

CONSUMER BEHAVIOUR AND MOBILE TV SERVICES: DO MEN DIFFER FROM WOMEN IN THEIR ADOPTION INTENTIONS?

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ABSTRACT

The mobile communications' industry experiences moderate diffusion rates of innovative data services in many countries of the Western world. Mobile TV has been depicted as the "killer application" by both market analysts and mobile service providers. However, these optimistic forecasts have yet to come true. The present article presents the results of a quantitative study conducted in order to explore the relationship between the individual's perceptions of value elements and the adoption intentions, in the case of mobile TV. Building on the theory of reason-based choice, we investigate how gender differences influence the relationship between value perceptions and adoption intentions and how gender influences the individual's preferences for mobile TV services. The research findings highlight the importance of gender as a differentiating factor both for the value perceptions and the individual's preferences. The study underlines the existence of different diffusion patterns between men and women, in the case of mobile TV.

Keywords: adoption decision, mobile TV, gender, reason-based choice

1. Introduction

The rapid technological evolution in the mobile communications markets has led to high bandwidth availability and to decreases in costs of network operations. Mobile operators and other market players seized these opportunities to offer advanced mobile data services to the customers of voice and data communications services. However, in the new market, shaped from the convergence of different communication infrastructures such as broadcasting, telecommunications and the Internet, vendors coming from different markets must compete for a market share in a highly competitive environment. In the new market, many substitute services, similar in terms of use and value, are available for the individual who has to choose among them. For example the individual may watch an episode of a TV series through the Internet TV on her PC, and this in turn may decrease the use of cable, or mobile TV. This dynamic environment poses challenges for vendors' profitability and underlines the need to focus on consumer needs and preferences.

Mobile TV or wireless IPTV services have been launched as part of advanced mobile data services, mainly by mobile operators, in most countries of the Western world. Mobile TV is viewed as a "killer application" by stakeholders in the light of falling ARPU and profits of mobile operators. For example, the Asia-Pacific market of mobile TV services is increasing rapidly [Media Partners Asia 2008], while market researchers forecast that the US will be the largest single market for mobile broadcast TV services in 2013, followed by South Korea and China [Holden 2008]. However, companies engaged in mobile content provision have learned that technological advances and service availability do not automatically lead to widespread adoption, and high revenue streams [Constantiou et al. 2007]. Despite the optimistic predictions about mobile TV market, the experiences from low diffusion rates of mobile data services in the Western world [Blechar et al. 2006; Constantiou et al. 2007] underline the need for better understanding of the individual cognitive processes during the adoption decision.

The most widely used theories in adoption research of information technologies such as mobile TV, emphasise the individual's attitude towards the technical dimensions of the innovation, while they pay limited attention to the value creating dimensions [e.g. Davis 1986; Rogers 1995]. However, today, the individual has to choose between services of the same level of technical complexity which require comparable technical skills from the user. The abundance of "similar" content services, available to consumers through different technological platforms (e.g.

Internet), creates perceptions of “redundancy” and leads to value based comparisons influencing the adoption of a new service [Blechar et al. 2006].

The present study builds upon the theory of reason-based choice [Shafir et al. 1993] to investigate consumer behaviour towards mobile TV services by focusing on men and women perceptions and preferences. Gender research has been extensively used in marketing. For example, a large number of research studies in advertising field suggest that women react differently to advertisement than men, and thus, respond differently to marketing strategies [e.g. Wolin 2003]. Besides, gender has been described as a moderator of consumer behaviour in mobile communications market analysis [Nysveen et al. 2005; Okazaki 2007] and technology use studies [Gefen et al. 1997; Venkatesh et al. 2000]. In the present study, we explore how gender influences the value perceptions about mobile TV attributes in the adoption decision and how it affects the individual’s preferences for the different content categories. The research objective is addressed by the following questions:

- *How does gender influence the perceived value of mobile TV in the adoption process?*
- *What is the impact of gender on preferences of mobile TV services?*

The contribution of the present study is twofold. First, we propose an alternative research approach for the adoption of innovative information technology services which includes investigation of the value elements and the individual’s preferences, and it complements the insights of diffusion of innovation theory. In particular, the proposed research approach draws on the reason-based choice and the gender differences to address the individual’s adoption decision. Second, the study highlights reasons, which may increase the adoption intentions, offering useful insights to practitioners’ commercialisation strategies for the mobile TV services.

The remainder of the paper is organised as follows. The next section presents a brief review of the research on diffusion of innovation in the Information Technologies (IT) markets and it introduces the theory of reason-based choice in relation to gender related research findings. This is followed by the description of the research method used. Then, the data analysis is presented and the main findings are discussed. We conclude by depicting the main contributions as well as identifying future research directions.

