can retrieve quickly, as well as ease of use of the EPG application and the fact that it is free to use. The actual use of the EPG is influenced by the facilitating conditions which include availability of an electronic programme guide on every television set or digital receiver and users' perception that they know how to use the application, habit and intention to use. Indirectly, through the intention to use, the fact that the electronic programme guide is quick and reliable, easy to use and free also plays a major role in use behaviour.

**Keywords:** electronic programme guide; EPG; technology adoption; television; UTAUT2

## 1 INTRODUCTION

In the television segment of the media market of the Republic of Croatia, consumers still primarily consume free-to-air television programmes, despite a good offering of the Pay-TV services. Relatively early digitization of terrestrial television in the Republic of Croatia [1] with analogue switch-off in 2010 had a major impact on the development of TV market segments, as it allowed the broadcast of a large number of free terrestrial programmes with a high quality image. The digital terrestrial television, in relation to the analogue, enabled the users in Croatia to use the Electronic programme guide (EPG) service as a source of information on the broadcast schedule and the content of the broadcast programme itself. By digitizing terrestrial television, the electronic programme guide became present on every digital receiver. Prior to the digitization, the programme schedule was available in the printed form, either in the form of a programme schedule in the daily newspapers or in the form of a specialized magazine with a weekly programme schedule, on an analogue teletext system serviced by every television publisher separately and on specialized Internet portals.

Due to its omnipresence, the Electronic programme guide service of digital terrestrial television is very suitable for the research of information service acceptance, but satisfactory scientific research on the acceptance and use of this service is almost non-existent – not only in Croatia, but also in the scientific literature around the world.

In particular, there is a lack of scientific research on the ways in which consumers reach the information on television programme schedule and what motivates them to use the electronic programme guide service. An additional motivation for this type of research is the potential expandability of the results and conclusions for the anticipation of the acceptance of future information and interactive digital television services.

This research primarily took into account consumers of the evotv service – a digital terrestrial television Pay TV and in addition, consumers of free to air television and other pay TV services.

## 2 ELECTRONIC PROGRAMME GUIDE

According to the 2011 European Telecommunications Standards Institute (ETSI) definition [2], "Programme guides provide users of television, radio, and other media applications with continuously updated information displaying scheduling information for current and upcoming programming." ETSI also notes that the term "programme information" encompasses two different applications: programme schedules and event information, i.e. programme description within the programme. Data for both applications are transmitted using the same technical means.

The first Electronic Programme Guide (EPG) service was introduced in 1981 in North America as digitally displayed non-interactive schedule information, similar to the information panels at the airport [2]. The current electronic programme guide is an additional digital television service that is a standard for terrestrial, satellite and cable distribution in accordance with DVB standards, and is an integral part of most of the implementations of television distribution through the Internet Protocol. Through the digital television, users have access to tens or hundreds of television channels with thousands of programme content items per day. Simply providing information in a way it is presented in a paper guide or having scheduling information about only one or several programmes available through teletext is simply no longer sufficient. An electronic programme guide service that enables users to interactively interact with scheduling information and quickly and efficiently find the programme of their choice is required.

In Europe, the European Telecommunications Standards Institute (ETSI) has published the ETS 300 707 standard [3] to standardize the delivery of EPG data over digital television signals. EPG data is usually sent through the MPEG2 transport stream (MPEG2 TS) of each TV channel, or for all TV channels together in separate data streams. EPG can be used on all digital terrestrial television receivers and television sets with built-in digital receivers. Viewing and selecting programmes on a TV channel, broadcast time, title or genre is performed using

the TV remote control. Menus are generated entirely within a television set or external digital terrestrial television receiver using raw scheduling data that is sent to each of the television or radio channels separately, or via a centralized provider of scheduling information for multiple channels at once.

Given that the format and delivery of raw EPG data are standardized only through the television distribution network to the receiver, each manufacturer has its own interface for displaying the electronic programme guide and, as a rule, various buttons on the remote control or ways to run the electronic programme guide display. That is a potential problem of usability for users who are less fluid in using the technology. These problems are recognized in the industry so the Digital TV Group, an association of more than 125 companies in the TV industry for innovation and television and technology sectors, provides guidelines for the usability and accessibility of television sets [4], to better harmonize functionalities and interfaces including the electronic programme guide interface.

