EXPLAINING CONSUMER PERSPECTIVES ON MOBILE NEWS SERVICES: A STUDY IN SOUTH AFRICA

by

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FOREWARD

I would like to express my gratitude to everyone who supported me throughout this study. Thank you to my supervisor, Assoc. Prof. Lisa F. Seymour, postgraduate students and staff at the Department of Information Systems, University of Cape Town for challenging my thoughts and reinforcing my interest in Information Systems research over the years.

Thank you to my family and friends for encouraging me to complete my study. It was due to your unwavering support that this study was possible.

It is my hope that technology acceptance and adoption research continue to tackle emerging challenges in the age of digital innovation and artificial intelligence. The multifaceted study of the acceptance and adoption of technology in varying contexts should remain a priority for future studies.

~ R. Maurya

DECLARATION

This dissertation is the result of my own work and includes nothing, which is the outcome of work done in collaboration except where specifically indicated. It has not been previously submitted, in part or whole, to any university or institution for any degree, diploma, or other qualification.

Signature: Signed by candidate Date: 04-02-2019

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ABSTRACT

Access to news supports the development of democratic societies. News can promote sustainable community development and encourage healthy social, political, and economic engagement. Mobile news services (MNSs) are one means to reach out to citizens to share news and provide citizens with a forum to review and voice their opinion. However, the extant of research related to technology adoption of MNSs is limited. Therefore, the purpose of this study is to propose a framework which articulates factors influencing the adoption of MNSs particularly by the citizens of South Africa. A review of the literature on MNSs and technology adoption helped to identify potential factors that could influence adoption. This study considers existing theoretical evidence and provides new empirical evidence, to extend current theoretical understanding. Mixed methods research supported the identification of influencing factors and relationships which support the adoption of MNSs. The resultant MNS adoption model offers new insights into the personal and social factors, attributes of adopters and attributes of MNSs influencing adoption of MNSs. The model included influencing factors such as social concerns, psychological drivers, motivators, trust sensitivities for accessing information, relative advantage and value, observability, usability, portability, immediacy, compatibility, and facilitating conditions. The identified relationships between the individual factors introduced a new perspective to the prior models of technology adoption, by highlighting connections between the social environment, the adopter, and MNSs. A pragmatic approach and statistical analysis of the data validated the relationships, and the model. The decision to adopt was found to be directly affected by sixteen interlinked factors. The findings are important to mobile service providers, designers, and developers, in their endeavour to satisfy their consumer's needs and desires.

KEYWORDS

Mobile news services, technology adoption, technology acceptance, news consumers, accessibility, interaction, social concerns, social materiality, pragmatism, mixed methods research

PUBLICATIONS

Two papers articulating the findings and contribution of the study was accepted and presented at two conferences, namely:

Adam, R., & Seymour, L. F. (2017). Mobile news service adoption: A South African case study. Paper presented at 2017 Conference of South African Institute of Computer Scientists and Information Technologists (SAICSIT 2017), 26-28 September 2017, Thaba 'Nchu, South Africa.

Maurya, R., & Seymour L. F. (2018). Mobile News Service Adoption Framework: Insights from South Africa. Paper presented at 22nd Pacific Asia Conference on Information Systems (PACIS 2018), 26-30 June 2018, Yokohama, Japan.

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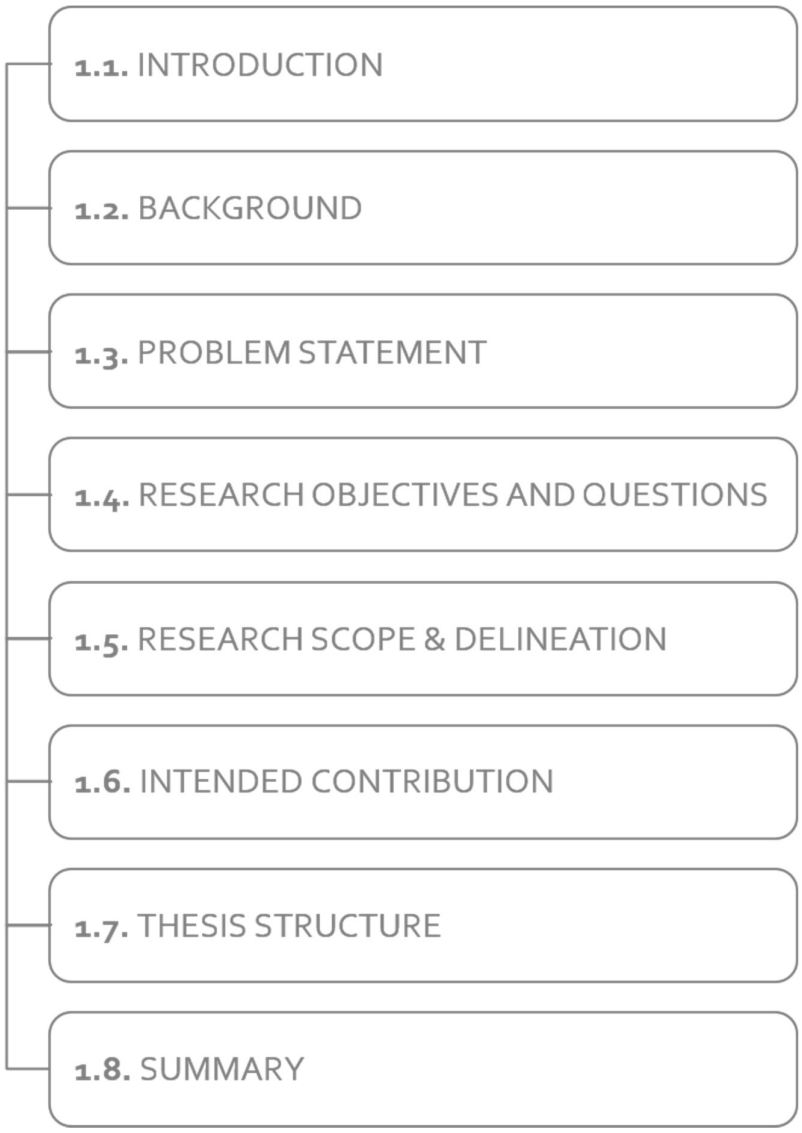
CHAPTER 1: INTRODUCTION



1.1 INTRODUCTION

Fundamentally, the underlying principles of a liberated society prescribes that the citizens should have access to information, knowledge and furthermore the freedom of speech to express their viewpoints. Individuals need to be suitably informed of matters concerning their society, if they are to engage and play an active role in the life of their country (Rhue & Sundararajan, 2013). Media is considered as an important source of information for citizens who wish to indicate how their country should develop. Media can aid in the decision making process within their country and within their own communities (Roseland, 2012). Furthermore, the information provided by the media is just as critical for economic and personal decisions (e.g. health care, education, lifestyle choices) as for political decision making. An important concern however, is how best could this information be shared and consumed by the citizens, considering the digital communication age which is transforming the landscape of media and communication.

Arguably one of the most prolific technologies, now considered as 'the consumers remote control for life', the mobile phone and mobile computing are increasingly penetrating as a primary and transformative means of communication and information dissemination in the developing world (Bojanova et al., 2012; Bornman, 2012). Mobile technology can be regarded as more accessible, sophisticated, and relatively affordable means to bridge the digital divide between developing and developed countries (Curry et al., 2016; Martin, 2015). In addition to voice communication, mobile phones and mobile services allow other mobile conveniences like ubiquitous access, and, ease of use to obtain information on demand. These features can be applied in the context of mobile applications and services for a plethora of purposes including national governance, news dissemination, information communication, health services, educational support, enterprise, and commercial support. As mobile penetration rates continue to surge in developing economies, a marked increase in the extent and trend of research on mobile phone, mobile application, and mobile service usage is evident from recent years (Amankwah-Amoah, 2016; Asongu et al., 2016; Carmody, 2013; Jorgenson & Vu, 2016).

The thriving use of mobile technology and mobile services, particularly mobile news services (MNSs) for news or information dissemination is of interest to this study. The focus of this study is to explain the adoption of MNSs from the perspective of news consumers particularly in South Africa. It is important to gain an informed perspective of adoption from news consumers, in order to gather an intimate and precise understanding of what adoption means within the context of the phenomenon (Davison & Martinsons, 2016). This understanding subsequently informs key role-players to harness innovation and development of a plethora of mobile services, not merely news services for potential news consumers. If more can be understood about mobile news service adoption factors, mobile services such as MNSs can be provided to news consumers in a form that is most appropriate,

accessible, and usable to news consumers (Chan-Olmsted et al., 2013; Fidalgo, 2009; Gonzales, 2008; Shim et al., 2015).

1.2 BACKGROUND

Mobile communication is now widely recognised across the world, subscription figures indicate a steady increase over the last few years. Mobile technology has surpassed telephonic communication, since it has the ability to send and receive data across telecommunication networks. Furthermore, mobile data communication has revolutionised a news consumer's ability to transmit data and information, even between remote locations (Kumar & Rahman, 2012; Lai & Katz, 2012; Wei, 2013).

The increasing use of a wide array of mobile devices and some specific MNSs promise a multitude of benefits and value propositions for mobile news providers. This is evident from a study, investigating business models and strategies applicable to the sustainability and profitability of MNSs (van Noort & Mavhungu, 2012). Several studies sought to understand the value of *mobile computing* (Kumar & Rahman, 2012), *mobile services* (Du Wan et al., 2010; Peltomaki et al., 2009; Steinbock, 2007) and *MNSs* (Bjornestad et al., 2011; Chen, 2010; Fidalgo, 2009; Nel & Westlund, 2012; Øie, 2012; Popovici et al., 2010; van Noort & Mavhungu, 2012; Westlund, 2013), and personal computing in emerging economies (Dhir et al., 2012) is evident and call for further research inquiry in this regard.

A "*mobile service*" is seen as "a service offered via mobile or wireless networks" (Bouwman et al., 2008b). For the purpose of this study, MNSs, from here on referred to as MNSs, can be regarded as *intangible news services distributed wirelessly through the use of a portable, mobile device*. The aforementioned definition of mobile services will be proposed in this study and is based on the concepts relating to MNSs (Nel & Westlund, 2012; Westlund, 2013).

Despite the maturity and advancement in technology acceptance and adoption research, limited literature examined perceived factors applicable to the adoption of MNSs within the particular context of inquiry. It is also not evident from the studies conducted within the context of a developed economy that the replication within a developing economy setting could offer a number of challenges which may not be experienced by the consumers in developed economies (Abdel-Wahab & El-Masry, 2011; Avgerou, 2008; Walsham et al., 2007).

1.3 PROBLEM STATEMENT

The ongoing innovations in mobile service technology have left media service providers with both an opportunity and problem to manage how news is consumed and delivered to media consumers via MNSs. Consumers are increasingly

gravitating towards accessing media by new digital and mobile platforms compared to traditional mediums such as print and television. The purpose of this study is to understand factors that influence the use of MNSs in rapidly developing, knowledge-driven and information-seeking societies. In a digital era of mobile media, we are only beginning to unravel the phenomenon of how the use of MNSs can support an individual's right to be informed and their freedom of expression to share as well as comment on the disseminated news content (Chan-Olmsted et al., 2013; Rowbottom, 2006; Wei et al., 2013). It is therefore necessary to understand the adoption of MNSs in an effort to better understand how these mobile communication technologies and services can be used to facilitate the access and exchange of media. In an increasingly vocal society demanding access to relevant information is of paramount importance to understand the adoption of mobile services, as these services are becoming prevalent within societies.

The broader implications of technology adoption can thus inform the fundamental meanings of media, information, communication, community, social institutions, and more particularly civilization at large, these must therefore be determined as well as understood (Wei, 2013).

Furthermore, for the discipline of Information Systems (IS), it becomes critical to determine how mobile services, such as MNSs are infused or could potentially be infused within the lives of news consumers. This understanding of technology adoption could foreseeably improve the adoption of similar mobile services. The personal characteristics of mobile news consumers must therefore be understood in order to ensure that the appropriate news services be provided to such individual consumers.

1.4 RESEARCH QUESTIONS AND EPISTEMOLOGICAL ORIENTATION

In order to address the problem and to investigate the phenomenon of factors influencing adoption of MNSs in South Africa, one main research question (MRQ) and three sub-research questions (SRQ) were derived.

MRQ: *Why do South Africans adopt MNSs?*

The objective of the MRQ was to determine and explain the factors which influence the adoption of MNSs in South Africa.

The aim of the sub-research questions was to facilitate the answering of the main research question, that is, by addressing key aspects which need to be addressed as part of the complete study.

SRQ1: *What factors influence the adoption of MNSs in South Africa?*

The objective of the first SRQ was to describe specific adoption factors influencing the adoption (or non-adoption) of MNSs in South Africa.

SRQ2: *How are the factors that influence the adoption of MNSs in South Africa inter-related?*

The objective of the second SRQ was to understand the inter- and intra-relationships between identified adoption factors influencing the adoption of MNSs in South Africa.

The purpose of this study is to contribute, both to the theoretical development and practices, a thorough understanding of the technology adoption of MNSs.

Epistemology focuses on acquiring knowledge through the use of appropriate and pragmatic analysis to understand the nature of valid knowledge, gained within the context of inquiry. It is not enough to collect knowledge for theoretical elaboration alone, it is necessary to understand the social dynamic and context, e.g. developing country context, from which knowledge in garnered (Avgerou, 2008).

This social study uses the *analytical* orientation, to address the research questions and epistemological value of this study (Kling et al., 2000). Kling et al. (2000) define the main research ideals of the analytical epistemological orientation as the intent of the *analytical orientation* is to either 'develop theories about ICTs in institutional and cultural contexts, or apply these theories to empirical studies that are organised to contribute to such theorising' (Kling et al., 2000; Mueller & Urbach, 2017).

The study adopted pragmatism as philosophical paradigm to discern a holistic understanding of technology adoption of MNSs within the empirical context. Pragmatism offered a practical approach to understand the research phenomenon and has strong associations with mixed methods research (Cameron, 2011). Pragmatism can be regarded as a unification between philosophical paradigm and research methodology. Qualitative data was analysed using qualitative and quantitative techniques (Saunders & Tosey, 2011). A sequential approach, in which qualitative analysis was first completed and then quantitative analysis thereafter, was adopted for this study. Statistical analysis techniques were used to analyse interview data quantitatively, in order to determine the significance of relationships between technology adoption factors.

1.5 RESEARCH SCOPE AND DELINATION

This study is an investigation of the perceptions of adoption of MNSs by news consumers. The primary focus of the study is on describing as well as understanding the mechanisms and processes pertaining to the adoption of MNSs by South African news consumers. It was not the intention of this study to interview other stakeholders involved in the design, development, and deployment of MNSs as they are not regarded as the main research participants, hereafter they would be referred to as participants for various purposes of this study.

The research was carried out in urban Gauteng, South Africa. This is based on accessibility for the researcher to interact with various participants in a populous urban hub in South Africa. News consumers and potential news consumers who were familiar with news services were approached to participate in the study. No restrictions were placed on the type of mobile device being used, except that news consumers should be able to access MNSs on respective devices which are enabled to provide such services, i.e. mobile phones with access to Internet services, smart phones, tablet, laptop, netbooks, or other mobile devices. The types of MNSs accessed and used included local and international news services.

1.6 INTENDED CONTRIBUTION

In the quest for determining factors that are perceived to influence the adoption of MNSs, a framework depicting identified adoption factors and relationships thereof, would serve as the core contribution to the IS discipline and domain of Social Informatics. The rationality for conducting this study is to gain an enhanced understanding of MNSs adoption, which would inform multiple role players including the broader research community, mobile service providers, and news consumers.

Social informatics research relies on empirical research to understand concerns faced by individuals, their societies and the pervasive use of advanced ICTs (Kling et al., 2000). Outcomes of the study would serve the research community within social informatics, service sciences, technology adoption, and mobile computing research streams.

In terms of designing as well as developing relevant and applicable services, more specifically MNSs, this research would address calls for mobile service innovation (Ziv & Mulloth, 2007) and classification within the service science discipline (Dolk & Carlsson, 2012; Endam et al., 2011; Heinonen & Pura, 2006; Papazoglou et al., 2007; Rong et al., 2011; Shih & Shim, 2002).

Despite a well-established theoretical repertoire, the field of technology acceptance and adoption could benefit largely by gaining new explanatory insight on the subject of mobile service adoption, particularly in the context of mobile news consumers, in South Africa. The context-bound theoretical contribution of this study can extend current theoretical understanding of technology adoption, considering pragmatic sense-making, contextualised explanation, empirical regularity, theory building, and testing (Llewelyn, 2003; Tsang, 2013).

Secondly, the findings of this research may motivate the need for the dynamic design, distribution, and packaging of mobile services to intended consumers of such services. It is envisaged that the innate understanding, of technology adoption, derived from this study could provide mobile services designers and providers with a greater understanding of news consumer's personal characteristics, needs, and desires. This understanding could enable practitioners and mobile services providers to anticipate and fulfill distinct user requirements within rapidly advancing societies.

Most importantly, the research is significant for the news consumers of mobile services. The research findings could affirm the need as well as desirability of adopting such services, the broader implications thereof, in terms of media freedom, democracy, access to news, current events information, access to information, and communication technologies for developing economies.

The intended contribution of this study could lead to an enriched appreciation and better decision-making both from a supply and demand perspective, including a media, commercial, governmental, societal, and individual news consumer(s) standpoint.

1.7 THESIS STRUCTURE

The thesis comprises of 9 chapters. The research rationale is elaborated in Chapter 1. A review of literature is presented in Chapter 2. The research method is comprehensively discussed in Chapter 3. The data analysis and discussion of the empirical findings related to demographics and social factors, attributes of adopters, and attributes of MNSs (innovation) are presented in the Chapters 4, 5, and 6, respectively. Chapter 7 discusses the notable relationships that were found during the analysis of the data. Chapter 8 discusses the proposed framework. The final chapter, Chapter 9, concludes the study with a reflection on key research outcomes, emphasising the main theoretical contribution of the study. In addition to presenting the outcomes of the study, recommendations for multidisciplinary and empirical research inquiry is addressed in the chapter. Figure 1.7-1 illustrates a representation of the chapters which constitute the thesis.

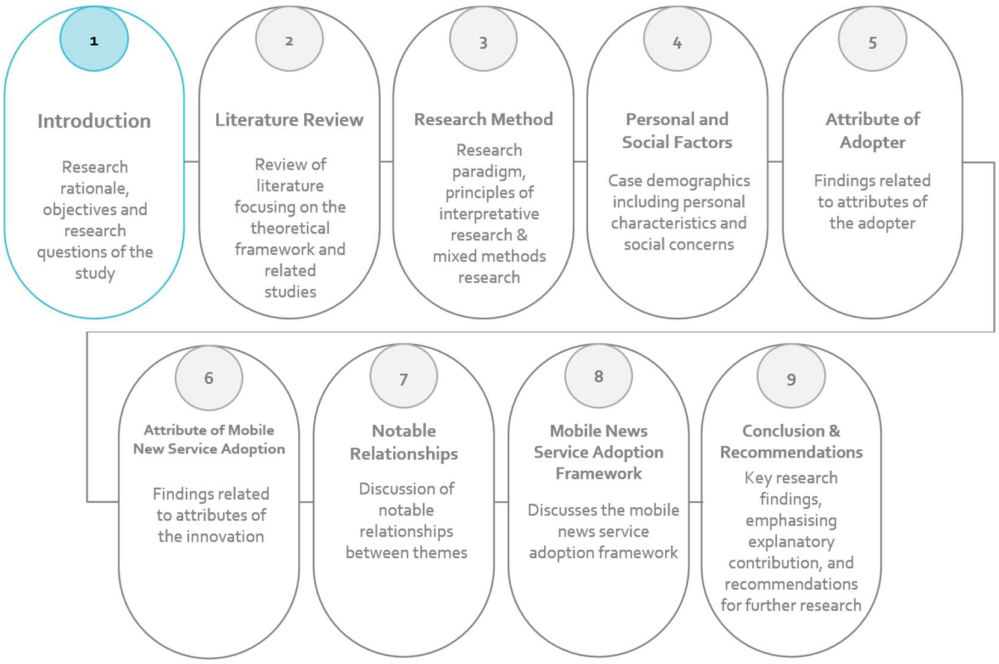


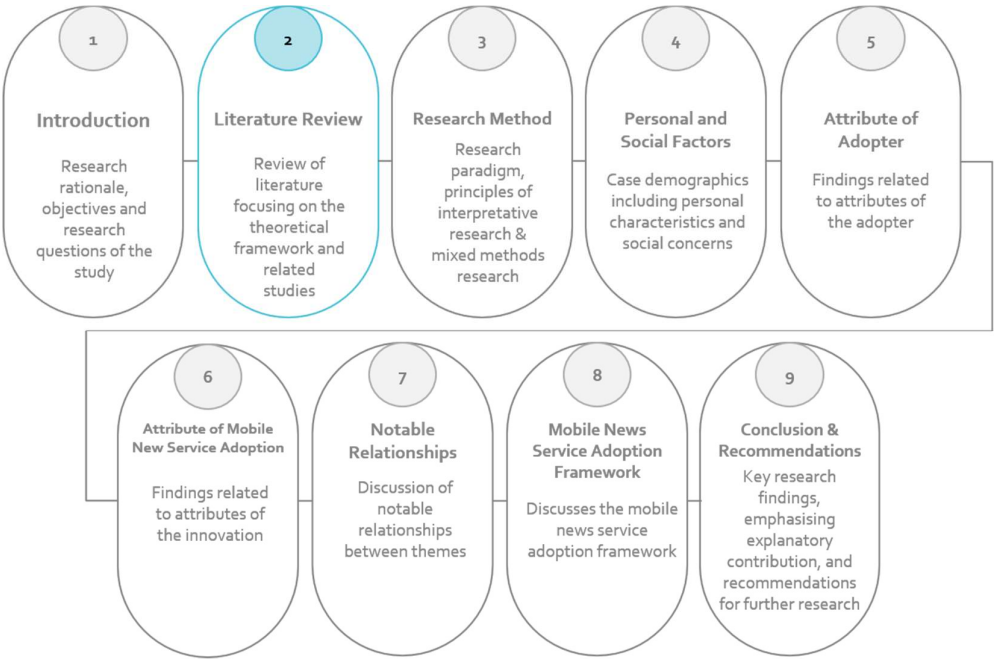
Figure 1.7-1: Structure of Thesis

1.8 SUMMARY

The domain of technology adoption theory is long standing and offers many a diverse stance from varying research and philosophical paradigms. However, research examining the adoption of MNS within the context of developing economies, needs to be addressed in order to understand the utilisation of services such as access to media content, voicing of individual opinion, and the ability to discuss pertinent news matters. If significant factors influencing MNS adoption are found, it can promote incremental enhancements, sustain motivation to access, use, and adopt MNSs. Furthermore, the results from this study could contribute significant findings to a number of role players which could spur development of purposeful mobile services and platforms for individual consumer needs. This study therefore proposes an explanatory knowledge contribution of the technology adoption of MNSs.

Chapter 2 presents a review of related research conducted for this study.

CHAPTER 2: LITERATURE REVIEW



2.1 INTRODUCTION

The scope of the literature encompassed an interpretive review of literature rather than a systematic review of literature. The interpretive literature review focused on historical and current research related technology acceptance and adoption of IT artefacts, which focused on the acceptance and adoption of mobile services and more specifically mobile news services in varying contexts. The interpretive literature reviews followed a concept-centric review of literature which were considered imperative for such a study (Boell & Cecez-Kecmanovic, 2015; Petticrew & Roberts, 2008; Webster & Watso, 2002).

To lay the groundwork for understanding factors that influence technology acceptance, technology adoption, well-cited studies that were published between 1975 and 2017 was sourced from relevant information systems journals. The research encompassed a review of quantitative and qualitative studies, in order to determine potential research methodologies that could be considered for this study. As stated, recognised journals such as MIS Quarterly, Journal of Information Systems, and related bibliographies were searched to select publications, of which, articles pertaining to the acceptance and adoption of consumer IT artifacts met the selection criteria. Thirty-two influencing factors were categorized into three core categories, namely attributes of adopter, attributes of innovation, and social factors. Based on the methodological quality of the studies, the strength of evidence was discerned and included in the classification schema for further analysis. The association between findings was thus supported through selective inclusion of influential factors.

The cited literature thus aimed at supporting the topic of technology adoption of MNSs, supported the need for conducting further research in order to understand the technology adoption of MNSs, assisted in defining core research concepts, which will be elaborated upon in this chapter, supported the contextual delineation of the research, supported an analysis of current and related literature, assisted in extending the classification schema, and aided in the justification of propositions.

Furthermore, the review of literature yielded limited published literature and industry reports related to the specific domain of studying the adoption of mobile media and MNSs in developing economies (Abdel-Wahab & El-Masry, 2011; Avgerou, 2008; Mare, 2013; van Noort & Mavhungu, 2012; Verweij & van Noort, 2013; WAN-IFRA, 2011).

