

Key Antecedents of Smartphone User's Attitude Towards Mobile Advertising: A Critical Literature Review

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ABSTRACT:

Due to rapid technological developments and high competition in the smartphone and advertising industry, mobile advertising becomes increasingly more important. Companies strive to better understand consumer's behaviour to develop effective mobile advertising. The current literature reveals various antecedents of consumer's attitude towards mobile advertising which in turn leads to acceptance or rejection of mobile advertising. A review of the literature unveils some inconsistencies and it remains unclear which key antecedents do exert a significant influence on the attitude towards mobile advertising. Therefore, the aim of this study is to close the existing gap. This will be achieved by analysing the empirical findings and critically assessing the significant influence of each antecedent on attitude across the relevant literature. In order to achieve this, elements of a meta analytical approach are depicted. The following metrics such as the path coefficients beta, R^2 and the p-value are used to assess the empirical findings. Across the technology acceptance theories, TAM is predominating as a robust model throughout the literature. However, literature has shown that a cognitive-affective framework could best explain attitude towards mobile advertising. Affective antecedents become increasingly more important which should receive some attention from marketers and future research. Mobile advertising should create value or benefit for consumers to develop a more favourable attitude and to finally accept mobile advertising. In addition, consumers expect from mobile advertisers to mitigate concerns regarding perceived risk of privacy or security issues. This study identifies the following leading antecedents having the most significant effect on attitude: Perceived usefulness, entertainment, credibility, informativeness, personalization and permission. Finally, this study suggests a general framework by extending the TAM with those leading key antecedents that can be used by managers.

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Keywords

Acceptance, mobile advertising, antecedents, attitude, permission, TAM, cognitive-affective, value

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1. INTRODUCTION

1.1 Background

Mobile marketing gains increasingly more attention from various organizations all over the world. The topic 'Mobile Marketing' is a recently discussed issue and it ranks on the 3rd place in the 2016-2018 Research Priorities of the Marketing Science Institute (MSI) (RESEARCH PRIORITIES 2016-2018, 2016). Mobile advertising is a subset of mobile marketing. According to Partridge and Begole (2011) mobile advertising gains increasingly more attention and growth within the advertising environment. A general definition of advertising is given by Kotler et al. (2009) "any paid form of non-personal presentation and promotion of ideas, goods or services by an identified sponsor" (Kotler, 2009, p. 762). Advertising will appear on mobile devices, tablets, laptops, smartphones etc. with a wireless connection. Mobile advertising relates to a variation of sections/parts such as "ads within mobile games, SMS ads, display alongside content and digital ad categories of search" (K. Partridge and B. Begole, 2011, p.88). According to Husson (2016), organizations can benefit from a differential edge when they integrate mobile advertising as a marketing tool within their marketing strategy. Furthermore, Grewal (2016) stated that there is an increasing trend towards the use of mobile advertising and during 2016 it even represented up to more than half of all spending for digital advertising. As indicated by Statista (n.d.), since 2015 the amount of mobile advertising spending has almost doubled worldwide till today. The forecast predicts that within three years (2020) the expenditure will become approximately twice as much as in 2017 (See chart in Appendix: I). Behind this, according to Grewal et al. (2016) lies the constantly growing extension and adoption of smartphones worldwide. So, the important role of mobile advertising cannot be neglected. A Forbes article (2015) claimed that during this era of globalization and the increasing number of global organizations spread all over the world, mobile advertising becomes more important to stay competitive. According to Öztaş (2015) another aspect emphasizing the importance of mobile advertising is the trend towards the frequent use of smartphones for 'various activities such as making online payments, shopping etc.' (Öztaş, 2015, p.1071).

Smartphone users can be placed at the centre regarding the final decision of whether to accept or reject mobile advertisements. According to a Business Insider article (2017), smartphone users can exert control by for instance using Adblocker to stop receiving advertisements. Therefore, it is crucial to look further into the behavioural and psychological aspects to gain more insight regarding the motivators engaging smartphone users to act in a certain way. Subsequently, the purpose of this research is to identify and understand the importance of those key antecedents that have an impact on the attitude and in turn on the behaviour of smartphone users. So, organizations considering those antecedents that lead to consumer's acceptance or rejection of mobile ads, will be able to tailor their mobile advertising activities more effectively. Therefore, this research will try to contribute to better understand the importance of those key antecedents influencing consumer's attitude towards mobile advertising and in turn the intention to accept mobile advertising or not. Consequently, this will help organizations to improve and undertake successful marketing activities that is effective and efficient, which in turn will affect firm performance (Morgan, 2009). So, it is also relevant for the world of business to undertake this research to reach valuable marketing outcomes.

During this research, a critical literature review is undertaken where elements of a meta-analytical approach are used for the

assessment of each antecedent. So, significant influence of each variable across the literature will be assessed to determine which key antecedents ultimately drive the smartphone user's acceptance of mobile advertisement. After an initial screening of the literature I come up with a theoretical framework which will be based on already existing technology acceptance theories and will illustrate all identified antecedents influencing the attitude of smartphone users.

1.2 Problem definition

There is a range of literature that studied the antecedents of consumer's attitude towards mobile advertising which in turn drive consumer's acceptance of mobile advertising. Next to the content and design of advertising messages, personal characteristics determine how the ad is perceived by smartphone users. A study by Chowdhury (2006) emphasized the important role of the content of mobile advertisement, for instance appropriate, relevant, pleasant/enjoying ads are perceived as positive by consumers. Another study, by Verkasalo (2010), found that certain technological barriers are not perceived as favourable by smartphone users and have a negative impact on behavioural control. Furthermore, the hypothesis that behavioural control is directly linked to perceived usefulness and perceived enjoyment got also confirmed by the study. All in all, perceived usefulness and enjoyment were the drivers of consumer's intention to use applications (Verkasalo, 2010). Moreover, next to permission based marketing researched by Merisavo et al., 2006, the delivery of the advertising message examined by Carroll et al. (2005) are other antecedents identified in the literature.

Most of the papers, base their study on the TAM model by Davis et al. (1989), Theory of Reasoned Action by Fishbein & Ajzen, (1975) and the Theory of Planned Behaviour by Ajzen (1985) to explain consumer's attitude and behaviour. However, it still appears to be a complex task to come up with a general theory that illustrates those key antecedents of consumer acceptance that academic research suggests (Lamberton, 2015). According to Lamberton (2015) developments of smartphones, mobile marketing and advertising on the side of practitioners do progress faster compared to the academic side. So, a knowledge gap occurs with those 'relatively' few studies that were published till now. Consequently, the contribution of research to the practical application and meaningful knowledge is rather small. Another issue Lamberton (2015) mentions is that studies in this area have a too narrow focus. They do not or partly consider general and important questions that provide an answer for all types of mobile advertising (Location based advertising etc.) and consumers (worldwide). So, these questions remain unanswered and generalization issues occur which cannot be translated for practical use. A further issue recognized was that there are not sufficient papers from the psychology/social science domain. These papers consider research on consumer's motives in the context of mobile advertising, to gain an insightful view on the consumer behaviour. The use of psychological theories to explain consumer behaviour is rather small and instead many technology acceptance theories are used. Especially, due to consumer's concern of privacy and security issues, consumers would respond differently to advertisement received on their smartphone than for instance on TV. Therefore, it becomes increasingly important to consider consumer's psychological motives.

1.3 Research question

As mentioned above, there are different opinions in the current literature and knowledge when looking at smartphone user behaviour being confronted with advertising. Despite the wide

range of publications on the topic, the outcomes are rather heterogeneous, vary in statistical significance, magnitude and direction. Accordingly, to close that gap in the existing knowledge and to identify critical issues for further research, I came up with the following research question (sub-questions).

Research Question:

What key antecedents of smartphone user's attitude contribute to the acceptance of mobile advertising as a marketing tool?

Sub-questions:

- ❖ Under which circumstances smartphone users would likely accept mobile advertising?
- ❖ What factors stimulate smartphone users to switch off mobile advertising?

2. LITERATURE REVIEW

2.1 Trend towards a cognitive-affective framework

The study of behaviour and attitude of consumers towards advertising has its roots already since 1908 with the publication of the book 'Financial Advertising, For Commercial and Savings Banks, Trust, Title Insurance, And Safe Deposit Companies, Investment Houses' by Lewis (1908). This work pointed out the importance of understanding consumer's interest and needs necessary for creating good advertising (Lewis, 1908). However, the focus was rather on traditional advertising such as 'Word of mouth' etc. With the introduction of the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Theory of Planned Behaviour (TPB) (Ajzen, 1985), the TAM model by Davis et al. (1989), the conceptual framework for organizational innovation adoption (Frambach & Schillewaert, 2002) and the Unified Model of Acceptance and Use of Technology (Venkatesh et al., 2003) the peak was reached with the publication of an enormous amount of papers. These incorporated those theories to explain consumer's behaviour/attitudes first, since the 70s, towards traditional advertising and later towards mobile advertising (Appendix: G). Another important trend one can observe is the current development in the literature towards using rather psychology motivation theories i.e. Herzberg two factor theory (1959) or Maslow's hierarchy of needs (1943), to explain behaviour and intention like the study of Feng et al. (2016) (See Appendix B). Previous studies rather used cognitive antecedents to explain attitude. Currently, the trend towards combining cognitive (Perceived usefulness and Perceived ease of use) with affective (e.g. positive/negative emotions towards mobile ads) drivers of attitude becomes widely used (Olarie-Pascual et al., 2016). So, there is a trend towards extending technology acceptance theories with motivation theories and affective drivers of attitude such as trust, emotions etc. Another trend one can observe across the literature, is the move away from SMS based advertising to mobile web based ads and in-applications advertising. To sum up, the preceding emphasizes continuous importance and trend towards mobile advertising, whereby previous theories or a combination are used in recent research papers to explain the behaviour of consumers.

2.2 Theoretical models and Other Antecedents

2.2.1 TAM and UTAUT Model

Due to the broad range of already existing research papers undertaken from a consumer perspective with varying empirical results, a general model is needed which includes the key antecedents. This critical literature review mainly includes those papers that have technology acceptance theories as their

underlying theory. Moreover, this paper will use existing theoretical models and extend them with other antecedents identified across the literature. After the assessment of each antecedent in the results section, a general model will be built to illustrate key antecedents having a significant impact on the attitude towards mobile advertising. So, the TAM by Davis et al. (1989) will be used which can be combined and extended with his work in (1992) and other antecedents such as the Facilitating conditions (FC), of the conceptual framework for the Unified Model of Acceptance and Use of Technology (Venkatesh et al., 2003). The TAM by Davis et al. (1989) is widely known, popular, robust and used model which was developed based on Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) and on the Theory of Planned Behaviour (TPB) (Ajzen, 1985). Moreover, it is one of the most cited theories used in the context of mobile advertising (See Appendix: F). Although the literature needs to be reviewed critically, one can observe after a preliminary literature screening that the elements of the TAM model Perceived Usefulness (PU) and Perceived Ease of Use (PEU) are more frequently used across the relevant literature (See Appendix: D/G). Nevertheless, according to Wong et al. (2015), TAM got criticized for its solely focus on PEU and PU, therefore an extension of the model is needed. Especially, the construct of attitude in the mobile advertising context requires the inclusion of further antecedents to extend the TAM, such as the FC element from the UTAUT model (Venkatesh et al., 2003) and permission based advertising, credibility etc. Look at Appendix: H for figures of the TAM and UTAUT model.

In general, the concept of attitude and acceptance involves cognitive and affective aspects (Le et al., 2014). So, the cognitive (PU) and affective (credibility, permission etc.) antecedents of consumer's attitude gets reviewed in this paper. An initial screening of the literature shows that the TAM variables, Perceived Usefulness (PU) and Perceived Ease of Use (PEU) do exert a direct impact on the dependent variable consumer's 'attitude'. PEU is also the independent variable as it has a continuous impact on PU and the use of the technology (Venkatesh & Davis, 2000). According to Davis et al. (1989), Perceived usefulness (PU) can be defined as "the extent to which an individual believes that by using a certain system will improve his/her job performance, e.g. improving productivity, efficiency etc.". This also means smartphone user's intention to whether accept mobile advertising or not, depends on whether they perceive mobile advertising as useful tool. For instance, enabling smartphone users to gather information in a more convenient manner. This also involves the importance of perceived benefit or value of mobile advertisements. According to Davis et al. (1989) Perceived ease of use (PEU) is "the extent to which an individual believes when using a certain system, less effort will be required". Smartphone users should experience mobile advertising as easy to use to finally accept it. Furthermore, TAM by Davis et al. (1989) could get extended with the Facilitating conditions (FC) element of the UTAUT model by Venkatesh et al. (2003). FC relates to "the extent an individual believes to the existence of an organizational/technical infrastructure which offers support to use the system" (Venkatesh et al., 2003, p. 453). Related to mobile advertising this means for instance having sufficient knowledge to use mobile advertising.