### 3 TECHNOLOGY ACCEPTANCE MODELS

Technology and service acceptance models have been the subject of scientific research from the early days of information systems, with the aim of explaining user behaviour related to the information technology. The theoretical models that explain the acceptance of technology developed from the theories in the fields of behavioural psychology and marketing, and although there are certain similarities, there are also significant differences in the explaining of technology acceptance. One of the first models is Rogers' Diffusion of Innovation Theory from 1962 [5], in which he observes the diffusion of innovation in relation to social communication channels between individuals over time. In 1975, in the Theory of Reasoned Action [6], Fishbein and Ajzen, unlike Rogers, try to explain and predict the behaviour based on the belief, attitude and intention of an individual. One of the most applicable models – Technology Acceptance Model – was defined by Davis in 1989 [7], where he determined two crucial factors: perceived usefulness and ease of use. In 1991, Vessey defined the Cognitive Fit Theory [8] which focuses on the problem of how to create a relationship between the task and problem representation in order to improve performance. In further course of research, one of the more significant models was given in 1995 by Goodhue and Thompson, who defined the Theory of Task-Technology Fit [9] in which they consider the degree to which technology helps the user to perform tasks. A newer model under the name Unified Theory of Acceptance and Use of Technology, the so-called UTAUT model, was developed in 2003 by Venkatesh et al. [10]. It combines several previous theories into a more comprehensive and complete model of human behaviour. The UTAUT model holds that the constructs of performance expectancy, effort expectancy, social influence, and facilitating conditions are direct determinants of the intention to use and actual use. The UTAUT model also further defines the moderators that affect one or more constructs: gender, age, experience and voluntariness of use.

The mentioned, but also numerous other theories and models were categorized in more detail by Dwivedi et al. in 2012 [11], and in his further work with Williams, concluded in 2015 [12] by reviewing literature that the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. in 2003 [10] "is widely used in the research of the acceptance and dissemination of technology as a theoretical lens of researchers who carry out empirical research of user intention and behaviour" and that up until the moment of their research, the UTAUT model had been quoted over 5000 times. The UTAUT model was created by combining eight other most significant theories and models in an attempt to create a complete model of user behaviour. In his experiment, on the same set of data, Venkatesh individually compared each of the traditional models and determined that they can explain between 17% and 53% of the variance in the user's intention to use information technology, while UTAUT explained 69% of the variance [10].

In the last ten years, researchers have been shifting their focus from the observation of technology acceptance to the user-consumer and the acceptance of technical appliances, applications and services. Consumers are the ones who are responsible for the costs and such costs can be dominant in the acceptance of technology. Furthermore, consumers have previously learned behaviours, i.e. habits, and they often expect that the use of technology gives them satisfaction and pleasure. Venkatesh thus recognizes the need for a further expansion of the original UTAUT model in order to explain the behaviour of users-consumers, and in 2012 he publishes the Unified Theory of Acceptance and Use of Technology 2, i.e. the UTAUT 2 model [13] with which he improves his initial UTAUT model from 2003 and expands it with three new constructs: price value, habit and hedonic motivation. By comparing the results of the UTAUT and UTAUT2 models on a sample of Hong Kong residents when researching user acceptance and the use of mobile Internet, he concludes that UTAUT2 provides significantly better results in explaining the variance of the user's behavioural intention that influences his or her true behaviour – the use of technology – increasing it from 56% in the case of the UTAUT model to 74% in the analysis congruent with the UTAUT2 model. For user behaviour, i.e. the real use of technology, UTAUT2 explains 56% of variance compared to the 40% explained by UTAUT on the same set of data. In 2015, Rondan-Cataluna et al. [14] compared the TRA, TAM, TAM2, TAM3, UTAUT and UTAUT2 models and showed that UTAUT2 has a 26% better power of explaining than the TAM models on the sample of end-users of mobile Internet, i.e. in the consumer context. With it, they confirmed that UTAUT2 has better performance when research is conducted on end users, i.e. consumers.