The emergence of mobile technology and the mobile service marketplace are characterised by an ongoing technological progress and a growing diffusion within developing economies (Donner, 2015; Gao et al., 2011; Ngai & Gunasekaran, 2007). Mobile technology has become the first choice for accessing online content and information for many Africans, and also for those who desire to get connected to the Internet, in order to use a range of online services, including accessing media content (WAN-IFRA, 2011). A recent report by Ericsson suggests that by the year 2021 mobile penetration rates will reach 100% in Sub-Saharan Africa (Ericsson, 2016). Figure 2.1-

1 illustrates mobile subscriptions projections in Sub-Saharan Africa by mobile device (GSMA, 2013).

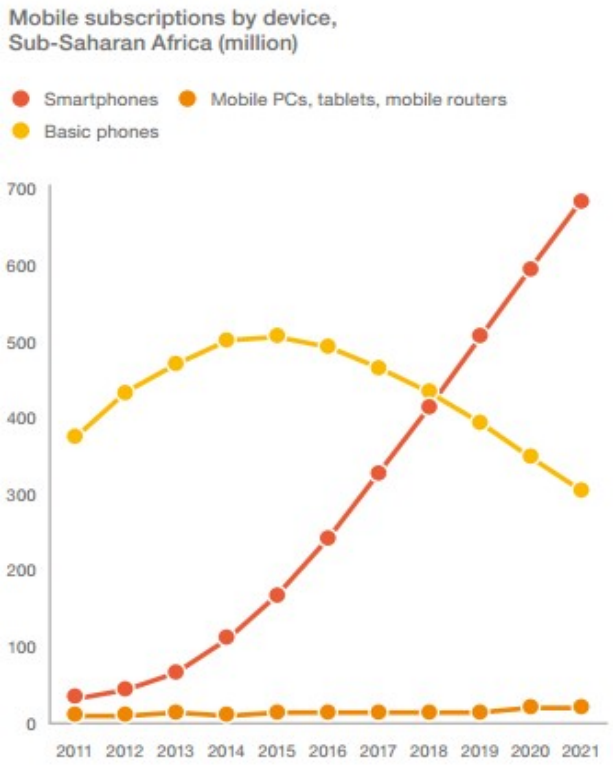


Figure 2.1-1: Mobile subscriptions by device, Sub-Saharan Africa (Ericsson, 2016)

In order to understand the opportunities presented by MNSs in developing economies, it is necessary to develop a thorough understanding of mobile services and the conditions of its adoption, within the context of application.

The main focus of this study is technology adoption. A classification schema which served as a means to classify technology acceptance and adoption factors for this study is presented. The adoption of mobile services constitutes the primary phenomenon of interest. In order to determine the adoption of mobile services, literature relating to the adoption of mobile services and MNSs is discussed. Finally, the current status and paucity of related research is discussed.

2.2 SITUATEDNESS OF MOBILE SERVICE ADOPTION

Numerous theories including the livelihood theory, were explored in research studying the influence of Information Technology for Development (IT4DEV) and Mobile for Development (MOB4DEV), these theories exemplify the broader contextualisation of the research problem.

A livelihood theory can be defined as, "a livelihood system comprising the capabilities, assets (including both material and social resources) and activities required for a means of making a living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base" (Carney, 1998). The livelihood and sustainable livelihood theory stem from research in the rural developmental context.

Furthermore, complex facets encompass the conceptual understanding of livelihood theory. Livelihoods manifest in varying states that can be diverse, dynamic and complex depending on the context of empirical inquiry (Gaillard et al., 2009). The challenges and benefits from the adoption of ICTs in developing communities have been documented in numerous studies (Baduza et al., 2012; Jorgenson & Vu, 2016; Salemink et al., 2017).

As mentioned, the pervasiveness of mobile technology is radically transforming the domestication and use of mobile services to access content and information in more sophisticated and networked societies to support fundamental day-to-day activities, including new mobile services for personal, social, education and work engagements (Abeele et al., 2018; Campbell & Ling, 2017). It therefore becomes necessary to determine the influence of ICT on citizens livelihoods including the motivating factors that promote the use of ICTs in order to understand the impact of these technologies in developing countries (Carney, 1998; Salemink et al., 2017). The affordance of mobile technology suggests that technology is becoming influential in how individuals conduct themselves in all spheres of 'habitual' and 'routine' life. The integral role of ubiquitous and portable mobile technology challenges existing notions of reputed values and traditional ways of conduct (Karippacheril et al., 2013). Furthermore, access to mobile services is limited due to financial affordability of mobile devices and mobile data (Aker & Mbiti, 2010; Asongu et al., 2016; Weiss et al., 2015). This hinders access to mobile news services and affects technology adoption of MNSs. Several studies explore the influence of financial affordability and price value as influencing factors (Donner, 2009; Gao et al., 2011; Mittal & Kumar, 2018). These studies affirm the need for affordable devices and services for consumers.

It is thus critical to determine the manner in which the functional use and accessibility of mobile technology gratifies user's needs (drive to acquire, to learn, to bond and to defend), supports individuals in improving their quality of life, and serves as the primary means of modern communication (Bouwman et al., 2007). This understanding can inform specified and nuanced definitions of adoption factors within defined contexts. These insights can inform the viability of novel value

propositions and business models for mobile service innovation in distinct situations and contexts. The delivery and provision of mobile services together with the necessary support and facilitating conditions could stimulate the sustained use of mobile services (Bouwman et al., 2014; Bouwman et al., 2008a; Ling, 2004).

2.3 EPISTEMOLOGICAL STANCES

Three different research paradigms are identified in this study. Technology acceptance (Davis, 1989a; Venkatesh et al., 2003a) which stems from behaviourist and social psychology theory, technology adoption (Rogers, 2010) which stems from functionalist and innovation theory, and social-materialism (Orlikowski & Scott, 2008) which stems from social theory. Albeit the seemingly distinct paradigms that stem from distinct theoretical underpinnings and contexts, the main objective of this study was to adopt a pragmatic approach to determine factors that could influence adoption of MNSs.

The selection of a multiplicity of research paradigms supports a mixed method approach that was adopted for this study, as quantitative and qualitative analysis supported and extended the analysis of the collected data (Cameron, 2011; Creswell, 2012).

Even though technology acceptance and adoption studies signify findings related to intended usage and not actual usage of technology, the decision to examine the applicability of related and similar concepts in the empirical context was undertaken. This was done to examine a broad range of factors that could enhance our understanding of the research phenomenon, if found to be evident from analysis of the findings. The varying contexts (communications processes, social and behavioural studies, personal computers and consumer goods and services) in which the studies were conducted offered us an opportunity to test the applicability of the concepts in this empirical context.

2.4 TECHNOLOGY ACCEPTANCE

It is generally assumed that the terms *technology acceptance* and *technology adoption* can be applied interchangeably. However, findings suggest that technology acceptance refers to a user becoming mindful of technology and consequently, the user develops an intention to use the technology (Renaud & van Biljon, 2008). Technology adoption however, refers to the news consumer becoming aware of the technology, and results in the user's adoption and usage of technology (Oliver, 1980; Premkumar & Bhattacherjee, 2008; Rogers, 2010; Taylor & Todd, 1995). Figure 2.4-1 illustrates the interchange between technology acceptance and technology adoption.

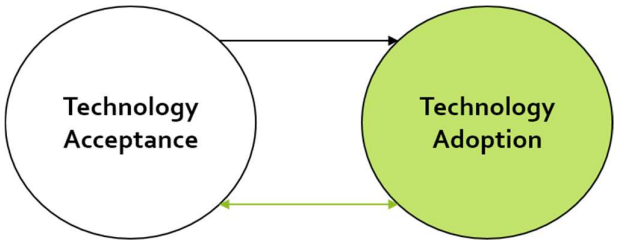


Figure 2.4-1: Interaction between technology acceptance and adoption

In terms of research on technology acceptance, several respected and challenged works, account for the underpinnings of user behavior and sociology research. It is not the intention of this literature review to review all the available research, but rather highlight significant, widely cited, and assimilated works including Davis' Technology Acceptance Model (TAM) (Davis, 1989b). The Unified Theory of Acceptance and Use of Technology (UTAUT) 2 model (Venkatesh et al., 2012) extends the comprehensive UTAUT (Venkatesh et al., 2003a) in the setting of consumer use, in order to determine, explain and predict acceptance of new technologies.

2.4.1 Technology Acceptance Model

The *Theory of Reasoned Action* (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and *Theory of Planned Behaviour* (TPB) (Ajzen, 1985) have been used as a basis for the *Technology Acceptance Model* (TAM).

The TRA examines the user's *belief* which influences their *attitude* (favorable or unfavorable) towards any new system. An individual's *behavior* is determined by the respective *intention* (as a result of the attitude) of that individual, to perform (actual usage), because individuals generally behave as they intend to do within the present *context* and time. Additionally, behavioral intention is influenced by *subjective norms* – collective social pressures put on the individual to perform or not to perform in accordance with the behavior in question. The TRA has been used as a basis for further research, the *Theory of Planned Behaviour* (TPB), (Ajzen, 1985), TAM and UTAUT. However, it is considered a general behavioural model and it does not go further into particular and specific attitudes, behaviours for a specific aspect of investigation. It does, however, provide a foundation understanding of a user's behavioural intentions.

The TPB model includes the *perceived behavioral control* construct, to consider the extent to which the user has a complete control over their behavior. *Behavioral control* directly affects the intention to perform behavior and may directly affect the behavior in certain situations where the user intends to perform the behavior but is prevented from doing the same.

According to the TAM, a number of acceptance criteria – 'fundamental determinants of technology acceptance', influences the user's decision on how and when the user

will use a technology (Davis, 1989b). Figure 2.4-2 illustrates the TAM. Technology usage and acceptance may be realised through following two perceptions: *perceived usefulness* (PU) and *perceived ease of use* (PEOU). *Perceived usefulness* (PU), these refers to 'the degree to which a person believes that using a particular system would enhance…performance' and *Perceived ease-of-use* (PEOU) refers to 'the degree to which a person believes that using a particular system would be free from effort' this has a direct effect on perceived usefulness and technology usage'.

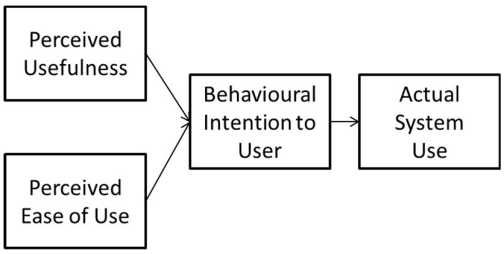


Figure 2.4-2: Technology Acceptance Model (Davis, 1989b)

Several researchers used the TAM as a foundation to test the validity and extend research in the field of technology acceptance. Most of this research confirms the validity of the model and suggests extensions, to include context variables for acceptance of specific technology. The TAM can thus be regarded as a specific version of the general TRA model in which the focus is acceptance of new technology.

However, the use of TAM in predicting and explaining technology acceptance in general has drawn criticism from several researchers, in that it lacks the specificity of users' opinions on specific system or technology. Simply reducing social dynamics to external variables which can be mathematically assessed, resulting in some or all external variables positively linked to improved technology acceptance is arguable (Benbasat & Barki, 2007; Chan & Teo, 2007; Malhotra & Galletta, 1999; Venkatesh & Davis, 2000). The TAM states that the acceptance of technology influences an individual's *'behavioural intent to use'* the technology. It is argued that this causal relationship is found regardless of the type of the technology, users, and circumstances.

In general, most of the tests of TAM, have been conducted subsequent to the participants' acceptance or rejection decision, rather than during the active adoption decision-making process. The problem with this is that this behaviour becomes routine, so that individual reactions reported in these studies are retrospective, rather than studying the specific users' rationalisations of decisions.

2.4.2 Unified Theory of Acceptance and Use of Technology 2

Venkatesh et al. (2003a) formulated the *Unified Theory of Acceptance and Use of Technology* (UTAUT). This model was found to outperform the eight individual models, namely, TRA, TPB, TAM, a combined theory of TPB/TAM (Taylor & Todd, 1995), motivational model (Vallerand, 1997), model of personal computer utilisation (Thompson et al., 1991) , diffusion of innovation (DOI) (Rogers, 2003), and social cognitive theory (Compeau & Higgins, 1995) at the time. It was posited that four key constructs (performance expectancy, effort expectancy, *social influence*, and *facilitating conditions*) determined intention of usage and behavior. Furthermore, *gender*, *age*, *experience*, and *voluntariness* influence the impact of the four key constructs on usage intention and behavior.

The most recently published work on a second UTAUT model, is referred to as UTAUT2 (Venkatesh et al., 2012), it extends the comprehensive UTAUT model in the setting of consumer use.

UTAUT2 can be regarded as the most conclusive framework of acceptance found at the time of this study. The UTAUT2 model, as depicted in Figure 2.4-3, extends the UTAUT model which was intended to explain 'employee acceptance and use' with three additional determinants of a consumer's intention to use a technology. The determinants of *hedonic motivation*, *price value* and *habit* extend the model and serve to explain consumer use of technology.

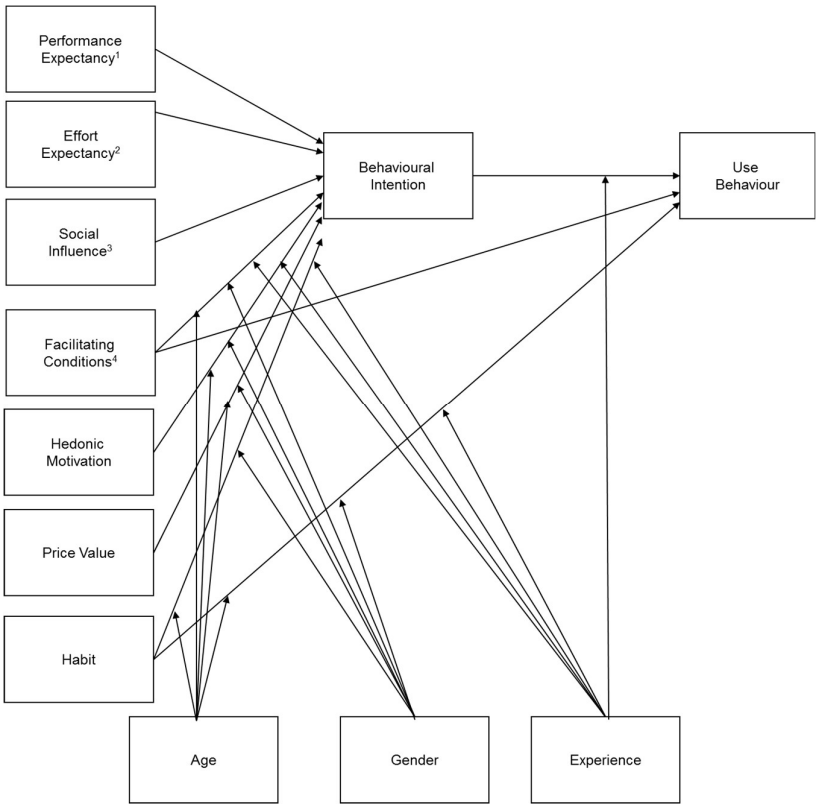


Figure 2.4-3: UTAUT2 (Venkatesh et al., 2012)

Venkatesh et al. (2012) acknowledge concerns by fellow academics (Benbasat & Barki, 2007), that research in technology acceptance is saturated. It is well cited that the inclusion of relevant and motivated constructs can only further improve our understanding of technology acceptance (Bagozzi, 2007; Venkatesh & Bala, 2008; Venkatesh et al., 2007). An enhanced understanding of adoption of MNSs can only serve to extend the current technology adoption research and contribute to a more conclusive epistemology. In one of the study, it was found that social influence can influence the usage of mobile phones, and it is believed that, social influence within networked groups of individuals supports the adoption of mobile services (De Silva et al., 2011). However, another study found that behavioural intention could be influenced by performance expectancy and effort expectancy; however, social influence could not support such explanations (Carlsson et al., 2006). Furthermore, the study found that attitude towards mobile devices/services influenced behavioural intention and that mobile device/ service anxiety did not. Facilitating conditions did not have a link to the use of mobile services (Carlsson et al., 2006). It was also found that the adoption of mobile technology and mobile services is asynchronous; a clearer distinction between mobile devices and mobile services should have been made. A further reservation is that the UTAUT was developed in order to describe and explain the organisational adoption of information technologies, to postulate that the mobile technology adoption is more individual, more personalised and focused on the services made available by the technology.

2.4.3 Evolved Psychological Mechanisms

Current technology acceptance and adoption draws from social as well as cognitive psychology theory, as highlighted in the aforementioned historical account of technology acceptance research. If one were to look at technology acceptance in an alternative light one could focus on 'enhanced explanations of technology acceptance, such that new theoretical perspectives may be warranted', (Abraham et al., 2011; Jackson et al., 1997; Nysveen et al., 2005b)

In one study, evolutionary psychology encompassed a "Four-Drive" model, which was used as a lens to understand technology acceptance across three organisational sites (Abraham et al., 2011). Figure 2.4-4 illustrates the influence of evolved psychological mechanisms, namely, a.) Drive to Acquire, b.) Drive to Bond, c.) Drive to Learn, and d.) Drive to Defend) on technology acceptance. The result of the study supported the consideration of four identified as 'evolved psychological mechanisms', other such mechanisms within the traditional models of technology acceptance and adoption.

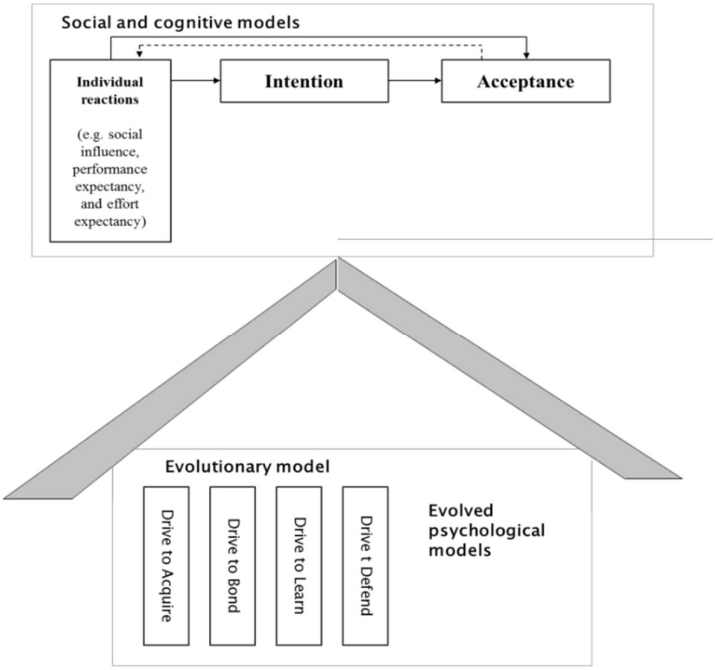


Figure 2.4-4: Influence of evolved psychological mechanisms on technology acceptance (Abraham et al., 2011)

Some researchers argue that the interpretation of *evolved psychological mechanisms* are metaphors and are not true mechanisms, to describe psychological entities typically referred to in the social, cognitive, and technology acceptance theories (Gantt et al., 2012). Other theorists believe that one does need to consider the intrinsic human perspective and *emotional connections* which can impact acceptance (Zarmpou et al., 2012).

2.4.4 Mobile Services Acceptance Model

The mobile services acceptance model, Figure 2.4-5, (Gao et al., 2008; Gao et al., 2010)is considered as an extension of TAM, including the themes such as: trust, context, personal initiatives, characteristics factors in addition to the perceived usefulness and perceived ease of use. The model was derived from the study of a mobile location finding application called, *FindMyFriends,* it was used to assist individuals in order to find other individuals, at a student housing facility. The study found that in terms of contextual relevance, context can influence a mobile service user's perceived usefulness and perceived ease of use in either a physical location context or user context. Context can determine if users want to access information at that particular time and location, by considering the user's own personal needs, desires, or behavioural patterns. The study also found that in terms of personal initiatives, characteristics, the users' needs, desires, and openness to use the services is pivotal in the adoption of mobile services. Lastly, the study found that mobile users' perceptions of security and privacy is just as much important to the perception of

trust and integrity of mobile services, particularly when personal information is used as a part of mobile service transactions. The researchers found that branding and reputation of mobile service providers can significantly influence the trust of mobile services, which support initial and sustained use of such services. Trust is therefore, a critical factor which can directly influence user intention in order to adopt mobile services. The mobile services acceptance model needs to be tested in different empirical contexts, to extend the model that may be lacking in contextual understanding (Gao et al., 2008; Gao et al., 2010).

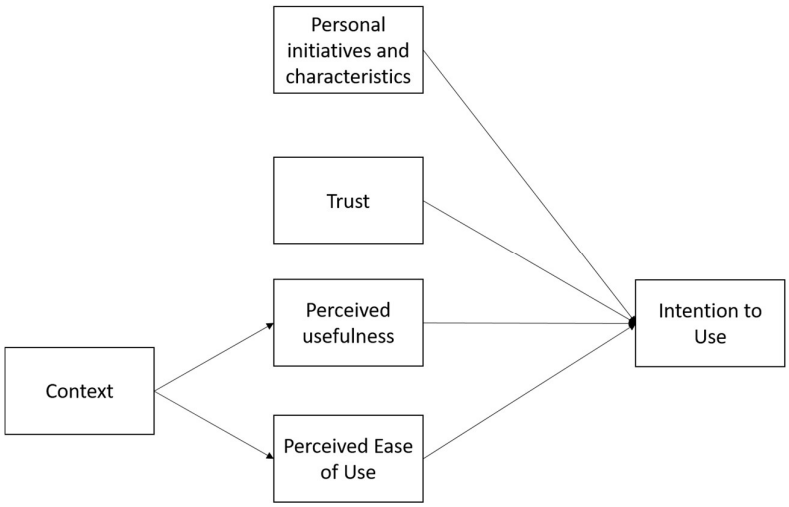


Figure 2.4-5: Mobile services acceptance model, adapted (Gao et al., 2008)

In the pursuit of understanding the factors that influence technology adoption, the identified technology acceptance, adoption and innovation diffusion theories support the derivation of reliable predictions of user acceptance and adoption.

However, the identified overlapping theories appear to focus on measures that extended prior studies and are generally based on quantitative analysis. Many of the studies also focused on the use of technology in an organizational context and rarely on personal adoption of technology.

There exists the need for an inclusive and unifying framework to extend technology acceptance, adoption and innovation diffusion concepts, albeit distinct epistemological orientations, attributes of individual adopters and other factors related to the social environment into a formal theory of technology adoption of MNSs.

2.5 TECHNOLOGY ADOPTION AND DIFFUSION

The continued use of technology materialises when technology is widely diffused and used within the intended contextual environment. As alluded to in Section 2.1, adoption and diffusion occur when user behaviour supports actual use of technological innovation. The decision to continually use technology is based on the user's

engagement with the technology. An understanding of factors influencing the decision to adopt, support researchers and designers of technology with determinants of adoption of the technology. Section 2.5.1 discusses Roger's Diffusion of Innovation Theory, Section 2.5.2 discusses Askarany's Diffusion of Innovation, and Section 2.3.3 summarises selected technology adoption factors derived from the literature review.

2.5.1 Roger's Diffusion of Innovation Theory

Rogers (2003) proposed the Diffusion of Innovation (DOI) theory to account for the adoption of an innovation. According to Rogers' (2003) adoption means that a person does something differently than what they had done previously. The key to adoption is that the person must perceive the *innovation* or idea, behavior, or product as new or innovative. It is through this process that diffusion is possible. Adoption of innovation does not happen simultaneously in a social system; rather it is a long process whereby some people are more apt to adopt the innovation than others, this might as well occur at different *rates of adoption,* depending on certain variables. The rate of adoption can be regarded as a numerical indication of the 'the relative speed of adoption of an innovation by its potential adopters over a specified period of time', (Rogers, 2003). Figure 2.5-1 indicates the variables for determining the rate of adoption of innovation. In Figure 2.5-1, an orange block surrounds the category named, "*I. Perceived Attributes of Innovation.*" These attributes encompass the theoretical underpinnings which will be used for as part of the classification schema for this study.