2.2.2 Other key antecedents

Next to the preceding antecedents, perceived entertainment has a significant impact on the consumer's intention to accept or reject mobile advertising (Tsang et al., 2004). Perceived Enjoyment (PEJ) refers to "the degree to which the activity while using a certain system is felt to be enjoyable in its own right" (Davis et

al., 1992, p. 1113). The research has shown that PEJ has a significant influence on the individual's intention to use new technologies at the workplace. Davis et al. (1992) also concluded that there is a positive interaction between PEJ and PU. Enjoyment can take several forms such as pictures, visualization, music etc. alongside the advertisement reaching the smartphone users (Wong et al., 2015). Furthermore, the paper of Verkasalo (2010) confirmed that PU and PEJ are drivers of a positive attitude and acceptance. Moreover, the study found that perceived enjoyment exerts the strongest influence on the acceptance of mobile advertising. Furthermore, the study of Wong et al. (2015) confirmed the assumption that if individuals perceive enjoyment they are more driven to have a positive attitude towards mobile advertising. So, there is a positive relationship between PEJ and the Intention to use mobile advertising. So, after an initial view on the literature, it appears that PU and PEJ are supposed to be key antecedents of consumer's attitude.

Across the literature other antecedents of consumer's attitude could be identified such as: trust, content, context, utility, (Merisavo et al., 2007) influence of media, perceived mobility, social influence, (Hong et al., 2008) informativeness, irritation, permission etc. (Tsang et al., 2004). These possibly exert influence on the smartphone user's attitude and in turn on the intention to accept mobile advertising. These antecedents relate to the content/design of the mobile ad and to consumer's individual preferences. So, mobile advertisers could deliver informative, relevant, entertaining, personalized, credible and trustworthy ads to smartphone users. Thereby they should try to lower perceived risk of privacy or security issues and irritation. This can be motivated by offering incentives and using permission-based advertising. It is the responsibility of mobile advertisers to communicate appropriate messages while seeking to not cross the boundaries of privacy or security issues. Also, Grewal et al. (2016) suggested to consider legal and privacy issues (Grewal, 2016, p.12). So, in here permission based advertising and providing incentives play a crucial role having an impact on the smartphone user's attitude. Moreover, Watson et al. (2013) found that providing smartphone users with a sense of being in control will likely lead to mobile advertising acceptance. A more detailed reflection on each antecedent is illustrated in the results section. A more recent study undertaken by Andrews et al. (2015), collected data from the biggest telecom providers on approximately 15.000 customers and combined it afterwards with a survey which illustrated motivation of customers. This study found that smartphone users that are exposed to physical crowdedness around them view their smartphones as a 'welcome relief'. Consequently, it offers the opportunity to turn inwards and become more inclined to receive and accept advertisement. This study contributed to better understand the psychological factors, conditions and consumer's individual preferences determining smartphone user's behaviour. A list of key literature on antecedents of attitude can be found in Appendix: D/E.

TAM	UTAUT	Other key antecedents
PU PEU	Facilitating Conditions (FC): knowledge, experience, skills	Perceived Enjoyment; Credibility; Informativeness; Permission; Personalization; Control; Irritation; Trust; Incentives

Table 1- Overview of key antecedents found across the literature

3. METHODOLOGY

3.1 Type of research

As the research question already indicates, a descriptive (desk) research will be conducted throughout Q4 (Dooley, 2008). This descriptive research seeks to gain accurate and complete information to identify all independent variables that have an impact on the acceptance of mobile advertising. Thereby, the research method required for collecting the necessary data is a critical literature review of secondary data. An analytical approach is used to assess the impact of each antecedent. It requires to investigate information collected from already existing literature. As already mentioned before, those key antecedents that contribute to the consumer's attitude and in turn to the acceptance of mobile advertising will be the independent variables. For keeping it more specific, PU, PEU, perceived entertainment, facilitating conditions, credibility, permission, informativeness and personalization will represent the independent variables (Venkatesh & Davis, 2000; Verkasalo, 2010). The literature mainly suggests to use surveys to understand drivers of behaviour from a consumer perspective (Chowdhury, 2006). Subsequently, regression analysis is used to assess the correlation between the variables and the significant impact of the independent variables (antecedents) on the dependent variable (the acceptance of mobile advertising) (Davis, 1989). The correlation coefficient, Pearson r, usually appears across empirical studies to measure the effect size on the variables. However, few studies were found indicating Pearson's r. Therefore, the following metrics: path coefficient β (the higher the value the stronger the effect), p-values and R^2 are used in this study to assess the impact of each variable and to compare empirical findings (Dooley, 2008). Furthermore, it is crucial to determine the appropriate (Cronbach's) alpha level to gain valid outcomes when testing hypotheses. However, empirical studies always face the threat of a moderating third variable to occur, having an influence on the relationship between variables. Therefore, it is crucial for empirical studies to identify these to mitigate its effect and to reduce the treats of internal/external validity issues. For example, perceived ease of use affects perceived usefulness which in turn affects consumer's behaviour (Venkatesh & Davis, 2000). Other possible antecedents that could be held accountable for the observed change in the dependent variable can be found in the list of key antecedents of acceptance (see Appendix: E). Possible, control variables are 'Age, Gender, Education' etc. The results of regression analysis and relationship found in already existing literature will be reviewed to make statements about the antecedents of attitude toward mobile ads. Thereby this study tries to contribute to the current knowledge by identifying and emphasizing those key antecedents that drive consumer's acceptance. By undertaking a critical literature review, empirical results and theories will be reviewed by using elements of a meta-analytic approach leading to a more in-depth understanding of each antecedent's importance.

3.2 Measurement problems

According to Haddadi et al. (2011), it is difficult to conduct studies about smartphone users and to deduce general conclusions from them. This is mainly due to differences in smartphone user's behaviour, network, activities and location. A method Haddadi et al. (2011) suggests to overcome problems of measuring/collecting data is to implement a combination of an active user study with passive measurements, e.g. 'Experience Sampling Method' (Haddadi et al., 2011, p.122-123). The review of prior research papers such as the study of Verkasalo (2010), Silva and Yan (2016) and see literature list for more (Appendix:

A), indicated generalizability issues because each researcher undertook active user studies with a specific sample situated in different locations. So, is difficult to make general assumptions about the empirical findings which is mainly due to the sample size and the restricted selected population (e.g. country restricted sample) chosen. More importantly, each study measured the construct attitude differently. So, while one study used only 2-3 items (Martí-Parreño et al., 2013) to evaluate attitude, others use a range of them (Saadeghhvaziri and Hosseini, 2011; Olarte-Pascual et al., 2016). To sum up, there are differences regarding the measurement scales used which makes it difficult to assess the construct 'attitude'.

3.3 Sources of data

Data should be collected by means of a complete and critical literature review to answer the research question. Therefore, secondary data needs to be collected to identify all relevant literature related to the topic under study. A critical literature review should include a broader view on the literature, therefore one should avoid to focus solely on one type of literature (Webster and Watson, 2002). So, a review of different (academic) journals, methods used in studies and various geographic areas is required to acquire a complete picture of the relevant literature available. And therefore, a 'structured approach', which is explained in the search process section, will be implemented to identify the most appropriate sources used for this paper (Webster and Watson, 2002, p. 15-16). This means mainly ISI peer reviewed articles will be used that are acquired through the following databases 'Web of Science', Emerald, Digital library catalogue of Utwente, Elsevier Science Direct, Google Scholar. All in all, journal databases, newspaper databases (e.g. Forbes) and professional statistical websites (Statista) are used as sources for relevant material.

3.4 Data collection and search process

Data collection mainly involves the searching stage of all relevant literature to the topic. Therefore, I search throughout the database search engines such as the 'Web of Science' which delivers up to 903 results for the search term 'mobile advertising', which includes also irrelevant articles to the topic. Refining the terms to 'attitude' and 'acceptance of mobile advertising' delivers up to 154 results (See Appendix: B for terms used for the search process). In order to avoid bias of choosing certain articles on purpose, it is essential to use various sources (Jesson and Lacey, 2006, p. 141). So, this critical literature review also includes literature from other disciplines next to Marketing Science such as Economics, Social Sciences, Psychology, Technology Acceptance, Economics, Social and Business research. The main papers used in this study are from the following known journals, Journal of Interactive Advertising; Frontiers and Psychology; European Journal of Marketing; Telematics and Informatics; Computers and Human Behavior; International Journal of Mobile Marketing; Journal of Interactive Marketing; International Journal of Mobile Communication; Marketing Science; International Journal of Marketing Studies; Marketing and Trade (See Appendix: C). Furthermore, a similar approach as Webster and Watson (2002) introduced will be used for this paper, which is to 'go backward' and 'forward'. This means by looking at the resources and citations mentioned across the research papers, one can find further relevant articles. Especially, Web of Science was used to 'determine those articles appropriate to be used' finally for the critical literature review (Webster and Watson, 2002, p. 16). Regarding the search process to find articles, search terms are used consistently across the sources. Moreover, synonyms such as 'consumer's' attitude

instead of 'smartphone users', mobile, attitude, behaviour, psychological factors, mobile advertising are used (See Appendix: B). I decide to implement a rather 'concept-centric approach' (See Appendix: D-G) which means that the critical literature review is organized around the identified concepts (antecedents) of attitude (Webster and Watson, 2002, p.16-17). This enhances to discover patterns and relationships in a more convenient way.

3.4.1 Study Selection

Literature gets reviewed from the last 10 years (2007-2017). However, this critical literature review also mentions some older papers which are used by more current papers such as the study of Andrews et al. (2015), Martínez-Ruiz et al. (2017). Due to the frequent citation of older papers, some of these will appear in this paper. This also enhances to make comparisons or see trends across the literature. The eligibility criteria for the chosen papers is to be scientific, to concentrate on attitude/acceptance in the mobile advertising context and to be in English. Moreover, the scope of this paper does not allow to include concepts such as m-commerce, buying behaviour, use of mobile within the customer journey, location-based mobile advertising, m-banking. However, there are overlaps across the empirical studies of mobile marketing, mobile advertising and mobile data services making use of the similar concepts. Consequently, this study will include those subject areas if relevant to the topic under study.

4.RESULTS

The following section first introduces the articles found for this study, continues with the relationship of attitude and acceptance, the assessment of the major antecedents of attitude will follow, and finally the important role of permission based advertising gets explored by introducing those antecedents responsible for consumers either to grant permission or not.

From the 154 quantitative and qualitative research papers identified through journal databases, 48 were eligible to use for this study. However, 42 of the papers were of quantitative nature and could be used for a potential meta-analytic analysis. A PRISMA flow diagram can be found in Appendix: A. These papers used different sample sizes ranging from 50 to 8578 and were published between 1992-2017. The papers undertook research in different countries, 19. The predominating countries across the studies were China, Spain, UK and USA. Some studies did not indicate any country because they used online questionnaires with respondents from different origins. So, in general the following continents were involved: Asia, Europe, America and Oceania. Most of the papers were retrieved from specific Marketing and Advertising Journals such as 'MIS' and 'Journal of Advertising'. See Appendix: C for list of Journals used. The Cronbach's alpha for the construct of attitude varied across the studies between 0.60 and 0.92. Except from 2 studies, α was above 0.7 indicating reliable measurement scales.

4.1 Attitude towards mobile advertising

Attitude can be divided into the following three parts, cognitive (knowledge), affective (overall feelings) and intention (action) (Aaker et al., 2000, quoted in Le et al., 2014). One of the most influential studies, the 'Theory of Planned Behaviour' by Ajzen (1985), found that if someone has a positive attitude towards a certain behaviour, will most certainly establish the intention to perform that behaviour. A study undertaken by Martí-Parreño et al. (2013) confirms that a positive attitude towards mobile advertising is a key driver for smartphone users to accept mobile advertising ($\beta=0.96$; $p<0.01$; $R^2=0.23$). Also, the study of Tsang

et al. (2004) confirmed a positive relationship between the attitude and the intention to agree to receive mobile advertising. The multivariate analysis showed that overall attitude correlates significantly with intention to accept mobile advertising ($t = 11.3$; $p < 0.01$). Also, a more recent study undertaken by Martínez-Ruiz et al. (2017) found that the attitude of a smartphone user exerts influence on the user's behaviour and intention to accept mobile advertisement ($\beta = 0.737$; $p < 0.01$). The same is confirmed by a numerous amount of studies such as Izquierdo-Yusta et al. (2015) ($\beta = 0.764$; $p < 0.01$), Yang et al. (2007) ($p < 0.01$; $R^2 = 0.11$), Xu et al. (2007) ($t = 18.61$; $p < 0.01$; $R^2 = 0.522$), Kim et al. (2016) ($\beta = 0.667$; $t = 7.939$, $p = 0.001$) and more. However, it is crucial to acknowledge that these empirical finding were related to a specific sample consisting of, for instance young people residing in a certain country which gives rise to generalizability issues. Most of the papers reviewed, such as Gao and Zang et al. (2016), Drossos, Giaglis & Vlachos (2009), Kim et al. (2016) and Yang et al. (2013), found empirical evidence for consumers having in general a negative attitude towards mobile advertising. In addition, irritation is perceived high the more a person is emotionally attached to the smartphone.