#### 3.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

In the Unified Theory of Acceptance and Use of Technology (UTAUT) [10], Venkatesh attempts to explain the intention of the user to use the information

system, as well as the subsequent behaviour of the user. Moreover, he integrates the most important theories and models to date and emphasizes four major factors that determine the intention of the user's behaviour, namely the intention to use the observed technology and ultimately the actual use of the observed technology. Three constructs: Performance Expectancy (PE), Effort Expectancy (EE) and Social Influence (SI) create the Behavioural Intention (BI) to use and thus jointly act on the use, i.e. the use of the observed technology. The fourth construct, Facilitating Conditions, does not affect the intention to use, but directly affects the Use Behaviour (UB), i.e. the use of the technology. Figure 1 depicts relations between constructs with thin lines. Venkatesh also anticipates four moderators that indirectly influence the behavioural intention and behaviour: Gender, Age, Experience, and Voluntariness of use. Performance Expectancy is affected by Age and Gender, Effort Expectancy is affected by Age, Gender and Experience, Social Influence is affected by all moderators, while Facilitating Conditions are affected by Age and Experience.

The Performance Expectancy construct describes the belief of the respondents that by using the observed information technology they will perform their job more efficiently, i.e. be more productive. On the other hand, Effort Expectancy determines the degree to which the respondents believe that the use of information technology will be difficult; it includes their subjective estimate of the effort needed for a professional use of the information technology. Social Influence determines the degree to which the respondents believe that their

environment will support the introduction or use of the observed information technology. Finally, Facilitating Conditions are defined as the “degree to which the respondents believe that there is an organizational and technical infrastructure which supports the use of the system.” [10]

### 3.2 Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

Venkatesh revised in 2012 the UTAUT model with his associates and added three new constructs that take into account the user-customer aspects and they called it the UTAUT2, i.e. the Unified Theory of Acceptance and Use of Technology 2 [13]. Without any changes, the constructs of Performance Expectancy, Effort Expectancy and Social Influence were taken from the UTAUT model, and a link between facilitating conditions and the behavioural intention was added. Venkatesh removed the moderator of the voluntariness of use and retained only three moderators that affect constructs (age, sex, and experience) in UTAUT2.

UTAUT2 introduces three new constructs (Figure 1): Hedonic Motivation (HM) determines the respondent's level of perception on whether the use of new information technology will be enjoyable or fun. Price Value (PV) reflects the conviction of the respondent that the use of new information technology will be valuable in relation to the cost (e.g. good value for money). Habit (HA) determines the respondent's level of certainty that, according to his or her experiences, the use of new information technology will become a routine.