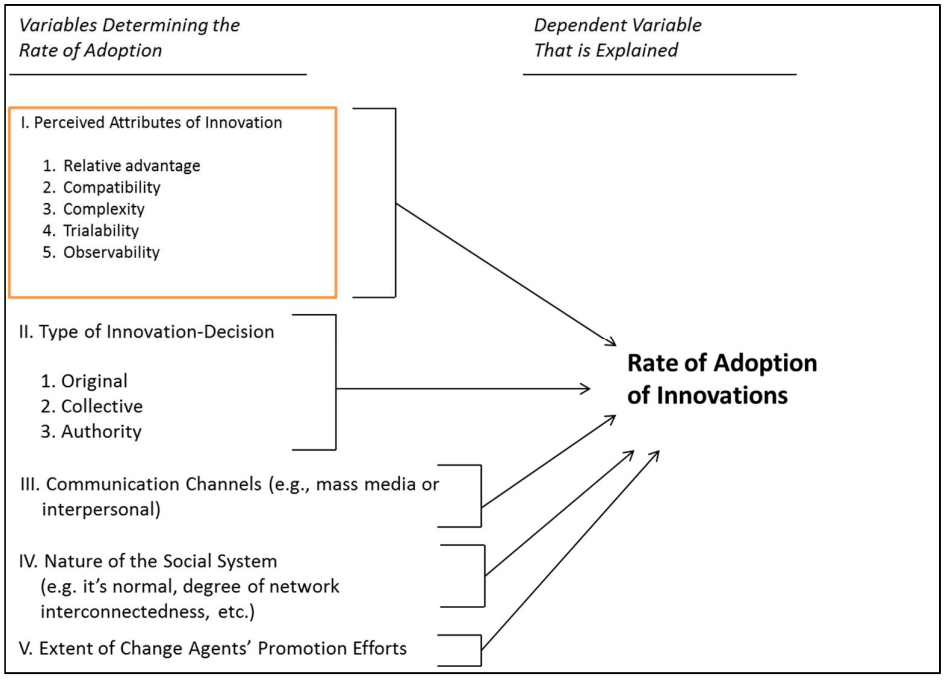


Figure 2.5-1: Variables Determining the Rate of Adoption of Innovation (Rogers, 2003)

Rogers (2003) draws attention to the limited research conducted in determining the characteristics of innovation and their influence on diffusion thereof.

2.5.2 Askarany Diffusion of Innovation

Askarany (2003) further supported Roger's (2003) call for research, investigating the *attributes of innovations* and its effect on the *diffusion of innovation*. Askarany (2003) assert that the *attributes of innovations* as a group of influencing factors are imperative to determining the diffusion of innovations. Such research can thus be useful in determining, understanding, and predicting potential news consumers' reactions to an innovation which can promulgate improved diffusion and adoption.

Askarany's (2003) General Model of Influencing Factors and Diffusion Process, illustrated in Figure 2.5-2, was used as a means to classify influencing factors related to the acceptance and adoption of MNSs.

In an attempt to understand the definition of the concept of diffusion of innovation, Askarany (2003), alludes to Rogers (2003) in his assertion that an innovation is not merely new knowledge, but can also be regarded as a 'first persuasion or a decision to adopt'. Askarany (2003) refers to Wolfe (1994) explanation of *diffusion of an innovation* as an approach of how new innovations are accepted or rejected by relevant news consumers of that innovation. Rogers (2003) extended Wolfe's (1994) definition by enunciating that *diffusion* is a process by which *an innovation* is communicated through certain channels over time among the members of a social system at any given time.

Mueller and Urbach (2017) suggest that existing classification methods - such as Askarany's (2003) General Model of Influencing Factors and Diffusion Process - can be appropriated for developing theories applicable to the phenomena of investigation. The meta-theories "does not aim to specify each instance of a phenomenon (i.e., empirical observations underlying a given theory but provide an ontological arrangement of constructs and of abstracted assumptions and relationships" (Mueller & Urbach, 2017).

The resultant classification schema aided in supporting theory development by providing an inclusive understanding of theoretical elements. The model is most applicable to an understanding of technology adoption within an organisational context, however, aspects of the model can be applied to the context of interpreting and understanding individual adoption of technology. An adapted version Askarany's (2003) model will thus serve as a classification schema for interpreting the research findings.

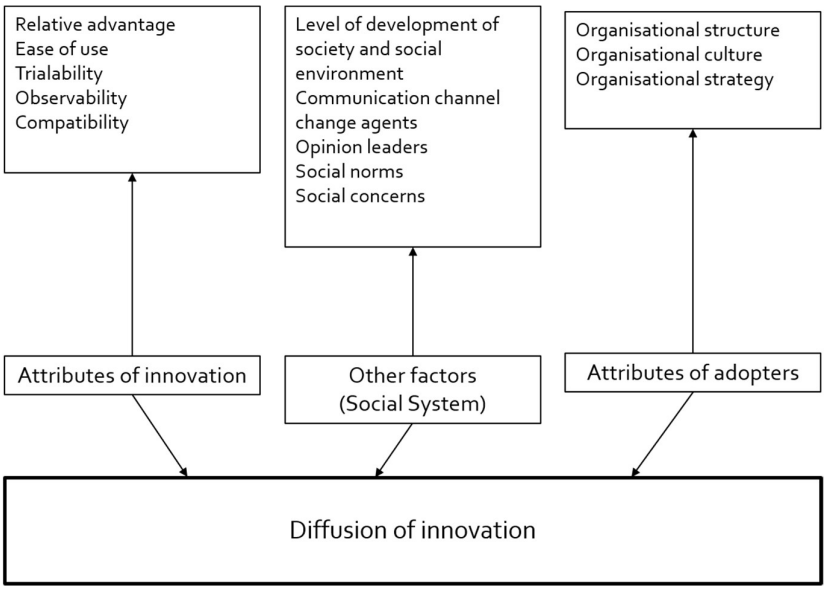


Figure 2.5-2: General Model of Influencing Factors and Diffusion Process, adapted (Askarany, 2003)

The adapted model - General Model of Influencing Factors - as depicted in Figure 2.5-3, classifies 32 identified and selected factors which could account for the diffusion of MNSs into three main categories, including: *attributes of adopters, attributes of innovation*, and *social factors*. It must be noted that initially, conceptually similar factors were grouped within a single term and a single distinguishing term for the influencing factors were used, such as in the instance for *enjoyment* and *hedonic* motivation; hedonic motivations encompass aspects related to the notion of enjoyment. Habit was also included as another factor that could predict a user's intention to use technology based on prior and repeated interaction with the technology (Limayem et al., 2007). The intricate distinctions of identified factors will need to be clarified and elaborated as empirical findings may or may not dictate.

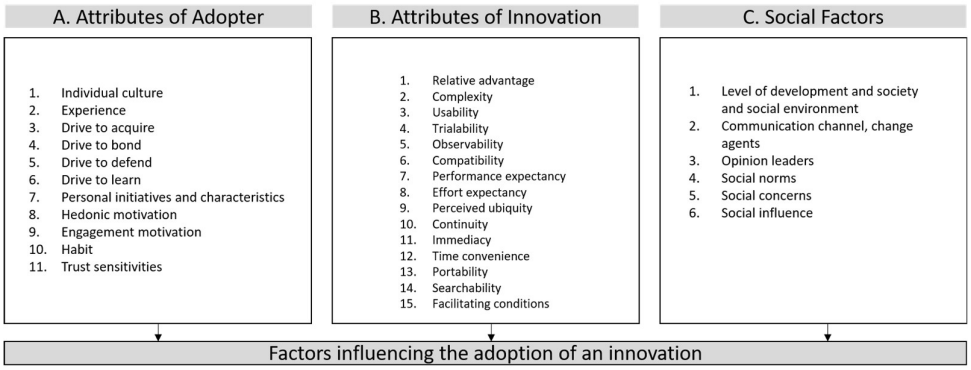


Figure 2.5-3: General Model of Influencing Factors, modified (Askarany, 2003)

The adapted model also excludes 'Generation of Innovation' from the original model, Figure 2.5-2, as this will not be investigated as a part of this study for purposes

thereof. Furthermore, the adapted model is specifically adapted for non-organisational users, which are mobile news service and news consumers, contained in a particular context, that is a developing economy. The context in which adoption occurs needs to be examined in detail, in order to justify the inclusion of influencing factors. Lastly, the influencing factors are simply presented in Figure 2.5-3 and not currently classified according to importance and potential influence.

It is plausible that additional influencing factors as well as similar factors that are derived from the study need to be interpreted and purposefully reflected in the proposed model, in order to demonstrate adoption of MNSs by news consumers in South Africa.

A brief discussion of adapted definitions of influencing factors, as classified in Figure 2.5-3 follows. These factors will be studied during the course of empirical inquiry.

A number of studies in developed countries examined the use and adoption of mobile services, including MNSs (Bjornestad et al., 2011; Fidalgo, 2009; Nguyen & Claus, 2013) The aim of the studies was to understand the emergence of accessing news services via mobile devices and found a number of factors need to be considered, including the personal, technological, environmental, and social factors. As stated, limited research has been carried out on mobile news acceptance and adoption within the context of South Africa. However, limited research focusing on MNSs adoption within the identified context has been documented.

2.5.3 Summary of selected factors influencing adoption

The theoretical perspectives which are evident from related research provides a means through which factors influencing the adoption of MNSs can be determined, validated, and understood. A summary of identified factors which could influence the adoption of mobile services appears in Table 2.5-1. Table 2.5-1 also highlights Askarany's (2003), *General Model of Influencing Factors and Diffusion Process.*

Table 2.5-1: Identified Acceptance and Adoption Factors

Reference	Theory	Factors
Davis (1989b)	TAM	▪ Perceived usefulness ▪ Perceived ease of use
Askarany (2003)	General Model of Influencing Factors and Diffusion Process	▪ Attribute of innovation ▪ Other Factors (Social System) ▪ Attributes of adopters ▪ Generation of innovation ▪ Adoption of innovation
Venkatesh et al. (2003a)	UTAUT	▪ Performance expectancy ▪ Effort expectancy ▪ Social influence ▪ Facilitating conditions
Gao et al. (2008)	Mobile Service Acceptance Model	▪ Personal initiatives and characteristics ▪ Trust ▪ Context ▪ Perceived usefulness ▪ Perceived ease of use
Lee et al. (2010)	Measurement development for cultural characteristics of mobile Internet users at the individual level	▪ Individual culture: ▪ *Uncertainty avoidance* ▪ *Individualism* ▪ *Contextuality* ▪ *Time-perception*
von Watzdorf et al. (2010)	Influence of Provider Trust on the Acceptance of Mobile Applications	▪ Trust sensitivities
Abraham et al. (2011)	Evolved psychological mechanisms	▪ Drive to acquire ▪ Drive to bond ▪ Drive to learn ▪ Drive to defend
Chelule et al. (2012)	User experience factors	▪ Interaction ▪ Use ▪ Usability
Tojib & Tsarenko (2012)	Post-adoption modelling of advanced mobile service use	▪ Ease of use ▪ Enjoyment ▪ Time convenience ▪ Service ubiquity ▪ Experiential value
Venkatesh et al. (2012)	UTAUT2	▪ Performance expectancy ▪ Effort expectancy ▪ Social influence ▪ Facilitating conditions ▪ Hedonic motivation ▪ Price value ▪ Habit
Chan-Olmsted et al. (2013)	Examining the Roles of Perceptions, News Consumption, and Media Usage	▪ Perceived relative advantage ▪ Utility (Consumption value) ▪ Ease of use
Hurwitz (2013)	User Choice, Privacy Sensitivity, and Acceptance of Personal Information Collection	▪ Consumers' privacy sensitivities and reactions
Kim et al. (2013b)	Study of mobile user engagement (MoEN)	▪ Engagement motivations ▪ Perceived value, ▪ Satisfaction ▪ Continued engagement intention
Okazaki & Mendez (2013)	Perceived Ubiquity in Mobile Services	▪ Perceived ubiquity: ▪ *Continuity* ▪ *Immediacy* ▪ *Portability* ▪ *Searchability*

2.6 SOCIAL FACTORS

Although South Africa is regarded as a multicultural and a diverse country, South Africa has a long history of politically and racially-tense history. The country has been segregated into social and racial divides, as a result of the policies of what was then referred as the Apartheid government. The media was often gagged and reports were censored to control the information disseminated (Marks & Trapido, 2014). In post-apartheid South Africa, numerous challenges surrounded various aspects of a more inclusive democratic movement, supporting press freedom and accessibility to multiple mediums for news dissemination including MNSs (SAHO, 2017).

According to a report by the Gauteng Provincial Government, the development of society and social environment has rapidly changed over the years, since apartheid with the majority of South Africans choosing to work, study, and reside in urban regions such as Gauteng, due to the lucrative opportunities for career development as well as business growth. About 64 % of the younger working population live in the urban areas whilst the older segment of the population still stays in suburban cities further away from commercial and business hubs. However, in the late 19th century due to the upsurge of mining in the Gauteng region, a number of migrant labourers came to the region. Whereas the opportunities were limited, due to the policies of the then discriminatory and oppressive government during the Apartheid era of South Africa.

After the new government came into power in 1994, several strides were undertaken by the new ruling government to ensure improved access to basic services such as equal opportunities, better access to information, communication technologies, including access to media and news (Fish, 2016; GPG, 2016). The advent of mobile telecommunication networks, served as a communication channel change agents predicated the bridging of socio-techno barriers with wireless connectivity (Gillwald, 2005). The landscape continues to overcome several barriers both in terms of infrastructure development and economical accessibility as visions for smart city with access to Wi-Fi and related smart ICT services are forthcoming (Manda & Backhouse, 2016).

Social Factors refers to the factors that are associated with the social dynamics in which the news consumer uses technology. The impact of social factors can influence and vary the adoption of the technology by individual news consumers.

It was necessary to understand how the factors influencing adoption of MNSs are generally defined in current literature. This theoretical understanding informs preparations for the empirical inquiry. It is pertinent that perceptions of influencing factors collected and analysed from the field study need to be compared against these theoretical definitions and understand. The comparison could potentially confirm, refute, or shed new insight on the epistemological value emanating from the context of the study. The deductive reasoning approach which was employed for purposes of a pluralistic study mandated that theoretical

understanding of the influencing factors precede field investigation. Therefore, theoretical understanding of influencing factors formed the basis of empirical inquiry.

2.6.1 Level of development of society and social environment

The concept of the *level of development of society and social environment*, refers to the different levels of society and context in which different user' needs and desires can be addressed, through provision of adapted service offerings (Askarany, 2003; Rogers, 2010). These societal-sensitivities could promote increased diffusion. Askarany (2003) supports the notion that the level of development of a society might influence the adoption of an innovation. The diffusion of innovation through a population is affected by the level of development of society, personal characteristics, and social norms integral to the population (Brown, 1981). Brown stated that as the level of development in the society increase, the greater the diffusion of innovation within that society.

2.6.2 Communication channel change agents

Communication channel, change agents refers to the process of providing and sharing information by and between the participants for a better understanding (Askarany, 2003; Rogers, 2010). Communication channel change agents can be used to promote an innovation and influence the rate of adoption amongst the targeted users. A communication channel is the means through which new ideas are exchanged between users (Askarany, 2003; Rogers, 2010).

2.6.3 Opinion leaders

Opinion leaders refers to the degree to which an individual can informally influence another individual's attitudes or overt behavior, in a desired way with relative frequency (Rogers, 2010). Opinion leaders assist on the proliferation of innovations amongst the followers. The role of the opinion leader is to settle ambivalence of using the innovation. The concept of opinion leadership is advocated in research supporting the importance of opinion leaders in stimulating use of mobile services (Aarnio et al., 2002; Bobkowski, 2015; Hsu et al., 2007; Lam & Schaubroeck, 2000).

2.6.4 Social norms

Social norms refer to the extent to which an individual follows the expectations of other people who think it is significant to execute a particular behavior. Social

norms can be viewed as common beliefs and behavioral codes of a social group, influencing common behavior of people (Dickinger et al., 2008; Straub, 2009; Wang et al., 2013a). Several studies found that the influence of social norms is effective in promoting adoption within certain contexts, including mobile networking, mobile internet, and mobile chat services (Dickinger et al., 2008; Nysveen et al., 2005a; Pedersen, 2005).

2.6.5 Social concerns

Social concerns refers to the extent to which a user gets affected and influenced by the concerns that are perceived as relevant to the society, in which the user engages (Askarany, 2003; Taddicken, 2014). A study by de Zúñiga et al. (2012) found that accessing digital media can largely contribute in the development of social capital. It was found that accessing information via social media is a strong predictor of people's need for social engagement as well as political discourse, both via online and offline platforms. Lim (2016) found that social media users' attitude to social concerns in social media, influences their purchase and subscription of the specific news content. It was also found that the regular and frequent use of social media, supported the consumption of news regarding social concern, Another study however, found that social concerns on social media may not necessarily influence news consumer's news habits, when compared to other platforms for news delivery such as televised and printed news forms, thus referring to the *Compatibility* of MNSs with other mediums (Nielsen & Schrøder, 2014), based on similar findings from other studies and evidence from the empirical findings, it can be assimilated that news consumers value MNSs in order to obtain news related to social concerns. Other social concerns that encourage adoption of MNSs is political discourse. A number of studies found strong evidence to suggest that political discourse and social concerns are related and influence use of mobile services (Bode, 2016; Bright, 2016; Lee & Ma, 2012; Rhue & Sundararajan, 2013).

2.6.6 Social influence

Social influence refers to the extent to which consumers perceive that important others believe they should use a particular technology (Brown & Venkatesh, 2005; Venkatesh et al., 2003a; Venkatesh et al., 2012). According to the findings from the study of Venkatesh, et al. (2003a), social influence is a determinant of intention to use an innovation and the perceived belief that important others believe that the innovation should be used. Furthermore, 'the effect of social influence on intention is contingent on all four moderators … such that … it [is] non-significant when the data were analysed without the inclusion of moderators Venkatesh et al. (2003a). This study will assess the perception of social influence and the impact of moderating factors or demographics with regards to social influence.

2.7 ATTRIBUTES OF ADOPTER

In the context of this study, attributes of adopter refer to the attributes of news consumers. The characteristics like; behaviors, personal drivers, and motivations informs an adopter's needs and desires serve as factors that help to profile specific news consumers in determining varying adoption patterns. No one news consumer can be regarded as the same, however, distinct groups of news consumers can prove useful for understanding adoption (Sun & Jeyaraj, 2013). The synergy between the social factors and attributes of innovation, satisfy attributes of adopters, in relation to the use and adoption of MSNs, are of interest to this study.

2.7.1 Individual culture

Individual culture refers to the reliance on personal beliefs in making decisions. Individual beliefs do not prescribe to the group beliefs and is therefore not strictly followed (Karahanna et al., 2002; Roth, 1995; Steenkamp et al., 1999; Tolba & Mourad, 2011). A number of studies investigated the influence of individualism and the influence of personal as well as group culture in the usage of mobile services, particularly mobile internet and location-aware services, it was also found that individual culture and beliefs are a strong influencer in the use of the aforementioned services (Cyr et al., 2009; Karahanna et al., 2002; Lee et al., 2007; Lee et al., 2010).

2.7.2 Experience

Experience refers to the extent to which earlier and later adopters of an innovation adopts any new idea completely at the time of their first trial (Rogers, 2010). The concept of experience has been studied in varying contexts, including mobile services and the resultant studies have found that prior experiences can influence the use of advanced mobile services such as mobile tourism and mobile timeshare applications (Kim et al., 2015; Lee & Ma, 2012; Nunes & Quaresma, 2015; Rivera et al., 2015).

2.7.3 Drive to acquire

The *drive to acquire* refers to some evolved psychological mechanisms in order to seek out status, take control, retain objects and personal experiences which humans' value (Abraham et al., 2011; Lawrence & Nohria, 2002). Several studies argue that the need to access information consists of evolved and personally

emotive psychological mechanisms used to seek objects and personal experiences which humans' value (Abraham et al., 2011; Lawrence & Nohria, 2002). The drive to acquire has been researched in studies determining the use of mobile information communication technologies in the healthcare sector (Junglas et al., 2009). The study found that the drive to acquire together with specific factors related to the healthcare context influence technology adoption to varying degrees. It is thus evident that technology adoption constructs need to be appreciated in a multiplicity of dimensions which is dependent on the context of inquiry. The drive to acquire can be regarded as a significant influencer in the usage and adoption of mobile services.

2.7.4 Drive to bond

The *drive to bond* refers to an evolved psychological mechanism supporting the development of social relationships and mutual caring commitments with other humans (Abraham et al., 2011; Lawrence & Nohria, 2002). Similar studies focused on the value of mobile phones to harness social engagement and sharing of news content (Bacishoga et al., 2015; Lee & Ma, 2012). In the study, by Bacishoga et al. (2015), the context of using mobile phones as a role-player in developing bonds and maintain social capital was identified, however, the value was only considered advantageous, only when bonding occurred within the context of trusted individuals of the community and not form the outsiders or refugees, who may not be regarded as trustworthy. Another study by Lee and Ma (2012) studied the importance of several factors, including information seeking, socialising, entertainment, status seeking and prior social media sharing experience in terms of sharing news. The study found that respondents who were driven by the reward of information seeking, need for socialising, and desire for status would be more likely to share news, using online social platforms. The findings of their empirical study are also evident of findings studying mobile news adoption by young adults, where the need to be aware of information was considered beneficial to social discourse (Chan-Olmsted et al., 2013).

2.7.5 Drive to defend

The *drive to defend* refers to an inherent categorisation of evolved psychological mechanisms which make us defend ourselves and our valued accomplishments whenever we perceive threats to our self, values, beliefs, or status. The level of the defence can vary as threats are intensified or eased (Abraham et al., 2011; Buss & Duntley, 2006; Lawrence & Nohria, 2002). A number of studies found that sharing links to news and engaging in debate, particularly political discourse can vary as threats are intensified or eased within varying social fora, both online (including MNSs) and offline (Bobkowski, 2015; Lee & Song, 2017; Lischka & Messerli, 2016; Skoric & Zhu, 2016).

2.7.6 Drive to learn

The *drive to learn* refers to a categorisation of evolved psychological mechanisms which drive humans to search, find, and access information. Information can also be assessed and evaluated to fulfil needs and desires, satisfy curiosity, address uncertainty, and assist in making decisions and judgments which can be viewed as 'normal' (Abraham et al., 2011; Kaplan, 1992; Kurzban & Aktipis, 2006; Lawrence & Nohria, 2002). However, a lack of awareness created can also inhibit adoption of services and news consumer's drive to learn (Ramburn & van Belle, 2011). Similar studies found drive to learn to be an imperative intrinsic motivation (Rao, 2007). Rao studied the importance of user motivations and perceptions in determining news consumer behaviour to utilise locally-developed technology through the use of the TAM and found that acceptance and adoption varied based on intrinsic and extrinsic motivations. The drive to learn can both positively influence the use and eventual adoption of technology as well as negatively influence acceptance and adoption, based on other mediating factors such as age of the user.

2.7.7 Personal initiatives and characteristics

Personal initiatives and characteristics refer to the user's willingness to experiment with the innovation (Gao et al., 2008; Gao et al., 2011). Numerous studies have been conducted on the influence of personal initiatives and characteristics, and have found that personal needs, desires and interests of users are a strong influencer in using innovation, including mobile enterprise information systems and mobile social networking applications (Gao et al., 2008; Gao et al., 2014). Studies also argue that factors like; age, gender and education can positively affect the adoption of technology (Cyr et al., 2009; Hwang et al., 2016; Nysveen et al., 2005a; Venkatesh & Morris, 2000). The studies generally suggest that younger generations are more technologically-inclined, particularly males are more likely to adopt technology. However, consumption of specific news services, such as politics are more likely to be accessed by older generations' (over 55 years) male consumers. A recent study by Weekley (2016), however, found that in terms of mobile computing adoption, a correlation analysis indicated a negative correlation between age and adoption of the technology. A further analysis in terms of multiple regression analysis indicated that ethnicity and gender does not necessarily influence adoption. More importantly, the study found that age and education can influence mobile computing. A younger age group and higher levels of literacy and education support adoption of mobile computing services. Weekley (2016) and other (Dutta & Omolayole, 2016) researcher warned of gender-neutrality in the adoption of technology with moderating factors compounded to age, experience and education. The researchers suggest that an understanding of

personal initiatives and characteristics is vital to the provision and consistent utilisation of mobile technology.

2.7.8 Hedonic motivation

Hedonic motivation refers to the user's fun, enjoyment or pleasurable experiences derived from using a technology (Kim et al., 2013b; Venkatesh et al., 2012). Several studies focused on the intrinsic motivation of enjoyment and personally relevant desire for using free voluntary mobile messaging services, mobile services, including MNSs, mobile gaming, mobile advertising, and mobile tourism shopping (Kim et al., 2015; Leppaniemi & Karjaluoto, 2005; Liu & Li, 2011; Shim et al., 2015; Watjatrakul, 2013; Yeung & Yang, 2010). The studies found hedonic motivation and personal relevance a strong predictor of adoption of mobile news service, particularly personal preferences, and interests (sports, business and entrepreneurship, digital design, and fashion trends) for mobile news content.

2.7.9 Engagement motivation

Engagement motivation refers to a user's motivations which can impact the user's intention to keep engaging behaviour with the technology. Engagement motivations supports a primary and functional needs, referring to utilitarian motivations, or hedonic motivations, or social motivations which can affect the manner in which a user views or conducts their social networking activities. Engagement motivations are also defined in the context of the smartphone usage (Kim et al., 2013b; Venkatesh & Brown, 2001). A study by Kim et al. (2013b) focused on mobile engagement to explain mobile user engagement intention in terms of user's motivations, perceived value and satisfaction. The study found that the complex concept of mobile user engagement motivations can influence perceived value, satisfaction, and mobile engagement intention, which in turn influence adoption of mobile use (Ha et al., 2016; Kim et al., 2013a; Kim et al., 2013b). The encompassing concept of engagement motivation needs to be studied in order to determine the significance of these factors in adoption on MNSs.