All in all, the relationship between the attitude towards mobile advertising and the intention to use or accept it is proven, whereby consumers in general have a negative attitude towards mobile advertising.

4.2 Key antecedents of consumer's attitude towards mobile advertising

4.2.1 Perceived ease of use (PEU)

The empirical study of Karjaluoto et al. (2008) for which an online survey was used, showed that PEU next to PU and Perceived trust had an impact on attitude towards advertising. Also, Olarte-Pascual et al. (2016) summarize their findings by claiming that PEU of smartphones is associated with a positive attitude towards receiving mobile advertising. In Addition, Hong et al. (2008) found that PEU impacts the attitude towards the consistent usage of mobile data services ($\beta = 0.34$, $t = 10.23$). However, this also means that the study considered another context by focusing on mobile data services. The study of Yang et al. (2013), used a sample of MBA students enrolled in marketing classes at Korean business school, and confirmed that PU and PEU together have an impact on the acceptance of mobile technologies. This in turn impacts attitude towards mobile advertising ($\beta = 0.28$, $t = 6.14$). However, the study made a distinction between emotion- and technology based evaluations impacting attitude. So, the influence of PU and PEU were measured together. PEU and PU accounted for 8% of the total exploratory variance observed in acceptance of mobile technologies. So, the impact of PEU alone cannot be assessed from this study (See Appendix F). Referring to the study of Soroa-Koury and Yang (2010), PEU did not have an impact on attitudes towards mobile advertising. Due to these inconsistencies across the empirical findings, Izquierdo-Yusta et al. (2015) undertook a recent study and could not find a significant relationship between PEU and attitude. Nonetheless, this remains a critical issue to be investigated and a recommended topic for further research.

4.2.2 Perceived usefulness (PU)

It is believed that in general people would be more likely to adopt to an innovation when they see a benefit or value in doing so (Venkatesh et al., 2003). So, PU means that the innovation/technology should hold benefits in the form of efficiency and productivity improvements for the consumer. An example is mentioned in the empirical study of Martí-Parreño et al. (2013), who found that mobile advertising can be perceived

as saving money or time. The study confirmed that PU as a cognitive factor and an essential element of the TAM by Davis et al. (1989), has a significant influence on attitude towards mobile advertising ($\beta = 0.27$, $p < 0.01$, $t = 3.96$). However, it is critical to notice the limitation of this study because the findings were restricted to Spanish teenagers which gives rise to generalizability issues. The measurement of variables such as PU and PEU is different across the empirical studies which makes it difficult to compare them. An example is one of the most cited studies in the mobile marketing context by Merisavo et al. (2007). A survey was used and PU was measured as a subcategory next to relevance, monetary incentives, entertainment and information value all under the main construct of 'utility'. So, one can assume that the impact of PU cannot be assessed independently and the findings were restricted to Finish consumers. Furthermore, Olarte- Pascual et al. (2016) measured PU in terms of usefulness of the ubiquity of mobile advertising, while Martí-Parreño (2013) considered efficiency and productivity measures for PU. Therefore, one can assume that the inconsistencies across the studies related to the influence of PU and PEU on the attitude, stems from the differences in measurement scales used. However, in general most of the papers reviewed, including the more recent studies (See Appendix: E-G), confirmed that the cognitive factors PU and PEU do have a significant impact on the attitude towards advertising. From this perspective, recent findings of Olarte- Pascual et al. (2016) confirmed the same as previous findings of Karjaluoto et al. (2008) ($\beta = 5.53$, $t = 30.85$) which was rather restricted to the context of permission based advertising. So, the greater PU of mobile advertising becomes, the more positive the attitude towards its acceptance. The more recent study of Olarte-Pascual et al. (2016) rather took a broader look at the topic of mobile advertising than previous studies that focused solely on the youth or only SMS ads. However, the study remained restricted to one country, Spain, which does not eliminate generalizability issues. Furthermore, the study of Martínez-Ruiz et al. (2017) next to IzquierdoYusta et al. (2015) and Kim et al. (2016) (significance level of $p = 0.002$), did also confirm the importance of PU as a cognitive antecedent of attitude. To sum up, inconsistency across the findings stem from differences in measuring the construct, PU. However, one can assume that the validity of the construct PU in this field of study is justified. This is due to the frequent citations of PU and the confirmation of PU as a cognitive antecedent of attitude across the papers (See Appendix: G).

The following section refers to the content of the mobile advertisement message communicated to the smartphone users. The content is held accountable regarding predicting the relevance and value of mobile ads to consumers, and subsequently is essential for determining online ads effectiveness (Ducoffe 1996 mentioned in Martínez-Ruiz et al., 2017). Perceived relevance of the content is linked to informativeness, and entertainment across the literature. Afterwards, the influential role of credibility and truthful content on attitude will be explained. And a reflection on the important role of personalized mobile ads will follow.

4.2.3 Informativeness and entertainment

Informativeness and entertainment as antecedents of attitude towards mobile ads were studied across numerous research papers (See Appendix: D-G). So, one can assume that in general people are positively influenced by informative, relevant and entertaining ads. Already since the study of Davis et al. (1992), perceived enjoyment and funny ads were found to be essential drivers of adopting technology. One of the most cited research studies by Tsang et al. (2004), who tested both variables with the use of a field survey, received 380 responses whereof 181 were

male and 199 female respondents. And the relationship was estimated by using SEM (structural equation modelling). Moreover, for assessing the impact of each antecedent separately a stepwise regression analysis was used, nowadays this method is highly criticized. The study took a broader view on mobile advertising. Several recent studies such as Gao and Zang et al. (2016) use this study as a reference. The study concluded that entertainment, overruling informativeness ($\beta = 0.115$, $R^2 = 0.56$), was the main antecedent, with a β of 0.675 and R^2 of 45.5% having an impact on the overall attitude. So, due to the preceding reasons one can assume that the findings are quite reliable and valid. Nevertheless, this work got extended and further empirical findings followed. For instance, Bauer et al. (2005) used TRA and used a sample of $n=1028$. Empirical evidence identified entertainment and informativeness as the leading antecedents impacting attitude toward mobile ads (total effect= 0.43). On the other hand, a contradicting study to the preceding findings was the paper of Chowdhury (2006) which used a survey restricted to a sample population in Bangladesh getting 309 responses. Both, informative and entertaining content of mobile ads seemed to have no direct significant impact on attitude. A possible moderating variable could have been the different culture (Chowdhury et al., 2006). However, the supporters of a positive relationship between informative or entertaining content and attitude towards the ad are dominating. Similar to the study of Hong et al. (2008), Le et al. (2014) applied a multiple regression analysis which enables to determine the predictive factor of attitude towards ads. So, the study identified next to credibility ($\beta = 0.402$, $p = 0.000$), entertainment ($\beta = 0.212$, $p = 0.002$) as the dominating predictor factors of attitude. And as Hong et al. (2008) argued, informativeness was not a significant antecedent of attitude. On the other hand, the study by Ünal et al. (2011) in the context of youth in Turkey, delivered empirical results of informativeness explaining 47% of the observed variance in attitude toward mobile ads. So, this underlines the inconsistency related to informativeness across the studies and is subject for further research.

Continuing with 'entertainment', Wong et al. (2015) used the UTAUT model and identified perceived enjoyment ($\beta = 0.42$, $p < 0.01$) as a leading factor exerting influence on the behavioural intention (BI) to use mobile ads. Furthermore, the study of Gao and Zang (2016), did also confirm that entertainment is the most crucial factor that determines smartphone user's attitude towards mobile advertising. Empirical results showed that 51% of the observed variance in the smartphone user's attitude towards mobile ads can be explained by entertainment. Testing the hypotheses, path coefficients were used (See Appendix K). This study was also restricted to China with 346 responses collected from a survey. So, generalizability issues cannot be excluded. Furthermore, the study by Feng et al. (2016) shed new light on the topic by introducing perceived enjoyment as an antecedent of 'intrinsic motivation', so based on interest. Intrinsic motivation was defined by Davis et al. (1992) as executing an act based on the interest one has in the act itself. The results confirmed that users perceiving mobile ads as entertaining will be intrinsically motivated towards ads ($\beta = 0.34$, $t = 2.18$, $p < 0.05$). This study built on motivation theory and combined cognitive and affective factors to explain attitude towards mobile ads. All in all, entertainment is the leading factor influencing attitude towards mobile advertising. However, the importance of informativeness should not be neglected.

4.2.4 Credibility and truthfulness

The terms credibility and truthfulness were used interchangeably across the literature and they relate to the content of mobile ads. Credibility of mobile advertising refers to the extent smartphone

users perceive an ad regarding 'believability and truthfulness' of its message (Pavlou and Stewart, 2000, quoted in Chowdhury, 2006, p. 37). Therefore, the role of credibility in building trust is essential and is further explained in the section 'perceived trust'. Chowdhury et al. (2006) derived from their empirical findings that credibility of mobile ads is the predominant and strongest contributing antecedent having a direct significant influence on attitude toward mobile advertising ($y = 0.839$, $p = 0.001$). Nonetheless, as already mentioned in the previous section, Chowdhury's study is restricted to a certain sample and context, classrooms in Bangladesh. And while screening the methodology part, one misses the Standard deviation value. Referring to Le et al. (2014), next to entertainment, credible content of a mobile ad has a positive influence on users. So, smartphone users will be more inclined to use or see mobile ads. The empirical findings were derived in the context of mobile web display and mobile app display ad with 206 responses (Vietnam). Le et al. (2014) concluded that credibility has a positive impact on mobile ads and possibly will lead to the intention to make a purchase of a product/service. Moreover, the study found that credibility is the most significant antecedent, so it holds the primary contributor position before entertainment. Nonetheless, it is crucial to mention that the model of Le et al. (2014) only explains 31.7% of the variance in attitude towards mobile ads which is a quite low effect size. On the other hand, Xu (2007) found that rather entertainment is the predominant antecedent of attitude with a contributing factor of 35.4% followed by credibility (8.1%) as a second factor. However, the number of responses (135) was quite low, giving rise to generalizability and validity issues. This study confirmed the findings of Tsang et al. (2004). Both studies made use of a stepwise regression model which is highly criticized by statisticians whereby reliability issues may rise. Drossos et al. (2009) focused on SMS ads and confirmed also the hypothesis, the more credible the ad is perceived, the more positive is the attitude towards it ($\beta = 0.10$, $t = 2.90$). Stratified sampling across Greece was used to increase the chance for making more generalizable inferences. The same hypothesis got confirmed by Martínez-Ruiz et al. (2017).

Referring to different approaches used across more recent studies, Yang et al. (2013) is one example who used a slightly different model. Various antecedents of attitude were classified either under the construct 'emotion based' or 'technology based evaluations', but credibility was measured as an independent construct. The study could also confirm the hypothesis that perceived credible mobile ads are associated with a positive attitude toward mobile ads. Furthermore, Martínez-Ruiz et al. (2017) argued that credibility falls under the construct of affective antecedents. Therefore, it was measured under the antecedent construct 'feelings' which accounted for 83% of the observed variance in attitude towards mobile ads. It is critical to mention that next to credibility other factors such as informativeness were also included under the construct 'feelings'. Subsequently, credibility was measured in a different context involving permission based advertising and 'feelings'. To sum up, credibility is one of the most cited terms across the literature (See Appendix: G) which makes it important to consider when analysing consumer behaviour. One can observe that there is a trend towards emphasizing the importance of credibility rather than concluding that it is predominating factor than other antecedents. So, next to other antecedents the importance of credibility cannot be neglected. Therefore, current research papers measure the effect of credibility next to other antecedents (e.g. informativeness) under one construct, for example under the umbrella term 'positive emotions' (Olarte-Pascual et al., 2016).

4.2.5 The role of personalization

Personalization in the context of mobile advertising refers to the provision of personalized information to the smartphone user. Therefore, Bamba and Barnes (2007) claimed that mobile advertisers need to have access to the smartphone user's personal data, individual user profile and location. Subsequently, it gets easier to better understand and satisfy the user's need. So, this will enable mobile advertisers to build a long-term relationship with the users to track further data about them (Bamba and Barnes et al., 2007). Personalization is assumed to be the most efficient and effective way to advertise. Permission-based; location-based; and incentives-based advertising can be applied to enhance providing consumers with credible, informative, relevant and entertaining mobile ads, tailored to each individual user's profile. Consequently, mobile ads can be perceived as valuable or relevant and will probably lead to less negative responses to ads (Barnes and Scornavacca, 2004; Muk, 2007). Further explanation will follow in a later stage of this paper. So, for an ad to be perceived as either relevant, entertaining or credible, mobile advertisers need to provide users with personalized information. The importance of personalization was already referred to by one of the most cited research papers undertaken by Bauer et al. (2005). The TRA model and online questionnaires were used that received 1028 responses in total. The study suggested that impersonalized messages will most certainly lead to smartphone users having a negative attitude toward mobile ads. Furthermore, the study established the link between personalization and trust. The conclusion was drawn that trust is a necessary condition for smartphone users to be willing to accept receiving mobile ads and to allow mobile advertisers to track personal data for personalized mobile ads.

