Delving into the Digital: 
*A marketing investigation into determinants of app usage intention*
Abstract

Since the advent of the smartphone, mobile applications on these devices have increasingly gained in popularity and have become a staple in the everyday lives of people. This trend has resulted in the development of millions of applications, yet the majority of them are never downloaded or used for a variety of reasons. It is therefore important for consumer behavior research to be conducted on a continuous basis in order to analyze and stay up to date with factors that lead to intention and thereafter, usage of mobile applications. Also, it is necessary to take into account the immense popularity of social media, which has provided firms with an effective avenue to market new applications. The purpose of the study is therefore to investigate the determinants of usage intention of new and free mobile apps in the context of social media marketing.

In order to measure intention, two proven and tested theoretical models were incorporated into the creation of the research model of this study and the formation of the hypothesis; namely the theory of planned behavior (TPB), as well as the technology acceptance model (TAM). To test the hypothesis, a quantitative study was conducted with the help of a self-completion questionnaire which was distributed on social media, and the data collection resulted in 250 valid respondents. The data was processed and analyzed using multiple regression using the statistical program SPSS in order to test the significance of the various independent variables with intention to use new and free apps. The regression analysis resulted in several hypothesis being accepted. Notably, intention to use was highly influenced by attitude, as well as significant relationships between intention and perceived ease of use, as well as perceived behavioral control. Significant relationships were also discovered between attitude, perceived usefulness, and trust. Marketers of new and free mobile apps should focus on fostering a positive attitude through marketing on social media, always be intent on trust-building activities, and work with the developers to create easy to use and highly useful apps. The authors recommend that future studies focus on the influence of different kinds of social media activities on consumers intention to use new and free apps, as social media was only the context of the current study.

Key Words

intention, attitude, intention to use, determinants, free apps, mobile apps, consumer behavior
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1. Introduction

The introductory chapter reveals the background of this thesis, as well as the problematization, which leads to the purpose of the study. The chapter concludes with an outline of the structure of the thesis.

1.1. Background

Do you use apps on the smartphone? Most likely you will have answered yes to that question, and on top of that, you have probably already engaged with several today. According to a report from App Annie (2017) on the state of the app economy, people are using around 10 mobile apps per day and over 30 per month, which resulted in approximately one trillion hours of mobile app usage worldwide in 2016. Based on the trends from the first quarter of 2017, the time people are spending on mobile apps is continuously increasing. Apps are contained on devices commonly referred to as smartphones which were initially released in 1994, but didn’t gain mass popularity until the Apple iPhone was launched in the market in 2007, while its competitor Google entered the marketplace with the Android OS the following year (Pothitos, 2017).

The last decade has seen mobile devices become principal in people’s everyday life, giving users the opportunity to be connected to other people as well as the possibility to obtain a plethora of information. Hence, the smartphone is regarded as a tremendous innovation, providing users with a “hand-held computer capable of multiple functions in addition to placing calls” (Kaplan, 2012, p. 129). In regards to smartphone statistics worldwide, 2.32 billion of people owned a smartphone in 2017 and the number of smartphone users is expected to reach around 2.87 billion in 2020. Moreover, approximately 57% of smartphone users worldwide spend five or more hours per day using their device (Statista, 2018).

As was initially eluded to, the smartphone has the capacity to house mobile applications, or apps, which are a type of software which have been programmed to run on ‘smart’ devices and are generally small in size with limited yet specific functions or purposes ranging from social media, video, mapping, sports; with many more functionalities...
(Techopedia, 2018). This app market is highly lucrative as worldwide mobile app revenue was 88.3 billion U.S. dollars in 2016 and is expected to reach 188.9 billion U.S. dollars in 2020 (Statista, 2018). Approximately ten years after their initial release, the Apple App store currently has 2.2 million apps available for download, while Android’s Google play store has 2.8 million apps. However, just because there are so many apps in existence doesn’t entail that they are being downloaded and used, and that is a challenge for marketers today. Palos-Sanchez, Saura, and Suarez (2017) state that it is through digital marketing that consumers are reached today, and more specifically via the mobile device. They refer to digital marketing as “*the simultaneous integration of strategies on the web, through specific processes and methodology, looking for clear objectives using different tools, platforms and social media*” (p.2).

A quantitative study which surveyed 777 marketing executives from various market sectors in the US, Europe, and Asia addressed the most pressing challenges for digital marketers (Leeflang et al., 2014). The results of the study indicated that there are three implications that marketers need to realize; firstly, being able to come up with and put into practice robust consumer insights. Next, social media should be prioritized and fully acknowledged, especially relating to brand health and reputation. Thirdly, the study indicated that one needs to actually assess the effectiveness of the digital marketing that is conducted using predefined metrics (Leeflang et al. 2014). The study also revealed that mobile applications and social media will be two areas responsible for the most prominent growth within companies in the coming years. Digital marketing on social media is mostly conducted to create an intention to use a product or service among consumers (Koc et al, 2016). Since traditional marketing has greatly evolved and is constantly adapting to the demands of consumers and social media, it is necessary that academic work is ongoing (Palos-Sanchez, Saura, and Suarez, 2017).

**1.2. Problem discussion**

Since there are so many apps competing for downloads, Koc et al. (2016) states that the challenge is to understand consumer behavior of the target group and to set up a marketing strategy to maximize the effectiveness of digital marketing. Understanding the implications and criteria relating to digital marketing intended to facilitate app usage becomes of utmost importance for marketers today. The study by Leeflang et al. (2014) concluded that the most significant challenge of marketing managers is the understanding of the impact of their digital marketing efforts. Palos-Sanchez, Saura, and Suarez (2017)
state in their study that effectiveness of traditional marketing tools such as TV advertising has long been practiced, but that the digital marketing realm, which is constantly evolving, remains an area that is understudied. The researchers claim that further insights into digital marketing efforts and results are two areas that are in need of improvement. The majority of new developments and innovations within digital marketing come from businesses, which makes it imperative that academic research creates an equilibrium between theory and practice by producing studies that are relevant for marketing managers and academics alike (Palos-Sanchez, Saura, and Suarez, 2017). Since technological developments allows for the furthering of digital marketing practices for firms, research is needed from academia in order to provide insights into the mental processes of consumers relating to how these marketing methods and practices are perceived.

The fundamental challenge for companies and especially marketers, is to understand how and why consumers develop an intention to use a mobile app (Koc et al., 2016). Several studies have concluded that intention to use is influenced by different variables. For instance, a positive attitude has been linked to the creation of an intention to use a product or service (Ajzen & Sheikh, 2013; Alavion et al., 2017). A study by Wu et al. (2016) discovered that trust is an important antecedent of consumers intention to use free apps, while Gupta & Harris (2010) highlight the significance of electronic word-of-mouth (e-WOM) through online reviews and ratings when it comes to influencing product and service usage. Natarajan et al., (2018) conducted a study on influencers of the intention to use mobile shopping applications and concluded that perceived ease-of-use, usefulness, enjoyment, risk satisfaction and personal innovativeness are all relevant contributors to intention to use.

Koc et al. (2016) reveals that there is a need for further studies to be conducted on the determinants of user acceptance and intention to use mobile applications. As one can understand, the popularity of free apps is overwhelming, as they account for 94% of all apps available for Android, while 88% of apps available for the iOS are free (Statista, 2018). As previously mentioned, new apps are being created constantly, with the Google play store receiving 1,300 new uploads daily (Statista, 2018). Due to the constant influx of new apps and the prevalence of those being free, it presents a constant need for research to be conducted on the intention to use these kinds of apps in order to provide findings which will add valuable insights into the ever evolving field of consumer behavior within digital marketing. Also, by acquiring a deeper and more precise understanding of what it
takes to create an intention to use new and free apps, firms will be able to implement the most significant determinants into their marketing strategy in order to gain more downloads and usage for the apps they create.

1.3. Purpose

The purpose of this study is to investigate determinants of usage intention for new and free mobile apps in the context of social media marketing.

1.4. Delimitations

The aim of this study is to focus primarily on the digital marketing area, especially focusing on the usage intention of an app. Therefore, as the mobile market is tremendous, this study is only considering free applications, meaning that payment characteristics about mobile applications are not taken into account for this study. Thus, it reinforces the willingness of researchers of this study to investigate individuals behavioral intentions toward the usage of an app, without being potentially influenced by financial criteria. Moreover, considering free applications ensure that every individual that owns a smartphone has the possibility to download and access to the application without any financial issues.

1.5. Outline of thesis

The first chapter has introduced the background, problem discussion, purpose and delimitations of the research in order to give a frame to the study. The following chapter is presenting the literature review, leading to the third chapter in order to present the frame of reference, the various hypothesis and the operationalization table of the study. In the fourth chapter, the methodology is developed with the research purpose and approach chosen, data collection method, sample selection, outline of the data analysis procedure, as well as a presentation of the quality criteria. Then, the fifth chapter contains the presentation of the results and the data analysis. Finally, the sixth chapter is presenting a discussion and contribution to theory, followed by managerial implications, limitations of the study, and suggestions for future research.
2. Literature Review

The following chapter outlines the background of social media marketing, leading to a review of the theories, concepts and variables that have been utilized to fulfill the purpose at of this study.

2.1 Marketing in the social media era

Since the smartphone and mobile applications gained mass appeal amongst consumers a little more than a decade ago, the marketing strategies of companies have had to adjust to a steady stream of technological advancements. As a result, consumers and companies are faced with a different way of buying, selling, and communicating, with high levels of interactivity and transparency. As consumers are exposed to a plethora of stimuli and content across various digital platforms, consumer behavior relating to the gathering of information about a product or a service has changed. It enhances why marketers are constantly in need of adapting their strategy to attract their customers today (Vinerean, 2017; Stephen, 2016). Constantinides (2014) states that “understanding the role of technology in shaping the marketplace and more importantly, engaging the social media as part of the marketing toolbox becomes a strategic imperative.” (p.41). Research by Lindsey-Mullikin and Borin (2017) has been conducted concerning the importance of strategic social media marketing, and their findings revealed that it (social media marketing) can provide to be highly useful in that it garnishes a firm with information and furnishing insights about consumers attitudes, preferences and expectations.

Moreover, with competition being fierce within the digital realm, marketers have to focus on developing strategies relating to customers behavior and provide them products or services with a new experience corresponding to their expectations. The use of social media marketing has provided “new consumer behavior trends” (Constantinides, 2014, p.42) and companies need to adhere to the trends in order to stay competitive in the marketplace. According to the evolution of customers’ expectations and use of social media materials, companies that have been using social media as a marketing strategy acquire valuable insights from consumers through comments and reviews (Constantinides, 2014). Hence, social media platforms appear as a great opportunity for
marketers, especially since the market is growing at an increasing rate, by attracting more users and customers for companies.

Indeed, the social media environment is constantly increasing: there are currently 2.46 billion people using some form of social media and is expected to increase to around 3.02 billion users by 2021 (Statista, 2018). Facebook is the largest social media platform by far, with 2.167 billion monthly active users, while Instagram is second with 813 million (Statista, 2018). Individuals are steadily using the mobile devices to view social media, as 94% of Facebook’s users are accessing the platform via the mobile application (Lua, 2018). In fact, the current state and future of marketing to consumers is related to the digital context (Stephen, 2016). Consumers today are facing multitudes of digital materials and stimuli, so the challenge for companies is to understand “how consumer behavior is changing as a result of the access to a variety of technologies and devices both in the online and mobile contexts” (Kannan & Li, 2017, p. 24) in order to provide digital marketing strategies which creates a certain intention in the mind of the consumer. As a result, the first construct which will be taken into consideration in this study is the individuals’ intention to use.

2.2 Intention to use

Intention is defined as “a person’s location on a subjective probability dimension involving a relation between himself and some action” (Fishbein and Ajzen, 1975, p. 288). In the context of the study at hand and as previously discussed, there is no denying the tremendous increase of the usage of the smartphone over the past decade. Since applications accounts for the majority of the time spent on a smartphone, namely two hours and fifteen minutes per day according to App Annie (2017), it is namely app usage intention that developers and marketers alike are most concerned with creating for their respective apps. Without intent, there is no actual usage behavior involved. Fishbein and Ajzen (1975, p. 335) defines behavior as “observable acts that are studied in their own right” and is the result of a preceeding behavioral intention. Therefore, since measuring actual app usage behavior is difficult in an academic study, marketing studies that measures intention based on the determinants of app usage suffices. To then be able to implement the most significant determinants in the marketing strategy in order create a usage intention which is the prerequisite for actual app usage.
Some studies have conducted research relating to intention to use apps. For instance, a recent study by Natarjan et al. (2018) concluded with several antecedents to the intention to use mobile shopping applications. The researchers had constructed their study using the technology acceptance model (TAM), Diffusion of innovations, Theory of planned behavior (TPB), and Expectation confirmation theory (ECT) as the structural backbone, and it was discovered that the constructs perceived ease-of-use, usefulness, enjoyment, risk satisfaction and personal innovativeness, all had a positive influence on the intention to use mobile shopping applications (Natarajan et al., 2018). Moreover, a study by Hoehle and Venkatesh (2015) concluded that continued intention to use a mobile app is affected by mobile usability. It was found that the influence of different mobile application usability constructs on a consumer’s continued intention to use mobile social media apps is moderated by espoused cultural values which derive from Hofstede (1984). Spackman et al. (2017) found in their research on creating a desire to enroll to universities via social media that the marketing that is perceived as very entertaining, highly interactive, as well as shareable will result in increased customer equity. This equity was shown lead to a higher level of an intention to enroll based on the social media marketing. As far as the researchers of the current study know about, there are no studies which measures intention to use new and free apps specifically. In order to understand the individual's behavioral intentions and specifically their intention toward using new and free mobile apps, the Theory of Planned Behavior (TPB) is presented.