2. The Theoretical Background and the Research Model

2.1. Research on the Diffusion of Innovation

The majority of research on information technology services adoption is inspired by Rogers’s [1995] seminal work on Diffusion of Innovation (DoI). This theory explores the adoption rate of an innovation in a social system as a direct result of the five elements which characterises the innovation: relative advantage, compatibility, complexity, trialability and observability. In addition, ‘innovativeness’ --- a behavioural characteristic of individuals is related to the time it takes to adopt an innovation relative to others in a social system. In this theory, the rate of adoption refers to the relative speed with which members of a social system adopt a new idea, product, or service. Since different individuals exhibit different adoption speed, five categories of adopters are identified ranging from innovators and early adopters; through early majority and late majority; laggards, all of whom co-exist in a social system [Rogers 2003].

This categorization is predicated on behavioural assumptions. For example, it is commonly believed that a ‘copy-behaviour’ or ‘imitation principle’ guide the adoption process from innovators to early adopters and so forth [Rogers 2003]. Thus, it has been criticised for suffering from the ‘individual-blame bias’ [Rogers 2003]. Nonetheless, the observation that the adopter groups are characterized by different socio-economic profiles and exhibit alternative degree of innovativeness [Rogers 2003] has led to a substantial stream of empirical research. Moore [1999] introduced “the chasm”, in the diffusion process as a critical “gap” between two groups, which correspond to early adopters and early majority of the DoI model. The “chasm” needs to be crossed for an innovation to be massively adopted. Moore proposed different marketing strategies to address the distinct needs of the two groups, including both technical and economic elements.

Turning to the mobile communications’ industry, the adoption decision has been analysed using conceptual frameworks inspired by the DoI [Rogers 2003] or the Technology Acceptance Model (TAM) [Davis 1986]. For example, Lu et al. [2005] extended the TAM for Wireless Internet adoption by incorporating concepts such as social influences and personal traits. Similarly, Wu and Wang [2005] enriched TAM with constructs regarding perceived risk, cost, and compatibility, while Yang [2005] added individual characteristics, such as innovativeness, past adoption decisions, and knowledge about technology, as external antecedents of TAM constructs. Massey et al. [2005] identified technology readiness and wireless web sites interface usability as key factors influencing the uptake of mobile commerce and services. Besides, Kim et al. [2007] developed a value-based adoption model including benefits as well as sacrifices in the adoption process of mobile Internet.

The future of mobile TV services in Europe has been explored by TAM, in order to analyse the services’ acceptance, through scenarios about mobile broadcasting. The results show that the model becomes less accurate as

the services get more innovative [Martignoni et al. 2008]. Further, the user's positive experience with the mobile TV application, regarding the usability and the ease of use of specific mobile devices, is important for its commercial success. Besides, the small variety of mobile devices supporting the mobile TV application was identified as a main challenge in the diffusion process [e.g. Rondeau 2005].

Theories born in the field of social psychology, such as the Theory of Reasoned Action [Ajzen et al. 1980] and the Theory of Planned Behaviour [Ajzen 1985; Ajzen 1991] have been also introduced to explore the individual's behaviour towards mobile services [Luarn et al. 2005; Bauer et al. 2005; Tsang et al. 2004]. Despite the underlined importance of cognitive processes in both theories, through the use of constructs measuring norms and attitudes affecting the intention and consequently the individual's behaviour, the theories focus on the individual's perceptions of her own behaviours and consequences rather than the individual's evaluation of the innovation's characteristics.

Existing theories of the adoption decision of innovative services in the mobile communications industry display some limitations. Two observations may shed some light on these limitations. First, the adoption of the mobile services is based on a voluntary decision of the individual. However, most of the adoption theories derive from research in the organisational context where investments on information technologies are made by the management and the individual as an employee has to adopt the technologies. This type of research involves the acceptance process of the innovation and does not describe the voluntary adoption decision. Second, consumers of information technologies and mobile communications markets have matured in terms of experiences and knowledge about available technologies, due to their exposure to different technological solutions during the last decade. This implies that a technology driven research approach of the adoption decision may not capture the actual decision process of the individual, who might be focusing on different characteristics of the innovation. In particular, for innovations that offer the individual services similar to existing ones, through different technological means (e.g. channels), the economic motives are prominent in the adoption decision [Balasubramanian et al. 2005].

In a recent study of the Japanese digital content market, Kim and Sugai [2008] suggested that individuals interacted differently with similar internet content offered through different channels (e.g. PC versus mobile). In particular, they claimed that individuals developed stronger loyalty relationships with Internet content offered through the mobile phone channel than through the PC channel and they appreciated different service characteristics (e.g. frequent content updates). This, in turn, affected their willingness to pay [Kim et al. 2008]. Furthermore, the importance of value elements in the adoption decision of innovative mobile services has been recently underlined by research in the field [e.g. Lee et al. 2002, Blechar et al. 2006; Kim et al. 2007], opening the way for an alternative research direction in the domain.