2.7.10 Habit

Habit refers to the extent to which people tend to perform behaviours based on prior and repeated behaviour and secondly can be measured as the extent to which an individual believes the behaviour to be automatic (Kim & Malhotra, 2005; Limayem et al., 2007; Venkatesh et al., 2012). Several studies investigated the persistent use of mobile services in environments in which mobile users are regularly situated (Nunes & Quaresma, 2015; Thorson et al., 2015; Van Damme et al., 2015) and habitual use of smartphones (Oulasvirta et al., 2012; van Deursen et al., 2015). Most consumers prefer the convenience of interacting with the mobile

services at their time discretion with reference to mobile brokerage services and time consciousness (Kleijnen et al., 2007). The viewing of MNSs at the habitual discretion of the news, consumer influences the perception of, 'always on', service ubiquity and experiential value, as is evident from the various studies investigating the location-based retailed applications and advanced mobile services (Kang et al., 2015; Tojib & Tsarenko, 2012). The need to access media and continually communicate has become of prime importance within the routine lives of users. This habitual routine promotes adoptive behaviour of mobile services (Klimmt et al., 2017; Schrock, 2015).

2.7.11 Trust sensitivities

Trust sensitivities refers to the user's beliefs or faith in the degree to which a specific service can be regarded to have no security, vulnerabilities, and personal privacy threats. Trust sensitivities can also be likened to of the branding of mobile news serves. News consumers are likely to adopt services based on brand awareness and trust (Gao et al., 2011; Geniets & Thussu, 2013; Hurwitz, 2013; von Watzdorf et al., 2010).Trust sensitivities have been studied by many mobile service researchers (Gao et al., 2011; Luo et al., 2010; Zarmpou et al., 2012). A study by von Watzdorf et al. (2010) could not confirm the influence of trust on the perceived usefulness and the intention to use mobile emergency applications. Trust sensitivities, risk-perceptions and concerns of using innovative mobile banking services, can either inhibit or support technology acceptance thereof, (Huang et al., 2010).

2.8 ATTRIBUTES OF INNOVATION

In the context of this study, attributes of innovation refer to the attributes of the adoption of any particular innovation. The impact of these innovation adoption factors is thought to influence and vary the adoption of an innovation at any given time. Fifteen distinct attributes of innovation were identified for the purpose of empirical investigations.

2.8.1 Relative Advantage

Relative advantage refers to the degree to which an innovation is perceived as being better than the idea it supersedes. This can be interpreted in terms of three dimensions, including economic profitability, social prestige, or other benefits. Attributes of prospective adopters can determine the level of importance of each of the three dimensions of relative advantage (Rogers, 2010). Several studies determined that relative value and payment for mobile services are associated, including empirical studies in developed and developing economies (Dagli & Jenkins, 2016; Mao et al., 2005; Venkatesh et al., 2012). Other studies determined

the viability of mobile payment services, in which relative advantage for using the mobile service was regarded as a dominant factor in mobile service adoption (Al-Jabri & Sohail, 2012; Yang et al., 2012; Zhou, 2013) and inhibited adoption (Blechar et al., 2006; Ramburn & van Belle, 2011).

2.8.2 Complexity

Complexity refers to the degree to which an innovation is perceived as relatively difficult to understand and use (Rogers, 2010). Rogers (2010) did not find conclusive evidence to support the concept, but suggested that the more complex an innovation is, the less likely it will be adopted. Complexity has been studied by a number of researchers, trying to determine the reasons for perceived complexity with regards to mobile business, mobile cloud storage, mobile banking, and other advanced mobile services (Arpaci, 2016; Gonzales, 2008; Islam et al., 2013; Shaikh & Karjaluoto, 2015). The studies support the conjecture that complexity can influence acceptance, however, this is dependent on the context and type of mobile services. The study by Islam et al. (2013) found that complexity of advanced mobile services in the context of Bangladeshi users is not a significant influencer as compared to other factors related to perceived usefulness and compatibility.

2.8.3 Usability

Usability refers to a quality attribute that assesses how easy user interfaces are to use (Harrison et al., 2013; Ngwenyama & Nielsen, 2003; Sheller, 2015). A number of studies have studied the usability of mobile services in varying contexts and the findings of these studies conform to the findings from literature which suggests that the usability experience needs to be cognisant of the news consumers context, including socio-economic setting, culture, and language considerations (Baduza et al., 2012; Harrison et al., 2013; Markova & Aula, 2007; Venkatesh et al., 2003b; Yu & Kong, 2016; Zhong, 2013). Only one recent study by Chelule et al. (2012) has been done in the area of what is referred to as 'mobile business support services', in the context of rural small and micro enterprise in South Africa. Chelule et al. (2012) specifically dwells on the aspect of user experience of mobile phone use, and micro and small enterprise interaction and use of mobile business support services. The limited use of mobile support services, suggest that usability aspects which need to be considered in the context of use for consistent usage. Venkatesh et al. (2012) argue that human factors and numerous modes of delivery (e.g. mobile and tablet devices, operating systems, and user interface styles) may influence perspectives of convenient usability of mobile services.

2.8.4 Trialability

Trialability refers to the degree to which an innovation may be experimented with on a limited basis (Rogers, 2010). Rogers (2010) found that trialability is positively associated with the rate of adoption. A number of studies confirmed that trialability can positively or negatively affect adoption of mobile services. Trialability is influenced by other adoption factors, including the context of using mobile services and the benefits to be gained from using such services (Hsu et al., 2007; Karahanna et al., 1999; Knutsen et al., 2005; Mallat et al., 2009).

2.8.5 Observability

Observability refers to the degree to which the results of an innovation is visible to others (Rogers, 2010).Observability was studied in many related works such as the study by Bouwman et al. (2007). Adoption factors and barriers, in terms of the observability of the following mobile services bundles: travel, GPRS, surveillance traditional and more advanced entertainment services, and m-commerce services were studied. The study found that the intricacies of observability need to be interpreted within the context and nuances of the specific mobile services under study. Another study also supports the trends towards a shorter presentation of articles as compared to the viewing and reading of longer forms of articles (Mitchell et al., 2016). A study by Baduza et al. (2012) focused on the GUI 4D or 'graphical user interfaces for development' and how this need to be supported. The reflections from Baduza et al. (2012) may be applicable in the study of MNSs adoption and would therefore need to be considered.

2.8.6 Compatibility

Compatibility refers to the degree to which an innovation is perceived as consistent with the existing values of the user of the innovation (Rogers, 2010). Compatibility and perceived Compatibility was studied by numerous researchers (Aiash et al., 2013; Koivumaki et al., 2008; Tan & Chou, 2007). One study focused on examining the role of innovation attributes for determining adoption of the interbank mobile payment service (Kapoor et al., 2015). The study found that news consumers' perception of compatibility is a significant aspect in relation to the adoption of banking services across analogue and digital mobile platforms. Another study also suggests that print, online, free, and mobile media can co-construct new media audiences in European countries such as Italy, France, Spain, the UK and Germany, depending on user preferences of accessing news services (Fortunati et al., 2014). Schierz et al. (2010) argue that perceived compatibility has an influence on the intention to use mobile payment services. The researchers suggest that users must find mobile payment services reconcilable with their existing behavioural patterns, in order to promote acceptance and adoption of such services.

2.8.7 Performance Expectancy

Performance expectancy refers to the degree to which usage of any technology will provide benefits to consumers in performing certain activities (Venkatesh et al., 2012). Performance expectancy is regarded as a direct determinant of intention to use a technology, the significance of the relationship is moderated by factors like gender and age (Venkatesh et al., 2003a).

2.8.8 Effort Expectancy

Effort expectancy refers to the degree of ease associated with consumers' use of technology (Venkatesh et al., 2012). (Venkatesh et al., 2003a) found that gender and age can moderate the effect of effort expectancy. The study found that effort expectancy was more significant for women and older workers, however these effects decrease with experience.

The concepts of performance expectancy and effort expectancy have been studied widely in mobile services research, in the context of general mobile internet services, mobile health, mobile news, and mobile business services (Bouwman et al., 2007; Carlsson et al., 2006; Morosan & DeFranco, 2016; Oliveira et al., 2016; Wei et al., 2013; Zhou et al., 2010).

2.8.9 Perceived ubiquity

Perceived ubiquity refers to a multidimensional construct consisting of continuity, immediacy, portability, and searchability (Kim & Garrison, 2009; Okazaki & Mendez, 2013). Studies state that perceived ubiquity is an important factor to consider, as the users engage with mobile services in different domains and require consistent as well as omnipresent access as required (Ahluwalia et al., 2014; Jarvenpaa et al., 2005; Nysveen et al., 2005a; Roy & Moorthi, 2017; Seungkeun, 2010). Perceived ubiquity may influence the continued use of MNSs.

2.8.10 Continuity

Continuity refers to a state or a quality of being continuous, that is "always on." (Okazaki & Mendez, 2013). A study by Jorstad and Dustdar (2004) found that continuity is necessary for any service provision to persist. The study suggested that users should access services seamlessly with a minimal effort or interruption. Another study also argued that continuity must ensure the continual access to a

mobile service, unlike traditional services, provide limited access to services (Kleijnen et al., 2007).

2.8.11 Immediacy

Immediacy refers to the quickness of an action or occurrence. Immediacy implies light, effortless, and easy interaction (Okazaki & Mendez, 2013; Wilmer & Chein, 2016). Okazaki and Mendez (2013) study focused on user perceptions on Immediacy of mobile services and desktop PC services and found that immediacy can affect a user's engagement with the services. Carlson (2007) study found that the impulsive need for online news is far-reaching and consumers want to access news within real-time. A study by Lin et al. (2017) adopted the uses and gratifications approach to determine the observations of media technology to understanding consumers' motivations for disseminating social word of mouth information in mobile social networking, using sequential qualitative and quantitative methods. The study found that 'immediate social affective communication and the motivation to offer immediate information support' are integral to affordances of immediacy in the use of technology.

2.8.12 Time convenience

Unlike, immediacy, *time convenience* refers to the convenience of consuming advanced mobile services, stemming from ubiquitous use of mobile services (Kleijnen et al., 2007; Tojib & Tsarenko, 2012). Some studies sought to investigate location-based retailed applications and advanced mobile services (Kang et al., 2015; Tojib & Tsarenko, 2012). Other studies also supported the need for real-time and localised-delivery of mobile services, 'right here and right now' (Karrberg & Liebenau, 2007). The experiential value of interacting with MNSs at a convenient time can be found in studies exploring accessibility and interaction with MNSs (Shim et al., 2015). The study supports the multi-faceted concept of time convenience in influencing adopting of mobile services.

2.8.13 Portability

Portability refers to the quality of being light enough to be carried easily, which relates to the 'physical characteristics' of the device. Portability can also refer to the spatial and temporal constraints, reflecting varying levels of mobility within the social domain, from an 'anytime, anywhere' perspective (Mascheroni & Vincent, 2016; Okazaki & Mendez, 2013). Portability and mobility are important aspects to consider in relation to perceived ubiquity of mobile services (Okazaki & Mendez, 2013). Portability can affect the ability to access and use mobile commerce

applications based on varying contextual parameters (Benou & Vassilakis, 2010) and MNSs via a variety of mobile devices, at any location, more specifically whilst travelling (De Pessemier et al., 2016; Okazaki & Mendez, 2013; Van Damme et al., 2015; Wolfe, 1994). Dhir et al. (2012) conducted a study in rural South Africa to understand the concept of 'pervasive computing', notably access to mobile computing and the inhibited adoption of such technologies within the situatedness of the delineated context and found that the affordance of portability is vital to sustained use of mobile services. A study by Ziv and Mulloth (2007) investigated the global context in which mobile service providers are expanding service operations with a focus on remaining locally-relevant and found that localisation of services is important to the portable use of mobile services. A study by Aiash et al. (2013) proposed a model for future mobile networks integrating 'communications, mobility, quality-of service and security'. This is necessary in order to deliver mobile services which can be regarded as portable and ubiquitous. Portability provides an important connection to situatedness and must be integral to the design and delivery of services to users (Coffin, 2011; Haddon, 2017).

2.8.14 Searchability

Searchability refers to the capability of making a thorough examination by the users for the information or data required (Bjornestad et al., 2011; Chen, 2010; Goggin et al., 2015; Øie, 2012; Okazaki & Mendez, 2013; Schmitz, 2013; Xu et al., 2012). The studies found that the mobile users who are able to search for required information, are more likely to use mobile apps for their informational needs (Fang & Fang, 2016; Gupta, 2016).

2.8.15 Facilitating Conditions

Facilitating conditions refers to a consumer's perceptions of the resources and support available to perform a behaviour (Brown & Venkatesh, 2005; Venkatesh et al., 2012). A number of studies focused on studying the influence of facilitating conditions on the acceptance and adoption of the advanced mobile services, mobile internet, mobile baking services and mobile (Carlsson et al., 2006; Islam et al., 2013; López-Nicolás et al., 2008; Zhou, 2011; Zhou et al., 2010). The findings concur with similar findings related to the relationship of age, more specifically cognitive age, and technology acceptance, suggesting that certain users may need assistance to utilise technology (Hong et al., 2013; Mallat et al., 2009; Wang et al., 2006). Other studies found facilitating conditions support user perceptions and practices as well as situatedness of users relative to technology adoption. Designers and developers should model technology adoption practices that foster purposeful user-centred mechanisms that can support the intended use of technology (Herrero & San Martín, 2017; Hossain et al., 2017).

2.9 SOCIOMATERIALITY

In terms of classification of the influencing factors, Askarany (2003), asserted that by constitutionalising a specific influencing factor into a specific category, does not imply that relationships existing between the factors are mutually exclusive. Influencing factors can have a relationship with other influencing factors in the same or alternate categories. Several researchers draw emphasis to how factors are intertwined or entangled, forming symbiotic relationships within a larger tapestry of inter-related patterns or materials comprising social, political, technical innovation, economic and other organisational activities (Askarany, 2003; Scott & Orlikowski, 2014).

One aspect to be considered is that influencing factors might as well be influenced by certain factors or in contrast the influencing factors could in turn influence other factors. These dynamic interactions also referred to as "intra-actions" of materials, need to be acknowledged and represented accordingly (Askarany, 2003; Barad, 2003; Suchman, 2002, 2007). *Intra-actions*, unlike interactions, refer to the mutual constitution of entangled agencies. The concept of *agency* refers to the ability to act, intra-actions suggests that agency materialises from within the relationship and not outside of it. This is important because when intra-actions occur, they can significantly influence the manner in which agency changes, transforms or emerges. The concept of *entanglement* refers to the notion that '…entanglement of matter and meaning [is] produced within specific phenomena', Scott and Orlikowski (2014).

In the context of this study, these varying co-constitutive as well as enactment positions of materials can assist in determining a comprehensive understanding of adoption and non-adoption. In intra-actions, responsibility is distributed among the constitutive entities and agency does not pre-exist but arises from the relationship between intra-actions (Barad, 2003). Furthermore, according to Orlikowski and Scott (2008) it is necessary to consider the socio material view of technology use. Technology can be viewed as an emergent process, which is a result of varying interactions, including that of 'human choices, actions, social histories, and institutional contexts.' Technological artefacts are regarded as, 'material artefacts that are socially defined and socially produced, and thus as relevant only in relation to the people engaging with them'.

More recently, in Scott and Orlikowski (2014)' study of the practice of anonymity in social media made evident the need to understand the intra-actions and sociomateriality, as a means to comprehend symbiotic relationships between the "social" and the "material" aspects of technology. Scott and Orlikowski (2014) argued that consistent understanding of having disparate views of the "social" and "material", '… overlooks the entanglement of matter and meaning in practice and further diminishes the possibilities of understanding contemporary IS phenomena through time'. Other researchers are of the view that, contemporary studies in IS, need to employ new as well as varied techniques in order to determine 'dynamic, multiple, and contingent materialities, constituting contemporary … realities.

Sociomateriality and *intra-actions*, particularly *entanglement* can support comprehension of material enactments. These material enactments can offer insight into the simultaneity of adoption, that is, interrelationships and intra-relationships amongst the variable factors.

2.10 CURRENT STATUS OF RESEARCH

One study by van Noort and Mavhungu (2012) could be found that investigates stakeholders perspective of mobile new service use and viability in the context of South Africa. van Noort and Mavhungu (2012), carried out interviews with media company managers and editors who were responsible for the implementation of their company's strategy, the interviews with the technical developers, journalists and advertising managers who were working with the mobile news content and advertisements. According to the researchers interviews with three local professionals were conducted in order to "map a broader understanding of MNSs in South Africa." The researchers did interview users, and this perspective should also be considered for future research, in terms of defining and meeting user needs and desires.

There is a scarcity of research studying the adoption of MNSs, in developing economies such as South Africa. This gap of research needs to be addressed in order to determine and understand the dynamic facets of adoption. This understanding of influencing factors could as well promote an improved initial use and sustained motivation to utilise various mobile services, not merely MNSs. A comprehensive understanding of attitudinal factors may assist in the prediction of initial use and sustained adoption of such services.

It was also found that related behavioural research either validated and/or extended the well-cited and traditional determinants and antecedents of technology acceptance and adoption. Very few research studies have made use of pragmatic research and mixed methods for data analysis. This lack of mixed methods research could account for the scarcity of personal meanings which could be attributed to varying research respondents within the context of the specific empirical inquiry.

Rogers (2010) calls for more investigation to determine and understand the *characteristics of innovations* and their *influences on diffusion*. Askarany (2003) support this call for research, in order to determine the *attributes of innovations* and its effect on the *diffusion of innovation*. Several researchers also call for applying current theoretical understanding in the study of the adoption and usage of numerous mobile services other than that which was studied at the time of investigation (Gebauer et al., 2008; Lee et al., 2010; Okazaki & Mendez, 2013).

Oscar Westlund is a prominent researcher in the field of digital news and MNSs using smartphone and online platforms. Westlund published a number of studies to identify and interrogate factors which would motivate the transition of accessing news from traditional media to technologically-aided media access, and the role of

traditional media in a mobile communication era (Nel & Westlund, 2012; Westlund, 2008, 2010a, 2010b, 2013, 2015; Westlund & Fardigh, 2014). In a recent paper Westlund (2015) reiterates the call for contextually-focused findings to broaden our understanding of mobile news consumption: '*…empirical research is needed for documenting, describing, and explaining emerging patterns of mobile news consumption among different people in various places. Academics also need to further theorise and conceptualise the area of mobile news…critically reflecting upon what is known and also what is currently happening*.'

Therefore, integration and inclusivity of influencing factors of adoption is limited and would therefore need to be considered for contextual applicability and relevance in addressing the research questions of this study.

The three gaps, as inferred from the literature review, which were addressed throughout this research include:

1. The limited use of a *holistic and integrative model,* to assess the adoption of a specific innovation, i.e. MNSs, within developing economies.
2. The call for an enhanced understanding of the *characteristics of influencing factors* of an innovation within a specific developmental context, and
3. The call for the study of adoption of a specific type of innovation *using multiple methods to understand news consumer requirements* comprising personal and social values, perceptive needs, and habitual and ubiquitous usage of the innovation.
4. The call for employing the notion of *sociomateriality* and *intra-relationships* to determine relationships and understanding of material enactments.

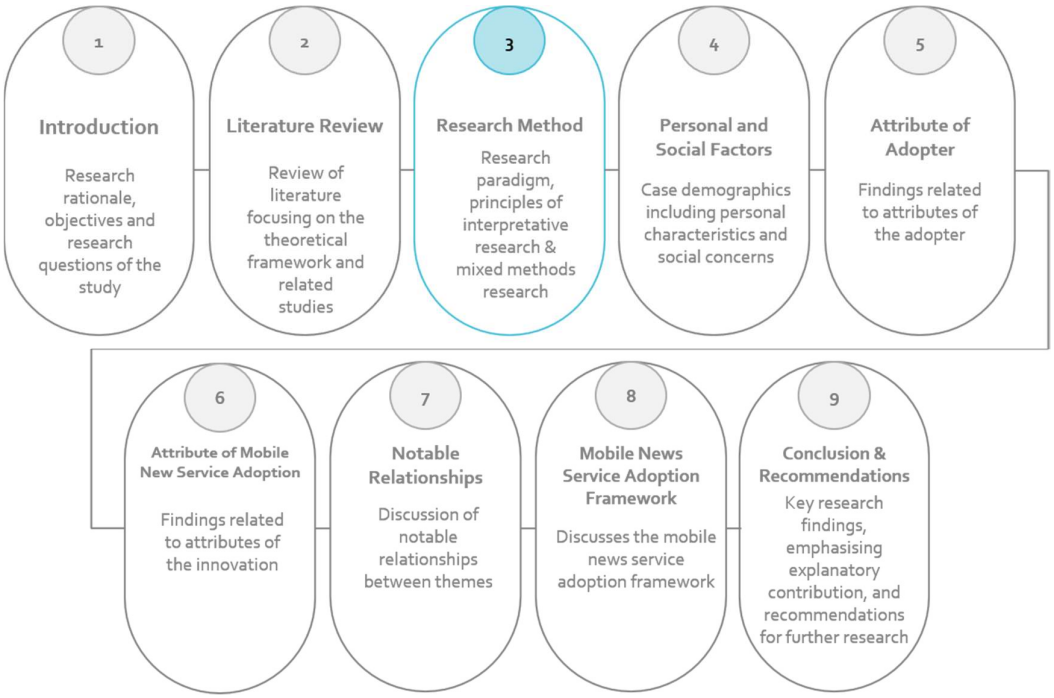
2.11 SUMMARY

This chapter presented an overview of prominent technology acceptance and adoption research. The classification schema which encapsulates the core theoretical understanding of the study is presented with definitions of selected factors. Thirty-two factors were selected based on the probable influence that these factors have on the adoption of MNSs.

A summary of the current status of research calls for contextual inquiry, integrated technology acceptance and adoption theory, and a more holistic interpretation to extend mobile services adoption research.

Chapter 3 presents the research method adopted.

CHAPTER 3: RESEARCH METHOD



3.1 INTRODUCTION

All research must embrace an appropriate research method that is befitting by systematically and rigorously addressing the research aims and objectives of a particular study. It is necessary to adopt research approaches, methods and techniques which can espouse the generation of purposeful research findings, and as such that the epistemological orientation and ontological assumptions should inform the research method that should be employed for the study (De Gialdino, 2009; Guba & Lincoln, 1994).

This study adopted a mixed methods research strategy to synthesize knowledge of technology adoption of MNSs through pragmatically understanding human sense-making, interpreting complex individual and shared meaning of adoption, and determining social patterns.

3.2 PRAGMATISM

Pragmatism was selected as the philosophical paradigm for this study because of the ideological view that meaning emanates naturally within a particular context and this 'truth' reflects the view within the contextual study. The classical theorists, Charles Sanders Peirce (1839–1914), William James (1842–1910) and John Dewey (1859–1952), developed pragmatism and the pragmatic maxim can be referred to as the consideration of,

"… what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of those effects is the whole of our conception of the object." (Peirce, 1974).

Furthermore, due to the nature of social science research, methodological biases can be overcome with the adoption of pragmatism as a means to promote 'methodological appropriateness' to enable researchers to improve their methodological innovation and adaption. (Patton, 2002) argues that "… *such pragmatism means judging the quality of a study by its intended purposes, available resources, procedures followed, and results obtained, all within a particular context and for a specific audience."*

In this study, the pragmatic understanding of technology adoption of MNSs within a defined context means that findings are reflective of the circumstance and these findings can be assimilated to other contexts through further research inquiry. The theoretical and practical implications of the findings were rationalised in Section 1.6 and will be discussed further in the concluding chapters.

In this study, pragmatism embraces the notion of practical considerations which are theoretically grounded and empirically informed. The resultant findings afford

an objective and lucid understanding of factors that should be considered in the design, development and implementation of MNSs, within the context of developing countries.

3.3 ABDUCTIVE REASONING

In this study, the researcher has adopted an abductive research approach (Dubois & Gadde, 2002; Trochim & Donnelly, 2007). However, a *deductive reasoning* approach was the core frame of reference used for the initial reflection of findings against the identified theory. This approach was followed in order to confirm, refute, or potentially yield new themes which could deepen the understanding of the phenomenon of interest (Lee & Baskerville, 2003; Trochim & Donnelly, 2007; Zhang & Wildemuth, 2009).

In this study, *deductive reasoning* is focused on identifying propositions against current technology adoption theory. Inductive reasoning was adopted in order to identify relationships between the themes which could not be identified from the current theoretical understanding. Figure 3.3-1 depicts the abductive reasoning approach adopted for this study.

