

Aki Rantanen

**FACTORS ASSOCIATED WITH CONSUMER
ATTITUDE TOWARDS MOBILE MARKETING
AMONG SMARTPHONE USERS**



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Rantanen, Aki

Factors associated with consumer attitude towards mobile marketing among smartphone users

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Kuluttajien asenteeseen liittyvien tekijöiden ymmärtäminen on olennaista tehokkaan mobiilimarkkinoinnin toteuttamisessa, sillä asenteella on vaikutusta kuluttajien ostohalukkuuteen. Tutkimalla asenteeseen liittyviä tekijöitä voidaan saavuttaa tuloksia, joita hyödyntämällä markkinoijien on mahdollista toteuttaa kuluttajille paremmin soveltuvia mobiilimarkkinointikampanjoita. Tämän tutkimuksen tavoitteena oli löytää tekijöitä, jotka ovat yhteydessä kuluttajien asenteeseen mobiilimarkkinointia kohtaan älypuhelinien käyttäjien keskuudessa. Tutkimuksessa toteutettiin kirjallisuuskatsaus, jossa käytiin läpi mobiilimarkkinointia ilmiönä ja sen kehittymistä, sekä aiempia tutkimuksia joissa painopiste oli ollut asenteeseen liittyvien tekijöiden tutkimisessa. Kirjallisuuskatsauksen pohjalta muodostettiin teoreettinen malli asenteeseen liittyvistä tekijöistä, jonka testaamiseksi kerättiin aineisto sähköisessä muodossa toteutetulla kyselytutkimuksella. Kyselytutkimus kohdistettiin kaikenikäisille suomalaisille älypuhelinien käyttäjille, ja analysoitavaksi hyväksytyjä vastauksia saatiin 204 kappaletta. Aineisto analysoitiin SPSS- ja AMOS-ohjelmistoilla käyttäen rakenneyhtälömallinnusta. Tutkimuksen tulokset antavat viitteitä siitä, että kuluttajan luvan pyytäminen mobiilimarkkinointia varten sekä markkinoinnin sisällön uskottavuus ovat yhteydessä asenteeseen mobiilimarkkinointia kohtaan. Näiden lisäksi tutkittiin neljää tekijää, joiden yhteyttä asenteeseen ei kuitenkaan löydetty. Nämä tekijät olivat kuluttajien henkilökohtainen kiintymys älypuhelinia kohtaan, markkinoinnin personointi, kuluttajien huoli yksityisyyteen liittyvistä riskeistä, sekä kuluttajien innovatiivisuus. Näin ollen tulosten havaittiin osittain tukevan aiemmassa kirjallisuudessa saavutettuja tuloksia, mutta olevan osittain myös ristiriidassa niiden kanssa. Tutkimus vahvistaa näkemystä siitä, että markkinoijien on syytä huomioida luvan pyytäminen sekä sisällön uskottavuus mobiilimarkkinointia toteutettaessa. Lisäksi tutkimus haastaa aiempia tutkimustuloksia antaen aiheita jatkotutkimukselle, etenkin älypuheliiniin kohdistettavaan mobiilimarkkinointiin liittyen.

Asiasanat: mobiilimarkkinointi, kuluttajien asenne, tekijä, älypuhelin, rakenneyhtälömallinus

ABSTRACT

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Understanding factors that are related to consumer attitude is essential in implementation of effective mobile marketing, as attitude has an influence on purchase intention. By researching these factors, it is possible to achieve results that are helpful for marketers in creating better mobile marketing campaigns to attract consumer attention. This research aimed to identify factors that are associated with consumer attitude among smartphone users. The research was started with a literature review, where mobile marketing as a phenomenon and its development was explained along with exploration of results from previous research, where the focus had been in identifying factors related to consumer attitude towards mobile marketing. Based on previous research, a theoretical research model was created. To test the model, an online questionnaire was established and used for collecting research data. The survey was aimed at Finnish smartphone users of all ages, and a total of 204 responses were accepted for analysis. Structural equation modeling was utilized to analyze the data using SPSS and AMOS software. The results of this research suggest that obtaining consumer's permission for mobile marketing, and credibility of the marketing content are associated with consumer attitude towards mobile marketing. In addition to these factors, four others were also researched but a relation to attitude was not discovered. These factors were consumers' personal attachment to their smartphones, personalization of the marketing, consumers' privacy risk concerns, and consumer innovativeness. Hence the outcome was noted to partially support results from previous research, but also to be inconsistent with some of the existing literature. Nevertheless, this research reasserts the interpretation that marketers should obtain consumer's permission and pay attention to the credibility of their mobile marketing efforts. Additionally, this research challenges some of the results in previous literature and provides ground for future research especially in relation to mobile marketing for smartphones.

Keywords: mobile marketing, consumer attitude, factor, smartphone, structural equation modeling (SEM)

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1 INTRODUCTION

The number of mobile cellular subscriptions has been growing at a staggering pace in the 21st century. According to International Telecommunication Union (2016), the number of mobile cellular subscriptions in the world was approximately 738 million in the year 2000. In 2016, the number was over 7,5 billion (Telecommunication Union, 2016). Hence, the amount had increased over ten-fold in 16 years and surpassed the world's population in 2015. Ericsson (2015) is forecasting the number to be around 9,1 billion in 2020. As a result, and perhaps also a driver of this growth, the usage and demand for mobile services is getting higher and higher every year.

To run successful marketing campaigns, marketers need to be able to reach consumers. As consumers have gone to mobile, its importance as a marketing channel has grown rapidly. Mobile marketing is already becoming the marketing channel with largest spend by marketers in the United States, and the growth is expected to continue for years to come (eMarketer, 2018). According to statistics from comScore (2017), 69 % of digital media consumption was already done through mobile devices in 2016 in the US. The need for mobile marketing research is indisputable, as the growth of mobile device usage and demand for mobile services does not seem to be stopping any time soon. Understanding consumer behavior in the environment is essential for development of mobile marketing that attracts the consumers' attention and purchase intention (Martins, Costa, Oliveira, Gonçalves, & Branco, 2018).

Mobile marketing in general has received growing interest among researchers, but according to Leppäniemi, Sinisalo & Karjaluoto (2006) it is relative recent as a field, as the first academic paper was published in 2001. Leppäniemi et al. (2006) reviewed 50 mobile marketing research papers and articles from 2000 to 2006, and noted that a significant number of the studies had focused on consumer behavior and attitudes towards mobile marketing. In the research they also noted a need for empirical examination of factors related to consumer's personal information concerns and granting permission to use the data in mobile marketing activities (Leppäniemi et al., 2006).

According to a literature review by Varnali & Toker (2010), a total of 255 peer-reviewed journal articles focusing on some aspect of mobile marketing were published between years 2000 and 2008. The researchers classified these articles in four categories, one of them being consumer behavior. Within that category, 23 articles were noted to focus entirely on the construct of consumer attitude towards mobile marketing. Research attention towards the subject has since increased, as at least 12 articles were published between 2011 and 2013 focusing on the topic (Rantanen, 2015).

Nowadays, as smartphones have penetrated most the mobile phone market in many developed countries (Pew Research Center, 2016) and the usage of these devices is growing, the consumer behavior is most likely changing with the technological development. Therefore, it is highly relevant to study whether the results from previous mobile marketing literature are still valid when tested on smartphone users only. The approach in recent previous research on consumer attitude towards mobile marketing has still been in studying the users of mobile phones in general, as researchers have not made a distinction in the results between smartphone users and non-smartphone users (e.g. Sanz-Blas, Ruiz-Mafé, & Martí-Parreño, 2015; Lin, Zhou, & Chen, 2014). Therefore, the focus of this research was chosen to be in smartphone users. To address the issue, the following research question was created:

- Which factors are associated with consumer attitude towards mobile marketing among smartphone users?

In addition to the research question, another objective of this research is to identify possible inconsistencies with previous research by comparing the results to factors that have been previously noted to be associated with consumer attitude towards mobile marketing. As the methods and techniques in mobile marketing have evolved and new means have been introduced, it is reasonable to assume that the drivers for attitude might not be completely the same as they have been before and the technological advances should be taken into account in mobile marketing research (Fritz, Sohn, & Seegebarth, 2017).

To approach the research question, understanding of mobile marketing as a phenomenon and previous research on the topic must be established first. That is done by reviewing literature on the history and development of mobile marketing, looking into the influence of smartphones, and going through studies that have focused on identifying factors related to consumer attitude towards mobile marketing. Review of the existing literature will act as a baseline for the empirical research, where a research model will be created and empirically tested to explore what kind of factors are associated with the attitude among smartphone users. The empirical part will be conducted by collecting research data with a survey, which is an applicable data collection method for the purposes of this research as the sample size is high and respondents are spread out (Vilkka, 2007). The data will then be analyzed using structural equation modeling. The research population will consist of Finnish smartphone users.

The research will proceed as follows. The next chapter will focus on mobile marketing in general, by providing several definitions of the phenomenon and its evolution to what it currently is. In the third chapter consumer attitude towards mobile marketing is explored by reviewing previous literature on the topic. After the literature review, the empirical part is started with a description of the research approach and methods in chapter four, and the results of the empirical research will be presented in chapter five. Finally, a conclusion of the research will be provided with discussion of the limitations in this research and suggestions for future research.

2 MOBILE MARKETING

This chapter aims to provide a general understanding of mobile marketing, the underlying element in this research. Brief remarks of the history and current state of mobile marketing are presented followed by run-through of several definitions for the phenomenon from previous research. Thoughts on mobile marketing for smartphones are also shared and summarized together with the definitions to propose attributes related to modern-day mobile marketing.

2.1 Mobile marketing in general

Mobile marketing has already been around for almost 20 years. According to Haig (2002), the first mobile marketing campaign was implemented at Ibiza, Spain in 2000. In this particular campaign, nightclubs launched a service that allowed people to subscribe to the service on a website in order to receive SMS-messages (Short Message Service) related to Ibiza's nightlife. These messages included free gifts such as ringtones, discounts, and information about secret parties. The campaign became successful as over 30 000 people subscribed to the service. (Haig, 2002.) According to Kavassalis et al. (2003), multiple mobile marketing campaigns were also carried out in the UK during 2000 and 2001 by large brands including Channel 5 and McDonald's. Within the last two decades mobile marketing has grown to become a massive marketing channel, with total spending of approximately 109 billion US dollars by advertisers globally in 2016 (Statista, 2016). By 2020, Statista (2016) estimates the figure to reach 274 billion US dollars, which would indicate over 150 % growth in four years. eMarketer (2018) is projecting that during 2018 mobile advertising spend will surpass television advertising spend and become the largest advertising medium with 33,9 % share of total advertising spend in the United States.

In previous literature the term "mobile advertising", or shortened to "m-advertising", has also been used to describe the phenomenon (eg. Leppaniemi & Karjaluoto, 2005; Haghirian, Madlberger, & Tanuskova, 2005; Mir, 2011).

Tähtinen (2005) has performed a conceptual analysis, and argues that “mobile advertising” as a term is too narrow to describe the whole phenomenon. But then again, the author also notes that “mobile marketing” covers more than it should. Back in 2005 when Tähtinen’s research article was published, mobile marketing consisted of basically just text- and multimedia-messages (Tähtinen, 2005). Since then, mobile marketing has become a phenomenon that may include multiple other procedures besides advertisement messages delivered to a mobile device (Shankar & Balasubramanian, 2009; Mobile Marketing Association, 2009). Hence, the term “mobile marketing” is chosen to be used in this research.

2.2 Defining mobile marketing

Mobile marketing has had multiple definitions during its lifetime, and the definitions have evolved as technological development has provided the possibilities for the evolution of mobile marketing as well. During the early years of this development, mobile was basically only seen as a channel for delivering traditional marketing communication (Kavassalis et al., 2003). A few years later, it was already given a much broader description as Scharl, Dickinger, and Murphy (2005) defined mobile marketing to be “using a wireless medium to provide consumers with time- and location-sensitive, personalized information that promotes goods, services and ideas, thereby benefiting all stakeholders”. Roach (2009) emphasizes the same two attributes: time- and location specificity and personalization of information. These two features are still important factors separating mobile marketing from many other marketing channels.