In line with the latter efforts, we make a step forward in order to address the question of why some service attributes increase the adoption probability and others do not. In an attempt to explore the adoption decision in the case of mobile TV services, we introduce theoretical insights from reason-based choice theory which we then combine with gender research.

2.2. Gender Studies in Information Technology Services' Adoption Research

A small but growing stream research on IT adoption indicates how gender differences matter. For example, an early attempt to systematically include gender as a construct in innovation diffusion model by Gefen and Straub's [1997] focused on email use patterns. More recently, Venkatesh and Morris [2000], in a technology acceptance and use behaviour study, identified systematic differences between men and women in their decision making processes. In particular, men attach higher importance to perceived usefulness than women in their decision to use the services both in the short and long run. Women underline the importance of perceived ease of use both at the adoption stage as well as after gaining experience with the use of the technology [Venkatesh et al. 2000]. Gender differences in the adoption of IT have been also explored in the context of e-commerce. For example, men are more likely to use the web for their shopping experiences than women [Van Slyke et al. 2002]. Besides, small, yet significant gender differences were demonstrated in relation to attitudes and behaviours towards computers [Whitley 1997]. Finally, categorisation research in mobile communications market has identified different adoption intentions and use patterns between men and women. Men seem to have a more positive behaviour towards innovation as well as a higher degree of innovativeness than women [e.g. Constantiou et al. 2006; Constantiou et al. 2007]. However, in a recent study of consumer behaviour towards mobile TV in South Korea, using an extended TAM, no gender differences were found in the acceptance of mobile TV [Jung et al. 2009].

2.3. The Theory of Reason-based Choice

The individual's preferences and choice of a new product have been the focus of attention for both economists [Colell et al. 1995] and behavioural scientists [Shafir et al. 1993]. This study draws on theoretical insights from behavioural decision theory; namely the reason-based choice in order to introduce an alternative theoretical approach on the quest of the individual adoption decision in the mobile TV market. The theory of reason-based

choice underlines the importance of maximizing ease of justification as a goal for the individual and depicts a decision process based on selective attention and limited processing of information about the alternative options [Bettman et al. 1998].

This perspective was introduced by Shafir et al [1993] as an alternative cognitive strategy used by the individual when the evaluation of service's attributes is a complicated process. For example, uncertainty, information overload, or lack of reliable information makes a comprehensive evaluation of alternatives infeasible and/or unpractical [March 1994]. Besides, the decision to adopt mobile TV services may be complex in case the individual does not have the information required to evaluate specific service's attributes (e.g. image resolution). The individual invokes salient and simple reasons to facilitate or motivate the adoption decision. By linking salient reasons to particular service attributes, the individual escapes the "cognitive burden" of a comprehensive evaluation and she focuses on the dimension which is easy to justify to herself, or to other people.

For some innovative services the individual may experience a conflict if there is no dimension easy to understand and use as a reason. In case of a high conflict the individual may defer choice by seeking additional alternatives [Shafir et al. 1993], or adopt a 'wait and see' strategy [Shapiro et al. 1998]. Further, mobile users may experience high conflict if they cannot prioritize between the different service dimensions. This in turn is related to the trade-offs between service dimensions or attributes. Trade-offs between the service's dimensions can be assessed based on the previous experiences of the individual [Shafir et al. 1993; Tversky et al. 1993]. The individual's experiences may lead to a positive assessment for the trade-off between the attributes which in turn can increase the probability of choice through the reason-based approach. For example, an individual with Internet experience has already derived a subjective value of the Internet services dimensions and the price quality trade-off. Content related services (i.e. video, mobile TV) which are available though mobile device, may be evaluated based on the Internet experience, which in turn may advocate against the adoption decision [Blechar et al. 2006]. The previous experiences may differ between men and women.

While individuals do search actively for reasons through which they can justify their committing decisions, and such decisions are likely to be identity driven [March 1994]. Women show greater propensity to express emotions and are more susceptible to emotions during justifications of action than men [Robbins et al. 2007]. Among men, reasons to adopt relate to technical product characteristics or attributes, whereas women attach emotions to the product characteristics. Further, men and women use oral communication for different purposes; men emphasise status in a social order and independence and women use it to create connections [Tannen 1995]. This implies that alternative service attributes and features may be more or less attractive to male and female users. Given the gender impact men and women may focus on prominent reasons, not only due to ease of understanding, (e.g. product design), but due to appropriateness (e.g. 'fits' the decision makers identity-based pre-conception) as well. Thus, the gender may moderate the reasons invoked to ease justification in the adoption decision.

2.4. The Research Model

Prominent reasons which are easy to justify a decision may be used in different ways in the adoption decision. For example, prior research demonstrated that advantages were more important in the case of choice while disadvantages in the case of rejection [Shafir et al. 1993]. The perceived benefits of mobile TV become positive reasons, advocating for the adoption decision, while the perceived costs may advocate for deferring the decision.