2.3 Theory of Planned Behavior

The first theoretical model that is utilized in the current study to determine app usage intention of new and free apps is the Theory of Planned Behavior.

The TPB model incorporates three factors: attitude, subjective norms, and perceived behavioral control, and when combined they provide an understanding of specific behavioral intentions of individuals, which subsequently leads to an actual behavioral response (Ajzen, 1975; Ajzen, 1991; Ajzen & Sheikh, 2013). The aim of the Theory of Planned Behavior (TPB) is to understand the behavior of individuals with a social and psychological backdrop (Nosek et al., 2010), including the potential intention to use which is directly related to human behavioral actions. It is considered as a theoretical framework in many marketing studies (Nedelko et al., 2015; Wu et al., 2015; Alavion et al., 2017; Armitage & Conner, 2001; Ferdous, 2010; López-Mosquera et al., 2014), and
it permits to understand human behavior and their perception of the potential interest for a product or service. Since the current study aims to analyze the different determinants which leads to an intention to use a new and free app, it is a suitable theoretical model to utilize since planned behavior is another way of describing an intention to perform a behavior. The TPB framework has shown its relevance in defining and measuring factors related to individuals behavioral intention and involvement (Fredous, 2010).

2.3.1 Attitude

The first part of the TPB is attitude (also referred to as normative beliefs by some researchers), and it is defined by Fishbein and Ajzen (2010, p. 76) as “a latent disposition or tendency to respond with some degree of favor or unfavor towards a psychological object”. Attitudes are evaluative in nature, and individuals can possess a negative, positive or neutral disposition (Fishbein and Ajzen, 2010). Allport (1935, p. 810) defines attitude as “a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related”.

Yakasai and Jusoh (2015) in their research on the acceptance of digital coupons discovered that the strongest predictor of intention to use digital coupons was attitude. Solomon, et al. (2013) emphasize that attitude is formed over longer periods of time. Furthermore, it is possible that two consumers have the same attitude towards an object, but for different reasons (Solomon, et al., 2013). Fishbein and Ajzen (2010) claim that attitudes are influenced by moods and emotions. For example, an individual could evaluate an airplane negatively due to their own fear of flying (Fishbein and Ajzen, 2010). The attitude that one carries towards an attitude object has a significant influence on the behavioral intention of the individual. Indeed, as stated by Taneja et al. (2014), previous research revealed that behavioral attitude is affecting the willingness of an individual to perform a behavior. Moreover, other studies have stated the existing relationship between attitude and behavioral intention (Chan, 2001; Tanner & Kast, 2003; Shimp & Kavas, 1984 and Gruen et al., 2000). Studies have also found that there is a relationship between a positive attitude and intention to use (Ajzen & Sheikh, 2013; Alavion et al., 2017). In other words, if a person has an interest in a product or service, he is more willing to consider it and engage in a behavioral response towards the product or service, in the form of a purchase or a download, for instance. Thus, related to the current study,
individuals attitude toward new and free mobile apps may have a significant influence on their intention to use them.

2.3.2 Perceived behavioral control

The second part of the Theory of Planned Behavior (TPB) is perceived behavioral control. It “reflects beliefs regarding access to the resources and opportunities needed to perform a behavior” (Alavion et al., 2017, p.4), considering the potential difficulty of performing a certain behavior that is evaluated by an individual. In order to perform a behavior, each individual needs to be convinced that he has the abilities to execute it. According to Armitage and Conner (2001), individuals intentions and behavior are strongly influenced by their perceived behavioral control. As abilities and resources are needed to perform a behavior, two components can be considered. First, “facilitating conditions”, meaning the availability of resources as time or possibility of access to a product need to be considered (Armitage and Conner, 2001). Indeed, in order to perform a behavior, an individual may consider the time available to perform a behavior and consider if he has the potential to achieve it. This is supported by the study by Hoehle et al. (2015) which concluded that the Hofstede’s cultural dimension of long-term orientation has a moderating effect on intention to use a social mobile application. Long term orientation is the measure of a person’s forward thinking values or the necessity to consider upcoming events when making a decision. In this regard, it is supporting perceived behavioral control in that consumers are likely to evaluate a mobile app based on whether or not it can deliver value by saving them time in the long-term (Hoehle et al. 2015).

Second, the “self-efficacy” needs to be taken into account, meaning one’s own confidence an individual has concerning the achievement of the behavior. As an example, if an individual considers that he does not have enough abilities concerning the usage of a smartphone, he would not use an app while an individual that is used to technological devices would feel comfortable with the usage of the app and as a result is willing to achieve the behavior (Alavion et al., 2017). Just as perceived behavioral control of individuals may have an influence on one’s intention to use, social criteria known as subjective norms need to also be considered, as others may have an influence on the way one perceives the prospect of performing a behavioral action.
2.3.3 Subjective norms

Subjective norms is the final factor of the TPB model. Indeed, *subjective norms can be described as social acceptance from others for the execution of particular behaviors, in the way others approve or disapprove of that behavior* (Ajzen & Fishbein, 1970). Thus, social norms are to be considered as influencing potential behavioral choices, which exist within our environment through our interactions with others. As stated by Ajzen & Fishbein (1980), an individual will more likely perform a behavior if they realize that it is approved by peers. Thus, related to the intention of usage of an app, it could be considered that individuals may be influenced by subjective norms, meaning that others using a specific app could affect one’s willingness to use the same app. Hence, Word-of-Mouth (WOM) and Electronic Word-of-Mouth (E-WOM) will be operationalized as subjective within the TPB as both relate to the spreading of information about a product or service both verbally and electronically. Both concepts will be described in greater detail in the forthcoming sub-chapters of the variable subjective norm.

Word of Mouth

Word-of-mouth (WOM) is a phenomenon that marketers should take into consideration, and it is defined as “*a message about an organisation's products or services or about the organisation itself. Usually WOM involves comments about product performance, service quality, trustworthiness, and modus operandi, passed on from one person to another*” (Charlett, Garland & Marr, 1995, p.42). For every person considered as a consumer of a product or service, purchase intentions are greatly influenced by recommendations from friends and family members (Buttle & Groeger, 2017). Surrounded by many sorts of communication, such as advertising or promotion, consumers are seeking for authentic advice in order to make the best choice in their purchasing decisions. Related to previous research, managers and marketers realized that the perception from consumers about a product or a service had evolved over time, leading to more skepticism of companies along with a growing consumer-to-consumer influence (Kimmel & Kitchen, 2014). Hence, consumers are likely to purchase or use a product only when they receive feedback or recommendations from other consumers as they are likely to be influenced by their opinions. As a result, when people receive positive WOM from others’ experiences, it may have an influence on their pre-phase of purchasing or using a product as it would increase their trust of it. This consumer-to-consumer influence is enhancing the potential
importance of WOM for consumers but also for marketers as a way to attract more consumers (Maxham, 2001).

Therefore, as technologies have evolved with time, consumers have also adapted their behavior concerning their consumptions and purchasing decisions through reading about products and services digitally through online reviews and opinions: namely Electronic word-of-mouth.

**Electronic Word-Of-Mouth**

Nowadays, the digital marketing environment is influenced by Electronic Word-of-Mouth (eWOM) and is considered as a great way to gather brand and product informations (Lin and Xu, 2017). eWOM can be defined as “any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet.” (Hennig-Thurau, T. et al., 2004, p.39). Contrary to the traditional WOM and the face-to-face communication perspective, consumers are everyday influenced by eWOM via websites, blogs, chat rooms, emails or social media platforms (Hennig-Thurau, T. et al., 2004).

Consumers today have the opportunity to access plenty of information and feedback from other customers experiences with products, services, and brands, without being limited by the amount of knowledge or the time gathering the information. Moreover, this access is costless for users, available for every consumer that has access to online platforms through the internet and reveals a real advantage and interest for people but also for marketers in gathering information relating to the image of a company, including the brand image and its products, and positive or negative perceptions from customers (Lin and Xu, 2017).

Research conducted by Gupta and Harris (2010) showed that eWOM recommendations might deeply influence consumers choices and usage of products. Indeed, their study showed that consumers are more willing to concede a recommended product even if it would involve a ‘sacrifice’ of their own consumption preferences. Their analysis showcases the way eWOM recommendations may drive consumer choices and persuade them to use a product that they would not have considered without eWOM recommendations (Gupta and Harris, 2010).
Therefore, previous research concerning eWOM shows that it influences consumers and their behavior through two main criteria involved in the minds of consumers: the informational and normative influence. First, as stated by Filieri (2015) and completed with Cheng & Ho (2015) statements, the informational influence is “based on the receiver's judgement of the relevant content of a message. Informational influence includes elements referring to the quality of information in a message, such as information relevancy, source credibility, and information quantity” (Filieri, 2015, p.1262). This first criterion enhances the importance of informations but especially the relevance of those recommendations that is evaluated from each consumer perspective. The more information and recommendations that are of high quality which reaches a consumer, the more it may have a strong influence towards their consumption and usage behavior. Second, Filieri (2015) is considering the normative influence that “refers to the pressure on individuals to conform to the norms/expectations of others that are implicit or explicit in the choices of a reference group” (p.1262, Filieri, 2015), suggesting the importance of others opinions toward a behavior. Thus, the overall product ranking or evaluations rated by customers are considered as influencing consumers thinking and as a result their potential behavior toward a product. In this direction, it may be recognized that consumers sharing the same judgment of a product would influence others consumers perceptions as well. Moreover, social media marketing which encourages interaction with the viewers beyond the occasional like, such as sharing and commenting, is the most effective in that it leads to high eWOM (Zhu and Chen, 2015).

2.4 Technology Acceptance Model

The second theoretical model that is utilized in the current study to determine app usage intention is the technology acceptance model (TAM). As the TPB model is utilized in relation to marketing communication influence on the intention to use an app, the TAM is used to assess perception of the technological aspects of new and free apps.

First, Davis (1989) was the researcher to construct a study about how Perceived Usefulness and Perceived Ease of Use of a certain technology, along with attitude could lead to the creation of an intention to use that technology, which resulted in the formation the technology acceptance model, or TAM. According to P. Ghafari Ashtiani et al. (2016), “Technology Acceptance Model (TAM) is one of the models which is widely welcomed by users and customers for explaining the effective factors on the acceptance of information
systems and information technology and communication” (p.547). Thus, the aim of this model is to measure the extent of individuals likelihood to accept and use certain technologies. Since new and free mobile apps are a form of technology, the TAM seems suitable to utilize in the current study as a way to assess the extent to which consumers accepts these kinds of apps; as a high acceptance is linked to the creation of an intention to use the technology. The following subchapters will break down the components of the TAM in greater detail, namely the perceived ease of use and the perceived usefulness.

2.4.1 Perceived ease of use

The first aspect of the TAM is perceived ease of use. According to many researchers (Davis, 1986; Wu & Chen, 2017; Jan & Contreras, 2011; King & He, 2006), users of technological tools have predefined assumptions regarding how easy or difficult it will be to use a specific device. Thus, that is a major reason for researchers to study the perceived ease of use (PEU) from users in order to understand their expectations. As defined by Davis (1989), perceived ease of use is “the degree to which a person believes that using a particular system would be free of effort” (p.320). Previous studies showed that the ease of use would be of huge impact in users perceptions toward technological devices and need to be seriously considered (King and He 2006; Lim et al. 2013; Schepers and Wetzels 2007; Venkatesh et al. 2003). Natarjan et al. (2018) found in their study that perceived ease of use is having an effect on the intention to use mobile shopping applications. Indeed, considering the mobile app as recent technological devices, its facility of usage may potentially influence individuals towards the use of a mobile app; individuals are exposed to plenty of new mobile apps everyday and time appears as being ‘rare’, meaning that potential users would more likely use a mobile app that does not require too many technical skills and would be considered as easy to use in their everyday mobile usage.