Leppäniemi et al. (2006) performed an extensive literature review on mobile marketing research, and included an evaluation of mobile marketing definitions in their study. Their own definition is short and simple: “Mobile marketing is the use of the mobile medium as a means of marketing communication.” Shankar & Balasubramanian (2009) point out in their definition, that mobile marketing is two- or multi-way communication. This is an important addition, because mobile marketing often is an interactive set of actions, including not only mobile advertising but also promotions, customer support, and other activities that build a relationship between the marketer and the customer. Especially in modern world, mobile marketing should be seen as relationship building instead of only delivering advertising content. (Shankar & Balasubramanian, 2009.)

Thoughts of mobile marketing being at least a two-way communication are shared by Mobile Marketing Association (2009), as they also note that the mobile marketing engagement can be initiated by either the consumer (pull) or marketer (push). In this definition, mobile marketing is strongly seen as an engagement including a set of practices instead of only delivering advertisements to mobile devices. They argue that this set of practices includes “activities, insti-

tutions, processes, industry players, standards, advertising and media, direct response, promotions, relationship management, CRM, customer services, loyalty, social marketing, and all the many faces and facets of marketing.”

Kaplan (2012) presented three conditions for mobile marketing: ubiquitous network, user’s constant access to this network, and use of a personal mobile device. By ubiquitous network, Kaplan refers to a combination of different networks, such as 3G (3rd generation mobile network) and WLAN (Wireless Local Access Network). The important factor is the constant connection to a network, which allows marketers to reach customers any time and at any location. This definition emphasizes the conditions that are needed to deliver effective mobile marketing rather than attributes or features like the previously presented definitions. Eventually, these three conditions presented by Kaplan (2012) are needed in order to deliver time- and location specific and personalized information.

2.3 Mobile marketing for smartphones

The development from a traditional mobile phone, which basically allowed users to only call and send SMS-messages, to a smartphone has changed the purpose of use of the device in a major way. Smartphone is often an extremely personal device to its owner, and users are constantly checking their phones to search information or connect with their friends and family instead of just calling and texting (Fullwood, Quinn, Kaye, & Redding, 2017). The amount of personal information stored in a smartphone is massive thus providing marketers the possibility to reach and use this information without spending resources on contacting the consumers personally. By filtering this information, usable knowledge about the consumer’s likes and interests can be produced. As an example, after a consumer uses a search engine on their smartphone to find information of a certain product, later a banner ad can be shown on a mobile web browser promoting a store where this product can be bought.

Smartphones enable a variety of services that can be used in mobile marketing. According to Hopkins & Turner (2012), businesses are using for example Near Field Communication (NFC), mobile websites, mobile applications, and QR-codes (Quick Response) in their mobile marketing efforts. These are services enabled by smartphones, meaning that these types of campaigns would not have been possible without the tremendous development in mobile devices within the last decade or so. Methods for especially pull-based marketing, where the communication is initiated by the consumer instead of the advertiser, have increased substantially with the introduction of the smartphone (Persaud & Azhar, 2012). Consumers can also use their smartphones to combine traditional shopping experience in a store with online shopping, by e.g. searching for information and reviews or comparing prices of a product they find in a retail store with other stores or online shops. By using location-based services, busi-

nesses can interact with their customers through smartphones while they are visiting a store.

2.4 Summary

Based on the definitions provided in previous literature and presented in this chapter, the following definition for mobile marketing is suggested and used in this research: Mobile marketing is time- and location sensitive, personalized two- or multi-way communication and engagement between marketer and consumer through smartphone-enabled services. In addition to the attributes mentioned, consumer's constant access to a network (e.g. 3G/4G, WLAN) with a personal mobile device is needed in order to perform mobile marketing (Kaplan, 2012).

Attitude towards mobile marketing has been linked with purchase intention (Xu, 2006), and therefore it is highly important to perform research focusing on factors that have an influence on consumer attitude. Based on the results, marketers have an opportunity to design their mobile marketing campaigns in a way that has a stronger possibility of leading to a positive consumer attitude and response. The following chapter will focus on this matter, as a literature review is performed on previous research about consumer attitude towards mobile marketing.

3 CONSUMER ATTITUDE TOWARDS MOBILE MARKETING

In this chapter attitude is defined on a general level followed by a literature review on previous research focusing on consumer attitude towards mobile marketing. The reviewed literature is presented in a table in which the research focus and key results of each study are summarized. Factors suggested to have a relation to consumer attitude towards mobile marketing are identified from the literature and gathered in a figure, and later explained in more detail.

3.1 Attitude in general

According to Bohner and Dickel (2011) attitude has drawn a lot of research interest within the field of social psychology, and several definitions have been proposed. Especially on more elaborate models, the concepts have a lot of variation. However, Bohner & Dickel (2011) provide the following core definition and conclude that this approach is agreed among most researchers:

An attitude is an evaluation of an object of thought. Attitude objects comprise anything a person may hold in mind, ranging from the mundane to the abstract, including things, people, groups, and ideas.

The major debate is whether attitude is comprised more from components in a person's memory, or from temporary judgements based on the information accessible in the current situation. Various models have been suggested, with some of them positioned more on the memory side, some on the temporary judgements side, and some in the middle. (Bohner & Dickel, 2011.)

According to Robinson, Stimpson, Huefner & Hunt (1991) the definition of attitude has two fundamental approaches. In the first one, attitude is represented by only affective reaction and thus it is seen as a unidimensional construct. In the second approach attitude is viewed as a combination of three reaction types: affect, cognition, and conation. The affective dimension comprises of pos-

itive and negative feelings towards an object, and the cognitive dimension of beliefs and thoughts. Conation is a behavioral component, consisting of intentions and susceptibility to behave in a certain way towards an object. (Robinson et al., 1991.)

3.2 Attitude towards mobile marketing

Especially SMS-based mobile marketing is often perceived irritating and intrusive by consumers, which has resulted in a negative attitude towards mobile marketing (Watson, McCarthy, & Rowley, 2013). Attitude has been linked to purchase intention (Xu, 2006), suggesting that negative attitude leads to negative purchase intentions. Nevertheless, it should be noted that nowadays marketers have large number of ways to perform mobile marketing besides just SMS or multimedia messages. As can be seen in Figure 1 below, smartphones have penetrated majority of the population in many developed countries. The capabilities of these devices provide different options for mobile marketing, such as applications, QR-codes (Quick Response), and mobile web browsers (Hopkins & Turner, 2012). Thus, it is important to study whether the negative attitudes remain while the field has evolved significantly.

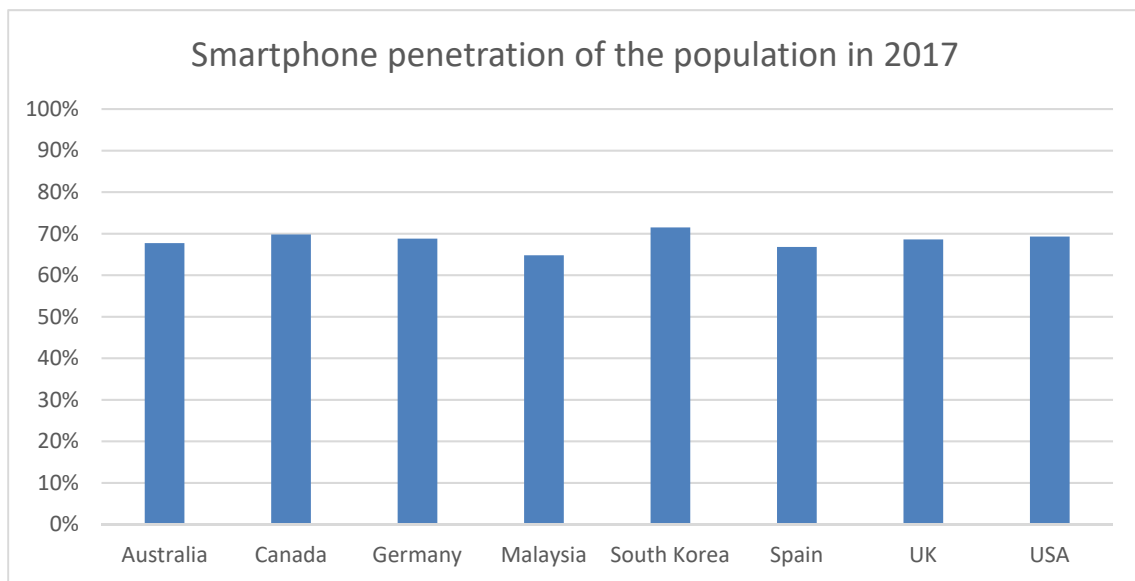


FIGURE 1 Smartphone penetration of the population in 2017, examples of developed countries (Newzoo, 2017)

3.3 Summary of reviewed literature

A literature review was performed to identify previous research on consumer attitude towards mobile marketing. The review includes studies that are relevant to the current research, i.e. studies that focus on factors related to consumer attitude towards mobile marketing as a key substance of the research. Articles for the review were discovered by searching with relevant keywords (e.g. mobile marketing, mobile advertising, m-advertising, consumer attitude) on Google Scholar and databases that are accessible for the University of Jyväskylä library. Only peer-reviewed research articles were accepted for this literature review. Reviewed literature is presented in Table 1 below with summary of research focus and key findings. After the table, factors identified to have a relation with the attitude are summarized and explained.

TABLE 1 Literature review of previous research focusing on factors related to consumer attitude towards mobile marketing

Authors	Research focus	Key findings
Izquierdo-Yusta, Olarte-Pascual, & Reinares-Lara, 2015.	Influence of control, reference groups, perceptions of added value, and perceived ease of use on attitudes towards mobile advertising. Potential differences between smartphone users and non-users in attitudes and intentions towards mobile advertising.	Attitude influences intentions to receive mobile advertising. Perceived value and social norms have an influence on attitude towards mobile marketing. Both effects are stronger among smartphone users than non-users.
Lee, Kim, & Sundar, 2015.	Psychological effects of information tailoring, locational congruity, and product involvement on user attitudes towards location-based advertising (LBA) on mobile devices.	Customization and locational congruity were effective strategies for inducing positive attitudes about LBA and its service quality.
Sanz-Blas, Ruiz-Mafé, & Martí-Parreño, 2015.	Influence of informativeness, timely ubiquity, frequency and personalization on consumer attitude towards mobile advertising and acceptance of mobile advertising. Focused on teenagers.	All studied factors influence attitude towards mobile advertising with frequency being most significant. Attitude has a significant effect on acceptance of mobile advertising.
Lin, Zhou, & Chen, 2014.	Influence of content characteristics on consumer attitude towards mobile advertising.	Entertainment, informativeness, and credibility had a significant positive impact on consumer attitude. Irritation had a negative effect.
Gao, Rohm, Sultan, & Pagani, 2013.	The effects of technology related factors, innovativeness, attachment, and risk avoidance on consumers' attitudes towards mobile marketing. Cross-market study in China, United States, and Western Europe.	Perceived usefulness, innovativeness, and personal attachment influenced consumers' attitude on all three markets. Consumers' risk avoidance also had an effect in China and Western Europe, but not in the U.S.
Islam, Kang, & Yang, 2013.	Is consumer attitude towards mobile advertising influenced by information, entertainment, interactivity, credibility, and irritation in India, Korea, and China.	Informative, reliable, personalized, and permission-based advertisements have a positive influence on attitude towards mobile marketing. Entertainment value, interactiveness and irritation did not show a significant influence.