The proposed research model is introduced in order to explore how the gender influences the relationships between perceived value of mobile TV and adoption intention. In particular, the gender influence is investigated in relation to perceived benefits and perceived costs of mobile TV based on two hypotheses:

H¹: The gender moderates the relationship between the perceived benefits and the adoption intentions of mobile TV.

H²: The gender moderates the relationship between the perceived costs and the adoption intentions of mobile TV.

Figure 1 offers a schematic representation of the proposed research model displaying the moderating role of gender in the relationships between the two independent variables, namely perceived benefits and perceived costs with the dependent variable, the adoption intentions.

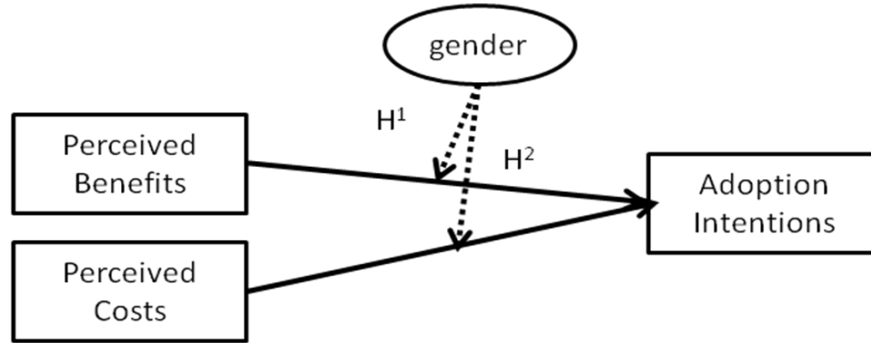


Figure 1: The proposed research model

In the process of reason-based choice the individual assigns importance to different service attributes according to her preferences. If gender differences influence preferences, additional salient reasons for the adoption of mobile TV services may be identified. Specific content categories (e.g. sports) may drive adoption decision or defer it depending on the gender's effect. Most vendors add new services or bundle all content services in their offerings. However, these offerings may not be perceived as value generating by both men and women. Individuals do not appreciate adding services which are not needed since they complicate the choice process [Shafir et al. 1993]. According to Simonson et al. [1994] when the individual is uncertain about the available options, adding a new service can decrease the probability of choice. The new, unneeded, service may attract the individual's attention and this may work to the detriment of the value generating ones. The individual's preferences for content services are explored in relation to the gender through the third hypothesis, which is:

H³: Men and women attach different importance to content services offered by mobile TV

Having briefly presented the theoretical background and the proposed research model, the next section outlines the research method.

3. The Research Method

3.1. The Sample

In this study, data were collected from a survey conducted in Austria. In the Austrian market the key players had launched mobile TV services recently. Austria is among the most advanced European countries in e-readiness, a scale developed by Economist Intelligence Unit including among others connectivity, which measures the access of individuals and firms to fixed and mobile telephony, personal computers and Internet access. Austria is on the tenth place [Economist Intelligence Unit 2008]. Austria has a high score among the European countries on the social and cultural environment index (8.00) measuring technologically savvy individuals that have the knowledge to exploit IT [Economist Intelligence Unit 2008]. This measure includes among others "e-literacy" measuring the experience using the Internet and the receptivity to it as well as the technical skills measuring familiarity a country's population has with information technology applications' market. Besides, the penetration of PC in Austrian households is 57% while 52% of households have Internet access (of which 64% is broadband access). In Austria, the majority of households have cable TV access (49%), followed by satellite TV through a satellite dish (42%) while mobile TV penetration is very low (1%) [Eurobarometer 2008]. Overall, Austria is a technologically mature environment displaying indexes which are better than the European Union averages [Economist Intelligence Unit 2008; Eurobarometer 2008].

The target group was young adults working in the private sector, or students. This group was depicted as early adopters in advanced mobile data services' market [Constantiou et al. 2007]. The survey ran for two weeks through personal interviews of young people in eight physical locations including museums and cafes in Vienna. The choice of locations was made in order to improve the response rate. It was assumed that people would be more willing to spend 10-15 minutes to answer the survey while in a leisure activity such as those undertaken in the chosen physical locations. The questionnaires were administered by 30 students.

In order to compensate respondents' opportunity costs of spending time to answer the survey, incentives in the form of participation in a lottery of two mobile devices sponsored by a mobile operator in Austria were offered to participants. The sample comprised of 232 usable responses.

3.2. The Survey Instrument

The survey instrument was based on theoretical insights of reason-based choice [Shafir et al. 1993]. The main value attributes and characteristics were identified from the related literature on advanced mobile services [Constantiou et al. 2006] and mobile TV [Carlsson et al. 2007].