2.4.2 Perceived usefulness

The second factor of the TAM is perceived usefulness (PU), which is characterizing the disposition of users to use a technological tool when they consider it would be a benefit toward their own effectiveness. Davis (1989) defines perceived usefulness as: “the degree to which a person believes that using a particular system would enhance his or her job performance” (p.320). Findings supported by Suki et al. (2017) concluded in their
research that perceived usefulness has a high level of influence on viewers intention to use a mobile application.

Therefore, as perceived usefulness is considered as a subjective criteria it may differ from one user to another, potentially influenced by their general attitude towards new systems or their personal background (Jan and Contreras, 2011). Hence, as a subjective criteria, the perception of two users concerning the usefulness of a the same tool may be different but need to be considered in order to evaluate the potential influence it may have on individuals intention to use a mobile app. It has been found in a recent study that perceived usefulness has a positive effect on the intention to use a mobile shopping application (Natarjan et al., 2018). Lee et al. (2017) findings relating to the technology acceptance model (TAM) and the intention to use mobile apps was that perceived usefulness has a positive effect on users attitude to using mobile apps. They recommend that future researchers should consider various other variables besides the ones within TAM to further investigate creating an intention to use an app (Lee et al., 2017). As a result, trust has been found to have a considerable influence on intention, and will be revealed in greater detail in the following sub-chapter.

2.5 Trust

Trust is not included within TPB model or TAM, however, it has been shown in previous studies to be a significant contributor to the creation of an intention to use and is therefore included in the study at hand.

Wu et al. (2016) found that trust is a vital antecedent of users’ intentions to use free apps. The researchers recommend that marketers focus on trust-building activities that tap into the users’ emotion in that satisfied social media users have a tendency of trusting the information that apps provide which ends up in more downloads (Wu et al., 2016). Furthering on the notion of trust, Noh and Lee (2016) find out in their research that it (trust) can moderate the relationship between quality and intention to use. Furthermore, their findings reveal that service quality is less influential than information quality with regards to intention to use an app. Suki et al. (2017) state that the degree of perceived trust can be maximized when users are provided with sound assurance of security aspects such as reliable and truthful information, in addition to that information being protected.
Mobile app usage can entail risks and uncertainties for users, according to research by Beldad and Henger (2017), because apps may contain erroneous information while others entail a risk for one’s private personal information to be comprised. Trust in the app that is marketed and the developers behind is therefore important. Mayer, Davis, and Shoorman (1995) define trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (p. 712). This definition highly suggests that it is the developer(s) of the app as opposed to the app itself that is the trust target (Beldad and Henger, 2017).

Research has shown that most users’ privacy concerns are raised when app developers fail to protect user data or when that data is misappropriately used for different reasons without users knowledge or approval (Beldad, De Jong, and Steehouder, 2011). A study on trust towards online social network sites has shown that the trust behind the technology, instead of in the technology itself, has a greater impact on intention to use the site (Wu, Huang, and Hsu, 2014). Beldad and Henger (2017) study on trust towards fitness app usage intention claim that both app developers and researchers need to continuously explore ways for app creators to gain trust on behalf of the viewer in order to gain more downloads. Several studies have revealed that trust in an app developer is dependent on the perceived ease of using the app (Bart et al., 2005; Chau et al., 2007; Chen & Dibb, 2010). The reason for this is revealed as users’ experiencing an easy to use app signifies the competence and goodwill from the app developer to engage the user with a nice experience with the systems at hand. A study by Hillman and Neustaedter (2017) identified that initial trust towards an app can be developed through familiarity, reputation, information quality, and rewards. Furthermore, in order to maintain continuous trust development with users, one needs to engage in open communication as well as ensuring attractive and functioning interface design elements (Hillman and Neustaedter, 2017).

Uncertainty and risk were revealed as being necessary conditions in order to present the value of trust (Rahimnia & Hassanzadeh, 2013; Brenkert, 1997). Moreover, trust is largely considered as multidimensional, where a lack of clarity need to be resolved. Indeed, trust differs when looking at the customer-seller relationship in a short or long-term and “trust requires a period of time to be established for it is during this time that certain dispositions or tendencies to act in various ways towards the one to be trusted are developed” (Brenkert, 1997, p.83).
Several marketing studies have also indicated that trust has an impact on attitude. Suh and Han (2002) discovered in their study that customer’s attitude towards using internet banking is highly influenced by trust. Furthermore, Grazioli and Jarvenpaa (2000) found that consumers attitude towards an internet shopping mall is influenced by trust. Macintosh and Locksin (1997) showed that there is a positive correlation between store trust and store attitude on behalf of consumers.

3. Frame of reference

The frame of reference is presented in this chapter, including the research model and explanations related to this framework, as well as how it was constructed. Moreover, hypothesis are formulated in order to provide a guiding thread to the research which is to investigate various determinants of the usage intention of new and free mobile applications.

3.1 Conceptual framework & hypotheses

Based on the literature review, an intention to use a technology (app) is influenced by several factors. The TPB model has been utilized by several researchers (Nedelko et al., 2015; Wu et al., 2015; Alavion et al., 2017; Armitage & Conner, 2001; Ferdous, 2010; López-Mosquera et al., 2014; Natarjan et al., 2018; Nosek et al., 2010; Fredous, 2010; Ajzen & Fishbein, 1980) as an effective theoretical tool which allows for the understanding of individuals behavioral intentions by measuring three components: namely attitude, subjective norms, and perceived behavioral control. Furthermore, the Technology Acceptance Model (TAM) has been successfully used to determine the intention to use a piece of technology by measuring perceived ease of use, perceived usefulness, and attitude by several researchers (Davis, 1986; Wu & Chen, 2017; Jan & Contreras, 2011; King & He, 2006; Natarjan et al., 2018).

The current study aims to investigate the factors leading to the creation of usage intention of a free app by utilizing the TPB and the TAM as the theoretical backbone. Both models include attitude as influencing intention to use, and several studies have shown this relationship (Alavion et al., 2017; Ajzen & Sheikh, 2013; Tanner & Kast, 2003; Chan, 2001; Gruen et al., 2000; Shimp & Kavas, 1984); therefore, the following hypothesis has been developed:
**H1: Attitude positively influences the intention to use a new & free app.**

The TPB also states that subjective norms are part of the process of behavioral intention, and as shown previously, WOM (as well as E-WOM) can be categorized as subjective norms. In the growing context of skepticism related to users’ opinions toward a product or service, the consumer-to-consumer influence has a real impact concerning their intention to use it (Kimmel & Kitchen, 2014). Indeed, research shows that nowadays consumers are influenced by others and more than ever from their friends or family (Buttle & Groeger, 2017). Thus, when a user considers to use an app, the potential feedbacks received from their peers may influence their perception and as a result their intention. Hence, the following hypothesis is developed:

**H2a: WOM about new & free apps positively influences the intention to use an app.**

Nevertheless, even if WOM possibly influences the intention to use an app, previous research also reveals that WOM could also have a relationship with attitude. According to Zouabi and Kammoun (2016), WOM plays an important role concerning the achievement of individuals’ attitudes. Citing a research from Katz and Lazarsfeld (1995), WOM is seven times more efficient than newspapers and magazines and four times more effective than salesperson when it comes to convincing consumers about a product or service. Thus, WOM appears as an influential tool for marketers to take into consideration when engaging in promotional activities for a product. Moreover, as WOM is considered as influencing perceptions of users toward a product (Buttle & Groeger, 2017; Kimmel & Kitchen, 2014), it may have an influence concerning individuals’ attitude, which introduces the following hypothesis:

**H2b: WOM about new & free apps positively influences attitude.**

Furthermore, individuals are constantly influenced by others recommendations, including positive or negative statements, via websites, blogs, chat rooms, or social media platforms (Hennig-Thurau, T. et al., 2004). Moreover, previous research has shown the potential influence that eWOM may have toward individuals and their intention to achieve a behavior, meaning that individuals recommendations may change the intention of a user if they are considered (Lin and Xu, 2017; Gupta & Harris, 2010; Zhu and Chen, 2015; Filieri, 2015; Cheng & HO, 2015). Thus, the following hypothesis has been proposed:
**H3a: E-WOM about new & free app positively influences the intention to use an app.**

The consumers’ attitude is a combination of perceptions, moral values and beliefs that each individual can experience in front of a product (Zouabi & Kammoun, 2016). Indeed, every consumer firstly perceives the product, then is focusing on moral values and beliefs toward this product, and finally is considering the achievement of the potential behavior, meaning the usage or nonusage of the product (Zajonc & Markus, 1982). In this context, E-WOM may impact the decision of a consumer through its potential effect on attitude. Hence, the following hypothesis is proposed:

**H3b: E-WOM about new & free apps positively influences attitude.**

Continuing with the TPB model, the third aspect of what leads to the creation of a behavioral intention is perceived behavioral control. This relates to two psychological prerequisites needed to be in place for a behavioral intention; namely the availability of resources and/or time as well as the individuals confidence in their ability to carry out the downloading of an app (Alavion et al., 2017). Therefore, only facilitating conditions are taken into account as self-efficacy relating to mobile app usage involves the possibility for people to know how to use a mobile app. Hence, in this study, it is assumed that respondents considered as users of mobile app have a sufficient knowledge about the usage of a mobile app on their own. According to Armitage and Conner (2001), individuals intentions and behavior are strongly influenced by the perceived behavioral control, which leads to the following hypothesis:

**H4: Perceived behavioral control over using new & free apps positively influences the intention to use an app.**

As mentioned, the TAM model has been successfully utilized by many researchers to predict an individual’s willingness to accept a piece of technology through the measuring of intention.

When relating to previous research concerning individuals behavioral intentions, the perceived usefulness has been considered. Indeed, theories state that individuals are evaluating the potential usefulness of a technological device when they consider to use it: depending on the advantages the use of a specific device may have for a consumer, the intention to use it would be influenced (Davis 1986; Jan and Contreras 2011). Indeed, the
more benefits a consumer perceives a particular device to have, the higher the likelihood of usage will be. Thus, the following hypothesis is formulated:

**H5a: The perceived usefulness of a new and free app positively influences the intention to use an app.**

The TAM also includes the notion that perceived usefulness has an effect on attitude. A study by Zhu et al. (2012) which incorporated the TAM model in the context of the intention to use online gaming found that perceived usefulness has a positive effect on attitude. Also, an extensive literature review conducted by Schepers and Wetzels (2007) on the effectiveness of the TAM model with the inclusion of subjective norms found that perceived usefulness of a piece of technology has an effect on attitude. Therefore, the following hypothesis is developed for the current study:

**H5b: The perceived usefulness of a new & free mobile app has a positive effect on attitude.**

As stated by Davis (1986), in the context of technological devices, users may have perceptions concerning the ease of use of a specific device. As previous studies have mentioned, the ease of use of technological devices has an effect on attitude towards the device (King and He 2006; Lim et al. 2013; Schepers and Wetzels 2007; Venkatesh et al. 2003). Hence, as an app is considered a technological device, the perceived ease of use evaluated from consumers may be related to their overall attitude towards the app; whereby attitude has been shown to have a direct influence on intention to use. Thus, the following hypothesis related to previous research has therefore been developed:

**H5c: The perceived ease of use of a new & free mobile app positively influences attitude.**

Furthermore, since the notion of trust is not included in the TPB or the TAM, yet has also been shown to have an effect on intention to use, it is included as a variable in the current study. For instance, Wu, Huang, and Hsu, (2014) concluded in their study that the trust one has towards the developers of online social network sites, as opposed to the site itself, has a more significant impact on the intention to use the site. Also, Beldad and Henger (2017) mention in their research that due to the fact that trust towards fitness applications has an effect on the usage intention of those apps, researchers and developers need to explore ways to garner trust as well measure the extent of the influence of trust towards app usage intention. Therefore, the following hypothesis has been developed:
**H6a:** Trust towards app developers positively influences the intention to use a new & free app.

Trust has also been shown to have an effect on attitude. The trust that consumers have towards online banking is highly influential on attitude (Suh and Han, 2002). Also relating to internet shopping, trust has been revealed to have an effect on attitude (Grazioli and Jarvenpaa, 2000). Macintosh and Lockshin (1997) conducted a study which indicated that consumers’ attitude towards retail stores is affected by store trust. It is evident that trust has been proven to have an effect on attitude, therefore the final hypothesis is formulated as follows:

**H6b:** Trust towards app developers positively influences attitude.

### 3.2 Conceptual model

*In order to showcase the relationships between the variables and the hypothesis stated above, the following conceptual model is presented:*

Figure 1: **Conceptual model**
4. Methodology

In the following chapter, the process of the research methodology is presented. The research approach, research strategy, and construction of the measurement tools begins the chapter. Then, data collection method and sample selection are presented, along with the operationalization. Finally, quality criteria related to the data analysis are introduced in order to justify the reliability and the validity of this research.