Barwise & Strong (2002) introduced another perspective by stating that mobile ads which are perceived as too personal could evoke the feeling of annoyance and irritation. For instance, when the content of an ad reflects some of your confidential personal data, users possibly will perceive risk of privacy or security issues as high. So, one can assume, that this in turn has a negative impact on the attitude towards mobile ads. Therefore, the degree to which the advertising message is customized to the personal interest and need is important to be understood by mobile advertisers (Bauer et al., 2005). On the other hand, impersonal ads are rather perceived as spam and irritation which leads to a decrease of credibility and relevance of the ad (Barwise & Strong, 2002). After undertaking a regression analysis, Xu et al. (2007) could identify personalization as third predominating factor impacting overall attitude with a contribution of 5.2%. Moreover, like the study of Dickinger et al. (2005), an interesting finding of Xu (2007) was that for the gender 'females', the antecedent personalization was the most important contributor across other antecedents. Personalization explained 26.4% of the variance in 'female's' attitude while for the male respondents, entertainment was the major contributing antecedent. Another study, by Ünal et al. (2011), found that mobile ad content that is entertaining ($R^2 = 0.36$), credible ($R^2 = 0.61$), informative ($R^2 = 0.47$), personalized ($R^2 = 0.45$, $\beta = 0.67$, $p < 0.01$) and sent based on permission ($R^2 = 0.36$) is associated with a positive attitude towards mobile ads. An interesting observation were the differences found between attitude and behaviour of adults and youth. Compared to adults, youth perceived mobile ads sent to them as more personalized and with more incentives. Subsequently, youth is more inclined to have a positive attitude towards mobile ads which confirmed previous studies mentioned before. Turning to a more recent study, Feng et al. (2016) introduced personalization of the mobile ads message as an antecedent of consumer's extrinsic motivation. This means by acting in a certain way, i.e. accepting mobile ads, can help to gain

value/ benefit from doing so. Moreover, the positive significant effect of personalization on extrinsic motivation got confirmed ($\beta = 0.44$, $t = 4.11$, $p < 0.001$), which in turn has a positive significant impact on the attitude toward mobile ads ($\beta = 0.40$, $t = 3.65$, $p < 0.01$). Nevertheless, generalizability issues cannot be eliminated due to the sample population restricted to China. All in all, the important role of personalization and its positive impact on attitude toward mobile ads is emphasized across a numerous amount of empirical studies (Appendix: D/G). Personalization of the mobile advertising message is essential to provide consumers with credible, informative or entertaining mobile ads.

4.3 Permission based advertising

In this section the role of permission based advertising and how to enhance consumers to grant permission get explored. Permission based advertising is another mechanism of how mobile marketing can be executed. The term was already introduced since 1999 by Godin et al. and many field studies have been done across the literature. In general, it is assumed that only when the smartphone user grants permission, mobile advertisers can send mobile ads to users. Therefore, it is essential that smartphone users explicitly point out their willingness and approval to receive mobile ads (Barnes, 2002; Tsang et al., 2004). Across many countries, permission-based mobile advertising is incorporated in the law (Merisavo et al. (2007). So, no mobile marketing activities can take place without the consent of the smartphone user (Jayawardhena et al., 2009). A mobile device is perceived as a valuable/personal property owned by the users. This in turn requires mobile advertisers to consider the importance of permission based mobile advertising (PBMA). Furthermore, interaction between the mobile advertiser and the smartphone user takes place while asking the user for permission (Jayawardhena, et al., 2009). So, once permission is granted, permission-based advertising can enhance companies to build a relationship with their consumers and to better understand the user profile. Moreover, for mobile advertising to be effective and to succeed, permission from the user is required (Barnes and Scornavacca, 2004). Also, Bamba and Barnes et al. (2007) confirmed that consumers do value the use of permission based mobile advertising (PBMA). The study observed that 87.8 % of the respondents agreed on the importance of PBMA before they get any SMS ads. The survey was restricted to students in the UK. So, it seemed that PBMA is one of the success factors of SMS advertising (Drossos et al. 2009). This is mainly due to the free choice that consumers inherit to request advertising by themselves without being exposed to an enormous number of ads (Leppäniemi, 2008). On the other hand, mobile advertisers will also benefit from PBMA, because consumers that are interested in the ad are potential customers. This makes mobile advertising an effective and efficient marketing tool (Martin et al., 2003, quoted in Matti Leppäniemi, 2008). So, PBMA is in the interest of both parties, consumers and mobile advertiser, a win-win situation may occur.

It is noticeable that permission was found to be the most important factor that had an impact on the consumer's level of acceptance in the context of SMS advertising. This finding was based on discussions of a focus group consisting of students at a university in New Zealand which gives rise to generalizability issues (Carroll et al., 2005). Furthermore, Ünal et al. (2011) confirmed the empirical findings of Barwise & Strong (2002), underlining the important positive influence of PBMA on attitude ($\beta = 0.60$, $p < 0.01$). 36% of the variance in attitude towards mobile advertising is explained by permission, which is quite high for the study considering other antecedents included in its measurement scale. So, the more PBMA is implemented,

the more positive the smartphone user's attitude towards the ad. Furthermore, empirical findings of this study have shown quite insightful results. The youth, residing in Turkey, do have a more positive attitude and are more open towards receiving ads compared to adults. Nonetheless, they do care more about personalization and irritation of the ads. So, one can conclude that the youth would likely grant permission to receive ads when these are personalized and do not evoke irritation. However further research is required to confirm this study. As mentioned before, the overall attitude of smartphone users towards mobile ads is negative. However, with the application of PBMA, user's attitude toward ads can be changed (Bauer et al., 2005; Tsang et al., 2004). Moreover, PBMA enhances to send personalized and relevant ads to the audience (Saadeghhvaziri and Hosseini, 2011). A contradicting study to prior research findings was undertaken by Varnali et al. (2012) who used a field experiment with 262 university students in Turkey. A less significant effect of permission on attitude was found which was due to the inclusion of the effect of individual differences. To sum up, PBMA implies the empowerment of consumers to have more control over the frequency of mobile ads, the type of content, the location and timing of receiving mobile ads (Watson, 2013; Stewart and Pavlou, 2002). So, in general, PBMA has a positive impact on the attitude towards mobile ads. Nonetheless, the following questions may rise: What are the antecedents of permission and what factors do motivate consumers to accept PBMA?

4.3.1 Perceived trust

Trust is assumed to be, next to control, a predominant antecedent of PBMA. It determines whether a consumer is willing to give permission and receive mobile ads (Watson, 2013). Bauer et al. (2005) referred to trust as the predominant factor to PBMA, allowing mobile advertisers to access consumer's data. Consequently, personalized mobile ads can be offered to smartphone users which in turn leads to a positive attitude towards mobile ads. According to Watson (2013) consumers would most likely accept to receive mobile ads from companies which are perceived as trustworthy (mean=3.61). This study also confirmed findings of prior studies related to consumers being highly suspicious towards the companies managing their confidential/personal data which in turn is associated with trust towards the company. Therefore, privacy concerns can weaken perceived trust in the mobile advertiser and in turn increase perceived risk (Okazaki et al., 2009). Furthermore, Jayawardhena, et al. (2009) undertook a cross country study (Germany, Finland, UK). They found evidence for institutional trust (company's media presence perceived by users) determining whether consumers decide to allow or refuse companies to use their personal data for marketing purposes, i.e. delivering personalized ads. As an example, a company is perceived as trustworthy or stable when it is constantly present in the major media. Moreover, in Europe the EU directive 58/EC incorporated PBMA in law which protects against the misuse of personal data by stating standards for data processing and privacy issues (European Union, 2002, quoted in Watson, 2013). So, with the presence of institutional trust, users will have a positive attitude towards PBMA. This in turn, as mentioned in the previous section, will have an influence on the attitude towards receiving mobile ads.

On the other hand, one can say that PBMA can create trust (Barnes and Scornavacca, 2004) by for instance educating the consumer about personal data processing and by assuring that confidential data will not be shared with third parties. So, a reciprocal relationship can be observed. However, it always remains challenging to find ways to build trust effectively.

Perceived trust in the mobile advertiser is positively related to attitude ($\beta=5.38$, $t=21.25$) and intention ($\beta=5.42$, $t=20.02$) to accept mobile ads (Karjaluoto et al., 2008). In contradiction, the studies of Merisavo et al. (2007) and Mohammadbagher et al. (2016), did not find any direct impact of perceived trust on the acceptance of mobile advertising. So, one can assume that perceived trust exerts an indirect influence on the level of acceptance by directly influencing attitude towards mobile ads (Srisawatsakul and Papasratorn, 2013). Due to these inconsistencies, further research needs to be done.

4.3.2 Perceived control, privacy and security issues

Varnali and Toker (2010) emphasized the importance of addressing issues of privacy and security concerns for the sake of effective mobile advertising. In general people worry about privacy and security issues such as the processing of confidential data. Watson (2013) found empirical evidence for most people having concerns about the misuse of mobile data (mean=4.34), and therefore consumers do appreciate PBMA. The study used exploratory online questionnaires (214 responses) and focused rather on the broader context of mobile marketing. By offering control options to consumers, a possible increase in trust and the strength of consumer relationship can be observed (Watson, 2013; Blomqvist et al., 2005). This also relates to the empowerment of consumers having the free choice to receive ads and the possibility to opt-out whenever they want. The importance of offering consumers the opportunity to opt-out at any time they desire is emphasized in prior studies and leads to a more favourable attitude towards receiving mobile ads (Karjaluoto et al., 2008; Watson, 2013; Bamba and Barnes et al., 2007). So, through PBMA consumers have control over the number, type and timing of advertising they can receive. The study of Carroll et al. (2007) found proof for consumer's desire to have control of the frequency of ads to receive. Similar to trust, control is an antecedent of permission and determines if permission will be granted or not. The more control the consumer inherits, the more perceived risk regarding privacy and security issues decreases. The same was confirmed by Leppäniemi and Karjaluoto (2005) who suggested that regulations are required to avoid perceiving mobile advertising as spam and risk of privacy invasion. Regulations such as the standards of the EU directive 58/EC are required to protect privacy issues and thereby enhancing consumers to accept mobile ads. Turning to a more current issue, Izquierdo-Yusta et al. (2015) found that the control consumers inherit is still questionable. This is mainly due to 'privacy data being vulnerable to advertising campaigns' (Izquierdo-Yusta et al., 2015, p. 363). Therefore, consumers will still receive annoying ads for which permission was not asked beforehand. The same phenomena can be observed nowadays, which is reflected in the media reporting about personal information being leaked or hacked.

All in all, one can agree on the assumption that the more control the consumer inherits the more favourable the attitude towards PBMA and mobile ads.

4.3.3 Irritation

The term irritation relates to those negative emotions of consumers associated with mobile ads. For instance, receiving spam messages or when an ad is hindering the consumer to continue his information search (Ducoffe, 1996; Elliott and Speck, 1998). In general consumers are likely to avoid or switch off advertising when it is perceived as 'irritating' or 'annoying'. These ads are mostly sent without the consent or permission of consumers to receive ads. Therefore, the empirical findings of Barnes and Scornavacca, 2004 suggested to use PBMA to strengthen customer relationship and thereby gaining the trust of consumers. Permission is assumed to be a mechanism to decrease

perceived irritation of mobile ads (Tsang, et al., 2004). Prior studies identified a significant relationship of irritation having a negative impact on attitude towards mobile ads. So, emotions like irritation negatively influenced advertising avoidance by consumers (Ducoffe, 1996; Yang et al., 2013; Saadeghvaziri and Hosseini, 2011). Also, according to Martí-Parreño et al. (2013), whose study focused on Spanish teenagers, irritation had a significant influence on attitude towards mobile ads ($\beta = -0.21$; $p < 0.01$). Moreover, an insightful empirical finding was identified by this study, where PU was found to be a possible suppressor of irritation. This means the more value consumers perceive in receiving mobile ads, the less irritating the ad becomes. However, further research is required to confirm this observation.

Another issue is to identify under which condition mobile ads are perceived as irritating? As a study by Andrews et al. (2015) suggested, people facing crowdedness in their environment are more inclined to respond to mobile advertising than in a non-crowded environment where advertising is perceived as irritating (Andrews et al., 2015). However, it is remarkable to note that these findings were restricted to a sample of subway train passengers (Asia) which gives rise to generalizability issues. So, in general smartphone users would rather avoid mobile advertising when they are in a less crowded environment. This is because they do not experience the drive to escape crowdedness by using their mobile phones.