Martí Parreño, Sanz-Blas, Ruiz-Mafé, & Aldás-Manzano, 2013.	The impact of perceived usefulness, entertainment, and irritation on teenagers' attitude towards mobile advertising in Spain, and the effects of attitude on acceptance of mobile advertising.	Entertainment, irritation and usefulness have a significant influence on attitude towards mobile advertising. Perceived usefulness also reduces irritation.
Gao, Rohm, Sultan, & Huang, 2012.	The influence of Technology Acceptance Model constructs (perceived usefulness and ease of use) and individual characteristics (personal attachment, innovativeness, risk avoidance, privacy concern) on young consumers' attitude towards mobile marketing. Cross-market study in the United States and China.	Perceived usefulness was the most significant factor in both countries, also innovativeness and personal attachment had a positive influence.
Persaud & Azhar, 2012.	Key factors that influence consumers' intentions to accept innovative marketing services via smartphones.	Consumer's shopping style, brand trust, and value have a positive influence on consumer intentions in willingness to receive mobile marketing via smartphones.
Sinkovics, Pezderka, & Haghirian, 2012.	Factors influencing the perceived value of mobile advertising and the influence of perceived value on consumer attitudes towards mobile advertising. Cross-market study in Austria and Japan.	Infotainment and credibility are linked to perceived value of mobile advertising. Perceived value was found to be the most significant driver in consumers' attitude towards mobile marketing. Negative effect of irritation on advertisement value was only found to be significant in Japan.
Ünal, Ercis, & Keser, 2011.	Possible differences in attitude towards mobile marketing between youth and adult consumers, and factors influencing attitude.	Youth perceive mobile ads more irritating than adults. Entertainment, informativeness, credibility, personalization, and being sent with a permission were positive factors influencing attitudes towards mobile marketing. Irritation influenced negatively.
Chowdhury, Parvin, Weitenberner, & Becker, 2010.	Factors influencing consumer attitude towards SMS-advertising in and emerging market (Bangladesh).	Credibility is the most significant factor. If the advertisements are pleasing and with appropriate information, consumers won't be irritated.
Xu, 2006.	Factors that influence consumer attitude towards mobile marketing, especially in the context of personalized mobile advertisements.	Consumer attitude and intentions have a direct relationship. Personalization is one of the most significant factors influencing consumers' attitude towards mobile marketing.
Bauer, Reichardt, Barnes, & Neumann, 2005.	Factors that induce consumers to accept the mobile phone as a means of communicating promotional content.	Entertainment and information value have the most significant impact on acceptance of the mobile phone as a channel for delivering promotional content.
Carroll, Barnes, & Scornavacca, 2005.	Consumer's perceptions and attitudes towards mobile marketing (SMS) and the factors influencing attitude.	Permission, message control by wireless service provider, and content have significant influence on attitude.
Tsang, Ho, & Liang, 2004.	Consumer attitudes towards mobile advertising (SMS) and the relationship between attitude and behavior. Attributes influencing consumer attitude towards mobile marketing.	Attitude is negative in general, unless advertisements are permission-based. Entertainment, informativeness, and credibility have a positive influence while irritation has a negative influence.

3.4 Theoretical baseline in previous literature

Most of the prior studies that have been conducted to determine the factors that influence consumer attitude towards mobile marketing have a basis on the uses and gratifications (U&G) theory, the theory of reasoned action (TRA), or the technology acceptance model (TAM). Some researchers have also used more than one of these theories to build the theoretical background of their research.

According to Ruggiero (2000) the development of the U&G perspective began in the 1940s by Cantril (1941) as a theory to study the motives that draw consumers to new media types and content that satisfied their social and psychological needs. Later, according to Ruggiero (2000) the perspective formed into the U&G approach in studies conducted in social-psychological mode by e.g. Berelson (1949) and Wolfe & Fiske (1948), but there is no clear foundation and definition for the theory, as it has evolved in stages. The U&G perspective has been widely criticized, but the basic questions have remained the same throughout the years: why do people use certain types of media and what are the gratifications they receive from using that media? (Ruggiero, 2000). Entertainment, informativeness, and irritation are dimensions of the U&G perspective (Sinkovics et al., 2012), and all three have been discovered to be associated with consumer attitude towards mobile marketing by multiple researchers.

The theory of reasoned action was introduced by Ajzen & Fishbein in 1975, and it has since been extensively adopted by researchers as a model for predicting behavior and/or behavioral intentions. The theory postulates, that the process of behavior is influenced by attitude and subjective norms, such as a person's beliefs of what other people think of their behavior. A behavioral intention, which precedes the subsequent behavior, is formed on a basis on these two components. (Madden, Ellen, & Ajzen, 1992.)

The technology acceptance model is an adaption of the TRA introduced by Davis (1985) to improve the understanding of user acceptance processes, and to provide a theoretical model for information systems developers and designers to test user acceptance towards developed systems in practice before the release and implementation. The core elements of the model are perceived usefulness and perceived ease of use, which the theory posits to be the primary drivers for information systems acceptance behavior. Especially perceived usefulness had been target of interest in mobile marketing research, and it has been linked with consumer attitude towards mobile marketing by e.g. Martí Parreño et al. (2013) and Gao et al. (2012).

3.5 Factors associated with consumer attitude towards mobile marketing

Previous studies have noted multiple factors to be associated with consumer attitude towards mobile marketing. In this research, factors that were discovered in the literature review are divided into three categories: content-related, receiver-related, and delivery-related factors. Total of 17 factors were identified, which are presented by categories on Figure 3.

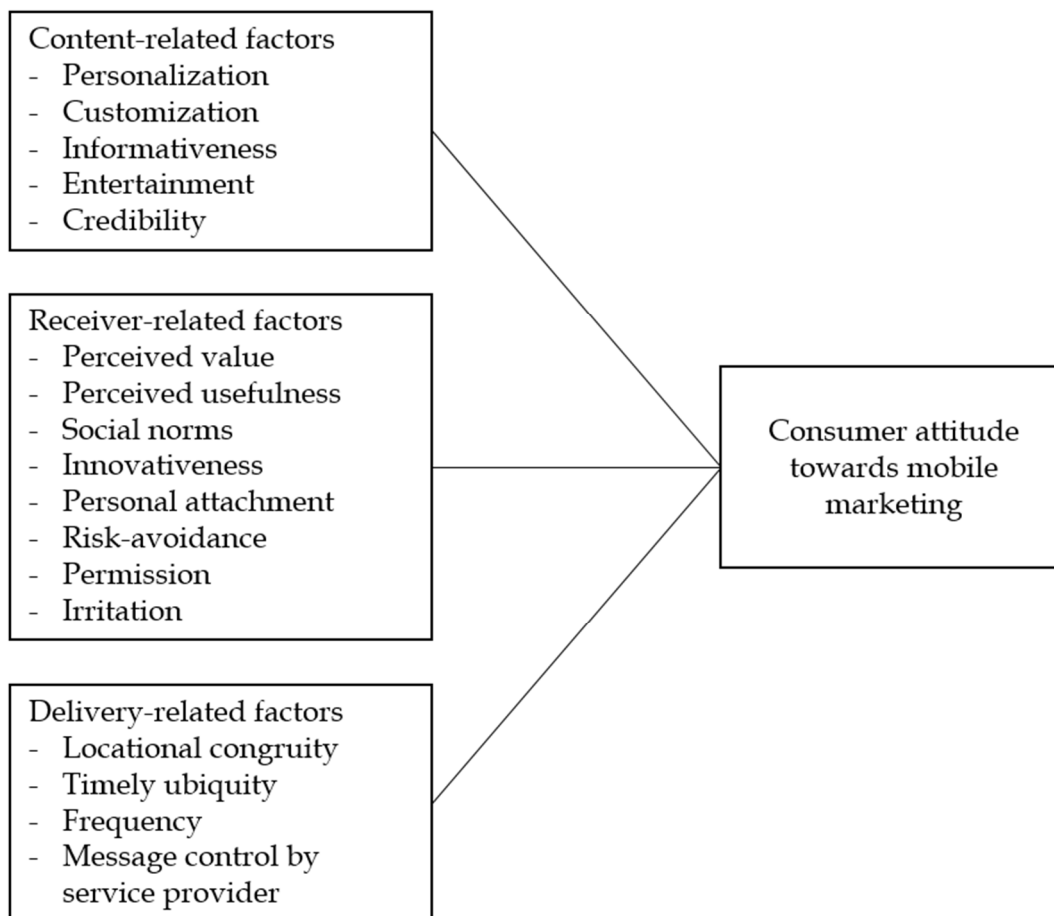


FIGURE 2 Factors associated with consumer attitude towards mobile marketing

3.6 Content-related factors

According to prior mobile marketing research, content-related factors that are related to consumer attitude towards mobile marketing include personalization, customization, informativeness, entertainment, and credibility. All five have been noted to be associated with mobile marketing attitude in studies presented below in table 2.

TABLE 2 Content-related factors that are associated with consumer attitude towards mobile marketing

Factor	Reference
Personalization	Sanz-Blas et al., 2015 Ünal et al., 2011 Xu, 2006
Customization	Lee et al., 2015
Informativeness	Sanz-Blas et al., 2015 Lin et al., 2014 Islam et al., 2013 Sinkovics et al., 2012 Ünal et al., 2011 Chowdhury et al., 2010 Bauer et al., 2005 Tsang et al., 2004
Entertainment	Lin et al., 2014 Marti-Parreno et al., 2013 Ünal et al., 2011 Bauer et al., 2005 Tsang et al., 2004
Credibility	Lin et al., 2014 Islam et al., 2013 Sinkovics et al., 2012 Ünal et al., 2011 Chowdhury et al., 2010 Tsang et al., 2004

3.6.1 Personalization and customization

Personalization is one of the main characteristics in mobile marketing (Bauer et al., 2005), and arguably one of the major advantages compared to other marketing methods. Mobile device, such as a smartphone, is usually a very personal device to its owner. Therefore, it allows marketers to obtain personal information about consumers thus making it possible to customize and personalize the content of marketing messages based on the consumer's personal interests. Personalization is system-initiated, meaning that the system automatically collects information about e.g. user's demographics, preferences, and geographic information to create a profile about the user. Based on this profile, personalized advertisements are automatically sent to the user. (Lee et al., 2015.)

Customization, on the other hand, happens when a user is given an option to tailor the type of content they want to receive. Hence it is user-initiated, and

the users can view themselves as the ones deciding what sorts of information is delivered to them. In prior research, it has been proven to be more effective than personalized tailoring. Personalization and customization both have eventually the same target, which is to send information to the user based on their personal preferences. The major difference is in the user role: passive in personalization and active in customization. (Lee et al., 2015.)

In prior mobile marketing research, the attributes of customization have also been mixed in with personalization. Basically, the process of tailoring information to the users' preferences can be considered personalization even if the process includes user-initiation as well. For example Sanz-Blas et al. (2015) argue that personalization is related to permission-based marketing, and while giving the permission, user is usually asked about their preferred products and services.

Xu (2006) argues that personalization can be an effective tool in attempts to prevent the irritation that users might feel when they are targeted with advertising content. The author also sees it as an effective way of enhancing the relationship between the marketer and consumer (Xu, 2006). With personalized content the amount of mobile advertisements can also be reduced, which is believed to relieve irritation as well (Ünal et al., 2011).

Finnish retail giant S Group, which held a market share of approximately 46 % of Finland's retail sales in 2015 (Finnish Grocery Trade Association, 2016), published in 2016 that they will begin gathering more specific data about customer purchases. This will include information about all purchased products, stored when a customer uses swipes their loyalty card during the purchase. The group plans to use this data in the future to provide personalized services and applications. However, the customers will also have an opportunity to limit the data gathering to include only the grand total of their purchases. (S Group, 2016.)

3.6.2 Informativeness

The role of information in an advertisement is critical. Customers' perception of a company and their products can be directly influenced with quality information. Mobile marketing is informative when it is delivered accurately with a correct timing, and obviously, it should contain information that is useful to the consumer. Consumers should feel that the information they receive in a mobile advertisement is useful for their purchase decision. (Chowdhury et al., 2010.) With the expanding capabilities of mobile phones, consumers even expect it to be a channel for receiving information about brands and products (Sanz-Blas et al., 2015). Informativeness can also reduce irritation in mobile marketing. With appropriate information, marketers should be able to reach consumers without annoying them. (Chowdhury et al., 2010.)

Sinkovics et al. (2012) combine informative with entertainment referring to entertaining information as "infotainment". The authors see that effective mobile marketing should be informative and enjoyable to receive consumers' at-

tention, therefore combining the two terms (Sinkovics et al., 2012). Informativeness is also linked to personalization, which is often needed in order to deliver useful content (Islam et al., 2013). Naturally, not all consumers are interested in the same information therefore exposing the need for tailoring. In mobile marketing consumers prefer messages that are relevant to them, and even expect the content to be personalized. (Sinkovics et al., 2012.)

3.6.3 Entertainment

Entertainment has been noted as one of the most important features of mobile marketing. Entertainment can be implemented into mobile marketing with e.g. entertaining applications or branded mobile games. The positive feeling consumers receive from an entertaining advertisement leads to a positive attitude towards it. Especially young people value the entertaining features of mobile phones, and entertaining applications are highly popular among them. (Martí Parreño et al., 2013.) The willingness to play games is part of the human nature, and hedonic pleasure has been discovered to have a positive impact on attitude towards advertisements (Ünal et al., 2011).