4.1 Research approach

Business research is conducted using two different kinds of theoretical approaches; namely deductive and inductive (Malhotra and Birks, 2007). When a researcher uses the deductive research approach, the process begins by researching the field of interest which results in the formulation of hypotheses based on previous theory, which are tested using empirical data. After the data is analyzed, the hypotheses are either approved or rejected, and revisions/additions to existing theory within that field are made (Malhotra and Birks, 2007). It is important for a researcher to be able to operationalize the theory used into items whose purpose is for managerial benefit for firms within the field being researched. It is also imperative to have a specific method chosen and justified to collect the data needed to utilize and test the existing theories.

On the opposite end of the business research approach spectrum lies inductive theory. Induction entails that a researcher undertakes a certain study without the usage of existing theory, and instead conducts the research with the aim to generate new theory for the field (Bryman and Bell, 2011; Malhotra and Birks, 2007).

There exists a number of theoretical frameworks that can be utilized to figure out app usage intention, such as the TAM and TPB. Hence, additional theories are not needed, but rather research utilizing these theories, in an effort to discover whether these can in fact account for user's intention to use an app. As a result, existing theory was considered for the hypotheses generation of the study at hand, and therefore follows a deductive research approach.
4.1.1 Research Strategy

There are two forms of research strategies within the business research sector, namely qualitative and quantitative (Bryman and Bell). Malhotra and Birks (2007) state that qualitative research is most closely connected to the inductive approach, in that a researcher gathers in-depth data through words and face-to-face interactions with respondents. Qualitative research tends to take the form of semi-structured interviews, focus groups, as well as qualitative analysis of texts and documents (Bryman and Bell, 2011; Malhotra and Birks, 2007). Bryman and Bell (2011) reveal that on the other hand, quantitative strategy broadly entails the gathering of numerical data in order to test relationships between variables. For quantitative studies, existing theory is utilized in order to form hypotheses; therefore it generally follows a deductive research approach. Measuring differences and connections between variables using a statistical program such as SPSS allows the researcher to pinpoint even the smallest relationships which is highly advantageous when testing existing theory (Bryman and Bell, 2011). As a result of the ability to measure in quantitative studies, one has a consistent device for making distinctions between variables, as well as providing future researchers the ability to imitate a particular study (Malhotra and Birks, 2007).

Both primary and secondary data can be gathered by a quantitative researcher (Bryman and Bell, 2011). Primary data derives directly from the respondents of a study. This kind of data can come from both qualitative and quantitative research strategies, such as from questionnaires or interviews (Malhotra and Birks, 2007). Secondary data does not come directly from research respondents, rather from secondary sources such as government databases housing statistical data pertinent for a particular research purpose at hand (Bryman and Bell, 2011).

As the aim of the current study is to investigate determinants of app usage intention in the context of social media marketing, the determinants need to be studied through the gathering of primary data from consumers, and will be gathered using a quantitative research strategy in the form of a questionnaire (will be discussed in greater detail in Ch. 4.2.7).
4.2 Construction of the measurement tools

*In order to measure the dependent and independent variables of the study, previously used and theoretically tested scales have been taken into consideration.*

**Intention to use**

Intention to use is measured by adapting a four question scale utilized by Wang, Liao, and Yang (2013) in their study on what affects mobile application use, which includes questions such as: “I intend to use mobile apps in the near time.” The addition of the word ‘download’ before ‘use’ is included in order to provide clarity for the respondents of the current study, since the context is within social media marketing of apps which would firstly entail a download prior to usage.

**Attitude**

Attitude is measured using the ABC model by assessing the respondents affect and cognition towards the prospect of downloading new and free apps in the context of social media marketing by assessing both affect and cognition with three questions to arrive at an overall attitude. Attitude has been successfully measured using the ABC model in several previous studies. The model was used to adequately segment online users based on their internet usage (Matthew, P.M., 2016), as well as being the backbone for research explaining how eWOM affects online discussion forums (Chih, W-H, et al., 2013), and the ABC model was also successfully used to explore how affect and cognition drive consumer behavior towards high-tech luxury co-branded products (Anon, 2017). Solomon et al. (2013) defines affect as the feelings and emotions one has towards an attitude object. Cognition is relating to the prior beliefs and mental predisposition towards an object. A question relating to affect is as follows: “I generally feel good about downloading free apps via social media”; while cognition is measured in the following manner: I believe that social media is a good way to find out about new apps.” Behavior is the behavioral intention which results from the affective and cognitive responses, and for the purpose of the current study, is measured as intention to use new and free apps.

**WOM & EWOM**

Furthermore, the measuring of the subjective norms WOM and eWOM have also taken previous research into consideration. Just as Kimmel & Kitchen (2014) measured the effect of WOM on intention to use a product/service, WOM in the current study is also
measured with three questions relating to the extent of the influence of peer-to-peer recommendation/critique towards their app usage intention. A sample question relating to WOM is as follows: “I find it important to ask my friends or family their opinion about a mobile app before I download and use it.” Similarly, eWOM and its influence on intention to use has been measured by several researchers, including Lin and Xu (2017), Gupta & Harris (2010), Zhu and Chen (2015), Filieri (2015), Cheng & HO (2015), and three questions have been adapted into the current study, with one of them being: “I always check to see what others say online about an app before I download and use it.”

**Perceived Behavioral Control (PBC)**

Perceived behavioral control has been proven to have an effect on intention to use by Alavion et al. (2017) and Armitage and Conner (2001), and the variable is divided into facilitating conditions and self-efficacy, through which three questions have been modeled after previous researchers for both psychological prerequisites for behavioral intention. Facilitating conditions questions will be measured using questions like, “When I intend to download and use a mobile app I am considering the time I would spend in using it”, while self-efficacy has not been operationalized in this study due to the aforementioned justification in the frame of reference.

**PU & PEU**

The two variables which are derived from the TAM model are perceived usefulness and perceived ease of use. Perceived usefulness has been measured by Davis (1986) and Jan and Contreras (2011), and questions are based on assessing the importance that a piece of technology is perceived as useful to consumers and how it affects the intention to use that technology. Three questions have been created by adapting the previous studies’ scales to measure perceived usefulness, and an example of one of the items is: “I am willing to download and use a mobile app that is useful in my daily life. Perceived ease of use has been measured by several researchers including: King and He (2006); Lim et al. (2013); Schepers and Wetzels (2007); Venkatesh et al. (2003), and a scale has been adapted by the current study which assesses perceived ease of use with three questions, with one of them being: “I find it important that a free app that I download and use is very easy to use.”.

**Trust**

Trust in the current study is measured by adapting a scale that was successfully utilized by Chau et al. (2007) in their study measuring trust towards the developers of a piece of
technology, as opposed to trust towards the technology itself. Three questions were asked using a seven point likert scale about trust towards app developers, with a sample question being: “If I have not heard of the developers behind an app, I won’t download and use it.

4.3 Questionnaire

Compared to qualitative research approaches such as semi-structured interviews or focus groups, self-completion questionnaires are unique in that the researcher does not ask questions to the participants directly, rather the responding is done on an individual basis through reading and answering the questions on their own and at their own convenience (Bryman and Bell, 2011). According to Malhotra and Birks (2007), the survey method has two main benefits in that the administration of the questionnaire which is simple, especially with the digital platforms that exist today; and the overall consistency of data is precise as predefined choices are provided to the respondents. Concerning the structure of questions in a questionnaire, Bryman and Bell (2011) suggest to use closed questions instead of open ones in order to make it easier for the respondents to complete. Moreover, in order to analyse data through a statistical program like SPSS, the pre-coding of closed questions can be done which provides an easier collection and analysis of results. Also, the design of questions need to be considered as stated by Bryman and Bell (2011): in favor of making an understandable questionnaire for the respondent, questions should not be too long. Moreover, approximate questions are not recommended, with a preference for specific questions in order to be clear about what is asked of the respondent and to strengthen the validity of results when the analysis is done. In the interest of gathering expected results, Bryman and Bell (2011) recommend to avoid double-barrelled questions as it is asking about two criteria through the same question, creating a conflict of understanding of what is expected from the researcher. Malhotra and Birks (2007) claim that one should not assume or generalize when formulating questions. In addition, as questions related to individuals perceptions and attitudes are usually asked in questionnaires, Bryman and Bell (2011) state that the likert scale is most generally used. Concerning the formatting of questions with the likert scale measuring method, Bryman and Bell (2011) explain that the bipolar numerical response is corresponding the most; indeed, as there is a relation with semantic differential scales, it includes opposed adjectives for each side of the question like “strongly disagree/strongly agree” as an example.
In the current study, twenty-four questions were formulated, including the seven main variables potentially influencing the intention to use a free app (Attitude, perceived behavioral control, perceived usefulness, perceived ease of use, trust, WOM, EWOM) with 3 questions per variable, using the seven-point Likert scale. As a “multiple-item measure” of different attitudes into a specific field, this scale measuring method permits to evaluate the level of agreement from respondents concerning a specific statement. Many formats of scales are possible but here the seven-point Likert scale is used, proposing statements from ‘strongly disagree’ to ‘strongly agree’ and considering a middle statement point involving the level of neutrality that a respondent may potentially consider (Bryman, 2016).

The first variable included in the questionnaire is the dependent variable ‘intention to use’, and it is measuring the degree to which one has an intention to use a free mobile app with 3 questions. The second variable is ‘attitude’ and is considered as both a dependent and independent variable in this study; the aim of the 3 questions is to measure individuals attitude towards being exposed to new and free apps through social media. The next variable is WOM, measuring the influence of the opinions of peers toward the intention to use with 3 questions. Also, E-WOM is considered in this questionnaire with 3 questions in order to measure the influence of other individuals in the society through online recommendations, reviews, and user-feedback on the intention to use. Then, the PBC is measured with 3 questions, investigating the extent of the influence of perceived behavioral control on intention to use. Also, as part of the initial TAM model, PU and PEU are measured with 3 questions each, measuring respectively the extent to which an individual would perceive a free app to be useful, and then measuring the extent of influence of respondents perception of new and free mobile apps as easy to use on their intention. Lastly, trust is the variable measuring the influence of trust towards the app developer(s) on consumers intention to use a free mobile app, with 3 questions. Also, 3 control variable questions are included: gender, age and occupation.

The questionnaire was created in English, hence ensuring that all respondents would be able to answer the questions properly without language difficulties. The structure and composition of the questionnaire was reviewed by three Doctors and experts in Marketing from Linnaeus University. After diverse modifications and discussions, the questionnaire was improved based on suggestions received in order to validate the understanding and relevance of the questions. For the questionnaire itself, see Appendix 1.
### 4.4 Operationalization

The following is the operationalization table which highlights the variables in the form of theory, a definition of the variable, an operational definition in how it was incorporated into the questionnaire, and finally the questions.