To conclude, in general one can assume that under irritation consumers will more likely switch off and avoid mobile ads. And a way to tackle this problem is to use PBMA.

4.4. Incentives based advertising

Incentives based advertising refers to value or monetary reward (coupon, discount etc.) offered to consumers in exchange for accepting to receive mobile ads. So, the consumer has a reason or is motivated to grant permission to receive mobile ads (Hanley et al., 2006; Saadeghvaziri and Hosseini, 2011). Saadeghvaziri and Hosseini (2011) found empirical evidence for monetary benefit of mobile ads having a direct significant influence on the attitude towards mobile ads. Also, Leppäniemi (2008) found evidence for monetary benefits/incentives being one of the most important antecedents impacting consumer's intention to accept mobile ads. So, by offering incentives, consumers will be more willing to accept mobile ads. Drossos et al. (2009) confirmed the previous finding and identified a significant positive relationship between incentives and attitude ($b = .09$, $t = 3.30$), whereby the sample population were Greek consumers. Furthermore, valuable content or informativeness of a mobile ad are non-monetary incentives influencing attitude (Watson et al., 2013). Lastly, it is notable that perceived benefit and incentives were mainly measured under the construct of PU across the literature. For example, Martínez-Ruiz et al. (2017) measured perceived benefit under the construct PU. So, a review of the PU section delivers insight on the importance of value/incentives having a positive impact on the attitude towards mobile advertising.

4.5 Facilitating conditions (FC):

Knowledge/experience and skills

A study by Carroll et al. (2005) emphasized the importance of consumer's prior experience regarding privacy concerns while receiving mobile ads. Experiencing high privacy issues, will in turn have a negative impact on the attitude towards mobile ads. Leading to not granting permission and reject mobile ads. Also, IzquierdoYusta et al. (2015) found that experience rather has a negative impact on attitude towards mobile ads, which is due to prior experienced privacy concerns and receiving irritating ads.

However, also individual differences can be observed ending up in different levels of acceptance towards receiving ads. The study of De Silva and Yan (2016) confirmed that general prior experience is an antecedent of attitude. The more experience the consumer has, the more likely the attitude to accept mobile advertising. Furthermore, Yang et al. (2013) found a difference between experienced and inexperienced consumers. Those consumers who are rather inexperienced assess mobile ads based on its affective (emotional) aspects because they do not have sufficient knowledge to systematically assess mobile ads. On the other hand, the more experienced users rely on the content and cognitive aspects to assess the ads. The study of Bauer et al. (2005) could not find a significant impact of prior knowledge on the attitude towards mobile advertising.

All in all, there are inconsistencies across the studies and a few number of studies found empirical evidence confirming the impact of knowledge, skills and experience in the context of mobile advertising. This requires further research.

4.6 Control variables:

Age, Gender, Income, Education

Xu (2007) found a gender difference and empirical evidence for female consumers preferring personalized mobile ads, and on the other hand male consumers thinking of entertainment as the main driver to accept mobile advertising. However, this study was restricted to China. Bamba and Barnes et al. (2007) found proof for knowledge about technology and gender which accounted for the main differences in consumer's intention to grant permission or not. They also stated that consumer's demographics do likely have an impact on the way how ads are perceived. A more recent study of De Silva and Yan (2016) (research in Sri Lanka) revealed that demographics such as age ($p = 0.000$), family income ($p = 0.007$) and education ($p = 0.000$) are antecedent of consumer's attitude towards mobile advertising. Females were found to have a more favourable attitude than their counterparts, and the age group ranging from 21-25 held a more favourable attitude. Some studies could observe a possible influence of a control variable such as age, education and more demographics while others could not. More notable is the fact that each study looked at another control variable. So, no general statement can be made. However, it remains important to include or measure the effect of confounding variables to make statements about the real strength of a relationship.

4.7 Key findings: A general framework

After the assessment of each antecedent, a general framework includes those key antecedents having a significant impact on attitude towards mobile advertising.

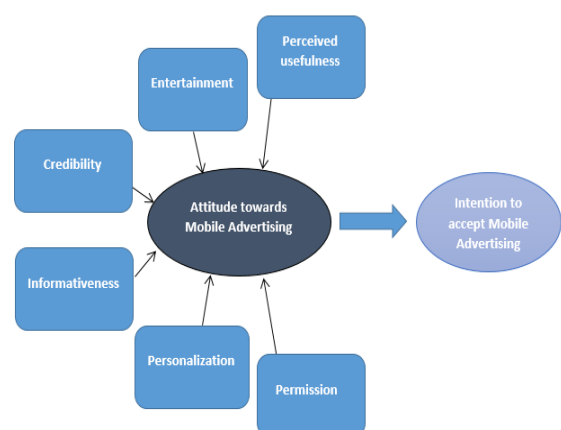


Figure 1- Key Antecedents of Attitude-Mobile Advertising Acceptance Model

5. DISCUSSION

This paper investigated the antecedents of attitude towards mobile ads. This in turn determines whether consumers have the intention to accept receiving mobile ads or not (Martí-Parreño et al., 2013; Phau and Teah, 2009; Tsang et al., 2004). Literature has shown that consumers in general have a negative attitude towards mobile advertising (Gao and Zang et al., 2016). So, they will unlikely agree to accept mobile advertising. This will not be the case when the consumer perceives value or benefit in receiving ads, which is rather a matter of an individual's perspective.

The first part of the paper introduced the major antecedents of attitude for which empirical evidence was found. The second part explored the important role of PBMA and introduced antecedents responsible for consumers either to grant permission or not. Finally, a general framework was developed including the key antecedents having a significant impact on attitude towards mobile advertising. All antecedents in the preceding sections were cited at least four times (See Appendix: D/E/G). A review of the literature indicated that affective (i.e. entertainment) antecedents are assumed to have a more significant influence on attitude. So, the antecedents perceived enjoyment, credibility, informativeness and personalization do exert the most significant influence on attitude towards advertising. Although, perceived enjoyment is cited more frequently and is referred to as the predominating leading antecedent compared to others across the literature (See Appendix: E/G) (Martínez-Ruiz et al., 2017), there are still some studies that found for instance credibility as the leading antecedent (Le et al., 2014). So, further research is required to make more generalizable assumptions. Next to perceived value/benefit as an antecedent, consumers in general perceive risk of privacy or security issues (Watson, 2013). Therefore, PBMA has an important role and is essential as an antecedent of attitude. PBMA enhances the increase in trust, control and simultaneously leads to a decrease of receiving irritating/annoying ads. Consumers in general have a positive attitude towards PBMA which in turn determines whether to accept or reject mobile ads. (Barnes, 2002; Tsang et al., 2004). Furthermore, across the cognitive factors, PU predominates (Martínez-Ruiz et al., 2017). However, it is crucial to mention that the antecedents of attitude mentioned in this paper are interrelated. So, for instance incentives can be monetary but can also refer to non-monetary incentives as it is described under PU with the content of the message being entertaining, informative etc. This can be observed throughout various papers which measured each antecedent under a different construct. Furthermore, personalization of ads determines if ads are perceived as either relevant, entertaining etc. Personalization in turn requires PBMA to track personal data, user profile and to gain consumer's trust. And trust in turn decreases perceived risk of privacy and security issues. This also means PBMA provides consumers with a feeling of being in control and being able to decide to grant permission or not (Verkasalo, 2009). Subsequently, this leads to a favourable attitude towards mobile advertising and more effective ads.

A different view across the literature emphasized rather the individual differences that are assumed to be primary antecedents of attitude towards mobile advertising. So, personality traits do exert an influence on the attitude (Varnali et al., 2012). For each individual consumer, another antecedent has priority. So, for one person privacy issues are dominating while for another relevance of the content matters regardless of the possible risks of privacy issues. Since every individual is different it seems reasonable to observe different predominant antecedents of attitude. Therefore,

it would be irrational to neglect the influence of a certain antecedent on the attitude of consumers.

6. CONCLUSION

This paper tried to answer the main research question, 'What key antecedents of smartphone user's attitude contribute to the acceptance of mobile advertising as a marketing tool?' Therefore, a critical literature review was done. So, to answer the question, it was necessary to identify the antecedents of consumer's attitude towards mobile advertising. This is because prior studies have proven that attitude has a direct impact on the intention to whether accept mobile ads or not. Furthermore, literature revealed that attitude can be divided into three parts, cognitive, affective and intention (Aaker et al., 2000, quoted in Le et al., 2014). Consequently, it can be concluded that next to the important role of cognitive factors, the affective factors become increasingly more important antecedents of attitude. So, the value/benefit consumers see in receiving mobile advertising is based on both, their cognition and emotions. Across the literature, the leading antecedents with the most significant effect on attitude (p -values < 0.01) were PU, entertainment, credibility, informativeness, personalization and permission (Figure 1). These are related to the content of mobile ads, and to consumer's perceived risk of privacy or security issues. Notable is the interrelatedness of these major antecedents of attitude with each other and other variables i.e. trust which should be considered to understand each antecedent more in depth. This study contributes to the existing knowledge by reviewing empirical studies and assessing each antecedent critically that appeared across the literature till now. Thereby it was found that some of these antecedents (e.g. FC/PEU) require further research to make more generalizable assumptions. So, inconsistencies across the empirical findings were found, but also similarities identified. Literature also revealed that the use of the TAM alone is not sufficient to explain attitude due to the focus on cognitive factors. So, there is a shift to a cognitive-affective framework. By combining cognitive and affective antecedents, a more integrated framework can be created that explains attitude and in turn the intention to use or accept mobile advertising (Yang et al., 2013). The preceding findings are also useful for the practical side. This provides organizations with insights into the key antecedents of consumer's attitude to better understand consumer behaviour to create more effective mobile ads. Building a relationship with the consumer is essential and requires to gain the trust of the consumer. Therefore, organizations should use PBMA to provide consumers with a feeling of being in control. Furthermore, it is crucial to consider that individuals are different and react differently to mobile ads. Consequently, organizations should incorporate personalized ads to better meet the needs of the consumer and to create value for consumers individually.

7. LIMITATIONS AND FURTHER RESEARCH

This literature review suffers from some limitations. First off, not all antecedents that were studied across the literature are included in this paper. This was mainly due to restricted access to all relevant papers. Furthermore, various studies measured the antecedents under different constructs or together with other variables under one umbrella term. So, various measurement scales were used. Subsequently, it was hard to assess the individual impact of each antecedent on attitude. Moreover, mobile advertising is a subset of mobile marketing. So, these findings do not contribute any value to other areas (e.g. strategy) of mobile marketing. Additionally, prior studies focused either on a certain subject area (e.g. SMS based ads), on a specific country or a certain population (e.g. youth). This gives rise to

generalizability issues. Therefore, it is recommended to take a broader view on this subject and to undertake more cross country studies, because few of these are available till now. This study revealed that the influence of PEU, FC and other antecedents such as demographics and culture require further research to make more generalizable assumptions. So, it would be interesting to discover differences between various countries with technological advancements and those without, or to explain differences between the youth and older generation. Regarding developing a framework it would be interesting to investigate which motivation theory would be most appropriate to extend already existing technology acceptance models to explain attitude. For this, several knowledge areas such as psychology, social sciences and others need to merge.