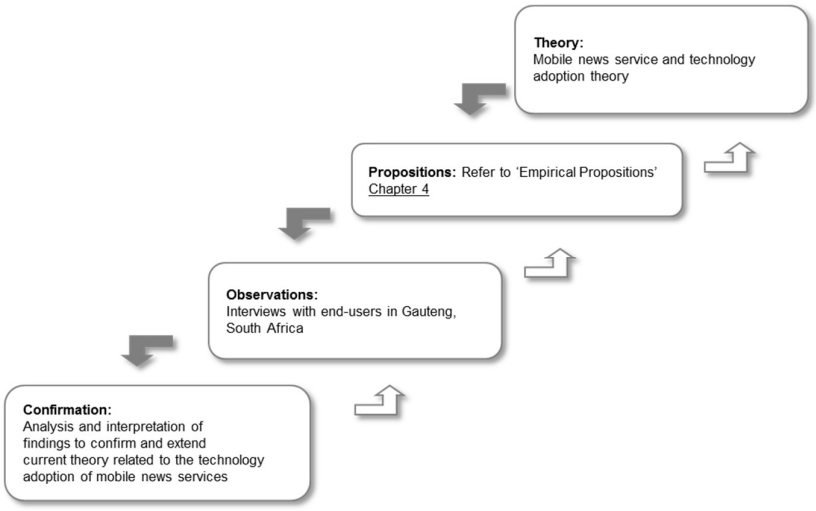


Figure 3.3-1: Abductive reasoning approach adopted for the study

The abductive approach of reasoning affords a more logical, rigorous, and systematic method for gaining an informed understanding of any current technology adoption theory and its gaps and is supported by research supporting the dialectic relationship between inductive and deductive research approaches (LaRossa, 2005).

The initial theoretical understanding was a prerequisite and reinforced preparations for the empirical inquiry of investigating the adoption of MNSs by South African news consumers. Research findings from the empirical inquiry were

then examined against the initial theoretical understanding. The comparison of data resulted not only in confirmation of existing findings but informed new understanding, which generated impetus for further research inquiry, through the use of a data-driven inductive approach.

An abductive reasoning approach is recommended for social studies of this nature, as it seeks to reveal the underlying meanings and understanding of the phenomena of interest, through a structured and rigorous analysis of the findings (Fereday & Muir-Cochrane, 2006). Through inductive reasoning, codes were developed and assigned to data which emerged as new themes were observed from the analysis. An elaboration of how *deductive reasoning* and *inductive reasoning* leads to analogous research findings, contributions, and future recommendations for investigation, is discussed in subsequent chapters.

In order for the research approach to be effective in its attempt to test theoretical understanding, the data needs to be sourced as a necessary requirement for the empirical inquiry.

3.4 ETHICAL CONSIDERATIONS

Ethics approval was obtained prior to the participant engagement. A copy of this ethics approval obtained is presented in *Appendix A: Ethics Approval*. All the participants were informed about the purpose of the study and the value of their participation. The participants were treated with respect, in terms of human dignity, time, position and authority of the individual, personal information provided and willingness to participate in the study (Myers & Newman, 2007; Oates, 2006).

All participants agreed to sign a '*Research Participant's Consent Form'* to ensure that the necessary consent is obtained, before partaking in the study. A copy of the signed consent form was given to the participant for their personal reference as well. Many participants agreed to have an audio recording of the interview, either via a mobile digital audio recorder or via an automatic Skype audio recorder. Some participants did not permit an audio recording, in which circumstance, the researcher had to ensure to take down detailed interview notes, in order to inform later transcriptions. The audio recordings are securely kept in order to ensure that no unauthorised access is permissible. Additionally, the researcher notes and transcripts are archived to ensure availability, should future reference be required.

3.5 INTERVIEW DATA COLLECTION

Data collection is an interdependent research activity which needs to be designed and developed in a manner conducive to addressing the research aims and objectives of the study (Creswell, 2012; Oates, 2006; Struwig et al., 2001). However,

due to the rigour of an abductive reasoning approach, it supports the collection of qualitative data, only if appropriate data collection instruments are employed to support the collection of such data (Fereday & Muir-Cochrane, 2006; Rowlands, 2005). The timing of data collection, research instrument and sampling strategy is discussed in the subsequent sub-sections.

3.5.1 Time horizon

In this study, the cross-sectional time horizon was selected, because we wanted to evaluate current use and adoption or non-adoption of MNSs. Furthermore, two sets of findings from adopters (end users or EUs) and non-adopters (potential news consumers or PEUs) are compared. This study did not analyse a specific individual's adoption or non-adoption of MNSs over time.

3.5.2 Interviews

The choice of data collection instrument is imperative, since it ensures the methodical collection of data, which can effectively address the research questions of the study. The choice of data collection method, is also dependent on the type of paradigm and the type of data which is required to support the premise of the study. It is for this reason that *interviews* were regarded as the instrument of choice to undertake this study. Unlike many of the other instruments, after considering that this study is explanatory, interviews were thought to support the collection of qualitative data (Flick, 2014; Mishler, 2009; Ritchie et al., 2013). The structure of the interview, type of the questions asked, interview preparations, and post-interview activities are discussed next.

Interview structure and questions

Interviews allowed for the collection of personal insights and perceptions of adoption of the mobile new services. A set of pre-structured questions were asked from the participants. The researchers also opted for the flexibility to ask additional questions, pertaining to the particular and current topic of conversation and interest guided by the responses provided by the participant. This type of semi-structured interview allowed for a detailed inquiry into the initial usage application, sustained adoption, and potential adoption of MNSs.

The interview questions set out to identify the participant's perspectives on adoption of MNSs. A copy of the interview questions can be found in *Appendix B: Interview Questions*. It also provides an indication of the concept(s) which corresponded with the answers of particular questions. The researcher was not conducting a formal questionnaire but an engaged interview, in order to obtain rich qualitative feedback which could inform the consequent findings. It is for this

reason that the specific questions that were attributed to the specific concepts were minimised, so as to analyse responses based on the conversations with the interviewees, following an *abductive reasoning* approach. These questions were not given to the participants, prior to commencement of the interviews. All the questions were designed to be open ended questions, which were used to gather as detailed and meaningful a response as possible. Confirmation and explanatory questions which formed part of the pre-defined set of questions were asked to obtain relevant feedback. The closing question allowed the participant to comment on additional details which may not have been addressed during the interview.

Interview preparations

The interviews were scheduled and conducted in the field during October and November 2013 and in February to March 2016.

An interview room in which to conduct the interview, was arranged by the participants at their work, study, or residential premises. This was done to ensure that participants were comfortable in their natural, everyday environment. No equipment needed to be setup, except for switching on the digital audio recorder or audio recording program at the beginning of the interview, if the participants agreed for the interview to be recorded.

The researcher's role, just as that of the interviewer, was characterised by a professional and a courteous demeanor. The participant's role, as an interviewee was not coerced into responding to any of the questions. Impartiality to responses was maintained, the researcher only asked for clarification or confirmation of the responses. The most important data was collected first, the change in structure of the interview (semi-structured interview) managed, and the time limits were adhered to amicably.

The '*Before the Interview*' script was used to assist in explaining the purpose of the study, the value of the participant's participation in the study and the confidentiality of all the responses collected thereof. If the news consumer agreed to take part in the study, the news consumers were requested to read and acknowledge the '*Research Participant's Permission*' form, in order to confirm the participation in the study. It was specified that confidential responses would not be shared. Furthermore, the procedure for answering interview questions was explained prior to the start of the interview.

Post-interview activities

On average, a single interview lasted for around 45 minutes. The interview concluded with a high-level overview of key the aspects which emerged from the

interview itself. It was therefore critical to capture a holistic understanding of the individual participant's responses.

Finally, the participant's contribution to the study was acknowledged. The researcher made a request to the participants regarding post-interview clarification of the responses. All the participants also agreed to participate in the follow-up sessions, should such interactions be warranted during the analysis phase of the study.

To a large extent, handwritten script notes along with digital audio recordings were used to transcribe participant's responses. Permission was asked from the participants to record field notes and to use a digital audio recorder during the interview. The combination of these two forms of recording assisted in capturing all responses, as accurately as possible. Field notes and digital audio files were transcribed after the interviews were conducted, with the aid of the *INQScribe* software application. INQScribe is a digital media transcription software application which supports the annotation and transcription of data (Inquirium, 2014). The process of transcribing interview transcripts was imperative in order to assist the analysis of participant verbatim (Butler, 2014; Davidson, 2009).

The interviews were conducted with the participants sampled, following a sampling technique specifically employed for this study.

3.5.3 Sampling

To assist the selection of sampling technique, the researcher examined various sampling approaches and techniques However, the initial intent of the sampling technique was to ensure that the sample would be diverse and inclusive. Furthermore, Palys (2008) advises that a general principle for selection of sampling strategy should be considered: '*Think of the person or place or situation that has the largest potential for advancing your understanding and look there*.'

As the study progressed it became evident that the sample frame was homogenous and comprised a range of participants with similar personal characteristics and initiatives who resided, studied, and/or worked within the boundaries of Gauteng, South Africa. Due to accessibility of participants for the study, the sample consisted of a larger sample of highly qualified individuals working within the IT (information technology) industry. The business information technology and digital innovation sectors mainly support and promote digital service innovation in South Africa (Baller et al., 2016) and this sample of participants were thought to be better suited for inclusion in this study. IT professionals can be regarded as early adopters of new mobile service innovation in the country.

Positive responses to participate may be attributed to interpersonal communication and articulated reasoning, for participation in the study. The researcher ensured that interviews did not disrupt the participant's schedule or

time, since time was regarded as one of the most critical factors for participation. The emphasis and respect for participant's time could have supported rapport and consequently yielded comprehensive responses. Respect for participants in the sample was not only demonstrated in terms of honouring participants' time, several ethical concerns were also addressed and discussed previously. In terms of response rate, non-responses, purposive sampling minimised non-responses and supported research-participants' interest in partaking in the study.

The abductive reasoning approach, and predominantly qualitative analysis of the study, informed the number of participants sampled for the study. The sample size was therefore based on the aforementioned epistemological orientation and methodological considerations, settled upon once theoretical saturation, generalisation and reasoning of research findings was achieved, and considered necessary and sufficient for the purposes of addressing the research questions of the study. It was found that theoretical saturation was reached, when no new themes or relationships could be determined, no further interpretation could be assimilated, and the consistent frequency of identified themes were prevalent as five additional interview transcripts were exhaustively analysed against the current sample. This method for sampling is supported by researchers, advocating for purposeful sample sizes based on numerous research considerations for both qualitative and quantitative research (Baker et al., 2012; Flick, 2014; Guest et al., 2006; Sandelowski, 2000). The final sample size thus consisted of 49 participants.

A study by Ryan and Valverde (2006) argues that a large data set can indeed provide the necessary and sufficient data which can result in rich insight which may otherwise not be obtained. Ryan and Valverde (2006) collected a personal diarised data from 92 participants in a study to determine perception surrounding the concept of 'waiting', in terms of fulfillment of the online services. The researchers argue that the sheer volume of data which emerged, added an introspective view of the phenomenon which could not have been collected through another research strategy.

Therefore, the richness of the collected data supported theory building with the aid of ATLAS.ti, a Computer Assisted Qualitative Data Analysis Software, which supported addressing the research objectives. The adequacy of data from a large sample supported a comprehensive understanding of research concepts by identifying numerous perspectives and meaning of the concepts. It is this ideal of richness and diversity of data, based on personal initiatives and characteristics, which was adopted for this study. All personal data related to the 49 participants is discussed in further detail in Chapter 4.

3.6 MIXED METHODS RESEARCH STRATEGY

In order to obtain a richer and deeper understanding adoption, rather than purely quantitatively derived findings which may not reflect a representative and deeper understanding of the phenomenon of interest, a mixed methods research strategy was adopted this study. Grover et al. (1996) argue that alternate forms of analysis can support knowledge discovery, "…permitting IS scholarship that more fluidly accommodates alternative forms of knowledge production." In addition to this, Mingers (2008) states that pluralistic and multiple research methods can support a holistic understanding of findings from varying perspectives, including perspectives from the objective or material world, the social or normative world, and the subjective or personal world. Each ontological domain assist in shaping unique perspectives and therefore support the needs for distinct methodologies to synthesise and interpret a holistic understanding of the phenomenon under study.

Venkatesh et al. (2013) asserts that "...the key characteristic of mixed methods research is the sequential or concurrent combination of quantitative and qualitative methods within a single research inquiry." In this study, qualitative analysis was the primary approach used for initially scrutinising issues related to the adoption of MNSs and relationships between these concepts (Walsh, 2014). A subsequent method of quantitative analysis was used to support the selection and identification of significant relationships of concepts, for purposes of parsimony and generalised theory building.

Figure 3.6-1 illustrates the process followed to analyse the collected data both qualitatively and then quantitatively to identify prominent themes and notable relationships between pairs of themes. Saunders and Tosey (2011) support the notion that mixed method studies can "use quantitative analysis techniques to analyse qualitative data quantitatively, (for example comparing statistically the frequency of occurrence of different concepts in in-depth interview transcripts between different groups) or vice versa." This is also referred to as a *mixed methods complex design* (Saunders & Tosey, 2011).

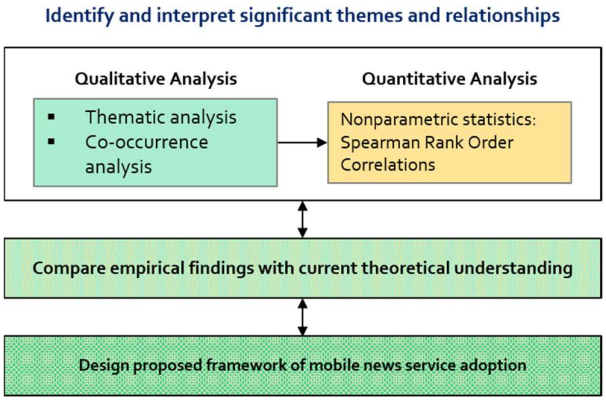


Figure 3.6-1: Process followed for data analysis

The collected data (qualitative and quantitative) was analysed sequentially as one set, similar to sequential designs of mixed-method studies aiming to theorise findings from qualitative and then quantitative analysis of data (Creswell, 2009; Walsh, 2014, 2015). The mixed method study thus served as a research strategy and data analysis technique in order to holistically interpret the research findings that emanated from the study.

3.6.1 Qualitative analysis - Thematic analysis

A qualitative data analysis approach provides an in-depth strategy for studying and supporting constant reinterpretation of subtle and complex meanings emanating from the phenomenon of interest (Elaluf-Calderwood et al., 2005; Kaplan & Maxwell, 2005; Silverman, 1998). The primary medium of analysis employed was *thematic analysis*. *Thematic analysis* focuses on the identification and analysis of the themes from the data (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006).

Thematic analysis consists of coding *themes*, and then interpreting the structures and content, which includes descriptive categories and related concepts of the themes (Aronson, 1994; Fereday & Muir-Cochrane, 2006). Descriptive categories are used to contain responses collected (Smith, 2000). Various qualitative studies that sought to determine the relationship between the use and adoption of mobile services support the use of thematic analysis as a primary means for data analysis (Agwu & Carter, 2014; Ahluwalia et al., 2014; Blazevic et al., 2003; Gummerus & Pihlström, 2011; Scheepers et al., 2006).

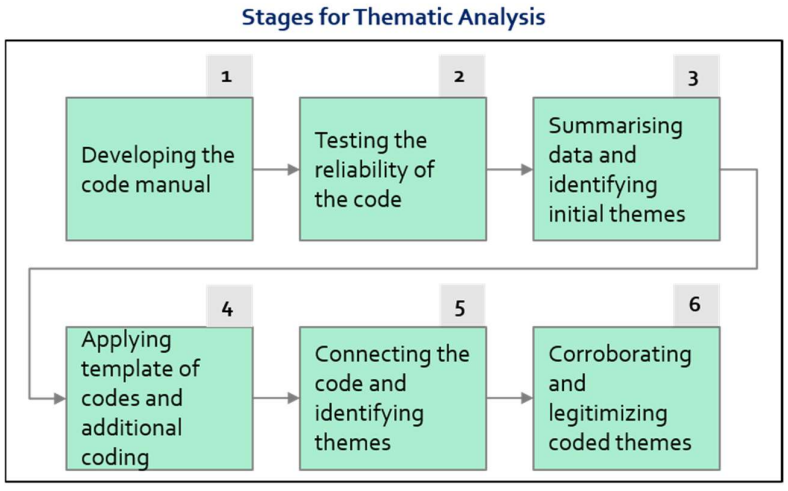


Figure 3.6-2: Stages for Thematic Analysis - Diagrammatic representation of the stages undertaken to code the data, adapted (Boyatzis, 1998; Fereday & Muir-Cochrane, 2006)

The general procedure for *thematic analysis* which served as a guide to analyse and code empirical data consisted of the six following recommended steps (Boyatzis, 1998; Fereday & Muir-Cochrane, 2006). The six steps are presented in an adapted

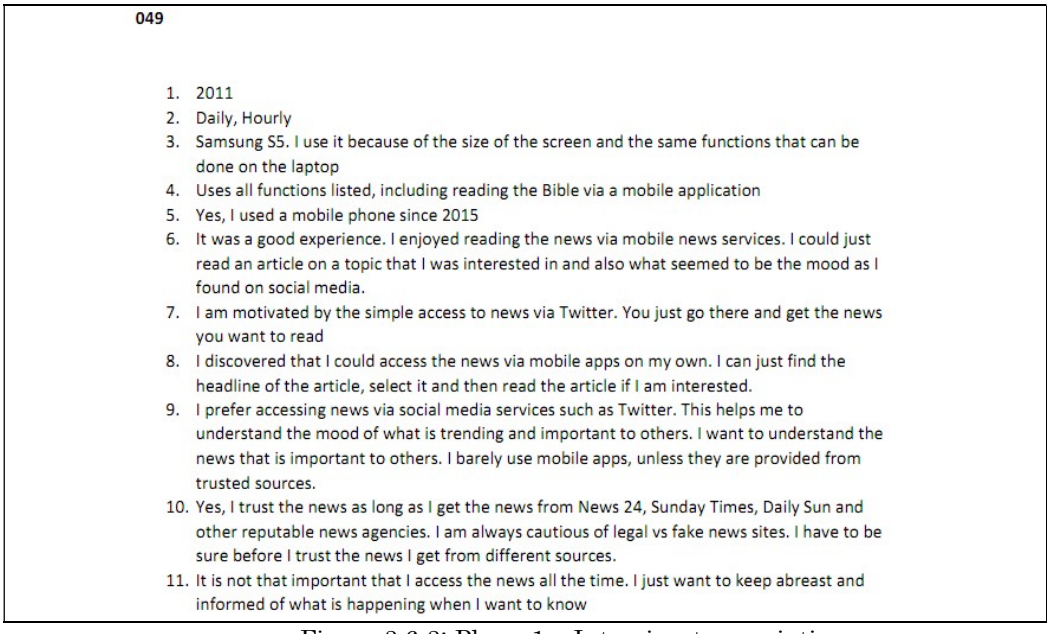
illustration in Figure 3.6-2, to illustrate the interwoven approach in which the thematic analysis was conducted.

3.6.1.1 Developing the code manual

This first step involved in developing a coding manual, incorporated of categories and coding schemes. Mutually exclusive categories and coding schemes were derived from three respective sources: collected data, previous related studies, and associated theories. The coding schemes was developed abductively. The progressive selection of codes appears in code manual in *Appendix C: Code manual of theoretical definitions and empirical definitions.*

3.6.1.2 Testing the reliability of the code

It was important to determine the applicability of the coding method to the collected data from the interviews. This stage first involved the preparation of data, in this instance, the transcription of interviews. The level and detail of transcriptions were then examined for the various purposes of the study. Figure 3.6-3 illustrates an excerpt of an interview transcript. All interview scripts are available upon request.



049

1. 2011
2. Daily, Hourly
3. Samsung S5. I use it because of the size of the screen and the same functions that can be done on the laptop
4. Uses all functions listed, including reading the Bible via a mobile application
5. Yes, I used a mobile phone since 2015
6. It was a good experience. I enjoyed reading the news via mobile news services. I could just read an article on a topic that I was interested in and also what seemed to be the mood as I found on social media.
7. I am motivated by the simple access to news via Twitter. You just go there and get the news you want to read
8. I discovered that I could access the news via mobile apps on my own. I can just find the headline of the article, select it and then read the article if I am interested.
9. I prefer accessing news via social media services such as Twitter. This helps me to understand the mood of what is trending and important to others. I want to understand the news that is important to others. I barely use mobile apps, unless they are provided from trusted sources.
10. Yes, I trust the news as long as I get the news from News 24, Sunday Times, Daily Sun and other reputable news agencies. I am always cautious of legal vs fake news sites. I have to be sure before I trust the news I get from different sources.
11. It is not that important that I access the news all the time. I just want to keep abreast and informed of what is happening when I want to know

Figure 3.6-3: Phase 1 – Interview transcriptions

The testing was then conducted with a small sample of coding to ensure that the coding of themes according to predefined definitions was reliable as well as

applicable to the data collected. The reliability of the initial coding from the small sample supported further analysis of the interview transcripts. New meaning was also derived and notes made during the coding process in order to support the final empirically informed definitions of themes.

A specific coding for participants was designed, in order to identify and distinguish data extracts. The data extracts used in this study, to indicate the participant's *gender* (M for Male or F for Female, *age*, *level of education* (PL – primary level, SL – secondary level, TL – tertiary level), and *industry of economic activity* (AFF, ICT, WR, ADSUP, FIN, OS, TS, EDU). The complete name for industry of economic activities appear in Table 3.6-1.

Table 3.6-1: Industry Codes

SIC Code	Industry	Abbrev.
A	Agriculture, forestry, and fishing	AFF
J	Information and communication	ICT
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	WR
N	Administrative and support service activities	ADSUP
K	Financial and insurance activities	FIN
S	Other service activities	OS
H	Transport and storage	TS

3.6.1.3 Summarising data and identifying initial themes

This phase involved the scrupulous coding of data, ensuring all data coded within distinctly identified categories. New categories and concepts were added to the coding manual as findings emerged and concepts were also removed if no significant evidence was found from the data.

The ATLAS.ti, versions 6 and 7, was the qualitative data analysis application which aided the thematic analysis. The application also supported the quantitative analysis endeavored for this study, as counts of occurrences of codes were identified. The application also assisted in determining more prominent themes from other themes in terms of number of unique counts. The coding manager and co-occurrence analysis tools in ATLAS.ti was used to identify links between concepts (Friese, 2014; GmbH, 2014; Paulus et al., 2017). Figure 3.6-4 illustrates a fragment of interviews shown in combination with used codes.

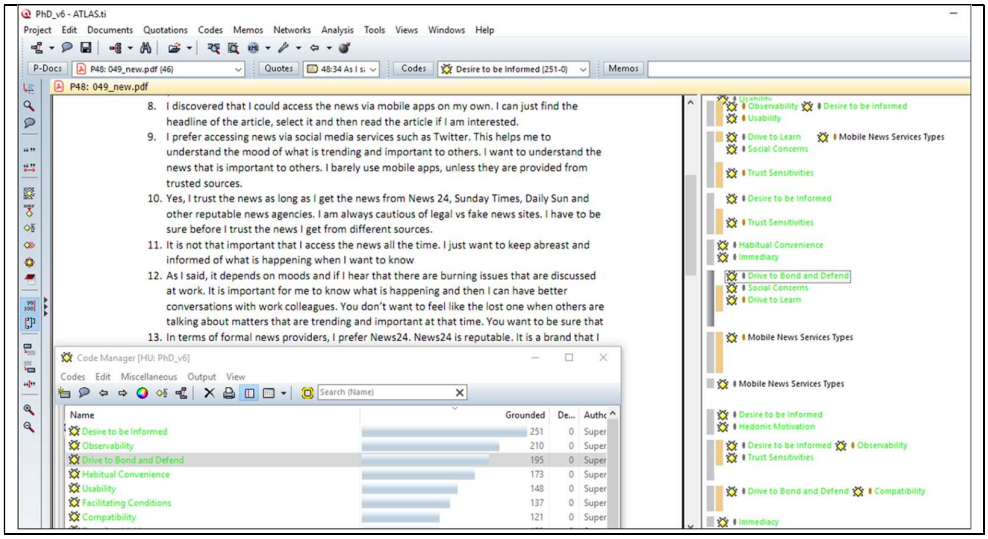


Figure 3.6-4: Phase 3 – Coding all the data

The final analysis resulted in the selection of 14 themes as tabulated in Table 3.6-2, refer to the next page.

Table 3.6-2: Codes for selected themes

Attributes of Adopter	
AA1	Desire to be Informed
AA2	Drive to Bond and Defend
AA3	Habitual Convenience
AA4	Trust sensitivities
AA5	Drive to Learn
AA6	Hedonic Motivation
Attributes of MNSs	
AI1	Observability
AI2	Facilitating Conditions
AI3	Usability
AI4	Compatibility
AI5	Relative Advantage and Value
AI6	Portability
AI7	Immediacy
Social Factors	
AI8	Social Concerns

3.6.1.4 Connecting the codes and identifying themes

Due to the iterative process of the thematic analysis, codes could have changed, whilst new categories, codes and family of codes as well could have emerged. It was therefore necessary to assess the coding for a number of distinct counts or occurrences, repetition, consistency, and contrasting perspectives in order to

minimise misrepresentation, thereby ensuring an informed identification of the themes. This method of identification of the themes ensured the reliability of the analysis as the researcher did not only code the themes which were initially anticipated, but also extensively scrutinised the data that was used to identify new and salient themes which could have informed the research objective of the study. The interrogation of the themes through the use of systematic reviews of occurrences, of themes, and sorting of these themes supports the validity of the meaningful themes (Fereday & Muir-Cochrane, 2006; Ryan & Bernard, 2003). A chain of evidence through version control was maintained within the ATLAS.Ti, to ensure that coding consistencies and changes were maintained.