<table>
<thead>
<tr>
<th>Theory</th>
<th>Definition</th>
<th>Operational Definition</th>
<th>Questions</th>
</tr>
</thead>
</table>
| **Intention to use** | *[The majority of actions are directly influenced by intent; when a user has the intent to use a certain service or product, the probability that the user will use that service or product increases. (Mun et al., 2010)](#)* | Measuring the degree to which one has an intention to use new and free apps, using a 7 point likert scale (Wang et al., 2013) 1 - strongly disagree 7 - strongly agree | 1. I intend to use new & free mobile apps in the near future.  
2. I frequently download and use new & free apps.  
3. I would use the new & free apps that I download without hesitation to satisfy my needs. |
| **Attitude**    | *[“a latent disposition or tendency to respond with some degree of favor or unfavor towards a psychological object”](#) (Fishbein and Ajzen, 2010, p. 76)* | Attitude towards being exposed to new and free apps through social media, to be measured using the ABC model, whereby affect and cognition (behavior is already measured as the dependent variable ‘intention to use’) are measured using the 7 point likert scale: 1 - strongly disagree 7 - strongly agree | 1. I find it interesting when I discover new & free apps on different social media platforms.  
2. I believe that social media is a good way to find out about new & free apps.  
3. My experiences with seeing social media marketing posts for new & free apps have been positive. |
| **WOM**        | *[“a message about an organisation's products or services or about the organisation itself. Usually WOM involves comments about product performance, service quality, trustworthiness, and modus operandi, passed on from one]* | Measuring the influence of the subjective norm, WOM, on the intention to use new and free apps; using the Seven-point Likert scale: | 1. I find it important to ask my peer their opinion about a new free mobile app before I use it.  
2. I tend to only use new & free apps if my friends have had a |
<p>| <strong>EWOM</strong> | “any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet.” (Hennig-Thurau, T. et al., 2004, p.39) | Measuring the influence of the subjective norm, EWOM, on the intention to use new and free apps, using the seven-point Likert scale: 1 - strongly disagree 7 - strongly agree | 1. I always check to see what others say online about a new &amp; free app before I use it. 2. It is important for me to read online reviews and ratings about a new &amp; free app before using it. 3. It is vital that what is written about new &amp; free apps online is positive for me to want to use it. |
| <strong>Perceived behavioral control (PBC)</strong> | “reflects beliefs regarding access to the resources and opportunities needed to perform a behavior” (Alavion et al., 2017, p.4) | To measure the extent of perceived behavioral control aspects (facilitating conditions) as having an influence on the respondents intention to use new and free apps, using the seven-point Likert scale: 1 - strongly disagree 2 - strongly agree | Facilitating conditions 1. When I intend to start using a new &amp; free mobile app I am considering the amount of time I will spend on it. 2. I would use a new &amp; free app if it would not cause me to spend a lot of time on it. 3. It is important that I feel in control of the amount of time I am spending on a new &amp; free app. |
| <strong>Perceived Usefulness (PU)</strong> | &quot;the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, F. D., 1989, p.320) | Measuring the extent to which an individual’s perception of a new and free app being useful has on intention to use, using the seven-point Likert scale: 1 - strongly disagree 7 - strongly agree | 1. New &amp; free apps that I use should add value to an area of my life. 2. When I intend to use a new &amp; free mobile app, it is necessary for it to increase my productivity. 3. I am willing to download and use a new &amp; free mobile app that I perceive as useful in my daily life. |</p>
<table>
<thead>
<tr>
<th>Perceived Ease of Use (PEU)</th>
<th>“the degree to which a person believes that using a particular system would be free of effort” (Davis, F. D., 1989, p.320)</th>
<th>Measuring the extent to which an individual’s perception of a new and free app being easy to use has on intention to use, using the seven-point Likert scale: 1 - strongly disagree 7 - strongly agree</th>
<th>1. It is vital that a new &amp; free app seems easy to use if I am to download it. 2. Based on my what I’ve seen about new &amp; free apps, the ones that seem simple to navigate are very appealing. 3. I will only use a new &amp; free app if it doesn't seem difficult to use.</th>
</tr>
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<tbody>
<tr>
<td>Trust</td>
<td>“the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer, Davis, and Shoorman, 1995, p. 712)</td>
<td>To measure the influence of trust towards the app developer(s) on consumers intention to use a new and free app, using the seven-point Likert scale: 1 - strongly disagree 7 - strongly agree</td>
<td>1. I tend to only use new &amp; free apps if I am familiar with the developers of it. 2. I believe that new &amp; free apps and their developers can generally be trusted. 3. I only use the apps that I trust.</td>
</tr>
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</table>

### 4.5 Sample

The sample is related to a certain characteristics found in each member of the population, where individuals could be selected as they share certain characteristics that may be linked to the aim of the research (Bryman & Bell, 2015; Malhotra, 2010). In this study, the population is represented by every individual who is using a smartphone and more specifically mobile applications. Therefore, as including the entirety of the population would result in cost and time issues, every individual cannot be tested by researchers (Saunders et al., 2007). As a result, researchers need to reconsider the population in order to gather more manageable results by defining a specific sample (Bryman and Bell, 2015; Saunders et al., 2007). The sample represents a smaller part of the population that will be considered for the research (Malhotra, 2010). The non-probability sampling method was used in this research and completed with the convenience and snowball sampling. Using a non-probability sample includes a consideration of subjective judgment and means that certain individuals in the population have greater chances of being selected than others (Bryman and Bell, 2015; Saunders et al., 2007). Convenience sampling implies a non-probability sampling method where the sample is selected through a group of individuals...
that may be contacted easily. This method has been criticized as the sampling process was considered as not random enough (Saunders et al., 2007; Neuman, 2002); however, the credibility of results can be higher in gathering answers over a larger period of time and at different times of the week (Malhotra and Birks, 2008). Furthermore, the snowball sampling technique was used, meaning that respondents were invited to share the questionnaire with other individuals in order to increase the spread of and response rate. As defined by Neuman (2002), the snowball sampling method entails that individuals of the target population contacts other individuals of the sample. In order to quantify the data and to reach generalizable results, the sample size needs to be determined (Neuman, 2002, Saunders et al., 2007).

As a specific amount of data is needed in order provide valuable results, a relevant method called the rule of thumb permits to define the minimum sample size (Green, 1991; Pallant, 2010). The formula considering the rule of thumb is:

\[ N = 50 + 8m \]

N represents the minimum required sample size and m represents the number of independent variables used for research.

According to the research model previously proposed in chapter 3.2, seven independent variables are used: Attitude, perceived behavioral control, perceived usefulness, perceived ease of use, trust, WOM, EWOM. Hence, according to the rule of thumb formula, the minimum sample size should be the following:

\[ 50 + 8 \times 7 = 106 \]

The data collection of the current research was highly successful in that the amount of responses acquired far exceeded the minimum amount required, with a total amount of 250 responses. The details of the respondents demographics, as well as descriptive statistics of the constructs of the questionnaire is revealed in the first section of the analysis chapter.

### 4.6 Data analysis

In order to conduct the data analysis of the results of the study, statistical methods are utilized (Ayiro, 2012). Data analysis includes the cleaning and organizing of data for preparatory purposes, descriptive statistics, as well as the testing of the hypotheses and
research model (Ayiro, 2012). The following subchapters are hence prepared to showcase the process needed from data entry to hypotheses testing.

4.6.1 Data coding

The process of data entry and cleaning is necessary to undertake for a researcher at the conclusion of the data collection process (Hair, 2010). If one uses a statistical program such as SPSS, it is necessary to develop a coded collection of the variables, values, and labels (Ayiro, 2012). It is also essential to examine frequencies, high score, low score, and outliers in order to clean the data; this is done in order to avoid results and data that is misleading or unusable for the study at hand (Hair, 2010).

4.6.2 Descriptive statistics

As the name indicates, descriptive statistics exists to describe, summarize, and simplify data by using various tables and graphs (Gravetter and Wallnau, 2013; Bryman and Bell, 2011). Ayiro (2012) mention that descriptives may represent a sample or an entire population through the summary of a given data set. Furthermore, they examine measurements which reveal central tendency and variability. Central tendency is measured using the mean, and measures for variability include standard deviation, minimum/maximum variables, kurtosis and skewness (Ayiro, 2012).

Central tendency through the use of Boxplot for instance is useful for descriptives statistics, however, since it only measures one aspect of the data (mean), it is also important to derive at a measurement of variability (Santucci, 2014). Variability measures the amount of spread among the scores in the data set, while the most straightforward measurement of it is range. The range is simply the difference between the highest and lowest value in the sample (Malhotra and Birks, 2007). This measure is also limited, since it only showcases two scores from the distribution. Santucci (2014) argues that variance and standard deviation are necessary to calculate in order to get more accurate measures, since they involve the inclusion of all scores within a set. The standard deviation is calculated by taking the square root of the variance (Malhotra and Birks, 2007):

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i-\bar{x})^2}{n-1}}$$
Standard deviation is utilized by a researcher when the mean is used as a measure of tendency (Santucci, 2014). Also, standard deviation provides a researcher with a standardized way of knowing what a normal coefficient is in a particular data set, and hence being able to separate the values that are excessively large or small (Malhotra and Birks, 2007).

Furthermore, skewness should also be represented in descriptive statistics since it measures the unevenness of the probability distribution of its mean (Malhotra and Birks, 2007). It provides the tendency of the deviation from the mean to be larger in one direction in comparison to the other. Hair (2015) reveals that skewness should preferably be between ±1.

Another factor that is of importance, according to Malhotra and Birks (2007), is kurtosis. Kurtosis measures the relative peakedness or flatness of a curve which has been defined by the frequency distribution. The kurtosis of a normal distribution is zero, while a positive kurtosis entails a peaked distribution. A negative value means that the distribution is flatter than a normal distribution, and Hair (2010) state that the kurtosis is ideally between ±3. The next chapter (Ch. 5) will reveal the descriptive statistics of the study at hand.

4.6.3 Hypothesis testing

The regression analysis is known as “a powerful and flexible procedure for analyzing associative relationships between a metric dependent variable and one or more independent variables” (Malhotra, 2010, p.568). This method is permitting to evaluate the nature and the strength of the relationships between different variables. In order to achieve a regression analysis, the significance level (p-value) is considered as a criterion which determines if an hypothesis is accepted or rejected. With a significance level of .05 or lower the hypothesis is considered as accepted, meaning that there is a relationship between two variables. Moreover, the R square measure or coefficient of determination \((r^2)\) is used in the process of regression analysis as it highlights the proportion of fluctuation of one variable that can be explained by the other (Malhotra, 2010). The regression analysis method was utilized in the current study due to the fact that the research model includes two dependent variables: intention to use, as well as attitude. The study also includes 7 independent variables that need to be tested to find potential relationships between them and the dependent variables. Regression analysis is
henceforth a suitable method of analysing the data in SPSS. The results of the regression analysis is provided in the next chapter.

4.7 Quality criteria

In order for findings to be accepted by the scientific research community, they have to meet certain quality criteria. Bryman and Bell (2011) state that reliability and validity are essential measurements when evaluating the different measures within a study. Reliability is responsible for measuring the consistency of the measures, while validity is equally important in that it measures the degree to which a concept is actually measuring what it is supposed to measure. These concept are revealed in greater detail in the following subchapters.

4.7.1 Content validity

Gaur and Gaur (2009) states that content (or face) validity is the initial measure a researcher needs to ensure because it entails that the measure (questionnaire) is an accurate reflection of the specific intended usage of the content. In order to achieve content validity, a researcher can utilize uninvolved experts in the field to inquire about whether the measure is in line with the concept of the study. Since content validity ensures that the future respondents will be able to understand the measure, it is done before the questionnaire is administered and therefore considered highly important (Bryman and Bell, 2011). Upon the completion of the questionnaire, the researchers sent it to three professors of marketing in order to acquire face validity. Each of the professors offered specific advice and recommendations on how the questionnaire can be improved, all of which was taken into consideration and the necessary steps were taken to finalize it until it was deemed suitable to be sent out.

4.7.2 Construct validity

Construct validity exists to estimate the validity of the research construct itself (Gaur and Gaur, 2009). It functions as a way for researchers to deduce hypotheses from existing theory from the field that is relevant for the concept at hand. Gaur and Gaur (2009) continues by stating that an agreement between the measuring tool and theoretical concepts utilized should be realized. Ensuring construct validity entails that enough theory exists to validate the construct or hypotheses of the study at hand. In order to examine empirical relationships, a theoretical relationship needs to already be established.
(Gaur and Gaur, 2009). This is relevant only when the developed construct is supported by a sufficient amount of theory (Bryman and Bell, 2011). Construct validity was established and showcased in the frame of reference chapter (3.1), where the different variables utilized in the study were supported by existing theory in order to establish the hypothesis.

4.7.3 Reliability

A researcher's results are only considered reliable and hence a contribution to the field if there is consistency of the measures being utilized (Bryman and Bell, 2011). Gaur and Gaur (2011) refer to reliability as the extent of confidence a researcher can place on the measuring instrument that it will provide the same numeric value when repeated using the same object or respondent(s). Bryman and Bell (2011) reveals that the main reliability factor is known as internal reliability. This form exists to ensure that there is consistency between the indicators that constitute the scale or index of the research. If there are relationships between the different indicators, the study has achieved internal reliability. The common way to test internal reliability is by using the cronbach’s alpha derived from SPSS, as described previously (Bryman and Bell, 2011). The cronbach’s alpha calculates the mean of all possible split-half reliability coefficients. Another important reliability factor is known as external reliability, and it is the extent that the operationalization of the study is able to foresee constructs for future researchers, as well as being able to be replicated and carried out as expected in regards to other variables. Statistical hypothesis testing with SPSS is used to assess this form of validity (Bryman and Bell, 2011).

Hair (2010) reveal that reliability provides an answer to the consistency of participant responses to questions within a study. When the questionnaire is consistent with previous studies measuring the same thing and is able to be replicated, it is reliable (Bryman and Bell, 2011). The coefficient alpha (also known as the Cronbach-alpha) is the measurement used to deem whether results are reliable enough, and it can range between 0 and 1 (Bryman and Bell, 2011). A cronbach-alpha of minimum 0.7 is considered as acceptable. However, the items should be inspected to ensure that they are in fact measuring different aspects of the concept (Bryman and Bell, 2011; Hair et al., 2013). The following table shows the strength of association in relation to a range of possible Cronbach-alpha coefficients:
Table 2: Alpha coefficient and strength of association (Hair, 2010)

<table>
<thead>
<tr>
<th>Alpha Coefficient Range</th>
<th>Strength of Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.6</td>
<td>Poor</td>
</tr>
<tr>
<td>0.6 to &lt; 0.7</td>
<td>Moderate</td>
</tr>
<tr>
<td>0.7 to &lt; 0.8</td>
<td>Good</td>
</tr>
<tr>
<td>0.8 to &lt; 0.9</td>
<td>Very Good</td>
</tr>
<tr>
<td>≥ 0.9</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Furthermore, in order to assess the strength and direction of the relationship between variables, a correlation coefficient (also known as a bivariate correlation or Pearson’s correlation) is derived, which ranges between -1 and 1 (Bryman and Bell, 2011; Ayiro, 2012) and considered as significant with a result lower than .8. If a construct has a positive correlation between 0.5 and 1 it entails that it has strong validity (Hair, 2010), and that the variation of the two variables are closely connected. The correlation coefficient is known as “r” in SPSS and can be calculated using the Inter-Item Correlation Matrix (Bryman and Bell, 2011; Hair, 2010).
5. Results

In the following chapter, the data collected from the self-completion questionnaire is processed in the form of descriptive statistics, reliability of the constructs, as well the results from the regression analysis leading to the hypotheses testing.