Bauer et al. (2005) argue that embodying entertainment and information requirements of the consumers in mobile marketing efforts is highly important, as their research results indicate that these factors generate positive attitude towards mobile marketing. Furthermore, they suggest that the positive attitudes will lead to behavioral intention to use mobile marketing services. The authors also emphasize that impersonalized mass messages should not be used, as they do not offer entertainment or information value and most likely lead to negative consumer reactions (Bauer et al., 2005).

3.6.4 Credibility

Credibility has been recognized as one of the main drivers for consumer attitude towards mobile marketing. According to Chowdhury et al. (2010) it was the only one of four tested factors that had a positive impact on consumer attitude. According to Sinkovics et al. (2012) credibility is formed as a combination of the receiver's trust in the marketer, and the reliability of the marketing message. Hence, credibility could also be categorized as a receiver-related factor. For categorization purposes, it has been included within the content-related factors in this research, as most of the studies in the literature review refer to credibility from the content perspective. The value of advertisement has also been noticed to rise alongside with credibility (Sinkovics et al., 2012).

Islam et al. (2013) conducted a research in three different countries (India, Korea, and China) and found a link between credibility and attitude in all three countries. The authors argue, that positive impression of the mobile advertising value rises from the feeling of credibility and trustworthiness, and note that credibility is one of the critical factors in establishing customer relationships (Islam et al., 2013).

3.7 Receiver-related factors

Most of the factors that have been linked with consumer attitude towards mobile marketing are related to the receiver of the message, i.e. the consumer. These factors include perceived value and usefulness, social norms, innovativeness, personal attachment, risk-avoidance, permission, and irritation. Factors and references to the literature are listed in Table 3 below.

TABLE 3 Receiver-related factors that are associated with consumer attitude towards mobile marketing

Factor	Reference
Perceived value	Izquierdo-Yusta et al., 2015 Perzaud & Azhar, 2012 Sinkovics et al., 2012
Perceived usefulness	Gao et al., 2013 Marti-Parreno et al., 2013 Gao et al., 2012
Social norms	Izquierdo-Yusta et al., 2015
Innovativeness	Gao et al., 2013 Gao et al., 2012
Personal attachment	Gao et al., 2013 Gao et al., 2012
Risk avoidance	Gao et al., 2013
Permission	Islam et al., 2013 Ünal et al., 2011 Carroll et al., 2005 Tsang et al., 2004
Irritation	Lin et al., 2014 Marti-Parreno et al., 2013 Ünal et al., 2011 Tsang et al., 2004

3.7.1 Perceived value

According to Zeithaml (1988), perceived value is “the consumer’s overall assessment of the utility of a product based on perceptions of what is received and what is given”. Consumers usually select the product they feel to have the most value making perceived value an important factor from a mobile marketing perspective as well. In order to create positive attitude towards mobile marketing among consumers, the role of perceived value is significant. (Izquierdo-Yusta et al., 2015.)

Nowadays consumers can easily compare products and services and search for information about them. Marketers have the possibility target consumers as they perform these comparisons, by providing useful information personally when the consumer is making their perception of the product's value. Consumers are also more likely to engage in mobile marketing activities if they perceive that they receive value from participating. Some consumers might feel that the value comes from discount coupons, some appreciate receiving the information they need in a convenient way. For that reason, perceived value interacts with personalization and customization of mobile marketing. (Izquierdo-Yusta et al., 2015.)

3.7.2 Perceived usefulness

Perceived usefulness is a construct of the technology acceptance model (TAM). According to Davis (1989) it refers to the extent a user believes that the application they use will help them to perform their job better. Perceived usefulness has been discovered to be a significant driver for the use of IT systems (Davis, 1989). Even though the model was developed to examine technology acceptance within organizations, it has been widely used in consumer context as well. Perceived usefulness has been found to influence the consumer attitude towards mobile marketing as well, making it one of the factors that should be considered when designing a mobile marketing campaign (Gao et al., 2012).

Marti-Parreno et al. (2013) argue that perceived usefulness can be enhanced with correct time and place in mobile marketing. Especially young consumers find high usefulness in marketing that will allow them to save time and money with the help of their mobile phone. Gao et al. (2012) discovered that perceived usefulness has a significant influence on attitude towards mobile marketing especially among the youth. In relation to this, Marti-Parreno et al. (2013) note that many young people carry a mobile phone with them at all times providing them the possibility to access offers and products that are only available for a limited time, such as concert tickets. The authors also discovered that perceived usefulness reduces irritation (Martí Parreño et al., 2013), which is notable due to the fact that mobile marketing is often perceived irritating (Watson et al., 2013).

3.7.3 Social norms, innovativeness, and personal attachment

Social norms is a construct that has been used to study the influence of reference groups on people's behavior. It reflects a person's beliefs of what for example friends and family think about their actions and opinions creating an influence on their behavior. A person might take part in mobile marketing activities (i.e. download a specific application) if they feel that the reference group would think highly of such behavior. (Izquierdo-Yusta et al., 2015.)

Innovativeness in prior mobile marketing research refers to the innovativeness of a consumer. Consumers are considered innovative, if they perceive

themselves early adopters to new technology. Innovative consumers are often also opinion leaders when it comes to new products like mobile phones or games. Four explanations have been identified as drivers to high innovativeness among consumers: stimulation need, novelty seeking, independence towards others' consumption experiences, and need for uniqueness. (Gao et al., 2012.)

The construct "personal attachment" refers to the level of affection a user has towards their mobile phone. Users that are personally attached to their device see it as a part of their life and look for ways to personalize it with content of their liking. This is quite usual these days, especially among young people. The devices are ubiquitous, and highly personal to their users who have often formed an attachment to them. Users become attached because the device contains personal and unique information such as messages, contacts, and photos. It has been suggested that personal attachment makes users more willing to take part in marketing campaigns and functions within the mobile space. (Gao et al., 2012.)

3.7.4 Risk avoidance and information privacy concerns

With increasing amount of personal information in mobile phones, consumer's possible risk avoidance has become a relevant construct for research in mobile marketing context. Gao et al. (2012) suggest that consumers might feel vulnerable if they feel like not being in full control of their personal information, such as demographics, location, and purchase data. Risk avoidance is also related to personalization and reliability. Personalization involves collecting personal information of the consumer, which can lead to unwillingness to participate and negative attitude among risk-avoiding consumers. On the other hand, these consumers might be willing to allow access to their personal information for a brand they trust. (Gao et al., 2012.)

Concerns related to information privacy has been a subject of interest in the field of mobile marketing research (e.g. Bauer et al., 2005; Shankar, Venkatesh, Hofacker, & Naik, 2010), but in this literature review no research articles were found where it's association with consumer attitude would have been studied. Sutanto, Palme, Tan, & Phang (2013) suggest that privacy is especially related to the personalization construct of mobile marketing and propose a term "personalization-privacy paradox" to describe the issue. The authors point out, that personalized marketing is potentially more gratifying to the users, but the marketer needs to obtain personal data of the users to provide such content (Sutanto et al., 2013). This raises a concern for the privacy of consumer information. Smith, Milberg, & Burke (1996) created and validated an instrument to assess individuals' concerns about information privacy in organizational context. Dimensions of this framework were applied in this research to propose information privacy concerns as a new factor.

3.7.5 Permission and irritation

Permission is one of the first constructs that have been discovered to have a relation with consumer attitude. Permission-based mobile marketing means sending advertisements or other marketing content only to consumers who have given their permission to do so. It focuses on reducing the irritation that consumers easily feel when mobile advertisements are sent to them without a permission. (Tsang et al., 2004.) In a focus group study by Carroll et al. (2005) participants concluded permission as the most important success factor. The authors also noted that a possibility to opt out of the marketing content should be always available (Carroll et al., 2005). According to Izquierdo-Yusta et al. (2015) sending mobile advertisements to consumers without their consent would likely lead to annoyance, thus suggesting a link between permission and irritation.

Reducing irritation in mobile marketing is vital. If consumers perceive that the advertising they receive is irritating, they tend to refuse it and form a negative attitude towards the marketing message and mobile marketing in general. (Martí Parreño et al., 2013.) Especially SMS-advertising is traditionally perceived irritating by consumers, mostly due to the collective advertisements that have been sent to consumers without their permission (Ünal et al., 2011).

3.8 Delivery-related factors

Delivery-related factors have had the least interest among researchers in the field. Only three different studies with four different factors in total were discovered for this literature review, and none of the factors had been studied by multiple researchers. These factors and a reference to the research article are listed in Table 4 below.

TABLE 4 Delivery-related factors that are associated with consumer attitude towards mobile marketing

Factor	Reference
Locational congruity	Lee et al., 2015
Timely ubiquity	Sanz-Blas et al., 2015
Frequency	Sanz-Blas et al., 2015
Message control by service provider	Carroll et al., 2005

3.8.1 Locational congruity and timely ubiquity

Lee et al. (2015) focused on location-based mobile marketing and had therefore locational congruity as one of the constructs in their research. Most of the mod-

ern smartphones use Global Positioning System (GPS) to provide users with services based on their location. This brings the opportunity for marketers to deliver advertisements and other marketing content based on the user's exact location. The authors suggest that location-based advertisements would be more appealing and persuasive to consumers, making location an important part of effective mobile marketing. (Lee et al., 2015.)

Locational congruity refers to the correctness of the locational context where a consumer receives promotional content. For example, an advertisement for a discounted sale in a nearby store is more effective than one for a store that is farther away. Consumers are more likely to perceive an advertisement appealing and relevant, if it arrives when the store is easily reachable to them. (Lee et al., 2015.) In other words, mobile marketing is locationally congruent when the location of the user matches with the location of the advertised service or product.

Timely ubiquity is related to locational congruity, as it refers to the ability of providing timely information on a correct location to a user's mobile phone. Consumers carry their mobile phones with them to almost everywhere, which gives marketers the ability to deliver content to them at the right time and location. It has been suggested, that consumers are more likely to feel positively about mobile advertising if they receive it in a preferable time and location, thus providing them with the possibility to receive a quick benefit by e.g. buying a discounted item in a nearby store. (Sanz-Blas et al., 2015.)

3.8.2 Frequency and message control by service provider

The mobile phone technology enables fast communication allowing a frequent pace of delivering marketing content. Determining the correct frequency of mobile marketing communications is a factor that should not be disregarded, as it has been suggested that consumer attitude towards the promotional vehicle gets more negative as the frequency of delivering marketing messages increases, and the value of advertising decreases. (Sanz-Blas et al., 2015.)

Wireless service provider (WSP) control has been suggested to improve the user acceptance of mobile marketing. WSP control refers to monitoring and controlling of mobile communications by a wireless service provider, i.e. a mobile operator. Especially in SMS-marketing, consumers might trust their service provider to monitor and filter the communications, so that the ones that are allowed can be trusted to originate from reliable sources. (Carroll et al., 2005.)

3.9 Research hypotheses

In a research context, a hypothesis is a formal question a researcher intends to answer with the research. It is usually set in a form of an assumption or a supposition to be proven as true or false through the results of the research. Hy-

pothesis is a key instrument in research, as it suggests new observations or experiments. A good hypothesis should be clear, precise, specific, and stated in simple terms. It should also be capable of being tested within a reasonable time, and consistent with the most known facts. (Kothari, 2004.)

To form the hypotheses and a research model, a set of variables were obtained from previous research and used in the data collection. Exploratory factor analysis, which is often used in early stages of research to summarize data and generate hypotheses about underlying processes (Tabachnick & Fidell, 2007), was then applied. The analysis provided support to generate six hypotheses, which are thus proposed to assess the research problem.

Obtaining consumer's permission prior to providing mobile marketing content has been linked with consumer attitude towards mobile marketing by several researchers (e.g. Carroll et al., 2005; Islam et al., 2013; Tsang et al., 2004; Ünal et al., 2011). Once the permission has been obtained, an opportunity to easily opt-out of the marketing communication should also be provided (Jayawardhena et al., 2009). As mobile marketing is nowadays often built within mobile services, such as mobile web browsers, games and applications, it is highly relevant to study if the relationship between permission and attitude is still the same among smartphone users as it has been in previous research. Therefore, first hypothesis (H1) is proposed as follows:

H1: Consumer's permission to receive mobile marketing is positively related to their attitude towards mobile marketing.