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9. REFERENCES

Bibliography

1. Aaker D. A., Kumar, V., Day, G. S. (2000). Marketing research. New York, Chichester, Weinheim, Brisbane, Singapore, Toronto: John Wiley & Sons, Inc.
2. Ajzen, I. (1985). From intentions to action: a theory of planned behaviour. UMD, 11-43
3. Andrews, M., Xueming, L., Zheng, F., & Ghose, A. (2015). Mobile Ad Effectiveness: Hyper-contextual Targeting with Crowdedness. *Marketing Science*, 35 (2), 218-233.
4. Bamba, F., Barnes, S. J. (2007). SMS advertising, permission and the consumer: a study. *Business Process Management Journal*, 13 (6), 815-829.
5. Barnes, Stuart J. (2002), Wireless Digital Advertising: Nature and Implications, *International Journal of Advertising*, 21 (3), 399-420.
6. Barnes, Stuart J., Scornavacca, E. (2004). Mobile Marketing: The role of permission and acceptance. *International Journal of Mobile Communication*, 2 (2), 128-139.
7. Barwise, Patrick and Colin Strong (2002). Permission-Based Mobile Advertising, *Journal of Interactive Marketing*, 16 (1), 14-24.
8. Bauer, Hans H., Stuart J. Barnes, Tina Reichardt, and Marcus M. Neumann (2005). Driving Consumer Acceptance of Mobile Marketing: A Theoretical Framework and Empirical Study, *Journal of Electronic Commerce Research*, 6 (3), 181- 191.
9. Blomqvist, K., Hurmelinna, P., Seppanen, R. (2005). Playing the collaboration game right: balancing trust and contracting. *Technovation*, 25 (5), 497-504.
10. Carroll, A., Barnes, S.J., and Scornavacca, E. (2005). Consumers Perceptions and Attitudes towards SMS Mobile Marketing in New Zealand. *In the Proceedings of the Fourth International Conference on Mobile Business*, 434 – 440.
11. Chowdhury, H.C., Parvin, N., Weitenberner, C., & Becker, M. (2006). Consumer Attitude Toward Mobile Advertising In An Emerging Market: An Empirical Study. *International Journal of Mobile Marketing*, 1(2), 33-41.
12. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3), 319-340.
13. Davis, F. D., Bagozzi, R. P., Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*, 22 (14), 1111-1132.
14. Dickinger, A., Haghirian, P., Scharl, A., Murphy, J. (2004). A conceptual model and investigation of SMS marketing. *Proceedings of the 37th Hawaii International Conference on System Sciences*.
15. Dooley, D. (1990). *Social research methods* (1st ed.). Englewood Cliffs, N.J.: Prentice-Hall.
16. Drossos, D., Giaglis, G. (2009). A model for predicting consumer responses to SMS advertising. *SSRN Electronic Journal*, 1-41.
17. Ducoffe, R. H. (1996). Advertising value and advertising on the Web. *Journal of Advertising Research*, 36, 21-35.
18. Feng, X., Fu, S., Qin, J. (2016). Determinants of consumer's attitudes toward mobile advertising: The mediating roles of intrinsic and extrinsic motivations. *Computers in Human Behavior*, 62, 334-341.
19. Fishbein, M., & Ajzen, I. (1975). Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research, Reading, MA: Addison-Wesley
20. Frambach, R.T., & Schillewaert, N. (2002). Organizational innovation adoption: A multilevel framework of determinants and opportunities for future research. *Journal of Business Research*, 55(2), 163-176.
21. Gao, S., Zang, Z. (2016). An empirical examination of users' adoption of mobile advertising in China. *Information Development*, 32 (2), 203-215.
22. Godin, S. (1999). Permission marketing. *Simon & Schuster*, New York.
23. Grewal, D., Bart, Y., Spann, M., & Zubcsek, P. P. (2016). Mobile Advertising: A Framework and Research Agenda. *Journal of Interactive Marketing*, 34, 3-14.

24. Hanley, M., Becker, M., Martinsen, J. (2006). Factors Influencing Mobile Advertising Acceptance: Will Incentives Motivate College Students to Accept Mobile Advertisements? *International Journal Mobile Marketing*, 1(1), 50-58.
25. Hong, S. J., Thong, J. Y. L., Moon, J. Y., Tam, K. Y. (2008), Understanding the behaviour of mobile data services consumers. *International System Frontiers*, 10, 431-445.
26. Husson, T. (2016). Mobile And App Marketing Trends: Integrating Mobile In Your Strategy As A Key Brand Differentiator. *Forrester*, 1-13.
27. Izquierdo-Yusta, A., Olarte-Pascual, C., Reinares-Lara, E. (2015). Attitudes toward mobile advertising among users versus non-users of the mobile Internet. *Telematics and Informatics*, 32, 355-366.
28. Jayawardhena, C., Kuckertz, A., Karjaluoto, H., Kautonen, T. (2009). Antecedents to permission based mobile marketing: An initial examination. *European Journal of Marketing*, 43 (3/4), 473-479.
29. Jesson, J., Lacey, F. (2006). How to do (or not to do) a critical literature review. *Pharmacy Edition*, 6 (2), 139-148.
30. Karjaluoto, H., Lehto, H., Leppäniemi, M., Jayawardhena, C. (2008). Exploring Gender Influence on Customer's Intention to Engage Permission-based Mobile Marketing. *Electronic Markets*, 18 (3), 242-259.
31. Kim, B. Y., Joo, H. C., Lee, B. G. (2016). How to forecast behavioural effects on mobile advertising in the smart environment using the technology acceptance model and web advertising effect model. *KSII Transactions on Internet and Information Systems*, 10 (10), 4997-5013.
32. Kotler, K., Keller, K. L., Brady, M., Goodman, M., Hansen, T. (2009). Marketing Management. *Pearson Education Limited*, 1-877.
33. Lamberton, C., Katz, J. M. (2015). Taking Stock of the Digital Revolution: A Critical Analysis and Agenda for Digital, Social Media, and Mobile Marketing Research. *Saïd Business School Research Papers*. 1-65.
34. Le, T. D., Nguyen, B.-T. H. (2014). Attitudes toward mobile advertising: A study of mobile web display and mobile app display advertising. *Asian Academy of Management Journal*, 19 (2), 87-103.
35. Leppäniemi, M. (2008). MOBILE MARKETING COMMUNICATIONS IN CONSUMER MARKETS. *Faculty of Economics and Business Administration, Department of Marketing, University of Oulu*, 5-138.
36. Leppäniemi, M., Karjaluoto, H. (2005). Factors influencing consumers' willingness to accept mobile advertising: a conceptual model. *International Journal Mobile Communications*, 3 (3), 197-210.
37. Lewis, E. ST. E. (1908). Financial Advertising, For Commercial And Savings Banks, Trust, Title Insurance, And Safe Deposit Companies, Investment Houses. *Ринопл Классик*, 1-984.
38. Lu, J., Liu, C., Yu, C-S., Wang, K. (2008). Determinants of accepting wireless mobile data services in China. *Information & Management*, 45 (1), 52-64.
39. Martin, B., Van Durme, J., Raulas, M., Merisavo, M. (2003). Email Advertising: Exploratory Insights from Finland. *Journal of Advertising Research*, 43(3), 293-300.
40. Martínez-Ruiz, M. P., Izquierdo-Yusta, A., Olarte-Pascual, C., Reinares-Lara, E. (2017). Do Affective Variables Make a Difference in Consumers Behavior Toward Mobile Advertising? *Frontiers in Psychology*, 7, 1-11.
41. Merisavo, M., Kajalo, S., Karjaluoto, H., Virtanen, V., Salmenkivi, S., Raulas, M., & Leppäniemi, M. (2007). An Empirical Study of The Drivers of Consumer Acceptance of Mobile Advertising. *Journal of Interactive Advertising*, 7 (2), 41-50.
42. Mohammadbagher, S., J., Gholamreza, J., Hadi, T. (2016). Factors influencing the intention to accept advertising in mobile social networks. *JEL Classification*, 1, 57-72.
43. Morgan, N. A., Vorhies, D. W., & Mason, C. H. (2009). Market Orientation, Marketing Capabilities, and Firm Performance. *Strategic Management Journal*, 30, 909-920.

44. Muk, A. (2007). Consumers' intention to opt in to SMS advertising. *International Journal of Advertising*, 26 (2), 177-198.
45. Müller, J., Alt, F., Michelis, D. (2011). Pervasive Advertising. *Springer Verlag London Limited*, 1-358.
46. Okazaki, S. (2004). How Japanese consumers perceive wireless ads? A multivariate analysis. *International Journal of Advertising*, 23, 429-454.
47. Okazaki, S., Li, H., Hirose, M. (2009). Consumer privacy concerns and preference for degree of regulatory control. *Journal of Advertising*, 38 (4), 63-77.
48. Olarte-Pascual, C., Pelegrín-Borondo, J., Reinares-Lara, E. (2016). Cognitive-Affective model of acceptance of mobile phone advertising. *Marketing and Trade*, 19 (4), 134-148.
49. Öztaş, Y. B. B. (2015). The Increasing Importance of Mobile Marketing in the Light of the Improvement of Mobile Phones, Confronted Problems Encountered in Practice, Solution Offers and Expectations. *Procedia - Social and Behavioral Sciences*, 195, 1066 – 1073
50. Parreño, J. M., Sanz-Blas, S., Ruiz-Mafé, C., Aldás-Manzano, J. (2013). Key factors of teenagers' mobile advertising acceptance. *Industrial Management & Data Systems*, 113 (5), 732-749.
51. Phau, I., Teah, M. (2009). Young consumers' motives for using SMS and perceptions towards SMS advertising. *Direct Marketing: An International Journal*, 3 (2), 97-108.
52. Saadeghvaziri, F., Hosseini, H. K. (2011). Mobile advertising: An investigation of factors creating positive attitude in Iranian customers. *African Journal of Business Management*, 5(2), 394-404.
53. Silva, D. V., Yan, J. (2016) Predictors of Attitudinal Outcomes in Mobile Advertising in Sri Lanka: An Emerging Market. *International Journal of Marketing Studies*, 8 (3), 129-140.
54. Soroa-Koury, S., Yang, K. C. C. (2010). Factors affecting consumer's responses to mobile advertising from a social norm theoretical perspective. *Journal Telematics and Informatics*, 27 (1), 102-113.
55. Speck, P. S., Elliott, M. T. (1997). Predictors of advertising avoidance in print and broadcast media. *Journal of Advertising*, 26 (3), 61-76.
56. Srisawatsakul, C., Papasratorn, B. (2013). Factors affecting consumer acceptance mobile broadband services with add-on advertising: Thailand case study. *Wireless Personal Communications*, 69 (3), 1055-1065.
57. Stewart, D. W., Pavlou, P. A. (2002). From consumer response to active consumer: measuring the effectiveness of interactive media. *Journal of the Academy of Marketing Science*, 30 (4), 376–396.
58. Tsang, M. M., Ho, S.C., & Liang, T. (2004). Consumer Attitudes Toward Mobile Advertising: An Empirical Study. *International Journal of Electronic Commerce*, 8 (3), 65-78.
59. Varnali, K., Toker, A. (2010). Mobile marketing research: The-state-of-the-art. *International Journal of Information Management*, 30, 144-151.
60. Varnali, K., Yilmaz, C., Toker, A. (2012). Predictors of attitudinal and behavioural outcomes in mobile advertising: A field experiment. *Electronic Commerce Research and Applications*, 11 (6), 570-581.
61. Venkatesh, V., & Davis, F. D. (2000). Theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science*, 46 (2), 186-204.
62. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425-478.
63. Verkasalo, H., López-Nicolás, C., Molina-Castillo, F. J., & Bouwman, H. (2010). Analysis of users and non-users of smartphone applications. *Telematics and Informatics*, 27, 2255
- Watson, C., McCarthy, J., & Rowley, J. (2013). Consumer attitudes towards mobile marketing in the smart phone era. *International Journal of Information Management*, 33 (5), 840-849.
64. Watson, C., McCarthy, J. Rowley, J. (2013). Consumer attitudes towards mobile marketing in the smart phone era.

International Journal of Information Management, 33 (5), 840-849.

65. Wong, C. H., Tan, G. W.-H., Tan, B.-I., Ooi, K.-B. (2015). Mobile advertising: The changing landscape of the advertising industry. *Telematics and Informatics*, 32, 720-732.
66. Webster, J., Watson, R. T. (2002). Analysing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, 26 (2), 12-23.
67. Xu, D. J. (2007). The influence of personalization in affecting consumer attitudes towards mobile advertising in China. *The Journal of Computer Information System*, 47 (2), 9-19.
68. Yang, B., Kim, Y., Yoo, C. (2013). The integrated mobile advertising model: The effects of technology and emotion-based evaluations. *Journal of Business Research*, 66, 1345-1352.
69. Ünal, S., Erciş, A., Keser, E. (2011). Attitudes towards Mobile Advertising – A Research to Determine the Differences between the Attitudes of Youth and Adults. *Procedia Social and Behavioral Sciences*, 24, 361–377.
71. *Number of Facebook users worldwide 2008-2017* / Statistic. (2017). Statista. Retrieved 22 May 2017, from <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>
72. O'Reilly, L. (2017). *Ad blocker usage is up 30% — and a popular method publishers use to thwart it isn't working*. *Business Insider Deutschland*. Retrieved 26 March 2017, from <https://www.businessinsider.com.de/pagefair-2017-ad-blocking-report-2017-1>
73. *RESEARCH PRIORITIES 2016–2018*. (2016) (1st ed., pp. 1-24). Retrieved from http://www.msi.org/uploads/articles/MSI_RP16-18.pdf
74. Walter, E. (2015). *6 Reasons Your Business Can't Afford to Ignore Mobile Advertising*. *Forbes.com*. Retrieved 27 March 2017, from <https://www.forbes.com/sites/ekaterinawalter/2015/08/21/6-reasons-your-business-cant-afford-to-ignore-mobile-advertising/#520770df4f12>