The data collection resulted in a total of 250 valid respondents. Since the researchers ensured that each question was mandatory to answer in the questionnaire, no issues were encountered from the failure of some respondents in answering certain questions. Thereby, all 250 respondents answered all questions within the survey, so data cleaning was a straightforward process. Breaking down the demographics of the respondents, 54.8% were Female and 45.2% of Male, which is ensures a well-balanced ratio of gender. Concerning the age category, almost half of the respondents (48%) are between 19 and 24 years-old, followed by the 25-29 age category which represents 27.6% of the respondents. Hence, the rest of the respondents is represented by 24.4%, including people from 30 to 60+ years. The study thereby is representing a young sample group. Relating to occupation, the majority of the respondents is represented by students (42%), followed by those whom are students and part-time workers (27.2%) and full-time workers (23.2%).

5.1 Quality Measurement

This subchapter describes the different measures taken to ensure the quality of the results, including the descriptive statistics, reliability, and discriminant validity.

5.1.1 Descriptives Statistics

The following table showcases the descriptive statistics of the dataset. Since all of the variables were measured using three questions, the mean of the responses to each set of questions was calculated, and is therefore showcased as ‘ATTITUDEmean’, for instance. The calculations that are included are the amount of responses for each set of variables, the minimum and maximum responses, the mean, standard deviation, skewness, standard error of skewness, kurtosis, and the standard error of kurtosis. All of the resulting calculations are sufficient, and entails a normal distribution.
Table 3: Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach’s Alpha</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention</td>
<td>.697</td>
<td>3</td>
</tr>
<tr>
<td>Attitude</td>
<td>.797</td>
<td>3</td>
</tr>
<tr>
<td>WOM</td>
<td>.707</td>
<td>3</td>
</tr>
<tr>
<td>E-WOM</td>
<td>.821</td>
<td>3</td>
</tr>
<tr>
<td>PBC</td>
<td>.702</td>
<td>3</td>
</tr>
<tr>
<td>PU</td>
<td>.775</td>
<td>3</td>
</tr>
<tr>
<td>PEU</td>
<td>.739</td>
<td>3</td>
</tr>
<tr>
<td>Trust</td>
<td>.464</td>
<td>3</td>
</tr>
</tbody>
</table>

Values ranging from 0.6 - 0.9 deemed acceptable

5.1.2 Reliability test

As mentioned in chapter 4.4.3 Reliability, the aim of the Cronbach’s alpha method is conducted in order to verify the reliability of the variables (Bryman and Bell, 2011; Ayiro, 2012). Based on Hair’s (2010) recommendations, we can see in table 4 that only one variable, Trust, has reached a Cronbach’s alpha which is lower than .6, meaning that the strength of association is poor (Hair, 2010). Thus, this non-reliability of the variable Trust will be discussed in the part 6.3. Limitations. However, the other variables, Intention, Attitude, WOM, E-WOM, PBC, PU and PEU generated cronbach’s alpha results which are between .7 and .9, meaning that the reliability of those variables are accepted.

Table 4: Cronbach’s alpha testing

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTENTIONmean</td>
<td>7.00</td>
<td>5.1040</td>
<td>1.28070</td>
<td>-.932</td>
</tr>
<tr>
<td>ATTITUDEmean</td>
<td>7.00</td>
<td>4.3120</td>
<td>1.42724</td>
<td>-.302</td>
</tr>
<tr>
<td>WOMmean</td>
<td>7.00</td>
<td>4.3907</td>
<td>1.50703</td>
<td>-.207</td>
</tr>
<tr>
<td>E-WOMmean</td>
<td>7.00</td>
<td>4.6880</td>
<td>1.48816</td>
<td>-.533</td>
</tr>
<tr>
<td>PBCmean</td>
<td>7.00</td>
<td>4.0600</td>
<td>1.38760</td>
<td>-.250</td>
</tr>
<tr>
<td>PUmean</td>
<td>7.00</td>
<td>5.1053</td>
<td>1.32562</td>
<td>-.859</td>
</tr>
<tr>
<td>PEUmean</td>
<td>7.00</td>
<td>5.4413</td>
<td>1.17894</td>
<td>-.976</td>
</tr>
<tr>
<td>TRUSTmean</td>
<td>7.00</td>
<td>3.833</td>
<td>1.12089</td>
<td>-1.74</td>
</tr>
</tbody>
</table>
Moreover, as Trust appeared as not reliable, there is an additional test which permits to reinforce the validity: by conducting a factor analysis, it permits to verify that the items for one construct are highly intercorrelated and that it measures the same concept, and considering them as mutually exclusive (Brace et al., 2012). One of the tables is presenting a Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO), which should be significant (p-value < .05) and with a value of minimum .5 (Brace et al., 2012). While making the test, the KMO value was significant (p-value: .000) and with a KMO value of .810, meaning that there is no issue concerning the measure of those concepts. Moreover, when observing the Varimax rotated factor analysis in table 5 below we can see that all variables are respectively grouped which is deemed as valid.

**Table 5:** Varimax rotated factor analysis testing all the variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int1</td>
<td>.743</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Int2</td>
<td>.735</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Int3</td>
<td>.694</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att1</td>
<td></td>
<td>.648</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att2</td>
<td></td>
<td>.828</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Att3</td>
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<td>.792</td>
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</tr>
<tr>
<td>WOM1</td>
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<td>.828</td>
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<td></td>
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</tr>
<tr>
<td>WOM2</td>
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<td></td>
<td>.866</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>WOM3</td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>EWOM1</td>
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<td></td>
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<tr>
<td>EWOM2</td>
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<td></td>
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</tr>
<tr>
<td>EWOM3</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PBC1</td>
<td></td>
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<td>.765</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC2</td>
<td></td>
<td></td>
<td></td>
<td>.784</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PBC3</td>
<td></td>
<td></td>
<td></td>
<td>.695</td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
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<td>.726</td>
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<td>PEU1</td>
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<td>PEU2</td>
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<td>PEU3</td>
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<td>Trust1</td>
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<td></td>
<td></td>
<td>.434</td>
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</tr>
<tr>
<td>Trust2</td>
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<td></td>
<td></td>
<td></td>
<td>.800</td>
<td></td>
</tr>
<tr>
<td>Trust3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.595</td>
<td></td>
</tr>
</tbody>
</table>

KMO: .810*  N=250
5.1.3 Discriminant validity

In order to review the discriminant validity of the variables and measure the relationship between each other, the pearson’s correlation test was done and can be found in table 6. As seen within the results below, all the variables have a positive relationship, without exceeding the limit of .9, which means that none of the variables are measuring the same thing and allows for the regression analysis to be conducted (Hair, 2010).

Table 6: Pearson’s correlation testing

<table>
<thead>
<tr>
<th></th>
<th>Attitude</th>
<th>WOM</th>
<th>EWOM</th>
<th>PBC</th>
<th>PU</th>
<th>PEU</th>
<th>Trust</th>
<th>Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WOM</td>
<td>.210</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EWOM</td>
<td>.128</td>
<td>.335</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>.176</td>
<td>.296</td>
<td>.353</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>.145</td>
<td>.288</td>
<td>.340</td>
<td>.385</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td>.300</td>
<td>.297</td>
<td>.342</td>
<td>.215</td>
<td>.393</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>.221</td>
<td>.230</td>
<td>.408</td>
<td>.295</td>
<td>.193</td>
<td>.255</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Intention</td>
<td>.483</td>
<td>.125</td>
<td>.166</td>
<td>.031</td>
<td>.205</td>
<td>.255</td>
<td>.125</td>
<td>1</td>
</tr>
</tbody>
</table>

WOM - Word-Of-Mouth, EWOM - Electronic-Word-Of-Mouth, PBC - Perceived Behavioral Control, PU - Perceived Usefulness, PEU, Perceived Ease of Use

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)
5.2 Hypothesis testing

The following section is revealing and outlining the hypothesis by analyzing the results.

SPSS was utilized to compute the multiple regression analysis whose results are shown in Tables 6 and 8 and are used to test the hypothesis of the study. Outlined below is a reiteration of the hypothesis:

\[ H_1: \text{Attitude positively influences the intention to use a new & free app.} \]
\[ H_{2a}: \text{WOM about new & free apps positively influences the intention to use.} \]
\[ H_{2b}: \text{WOM about new & free apps positively influences attitude.} \]
\[ H_{3a}: \text{E-WOM about new & free app positively influences the intention to use.} \]
\[ H_{3b}: \text{E-WOM about new & free app positively influences attitude.} \]
\[ H_4: \text{PBC over using new & free apps positively influences the intention to use.} \]
\[ H_{5a}: \text{The perceived usefulness of a new and free app positively influences the intention to use.} \]
\[ H_{5b}: \text{The perceived usefulness of a new & free mobile app has a positive effect on attitude.} \]
\[ H_{5c}: \text{The perceived ease of use of a new & free mobile app positively influences attitude.} \]
\[ H_{6a}: \text{Trust towards app developers positively influences the intention to use a new & free app.} \]
\[ H_{6b}: \text{Trust towards app developers positively influences attitude.} \]

As previously developed in Chapter 3: Theoretical Framework, intention to use and attitude has been shown to have a significant influence on behavioral intentions for using new & free mobile apps. Moreover, the authors intend to observe the differences of potential relationships between the various independent variables and intention to use first, and then their relationship to attitude. In order to analyze these relationships, two regressions have been conducted. The first one (table 7) has intention to use as the dependent variable, and the second table (table 9) allocates attitude as the dependent variable.

5.2.1 Regression analysis for intention to use

The first regression which has been conducted is showcased in Model 1, which is considering only the relationship between the control variables (gender, age and occupation) and the dependent variable intention to use. In order to test the relationship between each independent variable and the dependent variable, Model 2 to Model 7 are measuring the relationship of each variable individually (Attitude, WOM, EWOM, PBC, PU and Trust). Finally, Model 8 is considering the control variables in relation with all of the independent variables and their influence on the intention to use new & free mobile apps. The regression table is showcased below:
Table 7: Hypothesis testing with intention to use as the dependent variable

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7</th>
<th>Model 8</th>
<th>all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.106**</td>
<td>.039**</td>
<td>.092**</td>
<td>.083**</td>
<td>.102**</td>
<td>.087**</td>
<td>.088**</td>
<td>.029**</td>
<td>(.163) (.146) (.163) (.163) (.165) (.160) (.164) (.144)</td>
</tr>
<tr>
<td>Age</td>
<td>-.136**</td>
<td>-.099**</td>
<td>-.148*</td>
<td>-.158*</td>
<td>-.141**</td>
<td>-.178*</td>
<td>-.153*</td>
<td>-.127*</td>
<td>(.075) (.067) (.075) (.075) (.076) (.075) (.075) (.067)</td>
</tr>
<tr>
<td>Occupation</td>
<td>.002**</td>
<td>.019**</td>
<td>.002**</td>
<td>.011**</td>
<td>.002**</td>
<td>.008**</td>
<td>.018**</td>
<td>.029**</td>
<td>(.075) (.067) (.075) (.075) (.076) (.074) (.076) (.066)</td>
</tr>
<tr>
<td>Independent variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td>.471*</td>
<td>.130*</td>
<td>.173*</td>
<td>.038**</td>
<td>.228*</td>
<td>.127*</td>
<td>.176*</td>
<td>(.051) (.054) (.054) (.054) (.059) (.061) (.073) (.060)</td>
</tr>
<tr>
<td>WOM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.075) (.054) (.054) (.054) (.059) (.061) (.073) (.060)</td>
</tr>
<tr>
<td>EWOM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.112** (.056)</td>
</tr>
<tr>
<td>PBC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.056)</td>
</tr>
<tr>
<td>PU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.228* (.061)</td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.061)</td>
</tr>
<tr>
<td>R square</td>
<td>.026</td>
<td>.242</td>
<td>.042</td>
<td>.054</td>
<td>.027</td>
<td>.076</td>
<td>.041</td>
<td>.287</td>
<td>(.073) (.071) (.073) (.071)</td>
</tr>
<tr>
<td>Adjusted R square</td>
<td>.014</td>
<td>.230</td>
<td>.027</td>
<td>.039</td>
<td>.011</td>
<td>.060</td>
<td>.026</td>
<td>.260</td>
<td>(.073) (.071) (.073) (.071)</td>
</tr>
<tr>
<td>f-value</td>
<td>2.159**</td>
<td>19.548*</td>
<td>2.702*</td>
<td>3.528*</td>
<td>1.704**</td>
<td>5.007*</td>
<td>2.635*</td>
<td>10.713*</td>
<td>2.159** 19.548* 2.702* 3.528* 1.704** 5.007* 2.635* 10.713*</td>
</tr>
</tbody>
</table>

St.error values are presented within parenthesis for each variable

* Sig. of .05 or lower: significant
** Sig. higher than .05: non-significant

In order to test the following hypothesis relating to intention to use, model 8 (which tests all of the variables together in the model) is observed:

H1: Attitude positively influences the intention to use a new & free app.