In prior research of consumer attitude towards mobile marketing the construct of personal attachment has not yet raised much interest, as only two studies were identified in the literature review to address the topic (Gao et al., 2012, 2013). In both studies, an association between personal attachment and attitude was discovered. Smartphones and other mobile phones are nowadays perhaps the most ubiquitous devices to exist, and they are becoming more and more personal to their users. Some users have developed a deep psychological attachment, or even an addiction towards their smartphone. Consumers perceive smartphones to be much more than just devices for calling and sending messages. (Fullwood et al., 2017.) Based on these remarks, the following hypothesis (H2) is proposed:

H2: Personal attachment with the mobile device is positively related to consumer attitude towards mobile marketing.

Possibility to personalize the mobile marketing content for consumers is one of the biggest advantages mobile marketing has compared to other channels, and it's relationship with consumer attitude has been studied by multiple researchers (e.g. Sanz-Blas et al., 2015; Ünal et al., 2011; Xu, 2006). With the abilities of smartphones, more advanced techniques of personalization can be applied to improve the informativeness and credibility of mobile advertisements (Kim &

Han, 2014). The following hypothesis (H3) is proposed to further examine the link between personalization and attitude among smartphone users:

H3: Personalization of mobile marketing is positively related to consumer attitude towards mobile marketing.

Organizations collect vast amounts of consumer data for mobile marketing purposes, which is raising concerns about privacy issues. Nevertheless, no previous research was found in the literature review that would have assessed the possible link between consumers' concerns for the privacy risks and attitude towards mobile marketing. Gao et al. (2013) found an association between consumer risk-avoidance and attitude, which in this research was combined with instruments from Smith et al., (1996) research on information privacy concerns to suggest a new factor of consumers' privacy risk concerns. To assess whether an association with attitude can be found, the following hypothesis (H4) is proposed:

H4: Consumers' privacy risk concerns are negatively related to their attitude towards mobile marketing.

Credibility of advertising in general refers to the extent to which consumers feel that the content of advertising, e.g. claims made about a brand or product, is reliable and trustworthy (MacKenzie & Lutz, 1989). In mobile marketing context, the literature review of this research identified six articles, which have discovered the link between credibility and consumer attitude towards mobile marketing. To examine whether the link between credibility and consumer attitude towards mobile marketing can be found when tested on smartphone users, the following hypothesis (H5) is proposed:

H5: Credibility of mobile marketing content is positively related to consumer attitude towards mobile marketing.

The association between innovativeness of the consumer and their attitude towards mobile marketing has been found in two studies by Gao et al. (2012, 2013). Especially in modern-day mobile marketing innovativeness of the consumers is an interesting factor, as new mobile services and new methods for mobile marketing are developed constantly. Thus, the link between innovativeness and attitude is relevant for current research, and the following hypothesis (H6) is proposed to examine the subject.

H6: Innovativeness of the consumer is positively related to their attitude towards mobile marketing.

A research model was created based on the proposed hypotheses. The model is presented below in Figure 3.

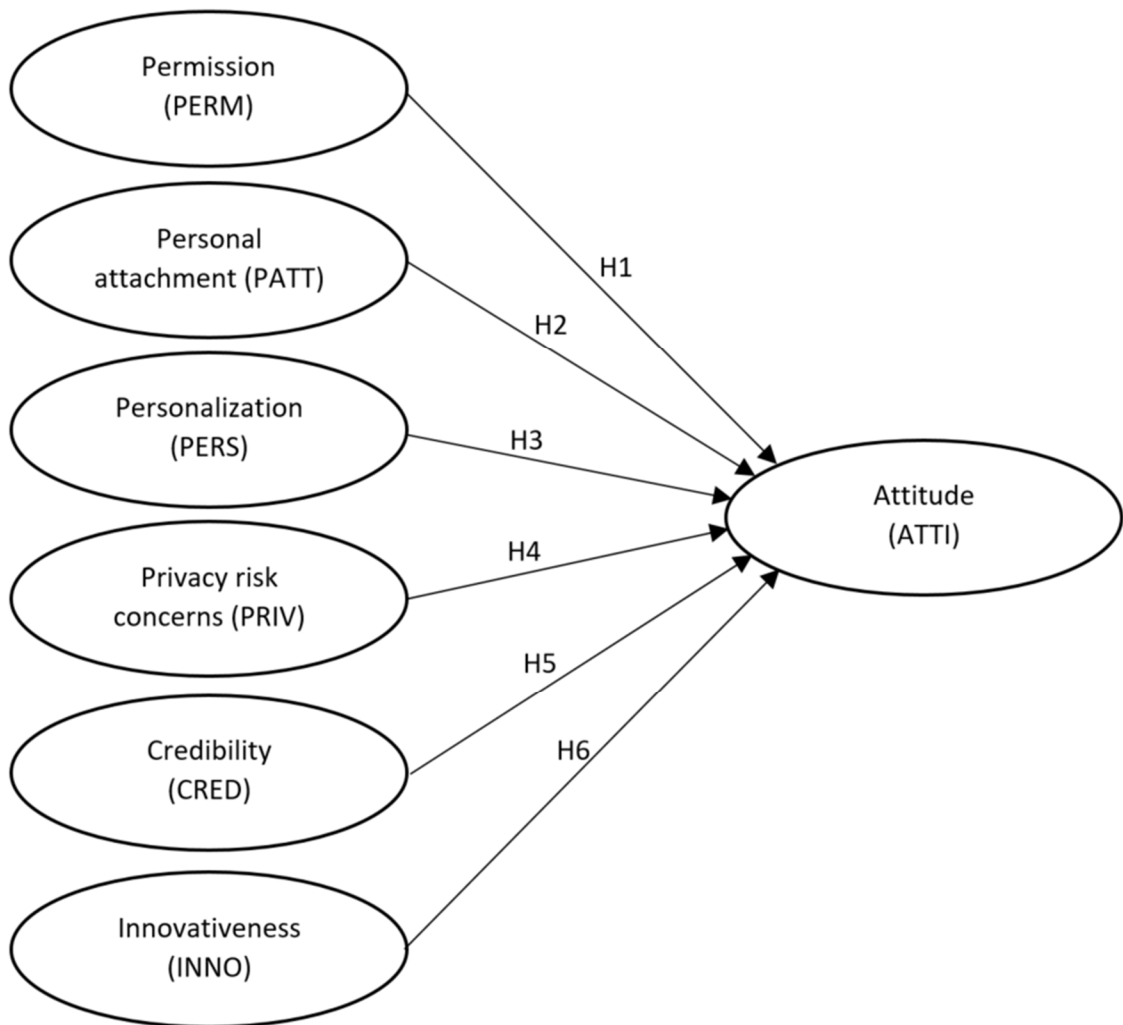


FIGURE 3 Research model

4 EMPIRICAL RESEARCH

In this chapter, the methods used in the empirical research are explained. First, the research approach is presented and described. After that, the implementation of the chosen research methodology is explained, including description of how the data was gathered and analyzed.

4.1 Research approach and method

The literature review within this research focused on peer-reviewed journal articles, which had aimed on identifying factors influencing consumer attitude towards mobile marketing. For the empirical part of this research, a quantitative approach was selected to test the validity of hypotheses that were proposed based on the results from previous research. According to Kothari (2004) quantitative research approach is applicable to phenomena which can be expressed in terms of quantity, as it is based on measuring quantity or amount. The quantitative method was selected, because the aim of the research is to create results that can be generalized to illustrate a large population, which in this case is Finnish consumers who are using a smartphone. To enable this type of generalization, a notable sample of the population should be tested to create reliable data for statistical analysis. Research data is needed to determine whether the hypotheses should be accepted or rejected. Data collection is usually carried out after defining the research problem. (Kothari, 2004.) To collect data, survey was chosen as a research method and online questionnaire as a method for data collection.

4.2 Measures

Measures are used for producing information about the research subject. The premise for measures is to observe the studied phenomenon as objectively as possible. The term can refer to a set of tests or instruments, but as well to only a simple question. Measures can be created by the research purpose from scratch, but usage of measures that have been established in previous literature is recommended. Usually the reliability and validity of such measures has usually already been examined, and therefore the results can generally be compared with results that have been accomplished with same or similar measures. (Metsämuuronen, 2011.)

In this research the term “measure” refers to individual statements that formed the questionnaire which was used for the research data collection. The measures were obtained from previous literature and translated to the Finnish language as the research was targeted to Finnish consumers. Three measures were selected for each researched factor. Some of the measures were later dropped from the data, as they were noted to have a negative influence on the measurement reliability (CRED3, INNO2) or insufficient factor loading (ATTI1). Measures are presented in table 5 below.

TABLE 5 Measures applied in the research

Factor	Measures	Reference
Permission (PERM)	PERM1 - I would be willing to receive offers to my smartphone from a nearby store, if the company would ask for my permission PERM2 - I would be willing to receive product offers to my smartphone, if the companies selling these products would ask for my permission to send the offers PERM3 - I would be willing to receive offers to my smartphone from companies, to which I have given my permission to send the offers	Gao et al., 2013
Personal attachment (PATT)	PATT1 - I can't live without my smartphone PATT2 - I use my smartphone 24/7 PATT3 - I am “addicted” to my smartphone	Gao et al., 2013
Personalization (PERS)	PERS1 - I feel that mobile marketing displays personalized message to me PERS2 - I feel that mobile marketing is personalized for my usage PERS3 - Contents in mobile marketing are personalized	Ünal et al., 2011 Xu, 2006
Privacy risk concerns (PRIV)	PRIV1 - I’m concerned that companies are collecting too much personal information about me PRIV2 - I am often reluctant to provide personal information such as my name and e-mail address in order to receive something of value to me PRIV3 - I am often reluctant to provide my personal information such as my name or email address in order to access news and information in which I am interested	Smith, Milberg, & Burke, 1996; Gao et al., 2013

Credibility (CRED)	CRED1 - I trust mobile marketing CRED2 - The content provided by mobile marketing is credible CRED3 - I use personalized mobile advertising as a reference for purchasing	Ünal et al., 2011
Innovativeness (INNO)	INNO1 - I often send my friends information on new games or other applications for their smartphone INNO2 - When choosing what new mobile phones and other personal electronic products to buy, other people often turn to me for advice INNO3 - I often recommend new applications available on smartphone to others	Gao et al., 2013
Attitude (ATTI)	ATTI1 - I think mobile advertising is an interesting thing ATTI2 - Mobile marketing seems something positive to me ATTI3 - I like mobile marketing	Sanz-Blas et al., 2015

4.3 Data collection

An online questionnaire was selected as a method for research data collection. It is applicable when sample size is high, and the respondents are spread out. The form of questions in a questionnaire is fixed and standardized, meaning that the same questions and the order in which they are presented are identical for all respondents. (Vilkka, 2007.) For this research, an online questionnaire was created and distributed using several popular Finnish discussion forums (e.g. Suomi24, Vauva.fi, FutisForum, MuroBBS), Facebook discussion groups, and university e-mailing lists. Research data was collected during April-May 2017. The measures were set in a statement format, and the respondents were asked to express their opinion regarding the statement on a five-point Likert scale. Likert scale is an interval scale which is typically used for measures of attitude or motivation (Metsämuuronen, 2011). The options on the Likert scale were 1 – strongly disagree, 2 – somewhat disagree, 3 – undecided, 4 – somewhat agree, 5 – strongly agree. The option to choose “I don’t know” was also provided, as otherwise the respondents might select the “undecided” option if they do not have knowledge about the statement (Ryan & Garland, 1999).

Gehlbach and Barge (2012) suggest that anchoring and adjustment could occur if statements measuring the same construct are presented to the respondents in succession. According to the authors, this means that respondents would select the initial item as an anchor and adjust their answers to the following statements (that measure the same construct) according to their response to the anchor. This might compromise the data by inflating the estimates of the scale’s internal consistency artificially and cause the analysis to show that the reliability of the scales is higher than it actually is (Gehlbach & Barge, 2012). To avoid anchoring and adjustment in the data collection of this research, statements in the questionnaire were presented to the respondents on three separate pages, and measures were divided between these pages in a way that each page had only one statement per construct.

A questionnaire tool called SurveyPAL was used to build the questionnaire and collect the data. Some demographic questions (gender, age, education, and occupation) were asked in the beginning of the questionnaire to build an understanding of the population. The respondents were also asked to select whether they use an iPhone, an Android-device, a Windows Phone, some other smartphone, or if they do not use a smartphone at all. As the research was intended for smartphone users only, the responses in which the respondent disclosed that they do not use a smartphone were later removed from the sample.