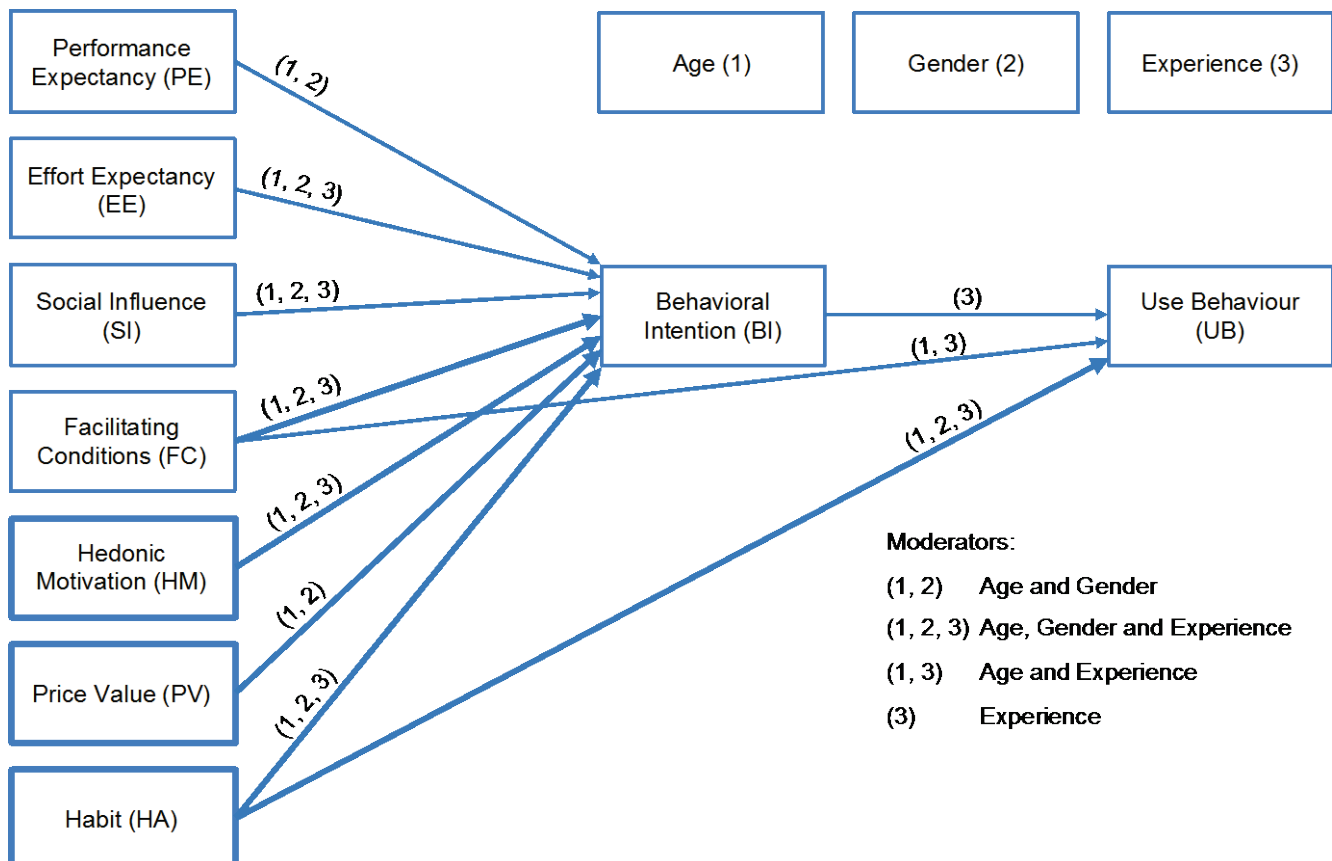


Figure 1 Unified Theory of Acceptance and Use of Technology 2(UTAUT2) model [13]

#### 4 THE SURVEY

In the broader sense, the sample of respondents should include users of all technologies that respondents use to get information on the television programme schedule. That also includes the respondents who still primarily use printed guides, and for whom we can assume with higher probability that they are older and do not use the Internet. Furthermore, we can assume that some of the users of the electronic programme guide and teletext are not completely familiar with Internet technologies. Due to those reasons, it is not possible to collect survey answers via the e-mail or web, which is why a hybrid approach to data collection was used (Tab. 1). The largest number of interviews (130) was conducted by phone (CAPI) by the evotv customer service on a sample of active and potential evotv users. For the implementation, two operators with years of experience were selected for conducting the survey, and by listening to the samples of their conversations, it was checked that high-quality data was collected. 61 respondents fully completed the survey via the Internet (CAWI), i.e. via a direct access to the survey page available at the Survey Monkey service, while 43 interviews were conducted face-to-face with the respondents to ensure that correct answers were also obtained from the older age groups, for which it can be expected that without assistance they cannot fully understand the survey questions. Such approach ensured survey responses that cover all age groups (Tab. 2).