3.6.1.5 Applying template of codes and additional codes

The process of connecting the codes, involved re-testing, and rigorous inspection of the coding to maintain consistency. As discussed, every iteration of coding was maintained and any news codes were identified and added to the coding manager within the ATLAS.Ti. Table 3.6-3 tabulates the chain of analysis showing how the themes were identified, excluded, merged, and renamed to reflect the empirical findings, after the progressive analysis was conducted.

Table 3.6-3: Themes identified during different phases of analysis

	AoA Theoretical Concepts		Empirical Observations 1		Analysis Iteration 1		Analysis Iteration 2
1.	**Drive to acquire**	1.	**Drive to acquire**	1.	**Desire to be informed – reflect purposeful need for acquiring mobile news**	1.	**Desire to be informed**
2.	**Drive to bond**	2.	**Drive to bond**	2.	**Drive to bond**	2.	**Drive to bond and defend**
3.	**Drive to defend**	3.	**Drive to defend**	3.	**Drive to defend**		
4.	**Drive to learn**	4.	**Drive to learn**	4.	**Drive to learn**	3.	**Drive to learn**
5.	**Habit**	5.	**Habit**	5.	**Habitual convenience** ***Habit + Time convenience***	4.	**Habitual convenience**
6.	**Hedonic motivation**	6.	**Hedonic motivation**	6.	**Hedonic motivation**	5.	**Hedonic motivation**
7.	**Trust sensitivities**	7.	**Trust sensitivities**	7.	**Trust sensitivities**	6.	**Trust sensitivities**
8.	**Engagement motivation**	8.	**Engagement motivation**				
9.	*Experience*						
10.	*Individual culture*						
11.	*Personal initiatives and characteristics*						
	AoI Theoretical Concepts		Empirical Observations 1		Analysis Iteration 1		Analysis Iteration 2
12.	**Observability**	9.	**Observability**	8.	**Observability**	7.	**Observability**
13.	**Usability**	10.	**Usability**	9.	**Usability**	8.	**Usability**
14.	**Relative advantage**	11.	**Relative advantage**	10.	**Relative advantage**	9.	**Relative advantage and value * merged with Purchasing**
15.	**Facilitating conditions**	12.	**Facilitating conditions**	11.	**Facilitating conditions**	10.	**Facilitating conditions**
16.	**Compatibility**	13.	**Compatibility**	12.	**Compatibility**	11.	**Compatibility**
17.	**Immediacy**	14.	**Immediacy**	13.	**Immediacy**	12.	**Immediacy**
18.	**Portability**	15.	**Portability**	14.	**Portability**	13.	**Portability**
19.	Searchability	16.	Searchability	15.	**Searchability**		
20.	Trialability	17.	Trialability				
21.	Complexity	18.	Complexity				
22.	***Time convenience**	19.	**Time convenience** ****merged with Habit***				
23.	Performance expectancy						
24.	Effort expectancy						
25.	Continuity						
26.	Perceived ubiquity						
				16.	**Purchasing – New concept**		
	SF Theoretical Concepts		Empirical Observations 1		Analysis Iteration 1		Analysis Iteration 2
27.	**Social concerns**	20.	**Social concerns**	17.	**Social concerns**	**14.**	**Social concerns**
28.	Social influence	21.	Social influence	18.	Social influence		
29.	Social norms	22.	Social norms	**19.**	Social norms		
30.	Communication channel change agents	23.	Communication channel change agents				
31.	Level of development of society and social environment	24.	Level of development of society and social environment				
32.	Opinion leaders	**25.**	Opinion leaders				

3.6.1.6 Identifying relationships and associations amongst identified themes

Once all the data was coded, it was necessary to reason, interpret and make sense of the significance of the themes, categories, and associations (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006; Vaismoradi et al., 2016). The last phase, refers to the critical aspect of the presentation i.e. the outcomes of the analysis.

This phase of the study was imperative to discern meaning, infer empirical findings along with theoretical findings, observe and identify insightful relationships or patterns, to support the development of the proposed model of technology adoption. Figure 3.6-5 shows a portion of the co-occurrence table used to assist in the process of corroborating and legitimising relationships between themes.

	Compatibility	Desire to be Ir	Drive to Bond	Drive to Learn	Facilitating Cc	Habitual Con	Observability	Portability	Relati
Compatibility		9 - 0,02	3 - 0,01	1 - 0,00	5 - 0,02	7 - 0,02	12 - 0,04	11 - 0,05	17 - 0,
Desire to be Informed	9 - 0,02		6 - 0,01	11 - 0,03	18 - 0,05	25 - 0,06	27 - 0,06	4 - 0,01	10 - 0,
Drive to Bond and Defend	3 - 0,01	6 - 0,01		11 - 0,04	4 - 0,01	4 - 0,01	8 - 0,02	n/a	3 - 0,0
Drive to Learn	1 - 0,00	11 - 0,03	11 - 0,04		2 - 0,01	7 - 0,03	4 - 0,01	1 - 0,01	23 - 0,
Facilitating Conditions	5 - 0,02	18 - 0,05	4 - 0,01	2 - 0,01		3 - 0,01	11 - 0,03	13 - 0,06	6 - 0,0
Habitual Convenience	7 - 0,02	25 - 0,06	4 - 0,01	7 - 0,03	3 - 0,01		6 - 0,02	29 - 0,12	3 - 0,0
Observability	12 - 0,04	27 - 0,06	8 - 0,02	4 - 0,01	11 - 0,03	6 - 0,02		4 - 0,01	4 - 0,0
Portability	11 - 0,05	4 - 0,01	n/a	1 - 0,01	13 - 0,06	29 - 0,12	4 - 0,01		2 - 0,0
Relative Advantage and Va	17 - 0,08	10 - 0,03	3 - 0,01	23 - 0,12	6 - 0,02	3 - 0,01	4 - 0,01	2 - 0,01	
Social Concerns	n/a	6 - 0,02	14 - 0,05	17 - 0,11	1 - 0,00	2 - 0,01	7 - 0,03	n/a	3 - 0,0
Usability	18 - 0,07	12 - 0,03	1 - 0,00	n/a	8 - 0,03	4 - 0,01	36 - 0,11	24 - 0,10	4 - 0,0

Figure 3.6-5: Phase 6 – Co-occurrence analysis table

The analysis indicates the co-occurrence index, which thereby indicates the strength of the relationship between the two codes, this is further used to identify how closely the concepts are related to each other and the number of the likely occurrences of the relationship. Co-occurrences can either be identified when two coded concepts refer exactly to the same quotation of text or when two coded concepts are in close proximity of each other (Contreras, 2011).

Although the co-occurrence index, as displayed in the *Code Co-occurrence Table* in ATLAS.Ti highlights a weak, moderate, or strong relationship and how many occurrences of the relationship can be attributed, it was necessary to conduct further analysis as well as inspection of the potentially significant relationships. It was also necessary to ensure that no new themes and relationships were identified when theoretical saturation was attained through iterative analysis of the data, also when five new interviews were conducted in the last phase of the analysis.

Upon interpretation of the associated occurrences, it became evident that the quantitative analysis could assist well in the final selection and identification of the relationships. In qualitative analyse, we are concerned with determining

"judgments of qualities," One means to accomplish this interpretation is to determine the number of occurrences of an observation and how consistent is this pattern of identified occurrences. It thus becomes important to consider the use of quantitative comparison to support verification of propositions and to support the research by being analytically honest, thereby protecting against research bias (Miles et al., 2013).

3.6.2 Participant descriptions

Explanation building was used to synthesise and compare the empirical findings with the theoretical findings. The use of explanation building as a means for analysis is recommended as it can be used to compare empirical and theoretical understanding and further enhance comprehensive understanding of the phenomena studied (Yin, 2013).

In preparation for the analysis, a summarised participant profile of each participant is given in *Appendix D: Qualitative Data* Analysis (Tables APD 1 to APD 4). The complete participant profiles are available upon request. It was necessary to position the individual participant data distinct from other participants, yet compare these findings against all participants, when required. It was therefore decided to use a Microsoft Excel workbook, necessary worksheets, and use of an indicator to distinguish negative (0) and positive (1) variation of responses to themes, to ensure systematically recording of the analysis.

Figure 3.6-6 is an image of the main worksheet containing the analysis of individual participants.

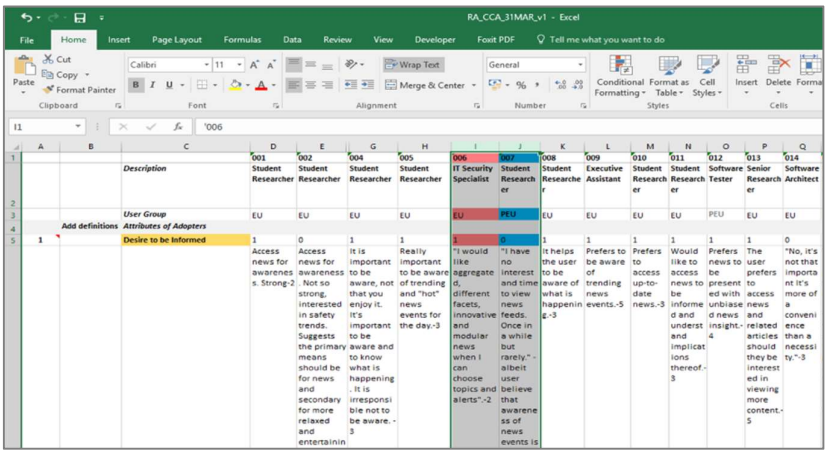


Figure 3.6-6: Participant profiles

Each participant was identified with a unique identifier, used to identify primary documents of the interview transcripts in ATLAS.Ti. The analysis was then segregated by theme and a memo of the researcher's interpretation of the data

written upon inspection of the related text. The analysis also contained direct verbatim from the participants, to support the description and indication of negative or positive responses to themes. The number of instances or occurrences that were identified by the theme, was also indicated at the end of the textual entry in the applicable cell. It is important to note that the higher the number of occurrences per theme, per participant did not equate to a positive allocation. The indication was done in order to symbolise the perception of the theme which was used as a form of pattern, matching to ascertain the negative and positive perceptions with regards to the themes.

In order to explain the logic of the process that followed, Participant number 006 and 007 was highlighted in pink and blue, respectively in Figure 3.6-7. The participants mentioned on two occasions during the interview that accessing news was either important or not important to them. A positive indication was allocated for participant 006 and a negative indication was allocated for participant 007, for the theme labelled as "*Desire to be Informed*". This indication of responses was thus based on a qualitative analysis of the participant's responses and the researcher's interpretation thereof. Figure 3.6-7 shows a snapshot of the worksheet used for the recording of occurrences of responses, before nonparametric analysis was conducted using the Statistica application.

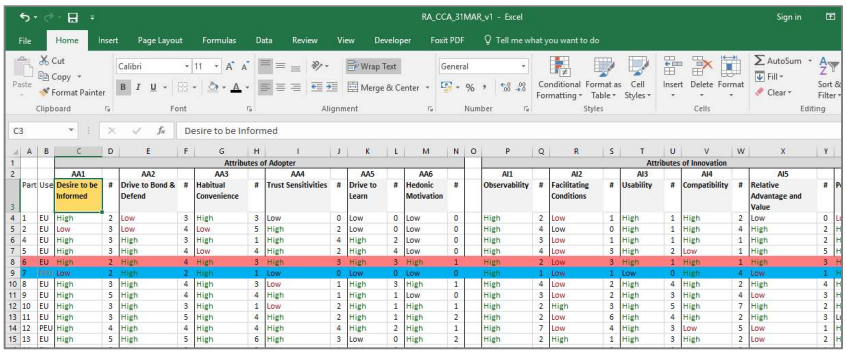


Figure 3.6-7 Record of number of occurrences by participant and theme

The thematic analysis and explanation building assisted in the extrapolation of multiple world-views and understanding of relationships between factors which could inform the adoption of MNSs.

3.6.3 Quantitative analysis – Spearman Rank Order Correlation analysis

In order to validate the identified relationships from the first phase, that is the qualitative phase of the study, several statistical tests were conducted and analysed, *Appendix E: Quantitative Data Analysis*, including, Spearman rank order correlation (Appendix E, Table APE 2), Mann-Whitney U-test (Appendix E,

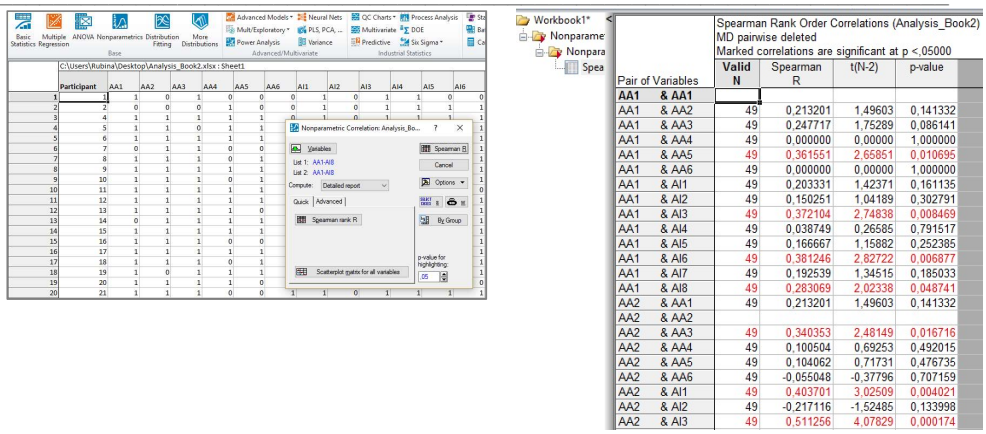
Tables APE 3-6), and Chi-Square tests (Appendix E, Tables APE 7-16) to determine significant correlations between factors and personal factors.

Spearman's rank correlation co-efficient (*r*) was used to statistically measure a monotonic relationship between pairs of random variables/themes (Hauke & Kossowski, 2011; Laerd, 2013c; Myers et al., 2010). Spearman's rank order correlation (*rho*) was used to examine the significant relationships existing between attributes of adopter, social factors, and attributes of MNSs. Each participant was ranked according to their sentiments towards selected themes. The two indicators used were *positive* (1) or *negative (0)*. A positive indicator referred to the participants' feeling strongly about a particular theme, whereas a negative indicator meant that the participants did not consider the theme as important enough to recommend the adoption of MNSs.

The Mann-Whitney U test was used to compare differences between independent groups (groups of personal factors) and a dependent variable (themes) which is either ordinal or continuous, and which is not normally distributed. Mann-Whitney U tests are non-parametric equivalents of the independent samples t-test (a test to compare the significance of the difference of the means between two groups of variables). It is because the Mann-Whitney U test does not consider any properties regarding the distribution of the dependent variable in the analysis, that the test is considered appropriate when analysing dependent variables on an ordinal scale (Laerd, 2013b; StatisticSolutions, 2017b).

Lastly, the chi-square test was conducted to determine the independent association and relationship between two nominal (categorical) variables (Laerd, 2013a). The frequency of each category for one nominal variable (a personal factor) is compared across the categories of the second nominal variable (a theme). The data was displayed in a table where each row represents a category for one variable and each column represents a category for the other variable (StatisticSolutions, 2017a).

A detailed nonparametric and basic statistics report was generated using statistical analysis software, Statistica (TIBCO, 2017). Figure 3.6-8 shows a view of the Statistica workbook and statistical functions which assisted in calculating the Spearman Rank Order Correlations and indication (marked in red) of statistically significant relationships between pairs of themes or variables. *Appendix E: Quantitative Data Analysis* (Table APE 1 to APE 16) presents all findings from the statistical analysis of the data.



Workbook1*
Nonparame
Nonpara
Spea

Spearman Rank Order Correlations (Analysis_Book2)
MD pairwise deleted
Marked correlations are significant at p <,05000

Pair of Variables		Valid N	Spearman R	t(N-2)	p-value
AA1	**& AA1**				
AA1	& AA2	49	0,213201	1,49603	0,141332
AA1	& AA3	49	0,247717	1,75289	0,086141
AA1	& AA4	49	0,000000	0,00000	1,000000
AA1	& AA5	49	0,361551	2,65851	0,010695
AA1	& AA6	49	0,000000	0,00000	1,000000
AA1	& AI1	49	0,203331	1,42371	0,161135
AA1	& AI2	49	0,150251	1,04189	0,302791
AA1	& AI3	49	0,372104	2,74838	0,008469
AA1	& AI4	49	0,038749	0,26585	0,791517
AA1	& AI5	49	0,166667	1,15882	0,252385
AA1	& AI6	49	0,381246	2,82722	0,006877
AA1	& AI7	49	0,192539	1,34515	0,185033
AA1	& AI8	49	0,283069	2,02338	0,048741
AA2	& AA1	49	0,213201	1,49603	0,141332
AA2	& AA2				
AA2	& AA3	49	0,340353	2,48149	0,016716
AA2	& AA4	49	0,100504	0,69253	0,492015
AA2	& AA5	49	0,104062	0,71731	0,476735
AA2	& AA6	49	-0,055048	-0,37796	0,707159
AA2	& AI1	49	0,403701	3,02509	0,004021
AA2	& AI2	49	-0,217116	-1,52485	0,133998
AA2	& AI3	49	0,511256	4,07829	0,000174

Figure 3.6-8: Spearman Rank Order Correlations report generated using Statistica

The Spearman rank correlation co-efficient (p) takes a value between -1 and + 1. When the ranks of both themes increase together, a positive correlation among them is identified. A p-value of $p < 0.05$ was chosen to determine the probability of finding a statistically significant relationship between the paired variables, meaning that there would be a 1 in 20 percent chance of no significant relationships between paired themes. When the value of the difference is significant, that is when $p < 0.05$, we consider that there is a statistically significant relationship between the identified themes (Myers et al., 2010; StatsDirect, 2000). *Appendix E: Quantitative Data Analysis* (Table APE 2) presents the Spearman R, t (N-2) and p-value of 306 paired relationships with $n = 49$.

Albeit the qualitative and quantitative measures of the co-occurrence index and the Spearman rank order correlations, carried out respectively, the identified themes as well as the relationships required careful scrutiny. The meticulous selection of the themes and the relationships was based on the relevance of the findings. Since it was deemed both necessary as well as sufficient, within the context of the study. The quality of the outcomes was a result of a systematic and rigorous data analysis methods employed.

The use of Spearman Rank Order Correlation and the Co-occurrence Index measures was adopted in this study to support a holistic interpretation of rich data which included comparative analysis and inferences to plausible explanations of identified relationships.

At the completion of the qualitative and quantitative analysis, 12 significant relationships between 14 themes were identified and selected. These relationships were selected on the basis that the concepts and relationships could influence the intent to adopt MNSs. The relationships will be deliberated in Chapters 7 and 8, as the relationships formed the foundation of the proposed framework of MNS adoption.

The subsequent chapters include legitimate examples supporting the analysis and findings thereof. The process and outcomes of the thematic analysis echoed the desired quality of data for a study of this nature.

3.7 RESEARCH QUALITY

Prevailing measures of trustworthiness, quality and validity must be endeavoured throughout the study (Guba & Lincoln, 1994; Nowell et al., 2017). Trustworthiness, conformity, and validity, was ensured through the application of an appropriate mixed research method and analysis techniques at each stage of the thematic analysis process, refer to Table 3.7-1.

Table 3.7-1: Research quality at different stages of thematic analysis

	Stage	**Research quality**
1	Developing the code manual	▪ Documented theoretical, empirical and reflective thoughts ▪ Documented thoughts about potential codes/themes ▪ Stored raw data in well organised archives ▪ Kept records of all data field notes and transcripts
2	Testing the reliability of the code	▪ Use of coding framework ▪ Audit trail of code generation with sample of data
3	Summarising data and identifying initial themes	▪ Application of code framework to data ▪ Recorded initial themes and note empirical definitions
4	Connecting the codes and identifying themes	▪ Diagramming to make sense of theme connections ▪ Kept detailed notes about development and hierarchies of concepts of themes (code manager and code families)
5	Applying template of codes and additional codes	▪ Testing for referential adequacy by returning to raw data ▪ Documentation of theme naming ▪ Description of process of coding and analysis
6	Identifying relationships and associations amongst identified themes	▪ Diagramming to make sense of theme connections ▪ Kept detailed notes about development and hierarchies of concepts of themes (code manager and code families) ▪ Description of context ▪ Report on reasons for theoretical, methodological, and analytics choices throughout study

This study can therefore be replicated through the use of the rigorous data collection and analysis techniques employed in this study.

Furthermore, Spearman's correlation coefficient analysis was used to measure the strength and direction of the association between paired and ranked variables (Laerd, 2013c), which thereby supported the choice of significant relationships that formed part of the proposed framework for MNS adoption.

Data trustworthiness and quality is thus evident through the pluralistic research design, analytical lenses, and measures which were utilised to determine and interpret the research findings. The quality and validity of the empirical study is correspondingly evident in the theoretical elaboration and contribution, as will be discussed in the concluding chapter of the thesis.

3.8 SUMMARY

This mixed methods study, adopted pragmatism, in order to elicit meaningful understanding of technology adoption. It was essential for a study of this nature to gather specific meanings attributed to the current adoption and potential adoption of MNSs, from the perspectives of the individual participants.

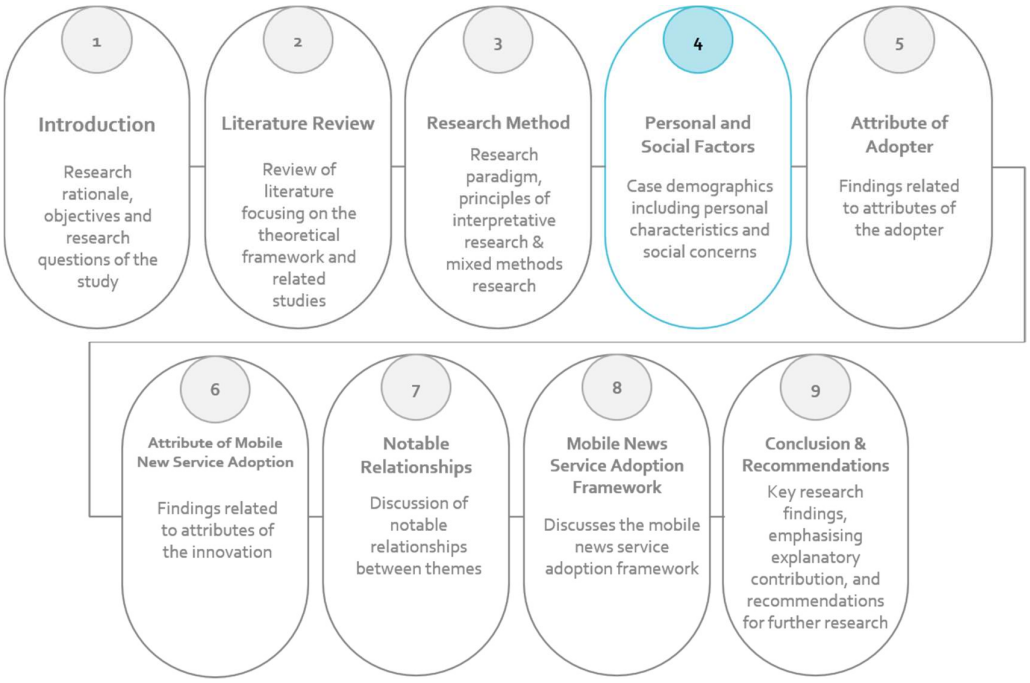
The classification model, initially served as a schema to categorise themes and support interpretation thereof, however, additional meaning was derived abductively. An exhaustive analysis of the data using mixed methods of analysis to assimilate findings was befitting of a comprehensive analysis of this scope. Concepts that were coded in the iterative analysis were either confirmed, expanded or clustered in new themes and compared to current theoretical understanding at the time of research.