The survey instrument was initially developed in English and then translated into German. It was pilot-tested using 60 students on a master course in marketing, at an Austrian University. The students had prior knowledge of mobile TV services, since during the course, a mobile operator’s representative, who was launching the services, made a detailed presentation. The items on the survey instrument were revised based on the students’ written and oral feedback. In particular, some items measuring individuals’ perceptions of specific technical functions of mobile TV were eliminated, since it became apparent that the market was on a very early state and most of the respondents could not imagine how the use of such services and functionalities would be.

Following revisions, the survey ran in Austria during May 2007. The survey instrument included 29 questions. Ranging from demographics to use behaviour in the case of mobile communications and broadcasting services. The categories of reasons, measuring the individual’s perceptions of the value elements of mobile TV, were also included and covered perceived benefits, perceived costs as well as content services offered on mobile TV. Respondents’ perceptions of the importance of the different reasons were measured using seven point Likert scales. The variables of the research model were operationalised based on the related literature. In particular:

Perceived benefits variable was operationalised using four items from mobile TV adoption research including the value assessment, the enjoyment and the convenience of mobile TV [Carlsson et al. 2007; Knoche et al. 2008; Orgad 2006].

Perceived costs variable was operationalised using six items describing the practical challenges of mobile TV use [Knoche et al. 2008]. In particular, those were the navigation of mobile TV services and the privacy concerns [e.g. Schatz et al. 2008; Schatz et al. 2007], the health challenges [Knoche et al. 2005b], the distraction of attention, the missing calls and the device theft concerns [Loebbecke et al. 2008].

Adoption intentions variable was operationalised through three items derived from adoption studies [e.g. Venkatesh et al. 2003; Venkatesh et al. 2000].

Gender was operationalised through a categorical variable assigning a nominal value to respondents coming from the different groups. Dummy coding [Frazier et al., 2004] was used (i.e. for the men group the value 0 was used while for the women group the value 1 was used).

Content validity of the proposed variables was established through the adoption of validated items by other researchers in the literature and the pilot test. Since each factor was measured by the multi-item constructs, item analysis was performed to validate the scales. Table 1 summarises the number of items and the results of the reliability and validity tests.

Table 1: Research model items, reliability and validity test results

Variable	Items	Reliability Cronbach Alpha	Convergent Validity	Discriminant Validity
Perceived Benefits	Compared to the time I have to invest in order to watch the desired programme the use of mobile TV will be beneficial to me	0.874	0.592	0.645
	Overall I think mobile TV will deliver me good value		0.827	
	I will enjoy using mobile TV		0.821	
	I would find it convenient to access mobile TV via my mobile phone		0.707	
Adoption Intentions	I imagine to use mobile TV in the future	0.930	0.821	0.897
	I intent to use mobile TV in the future		0.904	
	I predict I will use mobile TV in the future		0.858	
Perceived Costs	Distraction of attention (e.g. missing the train while watching mobile TV)	0.711	0.394	0.578
	Problems with navigating the mobile TV services		0.354	
	Health Risks (e.g. problems with the eyes)		0.395	
	Privacy concerns while watching specific content		0.420	
	Loss because of theft		0.539	
	Missing incoming calls		0.556	

Internal consistency was calculated in order to assess the reliability of all the constructs. The Cronbach's alpha values for all constructs were acceptable ranging from 0.711 (for perceived costs) to 0.930 (for adoption intentions). Convergent validity was evaluated by item-to-total correlation (the correlation of each item to the sum of the remaining items). All of the correlations were positive and significant at the 0.001 level. Discriminant validity was tested using principal component factor analysis with varimax rotation performed for each domain of the research model [Hair et al. 2006]. It was determined when items for each construct loaded onto single factors with a factor loading greater than 0.500.

The individuals' preferences [Slovic 1991] of content categories of mobile TV were explored by eleven items asking respondents to reveal their perceived importance. The different content categories were identified from Knoche and McCarthy [2005a] as well as Carlsson and Walden [2007].

The two hypotheses on the gender moderating perceived benefits and perceived costs relationships with adoption intentions were tested through multiple regression analysis. The third hypothesis on content services differences was tested through discriminant analysis. The data were tested to ascertain that for both types of analysis the respective assumptions were not violated. The next section presents the findings.

4. Consumer Behaviour Towards Mobile TV Services

4.1. The Two Groups' Profiles

The demographic data collected through the survey were used to depict the profiles of two groups including men and women respectively (Table 2). The age distributions of the two groups were very similar with the majority of respondents being between 18 to 24 years old. Besides, there was a second subgroup of respondents being between 25 and 32 years old. The majority of both groups had a university degree and a high percentage had a master degree. In terms of occupation they were two distinct subgroups of students and people working on the private sector, which corresponded to the income distribution ranging from low levels (e.g. less than 5,000 Euro yearly) for students to higher levels dependent on the job position for employees in the private sector.