According to Metsämuuronen (2011) using less than five observation units per measure exposes the research to a risk of unreliable results in factor and regression analyses. Generally, when applying multivariate methods at least 200 samples should be used (Metsämuuronen, 2011). According to Vilkkä (2007) a recommended sample size is at least 100 if statistical analysis methods are applied. For this research a total of 212 responses were collected, but eight samples were removed during the analysis phase for reasons detailed in the Results-chapter. Hence, the number of samples used in this research was 204, which is acceptable for the analysis purposes of this research.

4.4 Analysis methods

Structural equation modeling (SEM) was selected as a method to analyze the data and test the presented hypotheses. Structural equation modeling is a combination of statistical techniques that can be applied to examine a set of relationships between one or more independent variables and one or more dependent variables (Tabachnick & Fidell, 2007). The objective of structural equation modeling is to explore if a theory is supported by the data, and therefore the researcher should already have an idea of how the variables relate to each other. The method has also been successfully used in previous master's theses with similar research models (e.g. Elonsalo, 2017; Koivisto, 2014). Software programs used in the analysis were SPSS (version 24) and AMOS Graphics (version 24). Data was exported from SurveyPAL using SPSS Statistics Data Document as data format. Before the actual analysis, preparation and screening of the data was done to ensure that the analysis can be performed in an efficient manner and the data would support testing of a causal model.

The analysis was started with factor analysis. Factor analysis is a method that can be applied to discover variables that correlate with some other variables within a dataset to form a coherent subset, but are notably independent of other variables and subsets. Variables within these subsets are then combined to establish factors. With this method, a large set of variables can be transformed to a smaller number of factors, which allows the researcher to test a theory about the nature of underlying processes. Factor analysis can be done as exploratory or confirmatory. Exploratory factor analysis is associated with theory development and the idea is to group together variables that are correlating to summarize and describe the data. It is often used in an early stage of the re-

search to create hypotheses about the research subject and underlying processes. (Tabachnick & Fidell, 2007.)

Exploratory factor analysis is often applicable when there is a limited amount or no previous research available, and the data needs to be explored first to generate hypotheses and create a research model. In this case, as presented in the literature review, there was a considerable amount of previous literature available. However, exploratory factor analysis was still chosen as a starting point, as the variables had been obtained from several different researches and none of them had been done with a sample of smartphone users only. Therefore, it was expected, that most likely some of the variables would not load to factors as expected, and the research model would have to be evolved in the process. The expectation was correct, and as a result of the exploratory factor analysis some variables were removed due to low loadings. The analysis was done with SPSS using Principal Axis Factoring as extraction method and Direct Oblimin as rotation.

After exploratory factor analysis a model of the factor structure was established and tested with confirmatory factor analysis using AMOS. In confirmatory factor analysis the objective is to reveal underlying processes with carefully and specifically selected variables. As a more sophisticated analysis method than exploratory factor analysis, it is associated with theory testing and often applied in advanced stages of the research. (Tabachnick & Fidell, 2007.) Model fit was tested with multiple measures (χ^2 , CFI, SRMR, and RMSEA). The model was rejected by the Chi-square goodness-of-fit test, but as the other measures demonstrated excellent model fit according to criteria obtained from Hu & Bentler (1999), the model was accepted for the purposes of this research. Before proceeding to a structural model, the reliability and validity of the factors were tested and no concerns were noted according to criteria obtained from Hair, Black, Babin, Anderson, & Tatham (1998) and Bagozzi & Yi (2012). Measures used for establishing reliability were Cronbach's Alpha and Composite Reliability. Convergent validity was measured with Average Variance Extracted (AVE) and discriminant validity with Maximum Shared Variance (MSV) and Average Shared Variance (ASV).

The final research model and hypotheses were tested by building a structural model in AMOS. Model fit was measured again as the model was changed from the measurement model used in confirmatory factor analysis to the structural model. Same measures were applied (χ^2 , CFI, SRMR, and RMSEA), of which the chi-square test once again rejected the model, but the other measures demonstrated excellent model fit per criteria from Hu & Bentler (1999). To avoid practical issues related to structural models, multivariate normality, outliers, and multicollinearity were assessed (Tabachnick & Fidell, 2007). The possibility of influential outliers was observed graphically in SPSS using Cook's distance values. No outliers were noted, as none of the records were found to be substantially larger than the rest. Multicollinearity was assessed by calculating Variance Inflation Factors (VIF) for all independent variables in SPSS. According to Craney and Surles (2002) generally suggested cutoff values for VIF are 5

or 10, whereas Guide & Ketokivi (2015) suggest that in small samples even VIF-value of 2 might cause concerns. The calculated values ranged between 1,218 and 1,483, and thus no multicollinearity issues were noted.

5 RESULTS

In this chapter the results of this research are presented. First, the research data is described, and demographical distribution of the survey respondents is displayed alongside with comparison to the Finnish population structure. Screening methods used for ensuring that the data is clean and prepared for statistical analysis are also presented. Secondly, analysis of the research data is described in detail including factor analysis, measures of model fit, reliability and validity, and structural model. Finally, results of hypothesis testing are presented at the end of this chapter.

5.1 Description of the research data

Respondents of the research survey consisted of Finnish smartphone users, and 204 accepted samples were accepted for analysis. The amount of samples can be considered appropriate for statistical methods and specifically factor analysis (e.g. Metsämuuronen, 2011; Vilkka, 2007).

5.1.1 Demographical distribution of the respondents

Most of the survey respondents (94%) were aged between 16 and 45 years. This is not surprising, as the survey questionnaire was mostly distributed using online discussion forums, social media, and e-mailing lists. According to Statistics Finland (2016) Approximately 76 percent of Finnish consumers within this age group use social networking sites almost daily or more often compared to approximately 23 percent in consumers aged over 45 years. Almost 60 percent of all respondents were male, which is notably higher than the percentage of males (49,3 %) in the Finnish population structure (Statistics Finland, 2018b).

The education and occupation of the respondents differ significantly from the Finnish population. 38,7 percent of respondents were students and 62,8 percent had a bachelor's degree or higher, compared to 8,8 percent and 30,4 per-

cent (respectively) in the population structure. Thus it is worth noting, that amount of respondents with 3rd level degree and especially the number of students was significantly highlighted in the population, when compared to the Finnish population structure. (Statistics Finland, 2017, 2018a.)

Summary of demographical distribution (age, gender, education, and occupation) of the survey respondents and comparison to the Finnish population structure is presented in table 6 below:

TABLE 6 Comparison of survey respondents and Finnish population structure (Statistics Finland, 2017, 2018a, 2018b)

		Survey respondents	Population structure
Age	Under 16	0,0 %	17,2 %
	16-25 years	33,0 %	11,6 %
	26-35 years	48,6 %	12,9 %
	36-45 years	12,3 %	12,2 %
	46-55 years	3,3 %	12,9 %
	56-65 years	1,4 %	13,3 %
	66-75 years	0,0 %	11,6 %
	76-85 years	0,0 %	6,2 %
	Over 85 years	1,4 %	2,2 %
Gender	Female	37,7 %	50,7 %
	Male	59,9 %	49,3 %
	Other	1,4 %	-
	Not willing to answer	0,9%	-
Education	Comprehensive school	1,4 %	28,7 %
	Secondary education	35,8 %	40,9 %
	Bachelor's degree	34,0 %	20,4 %
	Master's degree	25,5 %	9,0 %
	Licentiate/doctorate degree	3,3 %	1,0 %
Occupation	Student	38,7 %	8,8 %
	Military/civil service	1,9 %	0,2 %
	Employed	48,1 %	44,2 %
	Entrepreneur	2,4 %	5,1 %
	Unemployed	5,7 %	7,7 %
	Retired	1,4 %	30,2 %
	None of the above	1,8 %	3,8 %

5.1.2 Data screening

Screening of the data before performing actual analysis is important for ensuring that the data is appropriate and usable for statistical analysis purposes

(Gaskin, 2016b). The data frequencies were observed to identify missing data points and possible issues with individual samples. Nonresponses, where the respondent had selected “I don’t know” alternative, were coded as missing data. According to Lynch (2007), in social sciences missing data is usually handled by either deleting the observations that have missing data or by selecting an appropriate method to replace the missing values. In this case, deleting the observations with missing data would have reduced the sample size too much, and therefore the missing data points were replaced with series median. Mean is often used as data imputation method (Metsämuuronen, 2011), but in this case median was selected as it is more meaningful with Likert-type scales (Gaskin, 2016b).

Four samples were noted, where respondents had a notable amount (over one third) of non-answered statements or “I don’t know” answers. These samples were removed from the dataset, as the respondents were likely unengaged in the survey and did not provide reliable answers in the statements. Additionally, four samples were removed, where the respondents had indicated that they are not using a smartphone.

After data preparations, variable screening was done to detect possible problematic variables. Two measures were noted to have over 20 percent of unanswered or “I don’t know” answers, which indicates that these measures could have been difficult to understand for the respondents. These measures were removed from the dataset. One measure was reverse coded, as the statement had been formed in an opposite way than all others.

5.2 Analysis of the research data

5.2.1 Factor analysis

Selected method for analysis of the data was structural equation modeling (SEM), and it was started with exploratory factor analysis (EFA). All variables did not load to factors as expected, but seven factors were successfully extracted from the data. After extracting the factors, variables CRED3 and INNO2 were removed as they were noted to have negative influence on reliability of the measures. As a result the Cronbach’s alpha of all measures was well above 0,70, which is widely considered to be the acceptable minimum level (e.g. Bagozzi & Yi, 2012; Hair et al., 1998). The factor loadings (values are between -1 and 1) indicate how well the factors explain variance of the measures. The closer the loading is to 1, the better it explains the variance. (Karjaluoto, 2007.) At this stage variable ATTI1 was also removed from the model due to low factor loading (0,496). Means and standard deviations of the measures, full pattern matrix of the exploratory factor analysis including all factor loadings from the final EFA model, and EFA correlation matrix are presented in appendices 1-3. Relia-

bility measures (Cronbach's alpha) and factor loadings of the variables are presented in Table 7 below.

TABLE 7 EFA reliability (Cronbach's alpha) and factor loadings

Factor	Cronbach's alpha	Variables	Factor loadings
Permission (PERM)	0,884	PERM1	0,728
		PERM2	0,876
		PERM3	0,852
Personal attachment (PATT)	0,870	PATT1	0,753
		PATT2	0,741
		PATT3	0,988
Personalization (PERS)	0,927	PERS1	0,856
		PERS2	0,903
		PERS3	0,906
Privacy risk concerns (PRIV)	0,803	PRIV1	0,608
		PRIV2	0,829
		PRIV3	0,837
Credibility (CRED)	0,843	CRED1	0,707
		CRED2	0,971
Innovativeness (INNO)	0,784	INNO1	0,991
		INNO3	0,631
Attitude (ATTI)	0,821	ATTI2	0,641
		ATTI3	0,913

Once the factors had been extracted with exploratory factor analysis, the measurement model was tested with confirmatory factor analysis (CFA) using AMOS. Model fit was measured to see how well the proposed factor structure explains the correlations between the variables in the dataset (Gaskin, 2016a). Chi-square goodness-of-fit test was performed, which provided a statistically significant result meaning that the data would not fit the model well enough ($\chi^2(114) = 148,658$, $p = 0,016$). According to Barrett (2007) good model fit would require a statistically insignificant result ($p > 0,05$). However, the chi-square test has been noted to have limitations, and the model should not be rejected right away even if the test provides a not-fitting result (Lei & Wu, 2007). Instead, other measures should also be applied further evaluate model fit. Additional measures used were Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA). These measures demonstrated excellent model fit according to thresholds obtained from Hu & Bentler (1999), and hence the model fit was concluded to be acceptable. Measured values and thresholds for excellent model fit are presented in table 8 below.