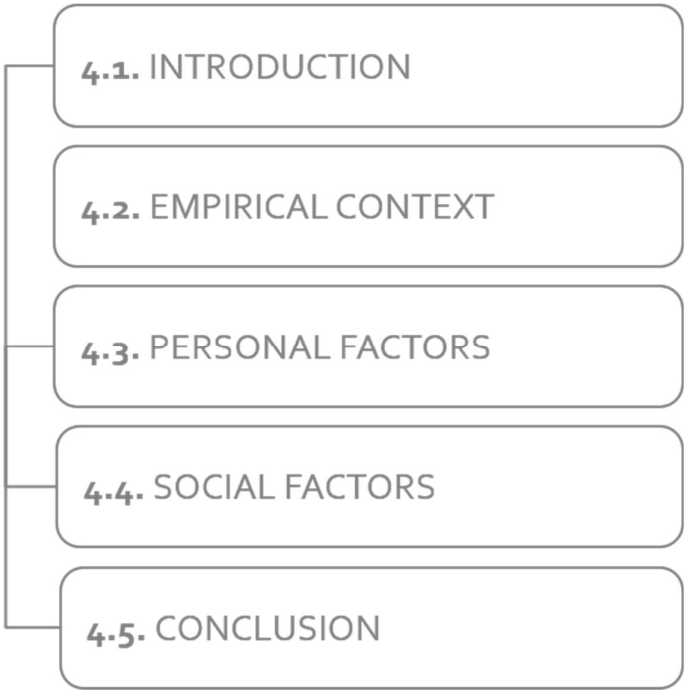
The findings would be meaningless if the context of the study was not grasped comprehensively. The following chapter (4) presents insights into the background and region of Gauteng, together with related demographics, which personified the interpretation of the findings.

The philosophical stances and multi-faceted approach provided an opportunity to support the garnering of varied and unique meanings, held by a myriad of participants, thereby supporting the study of the phenomenon. Interviews were conducted as it was deemed important to deduce the personal and shared meaning of multiple participant views, regarding the adoption of the news services. As stated, an abductive reasoning approach enabled the researcher to utilise the identified adoption factors from literature and examine those factors in more detail, from the perspective of the empirical context.

The succeeding chapters discuss detailed findings which emanated from the analysis of data. Chapters 4, 5, 6 present discourse on selected concepts, thereafter Chapters 7 and 8 discusses notable relationships which support the conceptual and proposed framework of mobile news service adoption. The concept of generalisability of research findings will be dealt in the concluding chapter of the thesis.

CHAPTER 4: PERSONAL AND SOCIAL FACTORS





4.1 INTRODUCTION

In order to understand the responses, related to the attributes of adopters and that of MNSs, it became important to determine the social factors, individual culture, experience, personal initiatives, and related demographic characteristics of the participants. This chapter discusses the social and personal factors related to the attributes of adopter and the attributes of MNSs.

4.2 EMPIRICAL CONTEXT

Gauteng comprises of several municipalities and two pivotal business and administrative cities namely, Johannesburg, and Pretoria, the main capital of South Africa. The participants either worked or lived in the City of Tshwane and Johannesburg which is comprised of Soshanguve, Atteridgeville, Mamelodi, Centurion, and Pretoria. A map of Gauteng appears in Figure 4.2-1. These locations provided an ease of access for the researcher to interview the participants and thereafter conduct a follow-up with the participants, if required.

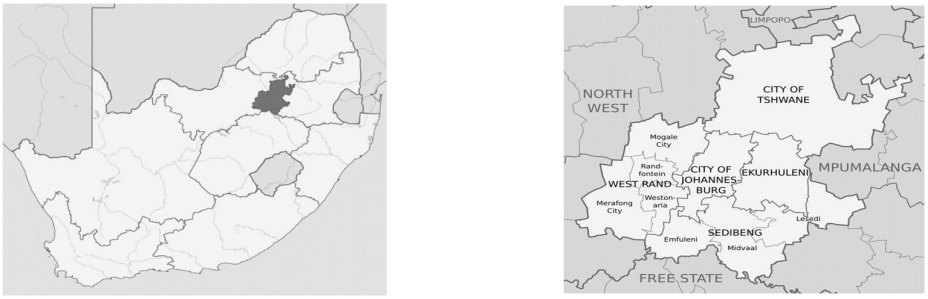


Figure 4.2-1: Map of Gauteng in South Africa and municipalities in Gauteng, South Africa, adapted (Htonl, 2011; Tubs, 2011)

The sample of participants reside, work, or study in areas indicated in Table 4.2-1.

Table 4.2-1: Participants by Locations

Pretoria	28
Centurion	3
Johannesburg	11
Mamelodi	2
Atteridgeville	2
Soshanguve	1
Olievenhoutbosch	1
Kempton Park	1

All of these locations can be found within the borders of the South African province of Gauteng. Gauteng is the smallest province in South Africa. It is, however considered as the prime economic hub of South Africa. Gauteng is considered to be an expressively urbanised town, with a population of approximately 13.2 million citizens, accounting for approximately a quarter of South Africa's entire population (GPG, 2016; STATSSA, 2011). According to a report by the Gauteng Provincial Government, the level of development of the society and its social environment has rapidly changed over the years since apartheid, with the majority of South Africans choosing to work, study, and reside in urban regions like Gauteng. Due to various lucrative opportunities for career development and business growth. About 64 % of the younger working population live in urban areas whilst the older segment of the population largely stays in the suburban cities further away from commercial and business hubs. In the late 19th century due to the upsurge of mining in the Gauteng region, a number of migrant labourers came to the region, but the opportunities were limited due to the policies of the then discriminatory and oppressive government, during the Apartheid era of South Africa.

Since the new government came into power in 1994, several strides were undertaken by the new ruling government to ensure improved access to basic services such as equal opportunities and better access to information and communication technologies (Fish, 2016; GPG, 2016). The advent of mobile telecommunication networks, serving as communication channel change agents predicated the bridging of socio-techno barriers with wireless connectivity (Gillwald, 2005). The landscape continues to overcome several barriers both in terms of infrastructure development and economical accessibility as visions for smart cities with access to Wi-Fi and related smart ICT services are forthcoming (Manda & Backhouse, 2016).

Several personal factors were considered for demographic analysis, Table 4.2-2. One social factor, *social concerns* was selected. The themes related to social influence, communication channel change agents, level of development of society as well as social environment, opinion leaders, and social norms have been excluded from the study as responses were predominantly related to *social concerns*.

Table 4.2-2: Personal and Social Factors – Number of occurrences

Included themes					
	Theoretical theme		**Empirical theme**	**Detail**	**No. of occurrences**
1.	Social Concerns	1.	Social Concerns		76
Concepts related to demographic details					
1.	*Individual Culture*	These themes were included in understanding the demographic profile of news consumers.			
2.	*Experience*				
3.	*Personal initiatives and characteristics*				
4.	Social influence	The themes were excluded because these factors had limited to no evidence in empirical data as compared to *social concerns*. Based on the thematic analysis, *Social concerns* most satisfied the desire of news consumers to use MNSs more than other social factors.			
5.	Communication channel change agents				
6.	Level of development of society and social environment				
7.	Opinion leaders				
8.	Social norms				

4.3 PERSONAL FACTORS

The sample of the participants included a diverse range of users with varying employment, gender, age, education, and cultural/ religious demographics (*Appendix D: Qualitative Data Analysis*, Table APD 1). The participants were, however, categorised according the following groups for statistical evaluation, Table 4.3-1.

Table 4.3-1: Personal initiatives and characteristics grouping

Groups	0	1
Age	15-34 (Younger)	>34 (Older)
Education	Postgraduate	Non-postgraduate
Gender	Female	Male
Industry	IT	Non-IT

According to the ascribed ethical guidelines, the participants were under no obligation to furnish the researcher with any sort of information, if preferred not to do so. The collected demographic information would essentially support the

motivations of the empirical inquiry and data analysis thereof. However, it was ultimately decided to provide participants the choice to divulge specific personal information. The trust and respect for the personal privacy of the participant was of paramount importance, particularly during the interview process. This respect had to be maintained so as not to allow the participants to assume any sort of prejudice or feel discontent at any given point in the interview process or the empirical study, irrespective of ensuring complete participant anonymity. As indicated in Table 4.3-2, demographic details which indicated the term 'Optional' meant that it was not mandatory for the participant to answer.

The demographic details applicable for each participant is presented in the Table 4.3-2. The motivation for collecting the demographic detail is presented in order to indicate the purpose for eliciting the data. These demographics thus summarise an overview of the sample of research participants, forming a comprehensive background of each of the 49 participants', which will exceed the restrictions of the narrative.

Table 4.3-2: Demographic details collected

Demographic	Motivation
Location	To determine where participants reside/ work/ study within Gauteng, South Africa.
Industry	To understand the participants, employment and/or study background and to determine if there were adoption similarities amongst participants with similar occupations.
Age	To determine the age of the research participant and to determine if there were adoption similarities amongst similarly aged participants.
Gender [Optional]	To determine the gender of the research participant and to determine if there were adoption similarities amongst distinct gender groups.
Religious Beliefs/ Affinity [Optional]	To determine the individual culture of research participant and to determine if there are adoption similarities amongst participants subscribing to similar religious beliefs, affinities, or cultures.
Race/ Ethnicity [Optional]	Following from the previous demographic variable, it was necessary to determine if themes related to race/ ethnicity and adoption could be found.
Highest Level of Education	To understand the participant's education, competencies, and literacy background and to ensure diverse levels of educations are considered.

The sample of participants included a diverse range of users with varying employment, gender, age, education, and cultural/ religious demographics.

4.3.1 Industry and employment status

The sample consisted of participants who were either students, employed, or unemployed. The information and communication (26); administrative and support service activities (9); wholesale and retail trade; repair of motor vehicles and motorcycles (4) and financial and insurance activities (4) industries were the most represented industries in this study. Table 4.3-3 tabulates the number of participants and their industry. A report by the Council for Higher Education found that 53% of the research published was from the Science, Engineering, and Technology industry (CHE, 2013). Baller et al. (2016) also affirmed the growth of the industry in the region to support business and digital innovation in South Africa. The ICT industry is a prominent industry in South Africa and a large sample of postgraduate participants work or study in this industry. We believe that these high-individuals are more likely to use MNSs due to the technological nature of MNSs and thus offer critical insight into the sustained use of such services. It is therefore for this reason that a large proportion of participants in this sample comprise postgraduate and ICT individuals.

Table 4.3-3: Participants by industry and employment status

SIC Code	Industry	Abbrev.	Students	Employed (Incl. employees currently studying towards a postgraduate degree)	Unemployed
A	Agriculture, forestry, and fishing	AFF		1	
J	Information and communication	ICT	16	10	
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	WR		4	
N	Administrative and support service activities	ADSUP		9	1
K	Financial and insurance activities	FIN	1	3	
S	Other service activities	OS	2		
H	Transport and storage	TS		1	
P	Education	EDU			1
			19	**28**	**2**

4.3.2 Gender and Age

The province's age distribution is 24% under the age of 15, 20% from 15 to 24, 38% from 25 to 44, 15% from 45 to 64, and 4% who are 65 years of age or older. The median age is 27 years. The participants for this study were categorised in four age groups as indicated in Table 4.3-4.

Table 4.3-4: Gender and Age of Participants

Participants by Age Group			
Age group	No. of Females	No. of Males	**Total**
15-24	4	6	
25-34	12	11	
15-34 (Younger)	**16**	**17**	**33**
35-45	5	9	
>45	1	1	
>34 (Older)	**6**	**10**	**16**
Total	22	27	**49**

Forty-five percent of the participants were female (F) and 55% of the participants were males (M). The percentage of males was 50% and the percentage of females 50%, respectively in the province of Gauteng (STATSSA, 2011). The median age of the sample of participants is 30 years, 3 years older than the median age of the citizens residing in the province of Gauteng. The sample is closely representative of the population of males and females in Gauteng and includes voices from both genders and all age groups.

4.3.3 Religious beliefs/ affinity

In Gauteng, 76% of the residents are Christian, 18% of them have no religion, around 2% are Muslim, 1% are Jewish, and 1% are Hindu, 3% have other or undetermined religious beliefs or affinity (STATSSA, 2011). In this study, 76% of the participants identified with the Christian faith, 5% who have no affinity at all with any religious belief, 4% follow Islam, 2% are Buddhists and 2% did not wish to disclose their religious beliefs or affinity to any religious following. A 'Preferred Not to Disclose' religious disposition ensured that the personal sensitivities of such disclosure be afforded to participants' who chose not to divulge such information. Table 4.3-5 indicates the 6 categories of religious beliefs/ affinities of participants.

Table 4.3-5: Participants by religious beliefs/ affinity

Participants by Religious Beliefs/Affinity	
Religious Beliefs/Affinity	**No. of Participants**
Atheist	5
Buddhism	1
Christianity	37
Hinduism	3
Islam	2
Prefer not to say	1
Total	**49**

The sample of Christian participants is therefore representative of the percentage of Christians in Gauteng. The sample included 5% more Hindus than were representatives in Gauteng and there was a 2% increase in the participants who followed the Islamic faith. All major categories of religious beliefs and affinity were included to ensure diversity in the sampling population.

4.3.4 Race/ ethnicity

In terms of racial grouping within Gauteng, 77% are Black African, 16% are White, 3% are Coloured, 3% are Indian or Asian and 1% are other (STATSSA, 2011). Sixty-seven percent of participants were Black African, 18% were White, 10% were Indian and 2% were Asian. Table 4.3-6 indicates the five categories of racial/ ethnic categorisation of the participants.

Table 4.3-6: Participants by race/ ethnicity

Participants by Race/ ethnicity	
Race/Ethnicity	**No. of Participants**
Asian	1
Coloured	1
Indian	5
White	9
African	33
Total	**49**

The sample includes 9% more Indians than is represented by the population statistics of Gauteng. All major categories of race/ethnicity were included to ensure diversity in sampling.

4.3.5 Highest level of education

In Gauteng, 9% of residents aged 20 and over have received no schooling, 11% have had some primary, 6% have completed only primary school, 34% have had some high education, 28% have finished only high school, and 13% have an education higher than the high school level. Overall, 41% of residents have completed high school (STATSSA, 2011). A majority (49%) of the participants have a higher level of education in contrast to the census findings, which related the level of education within the borders of Gauteng. Table 4.3-7 indicates seven distinct categories of education levels of participants.

Table 4.3-7: Highest level of education of participants

Participants by level of education			
NQF Rating	**Type of Degree**	**Level of education**	**No. of Participants**
1 and 2	Non-postgraduate	School	5
4	Non-postgraduate	Matriculation	13
6	Non-postgraduate	Diploma	3
7	Non-postgraduate	Degree	4
8	Postgraduate	Honours	10
9	Postgraduate	Masters	13
10	Postgraduate	Doctorate	1
		Total	**49**

Figure 4.3-1 is a diagrammatic representation of the landscape of basic education and tertiary qualifications in South Africa (Discott, 2017; SAQA, 2015; Simbo, 2012).

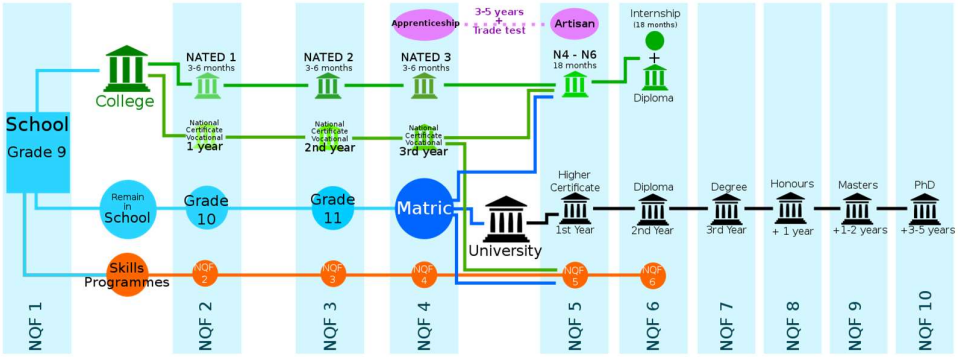


Figure 4.3-1: Levels of education and qualifications in South Africa (Discott, 2017)

Forty-nine percent of participants hold postgraduate degrees like, Honours, Masters and Ph.D. postgraduate degrees. Twenty-seven percent of the participants were current matriculates, either studying towards tertiary studies or owning/managing small enterprises. The School group (10%) included participants who had not completed their secondary education at Grade 11 and matriculation (the final year of secondary school in South Africa). The sample for this study was therefore skewed, as it did not represent census on higher levels of education within Gauteng. The level of education remains to be low, according to the research reports (Kruss et al., 2015). The sample contained 36% more participants with a higher level of education in contrast to the reported statistics of 13%, these users were selected as they were more likely to access news via MNSs on a regular basis.

It is, however, important to note that all the major categories of education were included to ensure diversity within the sample.

4.3.6 Correlation between personal factors

The correlation between personal factors is fundamental. The interrelations between personal factors could be influential in understanding relationships with social factors, attributes of adopter, and attributes of innovation. Statistically, Industry and Age are correlated with a Spearmen (r) coefficient = 0,48, t(N-2) = 3,74, and p-value = 0,000502. Industry and Education are correlated with a Spearmen (r) coefficient = 0,76, t(N-2) = 7,97, and p-value = 0,000000. Lastly, Education and Age are correlated with a Spearmen (r) coefficient = 0,42, t(N-2) = 3,18, and p-value = 0,002588. The findings of the statistical analysis can be referred to in *Appendix E: Quantitative Data Analysis*, Tables APE 2.

Further to the findings from the statistical analysis, additional insight regarding the relationships between personal factors could not be determined and is therefore a limitation of this study. A large sample of IT postgraduate news consumers was selected for this study. It is recommended that a more diverse sample of users with varying education and industry categories be considered for selection in future research studies related to mobile service adoption.

4.4 SOCIAL FACTORS

Whilst the *drive to bond* and the *drive to defend* are regarded as psychological motivators. In the context of this study however, the motivators are considered in the context of *social factors.* Social factors drive news consumers to interact with other news consumers or significant others, through the use of MNSs. Figure 4.4-1 illustrates a thematic map depicting the choice of personal and social factors as an influencer of adoption of MNSs.

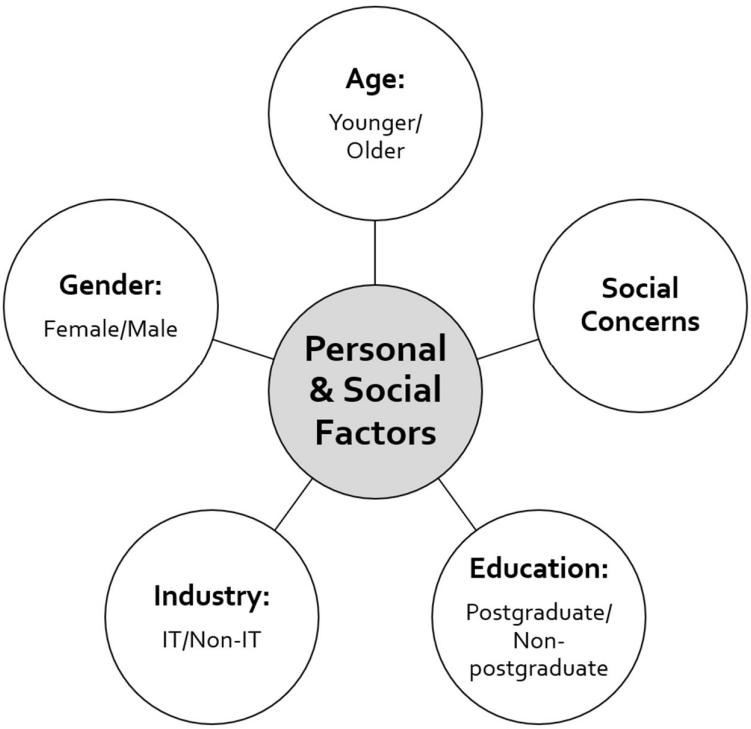


Figure 4.4-1: Selected personal and social factors

Social concerns refer to the extent to which, a user is affected and influenced by the concerns which are perceived as relevant to the society, in which the user engages. This understanding correlates with the empirical findings which suggests the expectations that MNSs should inform news consumers of socially-relevant news content which informs or affects the news consumers within the society or community in which the news consumers reside, studies, works or travels, these constitute the *Social concerns* that influences use of such services.

Social concerns are of interest to many news consumers as can be inferred from the 76 text occurrences which could be attributed to the theme. Participants, irrespective of age, education. and industry expect news content to be contextually applicable to their social environment and needs and desires. The participants are of the view that news should be disseminated so as to make the users aware of the critical social community concerns which may affect the news consumer, irrespective of physical location in some instances. These findings conform to the findings from the studies focusing on *social concerns* and the use of mobile services (Faullant et al., 2012; Wang et al., 2013b). Table 4.4-1, summarises how news consumers perceive usage or expect to use MNSs, in becoming aware of news content related to the *social concerns*. These findings support studies that sought to understand the use of the mobile phone to engage in a political discourse (Lee et al., 2014).

Table 4.4-1: Data extracts for *Social Concerns*

"You know what is happening around in the world. I have to know what and how things are happening because I am living there." (F34SLADSUP) [1]

"…the more exposure, the more you know, for e.g. now during the build up to the presidential elections, it's important that the information be shared so that people can make informed decisions and understand the state of the country. This is especially important for places with limited access to technology." (F23TLICT)

The findings suggest that social concerns promote the use of MNSs as individuals require information related to current civic and political discourse. This implies that social factors could influence other attributes of adopters and innovation in accessing information to fulfil the need to be aware of social concerns.

4.5 SUMMARY

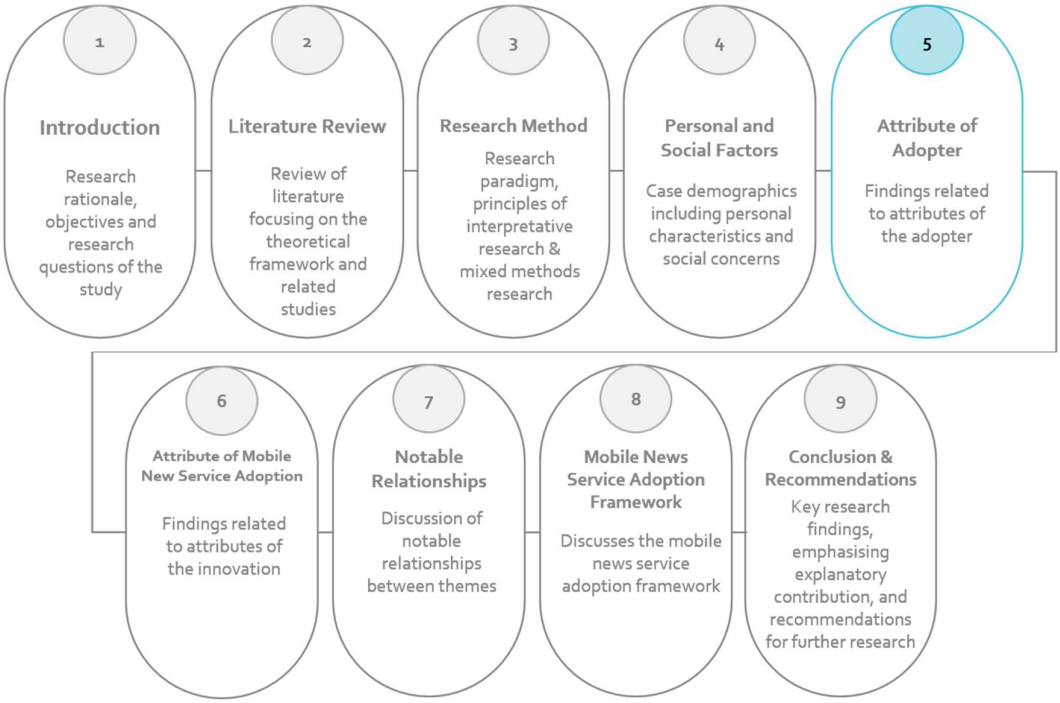
This chapter presented social and personal factors related to demographics of the sample of participants. The sample was somewhat representative of the population in Gauteng. In terms of industry and higher education, the sample was significantly skewed with many participants working and/studying within the information and communication industry. A larger sample of participants either possess or are studying towards postgraduate studies. These individuals were more critical of the use of mobile services and therefore a large sample of these individuals were included in the final selection of participants.

The succeeding chapters present findings related to attributes of adopter and attributes of MNSs.

As discerned from an analysis of the data, Chapter 5 discusses selected attributes of adopter which could influence the use of MNSs.

[1] **Coding for Participants**: Data extracts indicate the participant's gender, age, level of education (PL – primary level, SL – secondary level, TL – tertiary level), and industry of economic activity (AFF, ICT, WR, ADSUP, FIN, OS, TS, EDU).

CHAPTER 5: ATTRIBUTES OF ADOPTER



5.1 INTRODUCTION

This chapter discusses the findings related to the *attribute of adopters*. The findings suggest that MNSs are regarded as conduits to access mobile news content, which considers, specific *attributes of adopters*. Themes were studied in reference to the theoretical underpinnings which were selectively removed, merged, and included based on the analysis of empirical findings. The selected themes were termed according to the contextual applicability and relevance to the study. The reasoning for changing the labelling of themes appears in Table 5.1-1.