Table 2: Sample's demographics

Demographic Characteristics	Men	Women
size	114	118
Age	18-24	42%
	25-32	33%
	33-40	25%
Education	Primary, Secondary and no tertiary	18%
	Tertiary	54%
	Quaternary	28%
Occupation	Private sector	45%
	Students	48%
	Not employed	4%
	Other	3%
Yearly Gross Income	<5000 €	39%
	5000 €-10000 €	16%
	10001-25000€	21%
	>25000€	23%
	No response	1%

The respondents' use patterns of TV services, available at home through broadcasting, were explored. Both groups average was 2 hours 40 minutes daily and did not differ significantly. The respondents were also asked to reveal their perceptions of different reasons of watching TV at home. The two groups did not display any significant difference in the ranking of importance of the different reasons. The most important reason for both groups was entertainment, followed by obtaining information and relaxation. The least important reason was social activity of watching programmes with family and friends. Respondents were then asked about the time spent in public transportation, queues, breaks and other activities outside home, and both groups stated on average 100 minutes daily. Additionally, they were asked about the monthly expenditure in mobile communications and the majority of both groups (45% of men and 47% of women) stated an amount between 20 and 40 Euros.

In order to explore the innovative characteristics of two groups, respondents were asked to assess their perceived innovativeness and technical competence (see Table 3). Men perceived themselves as more innovative

than women, in line with other research findings about mobile data services markets [e.g. Constantiou et al. 2007]. Women attached higher importance than men in their ability to navigate the mobile phone easily. However, in terms of perceived technical competence both groups seemed confident on their abilities with mobile phones and expectations of ease of use of mobile TV. Further, the observed low scores in innovativeness measures may relate to the fact that participants were early adopters and not innovators [Rogers 2003].

Table 3: Univariate t-tests for potential users' innovativeness and technical competence

Innovativeness & technical competence	Means		Univariate tests		
	Men	Women	t	Sig.	p-value
I am among the first to buy the newest technological products	3.71*	2.53	4.976	0.000	p<0.05
Among the people I know I am among the first to try out the new technological products	3.88	2.36	6.375	0.000	p<0.05
I am confident using my mobile phone	6.19	6.36	-1.172	0.243	p>0.05
I expect mobile TV to be easy to use	4.98	4.75	1.174	0.241	p>0.05
It is crucial for me that I can navigate through my mobile phone easily	5.25	5.89	-3.306	0.001	p<0.05

*Seven point Likert scale from 1: Totally Disagree to 7: Fully Agree

Having presented the main characteristics of the participants in the two groups the next section elaborates on their perceptions of mobile TV services and value elements.

4.2. Perceived Benefits and Value of Mobile TV in the Adoption Decision

When the interaction between the independent variables (perceived benefits and perceived costs) and the moderating variable (gender) is significant in the relationship of the independent variables on the dependent variable (adoption intentions), a moderating effect exists. The gender's effect of on the base relationships was assessed through R square difference and significance of interaction effects. A multiple regression analysis of three steps was used. The first step included the two independent variables. In the second step the gender, the moderator variable, was entered. In the third step both interactions were introduced in the regression. Table 4 presents the three steps with the respective R square and the changes as well as the beta coefficient of each variable along with the corresponding significance.

Table 4: Testing the moderating effect of gender

Variables	Step 1		Step 2		Step 3	
	Beta	Sign.	Beta	Sign.	Beta	Sign.
Perceived Benefits	0.773	0.000	0.758	0.000	0.854	0.000
Perceived Costs	-0.057	0.184	-0.035	0.414	-0.113	0.057
Gender			-0.117	0.008	-0.469	0.011
Perceived benefits* Gender					-0.127	0.048
Perceived Costs*Gender					0.384	0.049
R-Square	0.591		0.604		0.612	
R-Square change	-		0.013		0.012	
Significance F change			0.008		0.035	

According to Table 4 the perceived benefits have a strong positive influence while the perceived costs have a small negative influence on the adoption intentions. Entering the gender variable in step 2, a significant increase of R-square is observed. Despite the small increase in R Square in step 3 both interaction terms are significant. The gender moderates perceived benefits and perceived costs relationships with the adoption intentions. Thus, the findings support both hypotheses H¹ and H².

Respondents were also asked to imagine the three most prominent situations related to the physical location where they could watch mobile TV. The most popular situation for both groups was travelling by train (80% of men and 74% of women), followed by being on the airport (56% of men and 58% of women) and then travelling by trams (61% of men and 49% of women). On the contrary, locations such as parks, situations such as breaks, or holidays were very low in the ranking, indicating that respondents were mainly interested on mobile TV when there

was no other means of broadcasting available, or no other entertaining activities easily accessible. Thus, mobile TV seems to penetrate in the space of advanced mobile data services (e.g. email, games) use while on the move.