**Table 1** Number of respondents according to the data collection method

Data collection method	Number of respondents
Computer-assisted telephone interviewing (CATI)	130
Computer-assisted personal interviewing (CAPI)	43
Computer-assisted web interviewing (CAWI)	61
Total	234

**Table 2** Number of respondents according to the age group

Age group	Number of respondents
15-24	51
25-34	23
35-44	58
45-54	43
55-64	34
64 or older	25
Total	234

The survey logic that was introduced to limit the number of survey entries through which the respondent has to go through allows the respondents to choose between two steps, i.e. the choice between the primary and secondary technology that they use. In this way, we reconcile the requirement of the future research that requires comparing at least two different solutions to estimate the cost of switching between the solutions and the number of survey entries that can be obtained from a wider circle of respondents. The total number of respondents (Tab. 3) is the largest for the electronic programme guide and equal to the total number of respondents, because the survey logic ensured that all

respondents provide answers for this technology as it is the subject of research. It is followed by teletext as the second most widely used technology with 82 respondents, then by Internet portals with 73 respondents and finally, by printed programme guides with only 22 respondents.

**Table 3** Solution selection for retrieving TV programme schedule

Solution used for retrieving TV programme schedule or TV show data	Number of respondents		
	1 <sup>st</sup> choice	2 <sup>nd</sup> choice	Total
Electronic programme guide	130	57	234
Printed programme guide	14	8	22
Teletext	54	28	82
Internet portal or application	36	37	73
Total	234	130	

#### 5 STATISTICAL ANALYSIS AND THE RESULTS

The use of the electronic programme guide was tested on all respondents ( $N = 234$ ), of which  $N = 130$  or 55.5% stated that they primarily use the electronic programme guide, and 57 out of 130 respondents stated that they only use the electronic programme guide. 104 respondents out of 234 (44.5%) respondents stated that they primarily use different solutions when they need to get the information on programme schedule; 54% of them use teletext, 36% Internet portals and 14% printed programme guides. Those respondents completed the part of the survey related primarily to the primary solution that they choose, and the other part for the electronic programme guide, even though some of them, as expected, did not use the electronic programme guide, which can be seen from the descriptive survey statistics for the electronic programme guide, where the minimal value of all variables was  $\min=1$ , and it was regularly awarded by the non-users of the electronic programme guide when faced with that part of the survey.

**Table 4** Descriptive statistics

Variable	Mean	Median	Mode	Mod Freq.	Variance	Std. dev.
<i>UB</i>	5.137	6.000	7.000	81	4.231	2.057
<i>PE</i>	5.176	5.667	7.000	46	3.798	1.949
<i>EE</i>	5.366	6.000	7.000	84	4.002	2.001
<i>SI</i>	3.977	4.000	4.000	79	4.104	2.026
<i>FC</i>	5.587	6.333	7.000	93	3.936	1.984
<i>HM</i>	4.205	4.000	4.000	66	3.668	1.915
<i>PV</i>	5.127	6.000	7.000	91	4.147	2.037
<i>HA</i>	4.584	5.000	7.000	48	4.627	2.151
<i>BI</i>	5.107	6.000	7.000	78	4.543	2.131

The descriptive statistical analysis of the sample of the survey for the electronic programme guide (Tab. 4) highlights the variables of Social Influence (*SI*) and Hedonic Motivation (*HM*), whose arithmetic mean, median and mode are equal or close to the value 4000, suggesting that the respondents are, in the case of the electronic programme guide use, mostly indifferent to the influence of others, and that they use the electronic programme guide without the feeling of pleasure or satisfaction. The variable Facilitating Conditions (*FC*) has the greatest arithmetic mean, median and maximum mode with the highest frequency of all variables and the highest lower quartile of all variables. It means that the

respondents largely estimate that they have everything they need for the use of the electronic programme guide service.

**Table 5** Correlation analysis for Intention to use and Use behaviour

Notable results of the correlation analysis for the intention to use (IU)	
Variables with a statistically significant ( $p < 0.05$ ) and strong correlation with IU ( $r > 0.8$ )	Habit (0.906) Performance Expectancy (0.865) Effort Expectancy (0.841) Facilitating Conditions (0.802)
Variables with a statistically significant ( $p < 0.05$ ) and moderately strong correlation with IU ( $0.5 < r < 0.8$ )	Price value (0.791) Hedonic Motivation (0.765) Social influence (0.649)
Notable results of the correlation analysis for user behaviour (UB)	
Variables with a statistically significant ( $p < 0.05$ ) and strong correlation with UB ( $r > 0.8$ )	Performance Expectancy (0.878) Behavioural Intention (0.856) Effort Expectancy (0.840) Habit (0.825)
Variables with a statistically significant ( $p < 0.05$ ) and moderately strong correlation with UB ( $0.5 < r < 0.8$ )	Facilitating Conditions (0.797) Price Value (0.728) Social Influence (0.620)