H2a: WOM about new & free apps positively influences the intention to use an app.
We can consider that three hypotheses are accepted according to the result of the p-values which are significant. Attitude, which has a significant p-value, is having a positive influence on intention as its beta value is .459. Moreover, PBC appears also as significant, with a beta value of -.140. It means that PBC has a negative relationship with intention, which entails that the more individuals perceived behavioral control, the less influence it would have towards their intention to use new and free apps. Finally, PU, according to the significance of the p-value and with a beta value of .176 is considered as having a positive influence towards the intention to use. As a result, we can consider hypothesis H1, H4 and H5a as accepted while hypothesis H2, H3 and H6a are rejected when the all the variables are tested in model 8.

When observing the beta values, we can conclude that Attitude is representing a large part of the model and has the highest level of influence on the intention to use new and free apps. Moreover, model 2 which is testing attitude alone in relation with intention to use shows that attitude is largely influencing individuals as the adjusted R square has a value of .230. It means that 23% of the intention to use can be explained by individuals’ attitude, which is considerably higher compared to the adjusted R square values for models 3, 4, 5, 6 and 7 which are respectively .027, .039, .011, .060 and .026.

Moreover, although hypothesis H2, H3 and H6a are rejected when observing model 8 and the non-significance of the results, one thing needs to be pointed out. When observing models 2 through 7, which are testing the variables individually in relation with intention to use, we can see that all the variables are significant except PBC. It may be explained by the importance of the variable attitude which has a beta value of .471 when tested individually which is much more significant than the other beta values.

Furthermore, as an input to the analysis, we can observe that the three control variables (gender, age, occupation) are rejected because they are considered as non-significant based on the p-value for almost all of the regression models. However, there is an exception for three models which are models 6, 7 and 8, where age as the control variable is considered as significant, meaning that there is a potential influence toward the
individuals’ intention to use new and free apps based on their age. As model 6 is testing the relationship between PU and intention to use, it indicates that age is potentially influencing this variable when relating to intention to use. Also, model 7 is testing the relationship between trust and intention to use, which entails that age is potentially influencing this variable as well. Finally, the results for model 8 are revealing that when all the independent variables (Attitude, WOM, EWOM, PBC, PU and Trust) are tested in relation to intention to use, age has a potential influence. Therefore, although there is an influence of age towards individuals’ intention to use, models 6, 7 and 8 have negative beta values which are respectively -.178, -.153 and -.127, meaning that the younger individuals are, the more they are willing to be influenced in relation with their intention to use when considering PU and trust especially. In order to illustrate the influence of the age, the descriptives for the age groups in relation with intention to use can be find in table 8 bellow:

Table 8: Descriptives for the age groups in relation with intention to use

<table>
<thead>
<tr>
<th>Age Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td>9</td>
<td>6.2593</td>
<td>.49379</td>
<td>.16460</td>
</tr>
<tr>
<td>19-24</td>
<td>120</td>
<td>5.0667</td>
<td>1.26919</td>
<td>.11586</td>
</tr>
<tr>
<td>25-29</td>
<td>69</td>
<td>5.2029</td>
<td>1.20215</td>
<td>.14472</td>
</tr>
<tr>
<td>30-39</td>
<td>23</td>
<td>4.7826</td>
<td>1.42704</td>
<td>.29756</td>
</tr>
<tr>
<td>40-49</td>
<td>15</td>
<td>5.1778</td>
<td>1.13994</td>
<td>.29433</td>
</tr>
<tr>
<td>50-59</td>
<td>10</td>
<td>5.1667</td>
<td>1.47615</td>
<td>.46680</td>
</tr>
<tr>
<td>60+</td>
<td>4</td>
<td>3.3333</td>
<td>1.41421</td>
<td>.70711</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>5.1040</td>
<td>1.28070</td>
<td>.08100</td>
</tr>
</tbody>
</table>

As previously mentioned, the respondents’ age has varying effects on their intention to use. Indeed, we can observe that the age group 0-18 years old is the most influenced with the higher mean value (6.2593) and the age group representing the oldest respondents (60+ years old) is the least influenced with a mean of 3.3333. However, even if the other age group categories seem to be almost equally influenced with a mean of around 5, one age group may be less influenced (30-39 years old) as the mean is lower than the others. Thus, this specificity of 30-39 years old group age can be discussed in part 6.1 Discussion.

5.2.2 Regression analysis for attitude
Following the same system as conducted previously with the hypothesis relating to intention to use, the hypothesis relating to attitude as the dependent variable have been
tested using multiple regression. The first regression conducted is shown in Model 1, which is only considering the relationship between the control variables (gender, age and occupation) and the dependent variable attitude. In order to test the relationship between each independent variable and the dependent variable attitude, Model 2 to Model 6 are measuring the relationship of each variable individually (WOM, EWOM, PU, PEU and Trust). Finally, Model 7 is considering the control variables in relation with all the independent variables and their influence on attitude toward new & free mobile apps. The entire table concerning the regressions is located below in table 9:

Table 9: Hypothesis testing with Attitude as the dependent variable

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
<th>Model 7 all</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.143*</td>
<td>.120**</td>
<td>.127*</td>
<td>.130*</td>
<td>.076**</td>
<td>.113**</td>
<td>.060**</td>
</tr>
<tr>
<td></td>
<td>(.182)</td>
<td>(.179)</td>
<td>(.182)</td>
<td>(.181)</td>
<td>(.178)</td>
<td>(.180)</td>
<td>(.177)</td>
</tr>
<tr>
<td>Age</td>
<td>-.077**</td>
<td>-.097**</td>
<td>-.093**</td>
<td>-.106**</td>
<td>-.120**</td>
<td>-.107**</td>
<td>-.141*</td>
</tr>
<tr>
<td></td>
<td>(.084)</td>
<td>(.083)</td>
<td>(.084)</td>
<td>(.081)</td>
<td>(.083)</td>
<td>(.081)</td>
<td>(.081)</td>
</tr>
<tr>
<td>Occupation</td>
<td>-.037**</td>
<td>-.037**</td>
<td>-.031**</td>
<td>-.033**</td>
<td>-.040**</td>
<td>-.010**</td>
<td>-.022**</td>
</tr>
<tr>
<td></td>
<td>(.084)</td>
<td>(.082)</td>
<td>(.084)</td>
<td>(.083)</td>
<td>(.083)</td>
<td>(.083)</td>
<td>(.080)</td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WOM</td>
<td></td>
<td>.208*</td>
<td></td>
<td></td>
<td></td>
<td>.124**</td>
<td>.062</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.059)</td>
<td></td>
<td></td>
<td></td>
<td>(.062)</td>
<td></td>
</tr>
<tr>
<td>EWOM</td>
<td></td>
<td></td>
<td>.121**</td>
<td></td>
<td></td>
<td>-.060**</td>
<td>.068</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.061)</td>
<td></td>
<td></td>
<td>(.068)</td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td></td>
<td></td>
<td></td>
<td>.153*</td>
<td></td>
<td>.023**</td>
<td>.073</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.068)</td>
<td></td>
<td>(.073)</td>
<td></td>
</tr>
<tr>
<td>PEU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.307*</td>
<td>.248*</td>
<td>.084</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.076)</td>
<td>(.084)</td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.214*</td>
<td>.153*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.080)</td>
<td>(.085)</td>
</tr>
<tr>
<td>R square</td>
<td>.027</td>
<td>.069</td>
<td>.041</td>
<td>.049</td>
<td>.114</td>
<td>.071</td>
<td>.150</td>
</tr>
<tr>
<td>Adjusted R square</td>
<td>.015</td>
<td>.054</td>
<td>.025</td>
<td>.034</td>
<td>.099</td>
<td>.056</td>
<td>.122</td>
</tr>
<tr>
<td>f-value</td>
<td>2.255**</td>
<td>4.544*</td>
<td>2.609*</td>
<td>3.163*</td>
<td>7.852*</td>
<td>4.676*</td>
<td>5.325*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

St. error values are presented within parenthesis for each variable

* Sig. of .05 or lower: significant
** Sig. higher than .05: non-significant
H2b: WOM about new & free apps positively influences attitude.
H3b: E-WOM about new & free apps positively influences attitude.
H5b: The perceived usefulness of a new & free mobile app has a positive effect on attitude.
H5c: The perceived ease of use of a new & free mobile app positively influences attitude.
H6b: Trust towards app developers positively influences attitude.

In order to test the hypothesis relating to attitude, model 7 (which tests all of the variables together in the model) is observed.

According to the results of significance for model 7, two hypotheses are considered as accepted. Indeed, PEU reveals to have an influence towards individuals’ attitude as the value is significant and with a beta value of .248, meaning that there is a positive relationship with attitude. Moreover, Trust appears also as significant, with a beta value of .153, meaning that there is a positive relationship with attitude as well. Furthermore, when comparing the two beta values, we can also observe that PEU has a higher beta value than trust, revealing that PEU has more influence than trust on attitude. To conclude, hypothesis H5c and H6b are considered as accepted, whereas hypothesis H2b, H3b and H5b are rejected as the values are not significant while testing all the variables together in relation with attitude.

Furthermore, as a further input to the analysis of the regressions done in table 9, we can focus on the potential influence of gender. According to the significance results, we can consider that gender is accepted for models 1, 3 and 4. Model 1, which is testing the relationship between the control variables and the dependent variable attitude, reveals that gender is positively influencing attitude as the beta value has a value of .143. Moreover, gender seems to have an impact toward the relationship between E-WOM and Attitude as there is a significance of gender, with a beta value of .127 in model 3. Finally, when testing PU in relation with attitude and considering the control variables into model 4, we can conclude that gender has a positive influence on this relationship as there is a significance of the result and a beta value of .130.

In order to illustrate the influence of the gender, the descriptives for the gender in relation with attitude can be find in table 10 bellow:
Table 10: Descriptives for gender in relation with attitude

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>113</td>
<td>4.1091</td>
<td>1.44505</td>
<td>.13594</td>
</tr>
<tr>
<td>Female</td>
<td>137</td>
<td>4.4793</td>
<td>1.39552</td>
<td>.11923</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>4.3120</td>
<td>1.42724</td>
<td>.09027</td>
</tr>
</tbody>
</table>

When observing the potential influence of gender in relation to attitude in the table above, females seem to be a little bit more influenced as their attitude mean of 4.4793 is higher than the mean value of males (4.1091).
6. Conclusions and implications

This chapter contains the discussion and the contribution of the research to current theory and relevant managerial implications. This is followed by a description of the eventual limitations for this study. Finally, suggestions for future research are showcased.

6.1. Discussion and contribution to theory

The research contained within this thesis has contributed to the field of app usage intention relating to new and free mobile apps. Applications are highly used today and downloaded frequently, and this study sheds light on different determinants for the creation of the intention to use new and free apps. Since intention precedes behavior, it is a relevant topic for the academic research community which is in constant need of staying on pace with the rapid technological advancements within the app sector by providing this type of research on consumer behavior. The current study successfully implemented the commonly used TPB model (Nedelko et al., 2015; Wu et al., 2015; Alavion et al., 2017; Armitage & Conner, 2001; Ferdous, 2010; López-Mosquera et al., 2014; Natarjan et al., 2018; Nosek et al., 2010; Fredous, 2010; Ajzen & Fishbein, 1980) for assessing behavioral intention through the measuring of attitude, subjective norms, and perceived behavioral control. However, subjective norms, which in this study were operationalized as WOM & E-WOM were not deemed significant in relation to their effect on intention, or attitude. Furthermore, the research model in the current study made successful use of the TAM model which has also been widely utilized within the field of research relating to the acceptance of a piece of technology (Davis, 1986; Wu & Chen, 2017; Jan & Contreras, 2011; King & He, 2006; Natarjan et al., 2018). The research tested a total of 11 hypothesis relating to different determinants and their potential influence on intention and attitude. Whereby after two multiple regressions were conducted, five of the hypothesis were accepted.