TABLE 8 CFA model fit measures

Measure	Estimate	Threshold (Hu & Bentler, 1999)
CFI	0,983	>0,95
SRMR	0,044	<0,08
RMSEA	0,039	<0,06

After confirming that the model fit was appropriate, validity and reliability of the confirmatory factor analysis were also measured. According to Gaskin (2016a) establishing validity and reliability is absolutely necessary to be done before testing the structural model, which in this research was done after the confirmatory factor analysis. Measures used were Composite Reliability (CR) for reliability, Average Variance Extracted (AVE) for convergent validity, and Maximum Shared Variance (MSV) for discriminant validity. Discriminant validity was also measured by calculating the square roots of AVE, which should exceed the inter-factor correlations (Hair et al., 1998). The correlations and square roots of AVE are presented in Table 10. Measures and thresholds were obtained from Hair et al. (1998). The measures indicated that there were no validity or reliability concerns for the model. Measures are summarized in Table 9, with threshold values in parentheses after the measurement name. To detect possible common method variance (CMV), exploratory factor analysis was also run with the intent of extracting only one factor from the data to observe if variance in the data can be largely attributed to a single factor (Chang, Van Witteloostuijn, & Eden, 2010). Analysis was run with SPSS using unrotated factor solution and principal axis factoring as extraction method. The results showed that less than half of the variance (27 %) was explained by the single factor, and hence the criteria for Harman's single factor test was met and no CMV issues were noted (Podsakoff & Organ, 1986).

TABLE 9 CFA validity and reliability measures

Factor	CR (>0,70)	AVE (>0,50)	MSV (<AVE)
PERM	0,885	0,721	0,452
PATT	0,874	0,699	0,175
PERS	0,928	0,810	0,152
PRIV	0,811	0,592	0,138
CRED	0,856	0,752	0,256
INNO	0,787	0,649	0,175
ATTI	0,827	0,705	0,452

TABLE 10 Factor correlations and square roots of AVE (in bold)

	PERM	PATT	PERS	PRIV	CRED	INNO	ATTI
PERM	0,849						
PATT	0,242	0,836					
PERS	0,302	0,078	0,900				
PRIV	-0,268	-0,194	-0,252	0,769			
CRED	0,321	0,210	0,333	-0,286	0,867		
INNO	0,317	0,418	0,243	-0,162	0,143	0,806	
ATTI	0,672	0,210	0,390	-0,372	0,506	0,276	0,840

5.2.2 Structural model

As the confirmatory factor analysis was noted to have excellent model fit and no reliability or validity concerns, the measurement model was deemed to be appropriate for testing of the hypotheses. Hypotheses were tested by converting the measurement model to a structural model in AMOS with attitude set as a dependent variable and permission, personal attachment, personalization, privacy risk concerns, credibility, and innovativeness as independent variables. Model fit measures were once again applied after conversion of the model with similar results as in CFA ($\chi^2(114) = 148,658$, $p = 0,016$), (CFI = 0,983, SRMR = 0,044, RMSEA = 0,039), and hence the model fit was still found acceptable. Results of the structural model are presented in figure 4 below, including standardized regression weights and p-values. Factor loadings of the structural model and correlations of exogenous variables are presented in appendices 4 and 5.

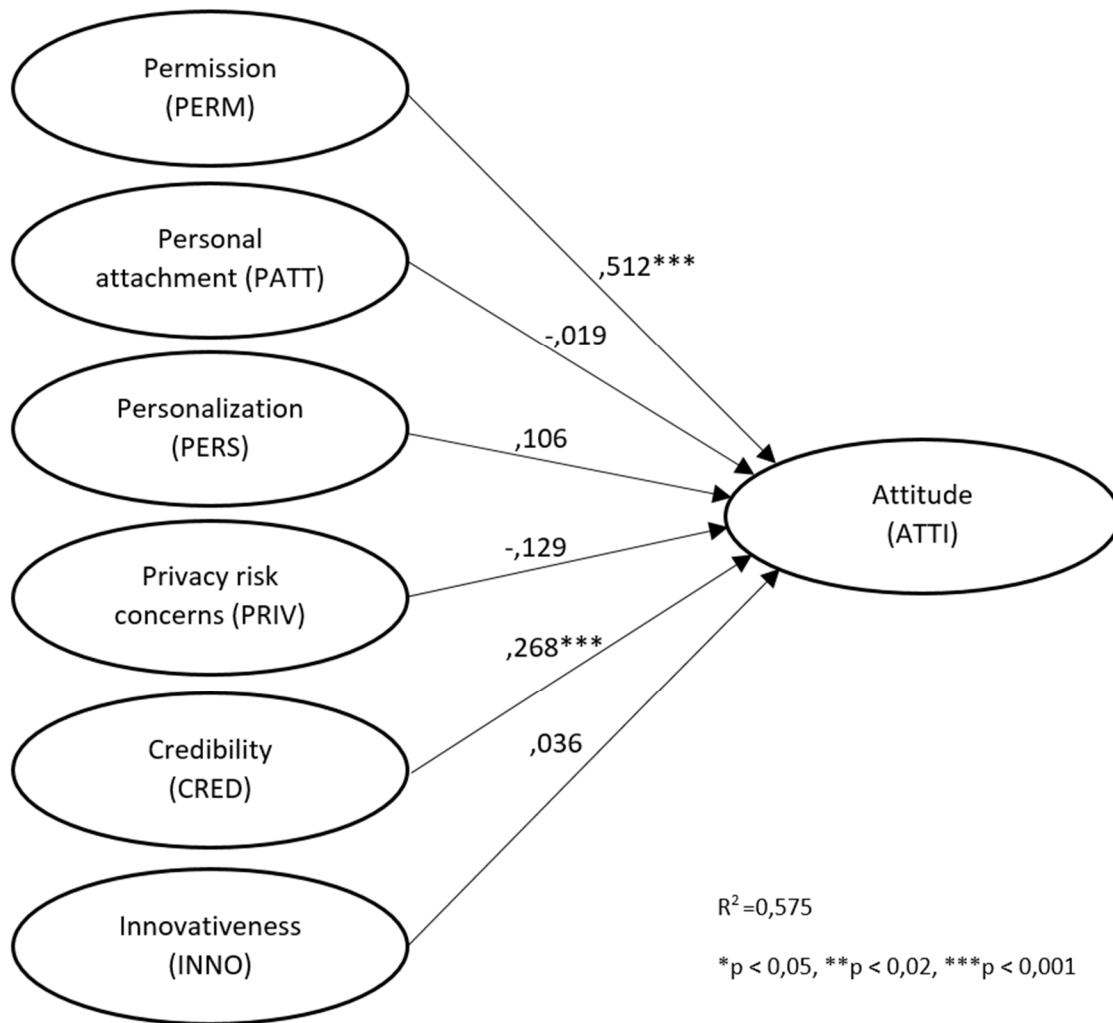


FIGURE 4 Results of the structural model

As can be seen in figure 4, only hypotheses 1 and 5 were supported by the data. Therefore, only permission and credibility were noted to have a statistically significant association with attitude, whereas relation from personal attachment, personalization, privacy risk concerns, and innovativeness to attitude was not discovered. Thus, hypotheses 2, 3, 4, and 6 were rejected. All factors together explained approximately 58 % of the variance ($R^2 = 0,575$). Results of the hypotheses testing are concluded in table 11.

TABLE 11 Results of the hypotheses testing

Hypothesis	Standardized regression weight	p-Value	Result
H1 (PERM->ATTI)	,512***	,000	H1 accepted
H2 (PATT->ATTI)	-,019	,769	H2 rejected
H3 (PERS->ATTI)	,106	,124	H3 rejected
H4 (PRIV->ATTI)	-.129	,068	H4 rejected
H5 (CRED->ATTI)	,268***	,000	H5 accepted
H6 (INNO->ATTI)	,036	,644	H6 rejected

6 CONCLUSION AND DISCUSSION

In this final chapter, a conclusion of the whole research is provided alongside of discussion on the research topic. The chapter is started with answers to the research question and objectives, followed by research contributions and practical implications. Finally, the limitations of this research are discussed and thoughts for future research are presented.

6.1 Factors associated with consumer attitude towards mobile marketing

This research aimed to identify factors that are associated with consumer attitude towards mobile marketing among smartphone users. The research was started with a literature review to provide an overview of mobile marketing in general and identify factors associated with consumer attitude towards mobile marketing from previous literature on the topic. A general definition of attitude and an overview of the theoretical baseline in previous literature was also provided. Factors were noted to fall into three categories: content-related, receiver-related, and delivery-related. The factors were then presented in more detail with a summary of references where they had been obtained from. At this point a new factor, information privacy concerns, was also presented. The addition was made, as concerns on consumer privacy related to mobile marketing have been discussed by multiple researchers (e.g. Bauer et al., 2005; Scharl et al., 2005; Shankar & Balasubramanian, 2009; Shankar, Venkatesh, Hofacker, & Naik, 2010) even though it has not been directly raised as a factor. The factor was later combined with risk-avoidance and named privacy risk concerns.

After the literature review, an empirical research was performed to address the research question directly: Which factors are associated with consumer attitude towards mobile marketing among smartphone users? Six hypotheses were presented to test the association between selected factors and attitude. The results were partially conflicting with previous research, as the data supported

only two out of the six hypotheses. Results suggest that permission and credibility are associated with consumer attitude towards mobile marketing among smartphone users, whereas personal attachment, personalization, privacy risk concerns, and innovativeness are not.

6.2 Research contributions

Two contributions can be highlighted, that this study brings to the field of mobile marketing research. First, permission and credibility were noted as factors that are associated with consumer attitude towards mobile marketing among smartphone users. These results are supported by studies from Tsang et al. (2004), Ünal et al. (2011), and Islam et al. (2013). Chowdhury et al. (2010) suggest that credibility has a direct positive and significant influence on consumer attitude toward mobile advertising. Results from Sinkovics et al. (2012) indicate that perceived value of mobile advertising is the most significant driver for consumer attitude, while credibility is linked with perceived value. However, the results of this research are also partly conflicting with Ünal et al. (2011) and Islam et al. (2013). These researchers also noted that personalization of mobile marketing has a positive effect on attitude, whereas in this research similar association was not found. This conflict could result from cultural and market differences, as research by Ünal et al. (2011) was conducted with respondents from Turkey, and Islam et al. (2013) with respondents from China, India, and South Korea. These countries (excluding South Korea) are considered to be emerging markets, while Finland is perceived as a developed market (FTSE Russell, 2018). Hence, there could be significant differences in the mobile marketing activities and consumer behavior between these countries.

Another objective of this research was to identify possible differences with results from previous research, as none of the studies identified in the literature review had made a distinction between traditional mobile phone users and smartphone users. This provides the second contribution, as the outcome suggests that the drivers for consumer attitude towards mobile marketing might have changed. Personal attachment (Gao et al., 2012, 2013), personalization (Sanz-Blas et al., 2015; Xu, 2006), and consumer innovativeness (Gao et al., 2012, 2013) have been noted to have a relation to attitude in previous literature, but similar association was not found in this research. The consumer perceptions could have changed because of new means and techniques, such as mobile applications, that modern smartphones have enabled for marketers to use. Also, the way people use mobile devices has shifted drastically, as smartphones are nowadays considered to be necessities in people's lives instead of communication gadgets only (Lee, Chang, Lin, & Cheng, 2014). This could be a catalyst for change in formation of the attitude towards mobile marketing.

Privacy risk concerns was introduced as a new factor, formed from combination of risk-avoidance (Gao et al., 2013) and information privacy concerns (Smith et al., 1996). Especially in the context of personalization, privacy has

been a concern related to commercial information technology applications. Consumers encounter the dilemma between gratification received from more personalized content on their mobile phones and concern for the privacy of their personal information. (Sutanto et al., 2013.) The factor was brought into the research model to see if it would be associated with attitude, but no relation was found. One of the reasons for this could be that the respondents in this research survey have not found mobile marketing to be very personalized. In fact, over 70 % of the respondents answered “strongly disagree” or “somewhat disagree” when asked whether mobile marketing feels personalized for them. Thus, they might not have run into privacy concerns, as their personal data has possibly not been used in mobile marketing that they have received.

6.3 Practical implications

Results of this research provide useful insight for mobile marketers about factors that should be considered when planning campaigns and other activities. Requesting the consumer’s permission before providing marketing content on their mobile phone can be seen highly relevant, as the results of this research and several others have found the link between permission and attitude. Marketers should also pay attention to the credibility of their brand and mobile marketing content.

Permission should be a starting point for the mobile communication between the consumer and the marketer at least in the European market, as it’s required by the EU regulation (Jayawardhena et al., 2009). Recently the requirements were tightened, as the General Data Protection Regulation (GDPR) came into effect in all European Union countries in 2018 (European Commission, 2018). To comply with the regulation, marketers are required to strengthen their opt-in processes, meaning that active and voluntary consent of receiving marketing content must be obtained from the consumer, while also explaining how the user’s information will be used by the marketer (Karnik, 2018).