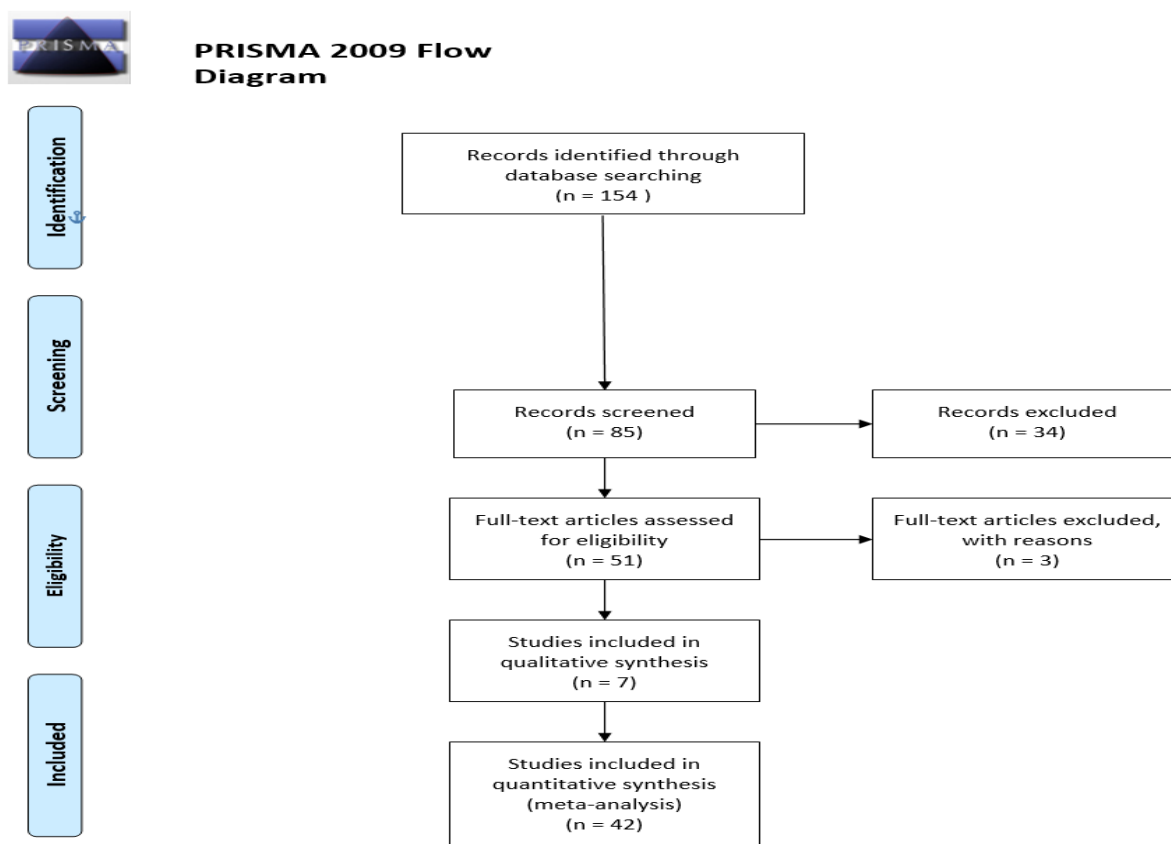
Websites

70. eMarketer. (n.d.). *Mobile internet advertising spending worldwide from 2015 to 2020 (in billion U.S. dollars)*. In Statista - The Statistics Portal. Retrieved 18 May 2017, from <https://ezproxy2.utwente.nl:3438/statistics/280640/mobile-advertising-spending-worldwide/>

10. APPENDIX

Appendix: A

Prisma Flow diagram for the search process and data collection.



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

Appendix: B

Key search terms for data collection,

Key terms used for the search process/data collection

Consumer's behaviour, Mobile advertising, Effective mobile advertising, Antecedents of consumer's attitude, Technology acceptance theories, (TAM), Cognitive-affective framework, Digital advertising, behavioural and psychological aspects, Technology acceptance theories, Theory of Reasoned Action (TRA), Motivators of attitude toward mobile advertising, Unified Model of Acceptance, Cognitive and affective aspects, Perceived enjoyment, Social influence, Mobile user's behaviour, Smartphone users, Model of Acceptance and Use of Technology, motivation theories, In-applications advertising, SMS-based ads

Appendix: C

Journals types and number of article used.

Journal Name	Number of articles	Journal Name	Number of articles
Marketing Science	1	Procedia Social and Behavioral Sciences	1
Direct Marketing: An International Journal	1	Telematics and Informatics	4

Industrial Management & Data Systems	1	Journal of the Academy of Marketing Science	1
International Journal of Electronic Commerce	1	Business Process Management Journal	1
Asian Academy of Management Journal	1	Journal of Interactive Marketing	2
Frontiers in Psychology	1	International Journal of Advertising	3
Journal of Business Research	2	Proceedings of the 37 th Hawaii International Conference on System Sciences	1
Journal of Computer Information System The	1	Proceedings of the 37 th Hawaii International Conference on System Sciences	1
Information Development	1	International Journal of Mobile Communication	1
SSRN Electronic Journal	1	International Journal of Mobile Communication	1
KSII Transactions on Internet and Information Systems	1	African Journal of Business Management	1
KSII Transactions on Internet and Information Systems	1	In the Proceedings of the Fourth International Conference on Mobile Business	1
Marketing and Trade	1	International Journal of Information Management	3
International System Frontiers	1	Electronic Commerce Research and Applications	1
International System Frontiers	1	JEL Classification	1
Management Science	1	Technovation	1
MIS Quarterly	3	International Journal of Marketing Studies	1
Journal of Interactive Advertising	1	. Faculty of Economics and Business Administration, Department of Marketing, University of Oulu,	1
Journal of Advertising Research	2	Marketing Science	2
Journal of Applied Social Psychology	1	International Journal Mobile Communications	1
Journal of Electronic Commerce Research	1	International Journal Mobile Marketing	1

Appendix: D

Antecedents of attitude towards mobile advertising (Summarized table)

Construct	IV	Authors
PU	<i>Value/benefit/Informativeness/Relevance</i>	Bamba and Barnes (2007); Barwise & Strong (2002); Bauer et al. (2005); Carroll et al. (2005); Gao and Zang (2016); Hong et al. (2008); Izquierdo-Yusta et al. (2015); Kim et al. (2016); Lin et al. (2017); Lu et al. (2008); Martínez-Ruiz et al. (2017); Merisavo et al. (2007); Muk and Chung (2015); Olarte- Pascual et al. (2016); Martí-Parreño et al.(2013); Saadeghhvaziri and Hosseini (2011); Srisawatsakul (2013); Tsang et al. (2004); Watson (2013); Yang et al. (2013); Ünal (2011)
PEU		Hong et al. (2008); Izquierdo-Yusta et al. (2015); Kim et al. (2016); Lu et al. (2008); Martínez-Ruiz et al. (2017); Muk and Chung (2015); Olarte- Pascual et al. (2016)
PEJ	<i>Entertainment</i>	Barwise & Strong (2002); Bauer et al. (2005); Carroll et al. (2005); Feng et al. (2016); Gao and Zang (2016); Hong et al. (2008); Kim et al. (2016); Le et al. (2014); Martí- Parreño et al. (2013); Saadeghhvaziri and Hosseini (2011); Tsang et al. (2004); Watson (2013); Wong et al. (2015); Xu (2007); Yang et al. (2013); Ünal (2011)
FC	<i>Knowledge/skills/experience</i>	Lu et al. (2008); Okazaki (2007); Okazaki, Li & Hirose (2009); Silva et al. (2016); Srisawatsakul and Papasratorn (2013)

Other antecedents	<i>Permission based ads/ Privacy/Security/ Control/ Credibility/Trust/ Incentives/ Personalization/Risk/ Irritation</i>	Bamba and Barnes (2007); Barwise & Strong (2002); Bauer et al. (2005); Carroll et al. (2005); Chowdhury (2006); Drossos, et al. (2009); Feng et al. (2016); Gao and Zang (2016); Izquierdo-Yusta et al. (2015); Jayawardhena et al. (2009); Jiménez (2017); Le et al. (2014); Lin et al. (2017); Lu et al. (2008); Merisavo et al. (2007); Okazaki, Li & Hirose (2009); Martí-Parreño (2013); Saadeghhvaziri and Hosseini (2011); Tsang et al. (2004); Varnali (2012); Watson (2013); Xu (2007); Yang et al. (2013); Ünal (2011)
CV	<i>Demographics: Age/ Gender/ Income/ Education</i>	Kolsaker (2009); Le et al. (2014); Lu et al. (2008); Martínez-Ruiz et al. (2017); Okazaki, Li & Hirose (2009); Olarte- Pascual et al. (2016); Silva et al. (2016)

Index: IV= Independent variable; PU= Perceived usefulness; PEU= Perceived ease of use; PEJ= Perceived Enjoyment; FC= Facilitating conditions; CV=Control variables

Appendix: E

Detailed list of literature regarding antecedents (independent variables) of Attitude and Acceptance (dependent variable).

IV	DV	Relation-ship	Author
Permission, (Combination: Content Relevance+ Control, Delivery of message	Consumer's willingness to give permission to receive SMS ads	(SMS) Positive Condition under	Bamba and Barnes et al. (2007)
Permission, Personalization, Entertainment, Informativeness/Relevance	Acceptance of mobile ads	(SMS/ UK) Positive/Varies	Barwise & Strong (2002)
Risk reduction, Permission, Personalization, Privacy, Entertainment, Informativeness	Acceptance of the mobile phone as an innovative medium for advertising content communication.	(TRA) Positive	Bauer, Reichardt, Barnes & Neumann (2005)
permission, content, wireless service provider control, the delivery of the message	Acceptance of mobile marketing	Positive (SMS, m-commerce)	Carroll et al. (2005)
Content: Entertainment, Informativeness, Irritation, Credibility	Attitude toward mobile advertising	(SMS, Bangladesh) Only Credibility Positive	Chowdhury (2006)
Permission, Perceived ad credibility, attitude towards mobile advertising, message appeal, argument quality, incentive, and interactivity	Attitude toward the ads	Positive	Drossos, Giaglis & Vlachos (2009)
Extrinsic motivation (timeliness, localization, personalization of ads), Intrinsic motivation (consumer innovativeness, perceived enjoyment (Motivation theory	Attitude toward mobile advertising	Positive	Feng et al. (2016)
Entertainment, Informativeness, Credibility, Personalization, Irritation Incentive, Attitude mobile advertising	Attitude towards mobile advertising	Positive	Gao and Zang (2016)

	Intention to receive mobile ads		
Perceived usefulness Indirect, Perceived ease of use Indirect, Perceived enjoyment Indirect, Social influence, Media influence, Perceived mobility, Perceived monetary value	Consumers' acceptance of mobile data services	Positive (TPB)	Hong et al. (2008)
PU, PEU, Reference group, Perceived control	Attitude towards m-advertising	Positive (except from perceived control)	Izquierdo-Yusta et al. (2015)
Permission/Institutional Trust	Decision to participate in mobile marketing	Positive	Jayawardhena, Kuckertz, Karjaluoto & Kautonen (2009)
Perceived control, social influence, epistemic factor (Compatibility)	Attitude towards m-advertising	Varies depending on market	Jiménez (2017)
PU, Attitude towards mobile ads, PEU, Entertainment, Informativeness	Intention to use mobile ads	Positive	Kim et al. (2016)
Emotional attachment to mobile device	User perception and responsiveness to mobile ads	Positive	Kolsaker (2009)
Credibility, Entertainment, Demographic characteristic	Attitude towards m-advertising	Positive (Vietnam)	Le et al. (2014)
perceived usefulness, irritation, credibility, trust,	the reuse intention of mobile advertising.	Positive (TAM)	Lin et al. (2017)
Facilitating conditions Indirect, Social influences, Mobile trust, Security, privacy, reliability, Personal innovativeness factor, Perceived usefulness (PU), Perceived ease of use (PEU), Technology interface design	Intentions to adopt wireless mobile data services	Positive	Lu et al. (2008)
Positive emotions (TAM variable less relevant effects)	Attitude towards m-advertising	Indirect influence	Martínez-Ruiz et al. (2017)
Utility, Context, Sacrifice, Content, Trust	Acceptance of mobile advertising	Positive (exception Sacrifice)	Merisavo et al. (2007)
PEU, PU, Social influence	Consumer's attitude towards acceptance of SMS ads	Restriction to SMS advertising and varies across countries (America vs Korea)	Muk and Chung (2015)
Perceived ubiquity	Consumers' acceptance of mobile advertising.	Positive	Okazaki (2007)
Perceived risk of control, Perceived risk of privacy, Risk reduction, Privacy, Perceived ubiquity, prior negative experience	Mobile users' preference for the degree of regulatory control in mobile advertising in Japan	(Japan/ Social contract theory) Varies	Okazaki, Li & Hirose (2009)
Cognitive factors (PU/PEU), Affective factors	Attitude towards mobile advertising	Positive	Olarte- Pascual et al. (2016)