The correlation analysis shows that the relations between variables in the model are statistically significant. By observing the first part of the model and the correlation of seven independent variables with the intention to use, we can see that all independent variables have a strong or moderately strong correlation (Tab. 5). The most significant correlation belongs to Habit, followed by Performance Expectancy, Effort Expectancy and Facilitating Conditions. Very close to a strong correlation are Price Value and Hedonic Motivation, while Social Influence has the weakest correlation, which is confirmed by the observation from the descriptive analysis that the respondents are, in the case of the electronic programme guide use, mostly indifferent to the influence of others.

In the second part, we are interested in the influence of the independent variables of Behavioural Intention (BI), Habit (HA) and Facilitating Conditions (FC) on the dependent variable of Use Behaviour (UB) as defined by the model (Fig. 1). Behavioural Intention and Habit have a strong correlation with user behaviour, while the variable Facilitating Conditions practically has a strong correlation with  $r = 0.797$ . Performance Expectancy and Effort Expectancy also have a strong correlation with Use Behaviour. All variables in the model on the sample of the survey for the electronic programme guide are strongly and moderately correlated, which is a proof of the high quality of the model, but that also points to the presence of the issue of multi collinearity, which negatively affects the regression model. Thus, a hierarchical multiple linear regression was applied, as it includes the construction of a model with the selected variables according to the stepwise method with forward selection. Two models were constructed, the starting

multiple linear regression model and the final multiple linear regression model.

**Table 6** Regression analysis for Intention to use and Use behaviour

Notable results of the regression analysis for the intention to use (IU)	
Starting model: Statistically significant variables ( $p < 0.05$ ) with the corresponding $\beta$	Habit (0.552) Performance Expectancy (0.194) Price Value (0.134)
Coefficient of the determination of the starting model	$R^2 = 0.898$
Final model: Statistically significant variables ( $p < 0.05$ ) with the corresponding $\beta$	Habit (0.529) Performance Expectancy (0.214) Effort Expectancy (0.157) Price value (0.157)
Coefficient of the determination of the starting model	$R^2 = 0.896$
Notable results of the regression analysis for user behaviour (UB)	
Statistically significant variables ( $p < 0.05$ ) with the corresponding $\beta$	Facilitating Conditions (0.341) Habit (0.300) Behavioural Intention (0.297)
Coefficient of the determination of the starting model	$R^2 = 0.784$

After conducting the regression analysis (Tab. 6) in the starting model, it was determined that only the variables of Habit, Performance Expectancy and Price Value are statistically significant for the Behavioural Intention, which is probably the result of mutually correlated variables.

$$BI = -0.117 + 0.194PE + 0.106EE - 0.023SI - 0.075FC + 0.058HM + 0.134PV + 0.522HA \quad (1)$$

Habit (HA) has by far the largest single impact on the Behavioural Intention (BI): when habit increases by 1, the intention to use increases by 0.522 (Formula 1). A unit increase of Performance Expectancy (PE) contributes to the intention to use by 0.192, while Price Value (PV) contributes by 0.134. It is interesting to note that Social Influence (SI), Facilitating Conditions (FC) and Hedonic Motivation (HM) are not statistically significant, and their contribution to the model is negligible. With the ANOVA testing of the obtained multiple linear regression model (Tab. 6), the coefficient of determination of  $R^2 = 0.898$  was determined, i.e. the model makes it possible to interpret 89.8% of variance for the Behavioural Intention. The standard error of the estimate is very small and the whole model is statistically significant, which indicates the high quality of the model and the survey collected data, but due to the potential issue of collinearity, this model cannot be seen as representative.