The optimal duration of broadcasting session on the mobile device was 24 minutes, while the estimated amount of time watching mobile TV daily was 34 minutes daily for both groups. There were no statistically significant differences in both queries. The results indicated that respondents did not predict watching more than one session per day.

Respondents were asked about the willingness to pay for mobile TV services in addition to the monthly expenditure for mobile communications. No significant gender differences were found. The majority of respondents (43%) were not willing to pay for mobile TV, while 35% of the respondents were willing to pay up to 5 and 22% more than 5 Euros per month. Finally, the main inducement (e.g. sweetener such as special offers), which could facilitate the adoption process were explored by asking respondents to assess the attractiveness of different introductory offers. Both groups indicated that the most popular offer was a free trial with all the services (43% of men and 56% of women) followed by a new mobile device (37% of men and 27% of women).

4.3. Service Preferences and Challenges of Mobile TV

The participants’ preferences for the different services categories available through mobile TV were explored through discriminant analysis. The eleven predictor variables were tested (see Table 5). The data met the assumptions of discriminant analysis, thus indicating an appropriate use of the procedure. All predictor variables were considered simultaneously. The Wilks’ Lambda measure established with a high degree of probability (significance level = 0.001) that a difference existed between the two group means, thereby indicating the significance of the discriminant function. The discriminate function accounted for a high proportion of the variability in the discriminant scores (i.e., the canonical correlation is 0.673 and the functions at group centroids were well apart from each other). The overall performance of the discriminant factor analysis was very good since the classification results showed that 83 % of the original grouped cases were correctly classified, while within the two groups the hit ratios was 86.5% and 79.5%.

Table 5: Discriminant Analysis Summary

Predictor Variables	Standardized discriminant weights	Men means	Women means	F test for significance
Music Videos	0.085	5.28*	5.45	0.454
Lifestyle news	0.465	2.91	4.60	0.000
Interactive programmes	0.193	2.54	2.95	0.790
News	0.111	5.90	5.81	0.616
Sports	-0.759	5.28	2.89	0.000
Knowledge Magazines	-0.082	4.75	4.63	0.588
Movies	0.009	4.50	4.88	0.198
Soaps	0.239	2.31	3.78	0.000
Weather	0.127	4.14	4.82	0.005
Cartoons	-0.336	3.03	2.33	0.003
Documentaries	0.036	4.84	4.63	0.408

* Seven point Likert scale from 1: Not interested to 7: Very interested

Table 5 shows that men and women had different preferences for services categories available on mobile TV. Men were more interested for sports and cartoons, while women for lifestyle news, soaps and weather information. Moreover, services such as news and music videos seemed to be highly popular for both groups. Thus, the third hypothesis (H³) can be rejected for specific service categories. The next section offers a discussion of the theoretical and the practical contributions of this study.

5. Discussion

5.1. Theoretical Implications

This study presented an alternative approach to the classic diffusion models used in information technology research, to explore adoption of innovative service such as mobile TV. The proposed research model was motivated from two observations. First, the technology users have substantial experience and knowledge in technology use, and thus, their adoption decisions are not highly influenced by the technology characteristics, or technology related concerns. Second, many recent innovations have similar technological characteristics and they may be perceived as substitutes by the individuals. In such case the adoption decision is value driven and the individual expects to find

clear reasons indicating the value of the innovation compared to existing solutions in her life, before deciding to adopt it.

In this context the individual's adoption intentions might be highly influenced by perceived benefits and costs, which are not easy to quantify and assess in money terms before the adoption. However, in qualitative terms, these value elements become prominent reasons which influence the adoption intentions as it is shown in the empirical testing of the framework. It appears the positive reasons (i.e. perceived benefits) seem to have a stronger influence than negative ones (i.e. perceived costs) in the adoption intentions. These observations imply that people are positively inclined towards the innovative services offered in the digital markets, despite the substitution effects, as long as they can clearly identify benefits which can maximize their utility and address their specific preferences. Moreover, gender seems to influence the individual's perceptions of the value elements as well as the content preferences. This finding is in line with existing research in gender differences and innovation diffusion research.

The research attempt to introduce theoretical insights from behavioral economics is not unique in the information technologies field. For example, research on the individual cognitive state while navigating online, has been conducted to understand Internet users' behavior and measure the customer experience by using the concept of flow in the Web [Novak et al. 2000]. Further, theories from cognitive psychology have been used to explain why consumers return to online shops as well as to explain impulsive purchasing behavior [Koufaris 2002]. To our knowledge, this study is one of the first attempts to introduce theoretical insights from behavioral economics in the investigation of the individual adoption decision of an innovation. It has demonstrated the usefulness of an emerging cognitive approach to explaining the role of reason-based choice in the adoption of innovation [Constantiou 2009]. By doing so it adds a cognitive perspective underlining the ease of justification on the consumer choice which compliments prior research stressing the experience-based, learned, behavior.