(positive/negative emotions towards mobile ads)	in turn affects Intention to use mobile ads		Same results as Karjaluoto et al. (2008)
Entertainment, PU, Irritation	Attitude towards mobile advertising	Positive (Restricted to teenagers)	Martí -Parreño (2013)
Social involvement	Attitudes towards SMS advertising.	Positive (Australia)	Phau and Teah (2009)
Entertainment, Credibility, Personalisation, Informativeness, Irritation, Monetary benefit	Attitude towards mobile advertising.	Positive	Saadeghvaziri and Hosseini (2011)
Demographics (age, family, income, education level), Experience with internet ads	Attitude towards mobile advertising.	Positive	Silva et al. (2016)
Perceived Value, Contextual Awareness, Trust, Solidarity, Familiarity and Effect	Adoption of mobile broadband services with add-on advertising	(Thailand/TRA) Positive	Srisawatsakul and Papasratorn (2013)
Materialism, Good for economy	Attitude towards mobile ads in general	Positive	Tan & Chia (2007)
Perceived entertainment, Informativeness, Irritation, Credibility, Permission, Incentives	Consumer's attitude towards mobile ads, Behaviour and Intention	Positive	Tsang et al. (2004)
Permission, Incentives	Behaviour, (behavioural intention based campaign outcomes	Positive	Varnali (2012)
Subjective norm, Image, Job relevance, Output quality, Result demonstrability, Perceived ease of use	Perceived usefulness of system	Positive	Venkatesh & Davis (2000) TAM2
Perceived enjoyment, PU, Perceived technological barriers	Intention to use apps control	(Finland) Positive Negative	Verkasalo (2009)
Permission, Control, Trust, Useful/ Entertaining Content	Acceptance of mobile ads	(Pull technology QR) Positive	Watson (2013)
All constructs of UTAUT model (FC, EE, PE, SI) PEJ strongest predictor of BI MS	Consumer's behavioural intention (BI) PE, PEJ, EE	Positive	Wong et al. (2015)
Entertainment, Credibility, Personalisation	Attitude towards mobile advertisements	(China) Positive	Xu (2007)

Credibility, Attitude towards mobile ads, Technology-based evaluations (PU, PEU), Acceptance of mobile technologies, Emotion based-evaluations (Entertainment, Irritation)	Acceptance/Response to mobile ads	Positive	Yang et al. (2013)
(TAM 2) Attitude towards mobile commerce	Attitude toward/Intent to use mobile advertisements	Positive	Yang et al. (2007)
Ads entertaining, informative, reliable, personalized, permission	Attitude towards mobile advertisements	Positive (Restricted to Youth vs Adults)	Ünal (2011)

ID= Independent variable; DV=Dependent variable

Appendix F:

Summary of representative literature and theories used

	TAM	TAM 2	TRA	UTAUT	TPB	MO
Bauer et al. (2005)			x			
Hong et al. (2008)	x				x	
Lu et al. (2008)	x			x		
Okazaki et al. (2009)						x
Martí- Parreño (2013)	x					
Izquierdo-Yusta et al. (2015)	x	x				
Wong et al. (2015)				x		
Feng et al. (2016)						x
Kim et al. (2016)	x					x
Olarte- Pascual et al. (2016)	x					
Lin et al. (2017)	x					

MO=other motivation theories(psychology)

Appendix G:

Summary of key antecedents of attitude across the literature.

	Perceived Usefulness	Perceived Ease of Use	Perceived Enjoyment	Credibility	Informativeness	Control	Personalization	Irritation	Trust	Incentives	Permission
Kim et al. (2016)	x	x	x		x						
Le et al. (2014)			x	x			x				x
Saadeghvaziri and Hosseini (2011)			x	x	x		x	x		x	
Ünal (2011)			x	x	x						
Kim et al. (2016)	x	x	x		x						
Yang et al. (2013)	x	x	x	x				x			
Xu (2007)			x	x			x				
Wong et al. (2015)			x								
Watson (2013)	x		x			x			x		x
Verkasalo (2009)	x		x			x					
Vamali (2012)										x	x
Tsang et al. (2004)			x	x	x			x		x	x
Tan & Chia (2007)											
Srisawatkul and Papatrorn (2013)	x				x				x		
Saadeghvaziri and Hosseini (2011)			x	x	x		x	x		x	
Parreño (2013)	x		x					x			
Olarte-Pascual et al. (2016)	x	x									
Okazaki, Li & Hirose (2009)						x			x		x
Muk and Chung (2015)	x	x									
Merisavo et al. (2007)	x			x	x		x		x		
Martínez-Ruiz et al. (2017)	x			x	x				x		
Lu et al. (2008)	x	x									
Lin et al. (2017)	x			x				x	x		
Jiménez (2017)						x					
Jayawardhena et al. (2003)									x		x
Izquierdo-Yusta et al. (2015)	x	x				x					
Hong et al. (2008)	x	x	x							x	
Gao and Zang (2016)			x	x	x		x			x	
Feng et al. (2016)			x				x				
Drossos, Giaglis & Vlachos (2003)				x	x					x	x
Chowdhury (2006)			x	x	x			x			
Carroll et al. (2005)						x					x
Bauer et al. (2005)			x		x	x	x				x
Barwise & Strong (2002)	x		x		x		x				x
Bamba and Barnes et al. (2007)	x					x					x

Appendix H:

Figures of theoretical models used:

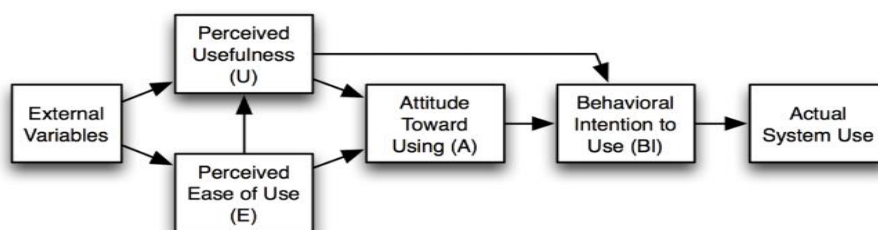


Figure 1: Technology Acceptance Model (TAM model) (Davis, 1989)

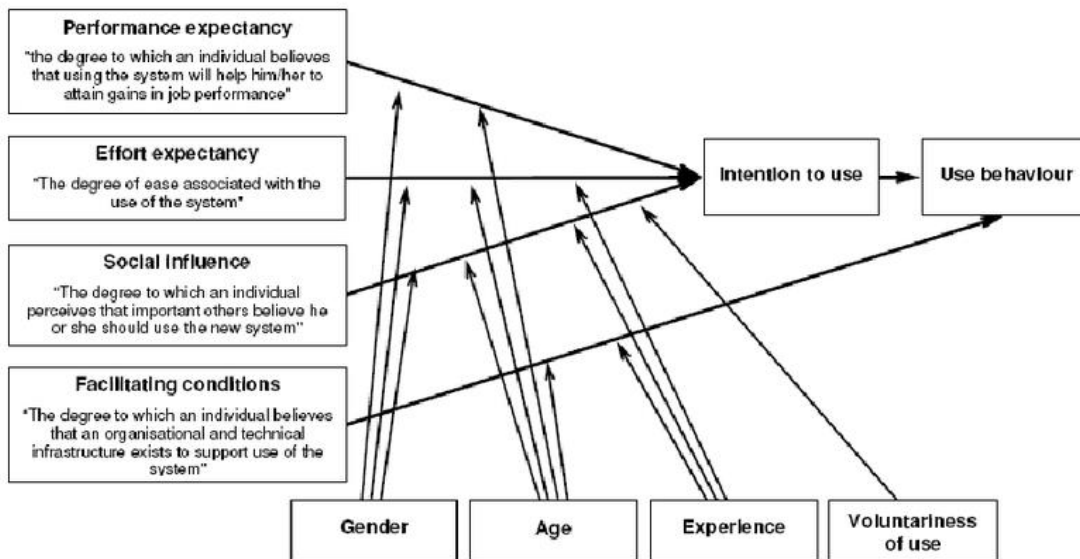


Figure 2: Unified Model of Acceptance and Use of Technology (Venkatesh et al., 2003)

Appendix I:

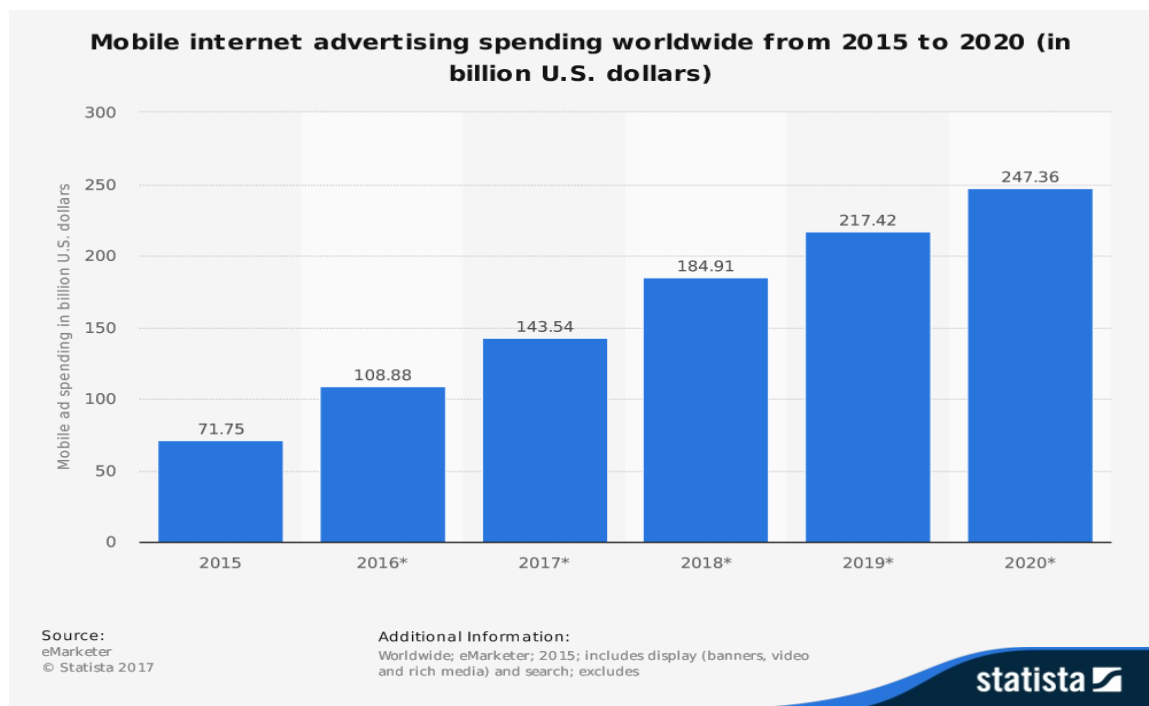


Figure 3: Mobile Internet advertising spending worldwide from 2015-2020. Statista (2017)

Appendix J:

A hypothesized model

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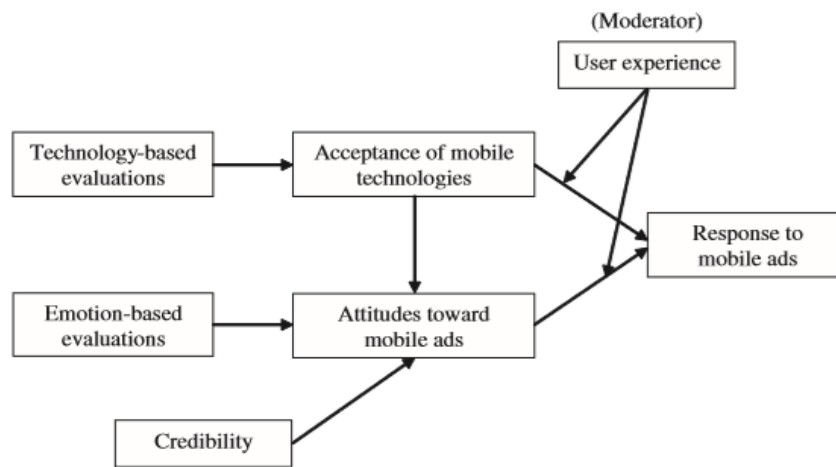


Fig. 1. The hypothesized model.

Figure 4: The hypothesized model (Yang et al., 2013)

Appendix K:

Hypothesis test

Table 5. Test of hypotheses based on path coefficient.

Hypothesis	Path coefficient	Hypothesis result
H1. Entertainment attitudes toward mobile advertising	0.51***	Supported
H2. Credibility attitudes toward mobile advertising	0.25***	Supported
H3. Irritation attitudes toward mobile advertising	−0.14**	Supported
H4. Personalization attitudes toward mobile advertising	0.16**	Supported
H5. Attitudes toward mobile advertising intention to receive mobile advertisements	0.89***	Supported
H6. Incentives toward intention to receive mobile advertisements	0.10*	Supported

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Figure 5: Hypothesis test and path coefficients (Gao and Zang, 2016)