The process of developing the final model, which was carried out in order to solve the issue of multi collinearity, resulted in the inclusion of independent variables: Habit (HA), Performance Expectancy (PE), Effort Expectancy (EE) and Price Value (PV) (Formula 2).

$$BI = -0.073 + 0.214PE + 0.157EE + 0.157PV + 0.529HA \quad (2)$$

All the obtained parameters are statistically significant ( $p < 0.05$ ) and the standard errors of all parameters are very small. When it comes to the final linear regression model (Tab. 6), the coefficient of determination of  $R^2 = 0.896$  was determined, meaning that with the model, it is possible to interpret 89.6% of variance. Fisher's statistics is  $F = 490.11$  with  $p = 0.000$ , which shows that the indicator  $R^2$  is statistically significant, meaning that the whole model is statistically significant. The standard error of estimate is very small, 0.694. According to all established parameters, it can be concluded that the obtained model is representative and of very high quality, which is why we can safely draw final conclusions from it.

The Behavioural Intention ( $BI$ ) to use the electronic programme guide is dominantly influenced by Habit ( $HA$ ), which suggests that the television viewing population is already largely used to using the electronic programme guide, which is logical due to the fact that it has been available on all TVs and user devices for over eight years. When increasing the variable of Habit ( $HA$ ) by one unit, the Behavioural Intention to use increases by 0.529 units. According to its significance, the next motivator is Performance Expectancy ( $PE$ ), which with an increase by one unit increases the Behavioural Intention to use by 0.214. That leads us to the conclusion that users perceive that the electronic programme guide is a service which quickly and in a quality manner gives them the needed data. A unit increase of Effort Expectancy ( $EE$ ) causes an increase of the intention to use by the still significant 0.157 units, the same as the variable Price Value ( $PV$ ). That result suggests that the ease of use of the electronic programme guide is important to users, as is the fact that its use is basically free.

The multiple linear regression model of the dependent variable of Use Behaviour ( $UB$ ), which implies the use of the electronic programme guide, models the influence of the independent variables of Behavioural Intention ( $BI$ ), Habit ( $HA$ ) and Facilitating Conditions ( $FC$ ) as defined by Formula 3.

$$UB = 0.343 + 0.341FC + 0.300HA + 0.297BI \quad (3)$$

The results show that all parameters are statistically significant and that, according to all indicators, the constructed model is of high quality with the coefficient of determination of  $R^2 = 0.784$ , which means that the model makes it possible to interpret 78.4% of variance in the explaining of Use Behaviour ( $UB$ ). All obtained parameters clearly show that the regression model is representative and that conclusions can safely be drawn from it.

Use Behaviour, i.e. the use of the electronic programme guide is similarly influenced by all independent variables: mostly by Facilitating Conditions (with the coefficient  $\beta = 0.341$ ), meaning that Use Behaviour changes by 0.341 units for each unit change of Facilitating Conditions, followed by Habit ( $\beta = 0.300$ ) and finally, Behavioural Intention ( $\beta = 0.297$ ). The results

indicate that consumers use the electronic programme guide because it is omnipresent – it has been available on every TV for more than eight years. During that period, they formed a habit of use that is contained not only in its direct relation to use, but also through the intention to use, which is most significantly influenced by habit. Indirectly, through the intention to use, the fact that the electronic programme guide is quick and reliable, easy to use and free also plays a major role, and those motivators also have a strong correlation with habit, i.e. the frequent use of the electronic programme guide. Therefore, we can conclude that in this moment, the use of the electronic programme guide by the consumers is primarily motivated by habit.

## 6 CONCLUSION

In this paper, the research of the acceptance of the electronic programme guide was carried out using the UTAUT2 model on a sample of  $N = 234$  respondents in the Republic of Croatia. The survey found that, for 55.5% of respondents, the use of the electronic programme guide is the first choice when they want to take a look at the programme scheduling information, and that the rest of them rather choose teletext, Internet portals and smartphone applications or printed programme guides.

The UTAUT2 seems to be the right fit for the research of the acceptance of the electronic programme guide. The linear regression model explained almost 90% of the variance in behavioural intention to use the electronic programme guide and 78% of the variance in use behaviour.