5.2. Practical Implications

This study described an alternative approach for exploring the individual' adoption intentions and preferences for mobile TV services. Mobile TV is an innovation which may be seen as a substitute service to alternative broadcasting means or content provision services. As such, the individual adoption intention may be value driven rather than technology determined. In practice, this implies that the individual may not be overwhelmed by technical difficulties in the service use and hence defer adoption. The individual may defer the service adoption decision if she is not able to infer value from the service use. The findings underlined the high influence of perceived benefits in the adoption intentions which in turn suggest that vendors should develop their commercialisation strategies focusing on benefits rather than arguing against the perceived costs. Perceived costs do not seem to have such a significant influence in the adoption decision.

A positive adoption decision of the individual may be based on reasons which are easy to justify to herself and to the others. However, such reasons may not be quantifiable in money terms even if they generate value (e.g. hedonic value of watching your favourite TV series), which in turn affects the individual's ability to express a willingness to pay. After the initial service use, the user may be more confident on expressing willingness to pay for mobile TV services. Thus, the research findings suggest to mobile TV service vendors, offering free trial periods of their services in order to enable the individual to assess their value and shape her willingness to pay.

The individuals may have different reasons to adopt mobile TV, which are defined by their preferences. The research findings indicate that different mobile TV service categories are more appealing to men than to women and vice versa. Service providers should develop different marketing strategies to address the specific preferences of the two groups, offering, for example, distinct service bundles. The different service preferences between the two groups are reasons for choice of mobile TV and may facilitate the adoption decision. At the current, early state of the mobile TV market, such marketing strategies may accelerate the diffusion of the services to the mass market.

Overall, the research findings suggest the developing of a two-stage commercialisation strategy for the mobile TV vendors. First, they should attract the interest of young adults, the early adopters, by free trials as sweeteners which will let them appreciate the value of mobile TV services. This should be combined by offering different service bundles to target the different content categories identified as important for the two gender groups. In turn, the preferred content categories may be used by consumers as simple reasons enabling ease of justification of the adoption decision. Then, in the second stage, vendors should develop value based pricing schemes combined with personalised service bundles. Once the early adopters are on board, the diffusion process may proceed rapidly.

6. Conclusions

We set out to explore consumer behaviour in mobile TV market and to offer initial insights to practitioners on the effect of gender on the adoption decision. By targeting the young adults segment we explored the perceived value of mobile TV services and the reasons which might facilitate the adoption decision.

The empirical analysis of the survey data enabled depicting two groups of adopters based on their gender. The profiles of individuals in the two groups were explored in relation to their use of similar services such as broadcasting, as well as the technical competences and innovativeness. The present study also demonstrated the most preferred content service of mobile TV for men and women which might become reasons advocating for the adoption decision. These results are important for practitioners doing business in the mobile TV market. They highlight the importance of differentiated marketing strategy for the two groups.

The results of this exploratory study underlined the importance of reason-based choice theory in the adoption decisions of mobile TV. This research effort indicated the importance of different value-based reasons used by the individuals in the adoption process and the effect of gender. The moderating effect of gender in the perceived benefits and costs relationships with the adoption intentions was highlighted by the analysis, supporting the two respective hypotheses proposed by the research model. The proposed research model included only value elements, which may drive adoption decision, as postulated by the theory of reason-based choice. This study suggested a complementary research approach to the diffusion of innovation theory, treating the individual as a consumer rather than a technology adopter. In particular the study underlined the importance of value driven criteria instead of the technical characteristics of the innovation in the adoption decision.

The research conducted was exploratory, a choice imposed by the service's diffusion in the market. Researchers focusing on the individual adoption of new services may encounter problems because of its novel characteristics, or the lack of individual's knowledge and experience which would enable her to assess its performance. In such cases traditional explanatory models of adoption decision may not be able to measure the market dynamics. For example, the respondents of a survey may not be able to give reliable answers to specific technical questions. In such cases, reason-based choice offers preliminary, yet useful insights to practitioners as the current research showed.

Further research should be conducted through field studies to investigate the use patterns of mobile TV and measure user's experienced value from the service use. This type of research may offer insights to the service providers pricing strategies while safeguarding recurring use. As mobile TV market evolves, the consumers will be increasingly exposed to the services and acquire additional information on their functionalities. They are expected to shape a clear view on specific value attributes (e.g., content personalisation) and technical elements (e.g., screen size, reception quality) involved. In turn, this will allow researchers to conduct a thorough analysis of the individual choice process in the case of mobile TV. Finally, future research efforts should incorporate the cultural dimension by conducting comparative studies between different countries to investigate the importance of gender effects in the diffusion of mobile TV.

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