As mobile marketing is nowadays more and more incorporated in the daily activities users perform with their smartphones, permissions are most likely not always obtained. Consumers might feel that mobile advertising is everywhere, and it’s done without their consent. To solve this issue, marketers should come up with new ways to obtain the permission and remember to provide an easy option to opt-out of the marketing communication. For example: When a user downloads an application for a customer loyalty program provided by a retailer, it should be communicated before the consumer can start using the application that marketing content will be provided. An option for the user to opt-out of the content should be presented, and perhaps an ability to select which kind of content and how often the consumer is willing to receive it.

Establishing brand and content credibility is vital in all marketing, maybe even more relevant in mobile than other channels as communication is delivered to personal devices of the consumers. The advantages of mobile marketing,

such as personalization or time and location sensitiveness, could be utilized to provide relevant content to the consumer, and at the same time to enhance credibility. Selecting carefully when marketing content is delivered, to which location of the consumer, and what type of information is sent to each target could help marketers generate credibility for their content and brand. Mobile as a channel offers several methods to deliver the content, which should also be considered. There could be significant differences in the perception of credibility between for example banner ads in mobile web browsers and a push notification from an application that the user themselves has decided to install on their smartphone. Obtaining the consumer's permission for marketing can be done quite simply within an application, which most likely would be beneficial from credibility perspective as well.

6.4 Limitations and future research

Certain limitations should be considered when interpreting the results of this research. Even though the sample size of the empirical research ($n=204$) can be considered appropriate for statistical analysis, it is relatively low to represent the population of Finnish smartphone users. Additionally, the measures were translated from English to Finnish, which could cause minor differences in how the statements were understood by the respondents. Demographical distribution of the respondents also significantly different from the general population, most likely resulting from the collection method of the data. It is also worth noting, that the analysis on this research demonstrates association between the researched factors, but does not confirm a causal relationship.

Nevertheless, this study proves that the research on the topic of consumer attitude towards mobile marketing should be continuous and evolving technologies must be considered. Even though majority of the previous research, as well as this research, have been conducted using quantitative methods, applying qualitative approach might provide valuable insights and possibly reveal new factors altogether. Understanding of the reasons and mechanisms behind the factors could also be improved by using qualitative research methods. Even though a relation from attitude to privacy concerns and personalization was not found in this research, it cannot be disregarded in future research as the collection of consumers' private information and personalization is an ever-increasing trend in information technology.

Perhaps rather than looking at mobile marketing as a whole, more weight in future research should be put into studying specific means and methods that are applied in modern mobile marketing. Emerging technologies and capabilities, such as artificial intelligence, are likely to influence mobile marketing significantly and enable activities that currently would not be possible or rational to perform (Faggella, 2018). Automated phone calls and chatbots have already been used for some time (Bernard, 2018; IBM, 2017), but it's still very clear to the user that they are communicating with a robot as the capabilities are quite

limited. However, how does it affect the customer experience or attitude towards the service, if they are having a human-like conversation with a robot? This type of questions are relevant also from mobile marketing perspective, as companies are providing these services through e.g. instant messaging and chatting options in their mobile applications and websites, hence falling into the category of mobile marketing communication as well as customer service. With the emerging capabilities of artificial intelligence, an increasing amount of communications between businesses and their customers will be automated. In fact, IBM (2017) is predicting that 80 % of customer service interactions will be done without a human agent by 2020.

Mobile payments are another growing service area in the mobile world, as consumers are adopting the idea of their smartphone being a substitute to a credit cards and online payment systems. According to Entrepreneur magazine (2018), mobile wallets are predicted to surpass the use of credit and debit cards by 2020 in the US. Examining what this means from mobile marketing perspective, and what kind of mobile marketing solutions could be incorporated with mobile payment solutions could be a beneficial topic for future research.

Sutanto et al. (2013) performed an empirical assessment on “personalization-privacy paradox”, i.e. the issue between providing a more gratifying service to users by means of personalization, and the need for collecting personal and private information to provide such service. The authors conducted a field experiment, where they used three mobile advertising applications which had been developed for the purpose of the research. As a conclusion, they discovered that personalization increased application usage, and the privacy-safe version of the application made users save the product messages more often. Similar approach could be applied in the future research of consumer attitude towards mobile marketing as well, by applying specific mobile marketing methods to consumers in field experiments and observing what type of characteristics or factors influence their attitude towards the service.

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APPENDIX 1 DESCRIPTIVE STATISTICS

	N	Mean	Std. Deviation
ATTI2	204	2,02	,982
ATTI3	204	1,61	,843
PATT1	204	3,40	1,209
PATT3	204	3,86	1,121
PATT3	204	3,32	1,260
CRED1	204	2,40	1,019
CRED2	204	2,36	,939
INNO1	204	1,69	,986
INNO3	204	2,03	1,114
PERM1	204	2,85	1,248
PERM2	204	2,60	1,213
PERM3	204	2,77	1,223
PERS1	204	2,09	1,028
PERS2	204	1,96	,954
PERS3	204	1,97	,962
PRIV1	204	4,08	,984
PRIV2	204	3,60	1,280
PRIV3	204	3,93	1,136

APPENDIX 2 EFA PATTERN MATRIX

	Factor						
	1	2	3	4	5	6	7
ATTI2	,220	,015	-,013	-,035	,007	-,012	,641
ATTI3	-,057	,005	,059	-,005	,021	,026	,913
PATT1	,045	,753	-,067	,023	,028	,088	,011
PATT2	,000	,741	,048	,007	,022	,034	,019
PATT3	-,028	,988	-,003	-,030	-,035	-,079	-,021
CRED1	,035	,055	,047	-,014	,707	,011	,108
CRED2	,000	-,027	,009	,002	,971	-,007	-,062
INNO1	,050	-,062	-,046	,029	,020	,991	-,012
INNO3	-,031	,095	,061	-,033	-,021	,631	,022
PERM1	,728	,048	,065	-,087	,098	,045	-,031
PERM2	,876	-,019	-,073	,035	,004	,025	,043
PERM3	,852	,004	,054	,004	-,048	-,029	,056
PERS1	-,038	-,028	,856	-,019	-,050	,056	,056
PERS2	,012	-,030	,903	-,040	,052	,041	-,013
PERS3	,049	,044	,906	,047	,053	-,077	,000
PRIV3	,064	-,001	,084	,608	-,125	,009	-,101
PRIV2	-,063	-,063	-,049	,829	,066	,012	,055
PRIV3	-,024	,053	-,044	,837	,033	-,029	,013

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

Rotation converged in 6 iterations.

APPENDIX 3 EFA CORRELATION MATRIX

Correlation Matrix

	ATTI2	ATTI3	PATT1	PATT2	PATT3	CRED1	CRED2	INNO1	INNO3	PERM1	PERM2	PERM3	PERS1	PERS2	PERS3	PRIV1	PRIV2	PRIV3
ATTI2	1,000	0,705	0,184	0,195	0,118	0,386	0,275	0,194	0,148	0,505	0,502	0,541	0,232	0,274	0,251	-0,226	-0,244	-0,250
ATTI3	0,705	1,000	0,171	0,166	0,135	0,438	0,356	0,211	0,196	0,430	0,436	0,455	0,329	0,346	0,350	-0,284	-0,234	-0,261
PATT1	0,184	0,171	1,000	0,609	0,744	0,191	0,126	0,351	0,309	0,246	0,209	0,191	0,019	0,028	0,061	-0,080	-0,171	-0,075
PATT2	0,195	0,166	0,609	1,000	0,716	0,244	0,114	0,294	0,295	0,245	0,150	0,192	0,131	0,119	0,110	-0,101	-0,167	-0,101
PATT3	0,118	0,135	0,744	0,716	1,000	0,143	0,103	0,238	0,295	0,209	0,144	0,136	0,005	0,049	0,081	-0,135	-0,187	-0,104
CRED1	0,386	0,438	0,191	0,244	0,143	1,000	0,731	0,118	0,116	0,326	0,260	0,242	0,239	0,307	0,293	-0,277	-0,199	-0,209
CRED2	0,275	0,356	0,126	0,114	0,103	0,731	1,000	0,045	0,046	0,274	0,143	0,152	0,161	0,276	0,274	-0,270	-0,156	-0,183
INNO1	0,194	0,211	0,351	0,294	0,238	0,118	0,045	1,000	0,649	0,286	0,259	0,232	0,182	0,195	0,110	-0,041	-0,101	-0,095
INNO3	0,148	0,196	0,309	0,295	0,295	0,116	0,046	0,649	1,000	0,216	0,169	0,168	0,209	0,210	0,153	-0,087	-0,120	-0,135
PERM1	0,505	0,430	0,246	0,245	0,209	0,326	0,274	0,286	0,216	1,000	0,695	0,687	0,272	0,288	0,300	-0,183	-0,275	-0,258
PERM2	0,502	0,436	0,209	0,150	0,144	0,260	0,143	0,259	0,169	0,695	1,000	0,769	0,143	0,176	0,176	-0,131	-0,153	-0,132
PERM3	0,541	0,455	0,191	0,192	0,136	0,242	0,152	0,232	0,168	0,687	0,769	1,000	0,204	0,274	0,296	-0,096	-0,208	-0,189
PERS1	0,232	0,329	0,019	0,131	0,005	0,239	0,161	0,182	0,209	0,272	0,143	0,204	1,000	0,803	0,780	-0,090	-0,202	-0,172
PERS2	0,274	0,346	0,028	0,119	0,049	0,307	0,276	0,195	0,210	0,288	0,176	0,274	0,803	1,000	0,847	-0,106	-0,232	-0,230
PERS3	0,251	0,350	0,061	0,110	0,081	0,293	0,274	0,110	0,153	0,300	0,176	0,296	0,780	0,847	1,000	-0,076	-0,138	-0,187
PRIV1	-0,226	-0,284	-0,080	-0,101	-0,135	-0,277	-0,270	-0,041	-0,087	-0,183	-0,131	-0,096	-0,090	-0,106	-0,076	1,000	0,517	0,529
PRIV2	-0,244	-0,234	-0,171	-0,167	-0,187	-0,199	-0,156	-0,101	-0,120	-0,275	-0,153	-0,208	-0,202	-0,232	-0,138	0,517	1,000	0,688
PRIV3	-0,250	-0,261	-0,075	-0,101	-0,104	-0,209	-0,183	-0,095	-0,135	-0,258	-0,132	-0,189	-0,172	-0,230	-0,187	0,529	0,688	1,000

APPENDIX 4 FACTOR LOADINGS OF THE STRUCTURAL MODEL

Standardized Regression Weights:

			Estimate
PERM1	<---	Permission	,801
PERM2	<---	Permission	,868
PERM3	<---	Permission	,876
PATT1	<---	Personal attachment	,816
PATT2	<---	Personal attachment	,780
PATT3	<---	Personal attachment	,907
PERS1	<---	Personalization	,858
PERS2	<---	Personalization	,938
PERS3	<---	Personalization	,903
PRIV1	<---	Privacy risk concerns	,637
PRIV2	<---	Privacy risk concerns	,823
PRIV3	<---	Privacy risk concerns	,832
CRED1	<---	Credibility	,962
CRED2	<---	Credibility	,760
INNO1	<---	Innovativeness	,811
INNO3	<---	Innovativeness	,800
ATTI2	<---	Attitude	,849
ATTI3	<---	Attitude	,830

APPENDIX 5 CORRELATIONS OF EXOGENOUS VARIABLES IN THE STRUCTURAL MODEL

Correlations:

			Estimate
Permission	<-->	Personal attachment	,242
Permission	<-->	Personalization	,302
Permission	<-->	Privacy risk concerns	-,268
Permission	<-->	Credibility	,321
Permission	<-->	Innovativeness	,317
Personal attachment	<-->	Personalization	,078
Personal attachment	<-->	Privacy risk concerns	-,194
Personal attachment	<-->	Credibility	,210
Personal attachment	<-->	Innovativeness	,418
Personalization	<-->	Privacy risk concerns	-,252
Personalization	<-->	Credibility	,333
Personalization	<-->	Innovativeness	,243
Privacy risk concerns	<-->	Credibility	-,286
Privacy risk concerns	<-->	Innovativeness	-,162
Credibility	<-->	Innovativeness	,143