The Behavioural Intention, or intention to use the EPG, is driven mainly by the user's Habit with more than 50% of influence on the Behavioural Intention. It is followed by the Performance Expectancy – users perceive the EPG as a solution which gives them high quality information which they can retrieve quickly. Additional influence which is still significant is because of the Effort Expectancy and Price-Value variables, which suggests that users appreciate ease of use of the EPG application and the fact that it is free to use.

For the actual use of the EPG there are three motivators with similar influence. The first is the Facilitating Conditions which include availability of an electronic programme guide on every television set or digital receiver and users' perception that they know how to use the application. It is followed by user's Habit and the Behavioural Intention to use the EPG. That leads us to the conclusion that consumers use the electronic programme guide because it has been present on every TV for the period of more than eight years during which they developed a habit to use it. Indirectly, through the intention to use, the fact that the electronic programme guide is quick and reliable, easy to use and free also plays a major role.

## ACKNOWLEDGEMENTS

This research was supported by HP Produkcija d.o.o. which operates "Evotv" – the terrestrial television pay TV service in Croatia.

## 7 REFERENCES

- [1] Frank, D. & Dumić, E. (2014). Planning the Migration of Digital Terrestrial Broadcasting in Croatia to DVB-T2 Standard. *Medijska Istraživanja*, 20(2), 193-210.
- [2] European Telecommunications Standards Institute (2011). *Media Content Distribution (MCD); Programme guide information distribution, situation and perspective* (Publication No. ETSI - TR 102 988).
- [3] European Telecommunications Standards Institute (1997). *Electronic Programme Guide (EPG); Protocol for a TV Guide using electronic data transmission* (Publication No. ETS 300 707).
- [4] Digital TV Group (2014). *UK Digital TV Usability and Accessibility Guidelines, including Text to Speech and Connected TV Version 3.0*. Retrieved from <http://dtg.org.uk/publications/books.html>
- [5] Rogers, E. M. (1962). *Diffusion of innovations*. New York: Free Press.
- [6] Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- [7] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q. Manag. Inf. Syst.*, 13(3), 319-339. <https://doi.org/10.2307/249008>
- [8] Vessey, I. (1991). Cognitive Fit: A Theory-Based Analysis of the Graphs Versus Tables Literature. *Decis. Sci.*, 22(2), 219-240. <https://doi.org/10.1111/j.1540-5915.1991.tb00344.x>
- [9] Goodhue, D. L. & Thompson, R. L. (1995). Task-technology Fit and Individual Performance. *MIS Q.* 19(2), 213-236. <https://doi.org/10.2307/249689>
- [10] Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view, *MIS Q. Manag. Inf. Syst.*, 27(3), 425-478. <https://doi.org/10.2307/30036540>
- [11] Dwivedi, Y. K., Wade, M. R., & Schneberger, S. L. (Eds.). (2012). *Information Systems Theory: Explaining and Predicting Our Digital Society, Vol. 2*. New York: Springer-Verlag.
- [12] Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): a literature review. *J. Enterp. Inf. Manag.*, 28(3), 443-488. <https://doi.org/10.1108/JEIM-09-2014-0088>
- [13] Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Q. Manag. Inf. Syst.*, 36(1), 157-178.
- [14] Rondan-Cataluña, F. J., Arenas-Gaitán, J., & Ramírez-Correa, P. E. (2015). A comparison of the different versions of popular technology acceptance models: A non-linear perspective. *Kybernetes*, 44(5), 788-805. <https://doi.org/10.1108/K-09-2014-0184>

### Contact information:

**Domagoj FRANK**, M.Sc.  
University North  
Trg dr. Žarka Dolinara 1, 48000 Koprivnica, Croatia  
[domagoj.frank@unin.hr](mailto:domagoj.frank@unin.hr)

**Marin MILKOVIĆ**, Professor, Ph.D.  
University North  
Trg dr. Žarka Dolinara 1, 48000 Koprivnica, Croatia  
[marin.milkovic@unin.hr](mailto:marin.milkovic@unin.hr)