H1, which is derived from the common variable ‘attitude’ found in both TPB and TAM, was accepted: Attitude positively influences the intention to use new & free apps. Attitude accounted for the largest influence (adjusted R square: .230), or 23% of the contribution on behalf of the independent variables. This entails that it is highly important for a positive attitude to be fostered by new and free app marketers to facilitate intention by the target group. Due to its acceptance, it is extending the previous research which has
established the relationship between a positive attitude and intention, in various contexts (Alavion et al., 2017; Ajzen & Sheikh, 2013; Tanner & Kast, 2003; Chan, 2001; Gruen et al., 2000; Shimp & Kavas, 1984). Hypothesis 4, which claimed that *Perceived behavioral control over using new & free apps positively influences the intention to use*, was also accepted. This extends previous research by Alavion et al. (2017) and Armitage and Conner (2001) whom has established that individuals intentions and behavior are strongly influenced by their perceived behavioral control, as well as being in support of the TPB model from which this independent variable derives from. H5a, which originates from the TAM model, stated that *Perceived usefulness of a new and free app positively influences the intention to use it* was also accepted. This finding is in line with research by Jan and Contreras (2011) and Davis (1986), whose research concluded that advantages of a specific device has an influence on consumers willingness to use it.

What is noteworthy to mention is that one of the three variables of the TPB, namely subjective norms, to which WOM and EWOM were operationalized as, was not deemed relevant in the current study. H2a and H2b, relating to WOM’s influence on intention and attitude, respectively, were not significant and therefore could not be accepted. Similarly, H3a and H3b, which claimed that E-WOM has an effect on intention & attitude, respectively, was also not accepted. This was surprising in that both WOM and EWOM has both been shown in previous research to effect intention, but could perhaps be attributed to the the nature of the service that the respondents were inquired about. It was namely new and *free* apps that were in question in this study. A potential conclusion to the reason for the insignificance of WOM and EWOM towards intention and attitude could be that it has become so common to download an app, and coupled with it being free, the respondents perhaps did not view the inquiry of peers and online reviews as being important in this context.

The research also hypothesized that several variables may have an influence on attitude. Since attitude has such a strong influence on intention, the following findings are relevant for app firms in how to create a positive attitude, as well as extending the existing body of research on attitude to new and free mobile apps. H5c, which stated that *Perceived ease of use has a positive effect on attitude* was accepted. In order to create a more positive attitude towards new and free apps, firms should try and create a perception that the app is easy to use. This finding is comparable to existing research by Lim et al. (2013), King and He (2006), Schepers and Wetzels (2007), and Venkatesh et al. (2003) whom have
concluded that the ease of use of technological devices has an effect on the attitude towards the device.

Even though the variable Trust was not deemed reliable due to one of the questions for this construct not referring to trust towards app developers. The authors chose to carry out the regression analysis for this variable, yet recommend that future researchers consider that all questions relating to this particular trust construct are relating to app developers in order to achieve reliability. Mcknight & Choudhury (2002) discussed the difficulty of defining and measuring Trust where researchers defined its definitions as a “confusing potpourri” and a “conceptual confusion (p.335). The validity of trust as a variable was further enhanced utilizing two additional validity tests, namely the KMO and Varimax rotation, in order to ensure that it was measuring the same thing. So, after carrying out the regression, the final hypothesis, H6b was accepted, which stated that Trust has a positive relationship on attitude. Trust is something that is not created immediately but is rather something that incurs of time. In order for a positive attitude to be established which leads to an intention, it is important to engage in trust building activities for app firms. This finding extends existing research on trust’s effect on attitude, which has been researched by several scholars (Suh and Han, 2002; Grazioli and Jarvenpaa, 2000; and Macintosh and Lockshin, 1997). Due to the unreliable nature of this particular construct, this hypothesis needs to be scrutinized, and further description of the limitation of this variable is developed in the 6.4 Limitations part for future studies.

The control variables of gender and occupation were not deemed significant in any of the regressions with the independent variables in relation to intention. The control variable age, however, was found to be significant when tested with perceived usefulness, trust, and model 8, which tested all the variables together. The influence of age towards intention resulted in a negative beta which entails that the younger the population is, the more influenced one is by perceived usefulness and trust in their effect on intention to use new and free mobile apps. When the different age groups’ means of intention were broken down, the highest mean came from the >18 age bracket (6.2593), while the lowest came from the 60+ bracket (3.33), which was expected. The five age groups in between all derived a fairly similar intention mean (around 5.1), with the exception of the 30-39 age group, who’s mean was considerably lower (4.78). This could potentially be explained by higher levels of skepticism towards mobile apps in general, which may be a result of this age group being more wary of potential privacy risks in relation to this kind of technology. Therefore, those values also enhances the fact that gender seems to have an
influence on individuals’ attitude, however, the difference is quite small. When attitude was measured as the dependent variable, the control variable gender was deemed significant. Specifically, the attitude mean of females was slightly higher than males (4.48 vs 4.10), which is an indication that their attitude towards digital marketing material for new and free apps is greater.

Worth noting as well is the demographics of the sample of which was obtained in the current study. The majority of the respondents are part of Generation Y and Generation Z, as 75.6% were between 19-29 years old. Secondly, 69.2% of the respondents were either solely students or a student with a part-time job; which is also the majority relating to the occupation of the participants. Gender breakdown was quite even, with females accounting for 55% of the respondents, while 45% were males. These demographics, especially age and occupation, should be taken into consideration as the results of the current study are primarily a reflection of students in their 20’s.

A challenge appeared concerning trust and while looking at previous Thus, a long-term study about trust would permit to analyze precisely the relationship between users’ trust and the developers who are providing mobile apps

### 6.2 Managerial implications

Several managerial implications can be made for marketers of new and free mobile applications to create app usage intention which leads to eventual downloads and app usage. Firstly, managers need to take into account that if their app is perceived as useful, it will lead to a greater intention to use. Therefore, it is recommended to be aware of the needs and wants of the target group in order to provide an app experience that meets those needs and thereby the perception of it being useful. Also, it was found that the more people perceive that they have control over the amount of time they will spend on an app, the less influence it will have on their intention to use it. What this means essentially is that marketers of new and free apps need to take into consideration that the time people have is limited. So in order to bypass this perceived behavioral control, the marketing material should be created in such an attractive and stimulating way that the viewers will reduce this behavioral tendency for control, leading to an increase in intention.

Attitude has the largest influence on intention, so marketers of a new app should be highly intent on creating a positive attitude towards their app through their marketing efforts. The questions on attitude within the survey were in the context of social media, which
implies that intention to use and user acquisition would have a greater likelihood of occurring when a positive attitude towards an app is created, through the marketing of it via social media channels. In terms of creating that positive attitude, the results of the current study indicate that marketing managers should focus on building trust. Trust is shown to have a positive effect on attitude, so trust building activities such as engaging with the consumers on social media, honesty and transparency in all areas of operations, especially the way the marketing is conducted, is of utmost importance. Another factor which was found to lead to the creation of a positive attitude is perceived ease of use. Firms should approach this from two directions; firstly, to ensure that the marketing efforts are focused on showcasing a new and free app to be simple to use. Secondly, it is important to assess users of the app as to their level of perceived simplicity of the navigation and interface so as to be able to take steps to improve it if necessary. Finally, as managers are targeting their social media activities with paid ads for instance, it is worth noting that females were shown to have a slightly more favorable attitude towards new and free apps in comparison to males.

### 6.4 Limitations

Related to the current study, a few limitations need to be pointed out. Firstly, as seen in part 5.1.2 Reliability, table 4 is listing the reliability results for the different variables through the Cronbach’s alpha test. However, the variable Trust, has a poor strength of association with a value of .464. Thus, while regarding the relationship between Trust and the other variables as well as the dependent variables, some precautions need to be taken. However, as Wu et al. (2016) discovered, trust is an important antecedent of consumers intention to use free apps, the variable was kept as it represents an interesting criterion while studying individuals’ intention to use new and free mobile apps. The authors of this study are advising future researchers to study this variable in more depth in order to focus on how trust can affect users willingness to use new and free mobile applications. Moreover, to get a stronger association for this variable, conducting a study with more questions may reinforce the reliability of the variable and permit to get more reliable insights. Secondly, as intention to use seems to be a large part of individuals everyday life and their attitude, it may be interesting to put more effort on the study related to intention precisely, by asking more questions in relation to this variable. Thus, by studying the individuals’ intention in greater depth, future researchers could strengthen this study. Finally, according to the results, the major part of the respondents were
corresponding to a specific target group, namely students in their twenties. To get a broader understanding of the general population’s attitude and intentional tendencies towards new and free mobile apps, it may be interesting to conduct research which focuses on other target groups such as older individuals, as their relationship with mobile apps could be different, which would lead to a broader understanding of mobile app intention of new and free apps.

6.5 Suggestions for future research

This research paper has tested several potential determinants related to individuals’ intention to use new and free mobile apps, several points may be considered for future researchers. Firstly, this study is only measuring intention to use free mobile apps; therefore, it would be interesting to analyze the extent of the potential influence of cost on intention. Moreover, as the focus of this study were on multiple independent variables potentially influencing the intention to use mobile apps, in order to gain a more precise understanding of this context of mobile app usage intention, future research could hone in on specific variables. In other words, in order to go into more depth, future research could study less variables that are based on the significant ones found in this study. Also, a recommendation is to study individuals’ attitude towards different kinds of social media marketing strategies and the extent of their impact on users intention to use mobile apps. For example, future studies could take into consideration the design, type of posts (videos, interactive posts) as well as the influence of user engagement on posts related to mobile apps and their potential influence on the viewers of these posts. Another suggestion for researchers is to conduct a study on the effectiveness of measuring of intention for determining actual behavior; so the intention-behavior gap. Finally, future research could be conducted on actual users of specific apps and their attitude and perception of the app experience itself in order to gain an understanding of the factors and determinants app user retention.
7. References


Davis, F. D., 1986. A technology acceptance model for empirically testing new end-user information systems: Theory and results. Doctoral dissertation, Sloan School of Management, Massachusetts Institute of Technology, Boston, MA.


Lee, E., Lee, S., & Jeon, Y. J. J., 2017. FACTORS INFLUENCING THE BEHAVIORAL INTENTION TO USE FOOD DELIVERY APPS. *Social Behavior and Personality, 45(9)*


Appendix 1: Questionnaire

Q1: I intend to use new & free mobile apps in the near future. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q2: I frequently download and use new & free apps. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q3: I would use new & free apps that I download without hesitation to satisfy my needs. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q4: I find it interesting when I discover new & free apps on different social media platforms. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q5: I believe that social media is a good way to find out about new & free apps. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q6: My experiences with seeing social media marketing posts for new & free apps have been positive. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q7: I find it important to ask my peers their opinion about a new & free mobile app before I use it. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q8: I tend to only use new & free apps if my friends have had a positive experience with it first. *

1 2 3 4 5 6 7
Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree
Q9: I am likely to use a new & free app if I've heard that many people are also using it. *

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Strongly disagree

Q10: It is important for me to check online reviews and ratings about a new & free app before using it. *

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Strongly disagree

Q11: It is vital that what is written about new & free apps online is positive for me to want to use it. *

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Strongly disagree

Q12: The likelihood for me to use a new & free app is great as long as people have reviewed it positively. *

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Strongly disagree

Q13: When I intend to start using a new & free mobile app I am considering the amount of time I will spend on it. *

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Strongly disagree

Q14: I would use a new & free app if it would not cause me to spend a lot of time on it. *

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Strongly disagree

Q15: It is important that I feel in control of the amount of time I am spending on a new & free app. *

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Strongly disagree

Q16: New & free apps that I use should add value to an area of my life. *

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Strongly disagree
Q17: When I intend to use a new & free mobile app, it is necessary for it to increase my productivity. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q18: I am willing to download and use a new & free mobile app that I perceive as useful in my daily life. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q19: It is vital that a new & free app seems easy to use if I am to download it. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q20: Based on my what I’ve seen about new & free apps, the ones that seem simple to navigate are very appealing. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q21: I will only use a new & free app if it doesn't seem difficult to use it. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q22: I tend to only use new & free apps if I am familiar with the developers of it. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q23: I believe that new & free apps and their developers can generally be trusted. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree

Q24: I only use apps that I trust. *

1 2 3 4 5 6 7

Strongly disagree ○ ○ ○ ○ ○ ○ ○ Strongly agree
Demographics

Q25. What is your gender? *
- Male
- Female

Q26. What is your age? *
- 0-18
- 19-24
- 25-29
- 30-39
- 40-49
- 50-59
- 60+

Q27. What is your occupation? *
- Student
- Student & part-time worker
- Full time worker
- Part-time worker
- Unemployed
- Other