Table 5.1-1: Attribute of Adopters – Number of occurrences

Included themes					
	Theoretical theme		**Empirical theme**	**Detail**	**No. of occurrences**
1.	Drive to acquire	1.	*Desire to be informed	Empirical evidence suggested that being informed by MNSs was most desired. New theme reflects the interpretation of acquiring MNSs to access content.	251
2.	Drive to bond	2.	*Drive to bond and defend	Due to interactive nature of sharing and providing personal opinions on MNS forums, the new theme combines two themes to reflect the unified notion of bonding with others and defending personal perspectives on news.	195
3.	Drive to defend				
4.	Habit	3.	*Habitual convenience	Habit and time convenience are considered as intrinsically connected. Merged themes reflect access of MNSs is based on the habitual needs of the news consumer.	173
5.	Trust sensitivities	4.	Trust sensitivities		120
6.	Drive to learn	5.	Drive to learn		95
7.	Hedonic motivation	6.	*Hedonic motivation	*Hedonic motivation* and *engagement motivation* are regarded as the same motivating influencers to access MNSs.	68
8.	Engagement Motivation				

The concepts of individual culture, experience, and personal initiatives and characteristics were discussed in Chapter 4 as part of the demographic details of research participants. The effect of the personal characteristics on specified attribute of adopters will be discussed with the thematic analysis in the following sections.

Figure 5.1-1 illustrates a thematic map depicting factors influencing the *attribute of adopters.*

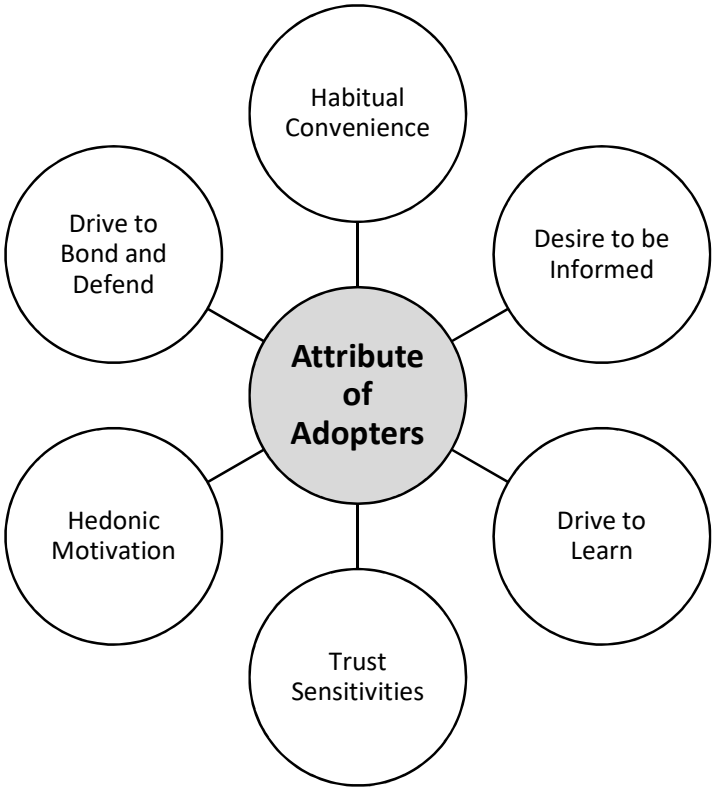


Figure 5.1-1: Selected attributes of adopter

5.2 DESIRE TO BE INFORMED

In the context of the empirical study, the *drive to acquire* refers to the desire to be informed of news. The *desire to be informed* refers to the news consumers' motivation for acquiring MNSs for personal or professional reasons. This understanding can be related to the perception shared by the studies which argue that the need to acquire consists of evolved and personally emotive psychological mechanisms used to seek objects and personal experiences that humans' value (Abraham et al., 2011; Lawrence & Nohria, 2002).

In the context of MNSs, the idea of 'seeking' information related to the current news events and other interests appears to be a key driver for the *Desire to be informed* of news events. It is due to the distinct need or desire for being informed, that the concept of *drive to acquire* is referred to as *desire to be informed* within the empirical context. It was found that 251 references were made with regards to the *desire to be informed* of mobile news content.

Table 5.2-1 highlights excerpts of responses which can be interpreted as positive and negative perceptions regarding the *desire to be informed*, in reference to accessing mobile news content via MNSs.

Table 5.2-1: Data extracts for *Desire to be Informed*

Positive responses: "It is critical for me to know what is happening… Not everything can be important for me, but I want to know about it and decide for myself." (M32TLAFF) 2 -------- "It is important to know what's happening out there." (M33TLICT) **Negative responses:** "[News is] not as important as many people think it is." (F24TLICT) -------- "Not really important. You can just leave it. "It is not life threatening if I don't have it." (F28TLICT)

These findings correlate with the findings from the research conducted in the context of mobile information communication technologies in the healthcare sector (Junglas et al., 2009).

The *Desire to be informed* can be regarded as a significant influencer in the use and adoption of MNSs and these findings correspond to similar findings as formerly discussed.

5.3 DRIVE TO BOND AND DEFEND

The theoretical understanding of *drive to bond* states that the need to bond, supports the development of social relationships and mutual commitments with other humans (Abraham et al., 2011; Lawrence & Nohria, 2002). In the context of this study, the *drive to bond* refers to the news consumer's interpersonal

[2] **Coding for Participants**: Data extracts indicate the participant's gender, age, level of education (PL – primary level, SL – secondary level, TL – tertiary level), and industry of economic activity (AFF, ICT, WR, ADSUP, FIN, OS, TS, EDU).

relationships or associations with the other news consumer and the greater society which may be affected by the news. The empirical understanding therefore supports the theoretical understanding of the drive to bond. These relationships can either be temporal in news forums or personal in terms of personal relationships with the significant others. It was also discovered that the *drive to defend*, from the perspective of news consumer, can be interpreted as the news consumer's need to engage in the news event, discussions around it, and debates which inform it, so as to contribute personal perspectives and identify with the importance of the news event. This understanding can be juxtaposed with the findings that refer to the *drive to defend* as a categorisation of evolved psychological mechanisms, which make people defend themselves as well as their valued accomplishments, whenever a perceive threats to their self, values, beliefs or status is apparent (Abraham et al., 2011; Lawrence & Nohria, 2002).

One hundred and ninety-five occurrences suggest that a desire to connect with other news consumers, from the perspective of sharing opinions on news content is a significant factor which influence the use of MNSs. It was also found that mainly consumers preferred viewing other news consumer's comments and sharing their personal opinion on the news content.

Table 5.3-1 presents a number of detailed responses regarding news consumer's *drive to bond and defend*, in terms of sharing, viewing, and defending personal comments on mobile news content, within a forum, either within the news service forum or 'offline'.

Table 5.3-1: Data extracts for *Drive to Bond and Defend*

Positive responses:

"Most definitely, if it is newsworthy than I would share my opinion, but more likely on a professional network like LinkedIn. I like to view other comments and other perspectives and different views." (F30TLICT)

"I have a blog, and followers and we can have a discussion or rather conversation about a particular news item that may be of interest to us. I would post it and offer my comments and my followers can contribute. On Facebook, Twitter, and LinkedIn. I also have no problem to publish it on a larger following like on Twitter, people can follow you." (M29TLICT)

"I will only engage if I feel deeply about the matter and up to a point. … that is about the most involved I would get, unless as I said it really affects me and I have something that I think is important to say." (M28TLFIN)

-- *continues on next page* –

Negative responses:
"No, it takes too much time. I also do not like listening to people on radio. It is sometimes stupid and it does not make sense. I won't read and I won't share my comments there." (M38SLWR)

"I don't want to comment as it may be taken out of context and I might get personally attacked for my opinions." (F29TLICT)

No, as I said, users in a news community can share nasty comments that can be hurtful and unnecessary for others who might take offence." (M36TLICT)

The findings supported the studies which find that sharing links to news and engaging in debate, particularly political discourse can vary as threats are intensified or eased within varying social fora, both online (including MNSs) and offline (Bobkowski, 2015; Lee & Song, 2017; Lischka & Messerli, 2016; Skoric & Zhu, 2016). The similarities of the empirical findings suggested that the two individual themes of *drive to bond* and *drive to defend* can be encapsulated under one uniform theme of *drive to bond and defend*.

These findings correlate with the studies which argue the importance for the *drive to bond* in the context of healthcare (Junglas et al., 2009). Furthermore, it was found that generally female news consumers did not wish to view derogatory or offensive comments. News consumers would only engage with the other news consumers, if they felt safe and when they knew other news consumers, example in the instance of sharing news content with known friends, family, or work colleagues. Some female news consumers preferred to engage 'off-line' or outside the mobile news service forum in which the news was provided for debate and discuss opinion on mobile news content.

All news consumers sampled feel that news plays an important role in their lives. However, not all news consumers wish to share personal thought and engage with other news consumer audiences, more specifically in relation to the defence of an opinion.

5.4 HABITUAL CONVENIENCE

In the context of this study, *habitual convenience* refers to the perception that MNSs should fit the news consumer's regular and habitual news access and usage patterns, which is held in similar vein, as to how *habit* and *time convenience* are referred to in the current literature.

Habit refers to the extent to which people tend to perform and behaviours based on prior and repeated behaviour, which can be measured as the extent to which an

individual believes the behavior to be automatic. Additionally, timely news service provision is an important factor for all the news consumers, either immediately or at the discretion of the news consumer. Formally, *time convenience* is regarded as the time-saving convenience of consuming advanced mobile services, stemming from ubiquitous use of mobile services (Kleijnen et al., 2007; Tojib & Tsarenko, 2012). However, in the context of the empirical study, *time convenience* refers to the convenience of accessing MNSs at the discretion of the consumer. Theoretically, *time convenience* is considered as an attribute of innovation, however, the empirical evidence suggests that *habit* and time convenience are intrinsically related and therefore, the combined term of *habitual convenience* is regarded as an attribute of adopter and not as an attribute of innovation.

One- hundred and seventy-three responses were found to be related to the *habitual convenience* patterns of news consumers. These responses indicated usage on a regular basis, more specifically within a daily routine of viewing news, during the morning, either before or after commuting to their work/study, and during the evenings for a summary of news events of the day. Secondly, week-ends are also considered as a convenient time period for using MNSs, for a weekly wrap-up citing in-depth reading for deeper analysis and leisurely for infotainment and edutainment. Table 5.4-1 highlights excerpts relating to *habitual convenience.*

Table 5.4-1: Data extracts for *Habitual Convenience*

"…Morning during breakfast, on the train, whilst travelling and during the day for my professional knowledge it helps to keep me informed and make more informed decisions and also in the evening to relax and have a wrap-up the day's event." (M30TLICT)

"I access news about five times throughout the day. 1. Mainly at home before going to work, 2. At work when I arrive, 3. During my lunch break, 4. Before 'knocking-off' and finally 5. At home before I sleep." (F28TLICT)

"Look anywhere at any time, but don't force me to read at once. I just want to know that something is going on and when I have time, I will check it out." (M20SLFIN)

The findings of this study conform to the findings of several studies, investigating the influence of *habit* in terms of accessing MNSs (Nunes & Quaresma, 2015; Thorson et al., 2015; Van Damme et al., 2015) and habitual use of smartphones (Oulasvirta et al., 2012; van Deursen et al., 2015).

Most consumers prefer the convenience of interacting with mobile services at their time discretion, with reference to mobile brokerage services and time consciousness (Kleijnen et al., 2007). The *time convenience* of viewing MNSs at the discretion of the news consumer influences the perception of the service ubiquity

and experiential value, as is evident from various similar studies (Kang et al., 2015; Karrberg & Liebenau, 2007; Tojib & Tsarenko, 2012).

The findings of this study also suggest that users, particularly students and time-conscious working news consumers perceived convenience either as the news event occurred or as preferred by the user. The latter aspect of interacting with MNSs at the discretion of the news consumers positively influenced the experiential value of interacting with MNSs, supporting the findings from similar studies (Shim et al., 2015). In addition, news consumers suggested that MNSs should adapt accordingly, either manually through the news consumer's preference setting or automatically through learning the news consumer's context, news viewing patterns and preferences. News consumers with an information technology background, particularly developers responded to the need for news dissemination through behavioural understanding. Other news consumers considered the need to view news based on perceived importance at the time and/or personal interest.

5.5 TRUST SENSITIVITIES

The theoretical understanding of trust sensitivities refers to the user's beliefs or faith in the degree to which a specific service can be regarded to have no security, vulnerabilities, and personal privacy threats. *Trust sensitivities* can also be likened to that of the opinion regarding branding of mobile news serves, von Watzdorf et al. (2010) and risk-perceptions of innovative mobile banking services (Huang et al., 2010). News consumers are likely to adopt services based on their brand awareness and trust.

One hundred and twenty occurrences could be attributed to *trust sensitivities* related to news consumer privacy and monitoring of mobile news content viewing.

Some respondents are not concerned with privacy or security, in terms of viewing mobile news content, however, there remains an expectation that interacting with MNSs should be safe to use, with secure usage of personal information (e.g., password control and sharing of opinions on news forums) and sensitive tracking of mobile news content viewing. The empirical and theoretical understanding are therefore agreeable. Table 5.5-1 presents evidence of findings relating to *trust sensitivities*.

Table 5.5-1: Data extract for *Trust Sensitivities*

Positive responses: "Your privacy can be compromised, e.g. banking news. However, this depends on the type of content and nature of the content." (M35TLICT) -------- "Yes, tracking and profiling. I am completely and utterly concerned about my privacy on any site. Direct advertising is also concerning." (F38TLICT) -------- **Negative responses:** "Not worried about privacy and security. No personal information shared." (M33TLICT) -------- "No, I'm not worried. Only names, no ID and street address." (M21TLICT)

The respondents who indicated a trust for MNSs, generally viewed tracking as a means to improve service delivery of some specific varieties of mobile news content. More news consumers are concerned with directed advertisements based on the user's viewing pattern of a particular news content, which may be easily assessed by the mobile news service providers and advertisers. These findings contrasts the findings from von Watzdorf et al. (2010) study, which could not confirm the influence of the factor of trust on the perceived usefulness or the intention to use mobile emergency applications by the consumers. These findings do support the findings related to risk-perceptions and concerns of using innovative mobile banking services, which either inhibits or supports technology acceptance thereof, Huang et al. (2010).

5.6 DRIVE TO LEARN

In the context of this study, the *drive to learn* refers to the news consumer's need to understand and learn from news events, either affecting the society, in which the news consumers are placed or events affecting other societies that the news consumer can associate with or learn about. This understanding can be related to the theoretical understanding of the *drive to learn* in the context of the research stating that *drivers to learn* consists of evolved and personally emotive psychological mechanisms used to search, find and access information (Abraham et al., 2011; Lawrence & Nohria, 2002). Information can also be assessed and evaluated to fulfil needs and desires, satisfy curiosity, address uncertainty and assist in making decisions and judgments which can be viewed as 'normal' (Abraham et al., 2011). However, a lack of awareness can also inhibit adoption of services as well as news consumer's *drive to learn* (Ramburn & van Belle, 2011).

Table 5.6-1 highlights excerpts of responses which can be interpreted as *drive to learn*, in reference to the use of MNSs.

Table 5.6-1: Data extracts for *Drive to Learn*

"Yes, I think it is important for me to know what is happening in the economy and how it affects business management." (M24SLFIN)

"… for my professional knowledge, it helps to keep me informed and make more informed decisions." (M30TLICT)

"Yes, to make me to know what I can do, to make me know the situation." (F24TLADSUP)

The findings of this study confirms the findings from other similar studies, including research which found *drive to learn,* an imperative intrinsic motivation (Rao, 2007). The *drive to learn* can both positively influence the use and eventual adoption of technology as well as negatively influence acceptance and adoption.

In the context of this study, a total of 95 responses could be attributed to the *drive to learn*, either within a professional or personal decision-making capacity, e.g. traffic re-routing or awareness of protest activity in surrounding areas. It was found that participants strongly believed that an articulated comprehension of the news plays an important role in their daily, personal, or professional regimes and thus participants have a stronger *drive to learn*. It is apparent that the news subsumes an intrinsic part of the lives of these news consumers.

5.7 HEDONIC MOTIVATION

In the context of this study, *hedonic motivation* refers to the personal interest, enjoyment, or consumable appeal of using MNSs. The empirical definition confirms the theoretical understanding of *hedonic motivation*. Sixty-eight references could be attributed to hedonic motivation.

Male consumers are more interested in news which satisfy their hedonic motivation needs (expected frequency for males = 19,29), refer to *Appendix E: Quantitative Data Analysis*, Tables APE 7 and 8. Table 5.7-1 presents responses relating to *hedonic motivation* influences.

Table 5.7-1: Data extracts for *Hedonic Motivation*

"I would want to know about what is new about my areas of interest. E.g. financial news e.g. budgeting made easy, financial planning made easy. I would be interested in this news." (F24TLICT)

"Out of personal curiosity and interest, I like to play around and search." (F25TLICT)

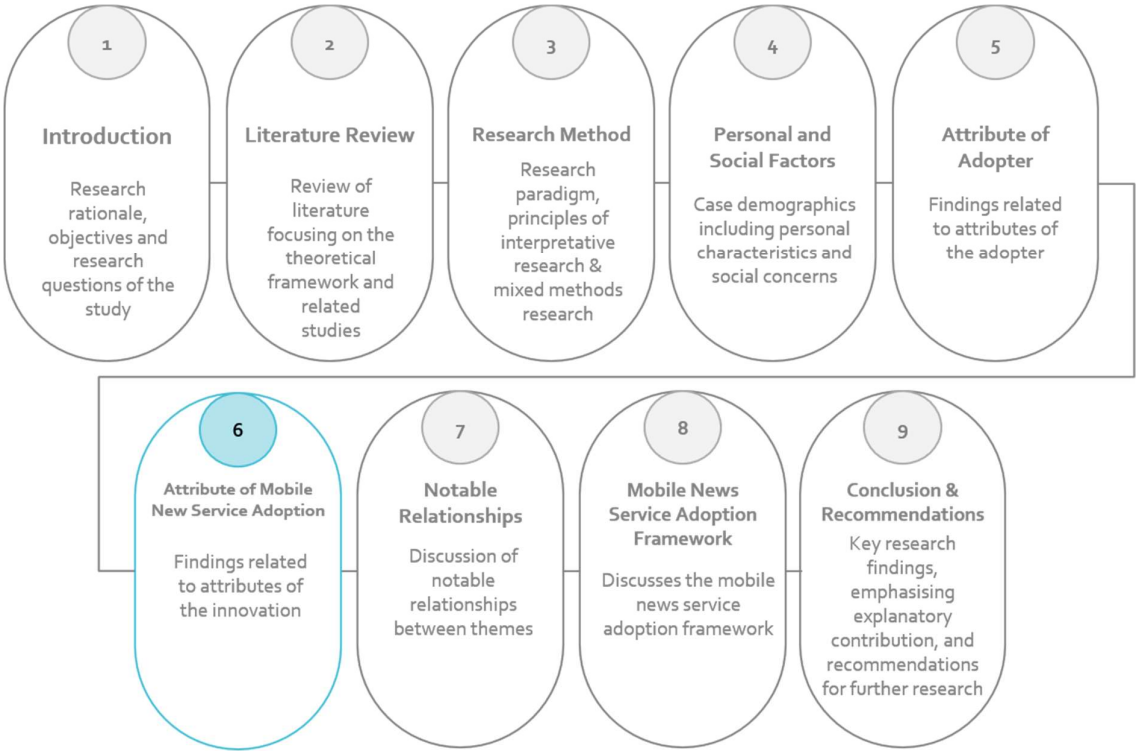
"If it interests me, I will read further." (M38TLICT)

These findings conform to the findings from several other studies, focused on the intrinsic motivation, engagement motivation, enjoyment, and personally relevant desire for using mobile services. These services include free voluntary mobile messaging services, mobile services, including MNSs, mobile gaming, mobile advertising, and mobile tourism shopping (Kim et al., 2015; Leppaniemi & Karjaluoto, 2005; Liu et al., 2015; Shim et al., 2015; Watjatrakul, 2013; Yeung & Yang, 2010).

5.8 SUMMARY

The *attribute of the adopters* can be regarded as a significant influencer with regards to accessing mobile news content via MNSs. The attribute of adopters is a complex theme encompassing a number of factors including the desire to be informed, drive to bond and defend, habitual convenience, trust sensitivities, drive to learn and hedonic motivation. It became evident that many of the selected attributes of adopters was associated with other factors, including *social factors,* personal initiatives and characteristics, and *attributes of MNSs*. The identified and selected *attributes of MNSs* is discussed in the next chapter.

CHAPTER 6: ATTRIBUTES OF MOBILE NEWS SERVICES



6.1 INTRODUCTION

The *attributes of MNSs* influences the interaction with MNSs, which can be regarded as the key contributors to the adoption of MNSs. The *attributes of MNSs* are discussed according to seven basic themes. The details of merging themes are presented in Table 6.1-1. The seven identified themes occurred most frequently during iterative cycles of analysis, suggesting the importance of these factors to the participants.

Table 6.1-1: Attribute of Innovation – Number of occurrences

Included themes					
	Theoretical theme		**Empirical theme**	**Detail**	**No. of occurrences**
1.	Observability	1.	Observability		210
2.	Usability	2.	Usability	Themes merged with Usability due to similarities of meaning: ▪ Complexity ▪ Performance Expectancy ▪ Effort Expectancy	148
3.	Facilitating Conditions	3.	Facilitating Conditions	"Searchability" considered as a type of feature that should serve as a facilitating condition to use MNSs.	137
4.	Compatibility	4.	Compatibility	"Trialability" considered as a type of feature that should serve as a facilitating condition to use MNSs	121
5.	Relative advantage	5.	Relative advantage and value	Combined with a new theme, "Purchasing" to articulate	118
6.	Portability	6.	Portability	"Perceived ubiquity" considered as an aspect of the encompassing there of Portability	106
7.	Immediacy	7.	Immediacy		81
Excluded themes					
7.	*Continuity*	The theme was not evident in the findings.			
8.	*Time convenience*	This theme was merged with habit to form, *Habitual Convenience*			

Figure 6.1-1 illustrates a thematic map depicting the *attribute of innovation* as a driver for adoption.

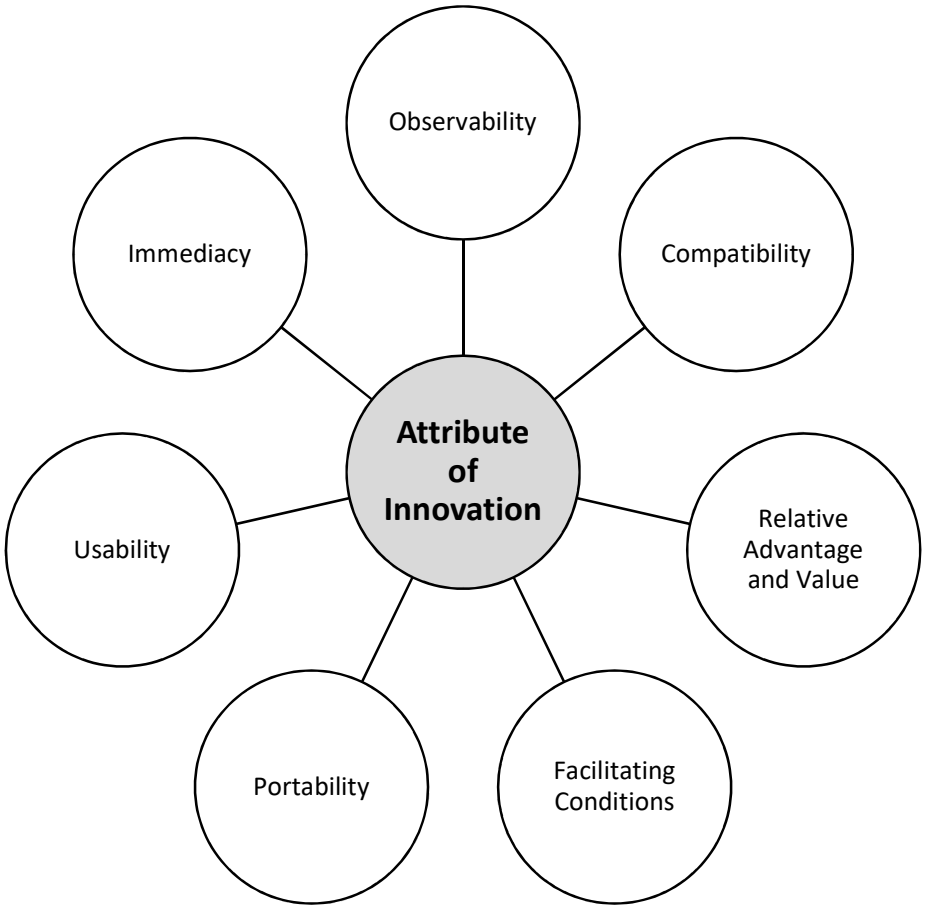


Figure 6.1-1: Selected attributes of MNSs

Several MNSs used by news consumers were identified and is discussed next.

6.2 MOBILE NEWS SERVICE TYPES

Upon querying which MNSs, the participants preferred, 41 unique MNS providers were identified in the given area. The top four news service providers were[3], Figure 6.2-1, based on the number of occurrences (more than three occurrences), showed that News 24 (22), various Google search, news, and social media services (17), CNN (6), BBC (5), Daily Sun's mobile services, and (5) Sunday Times and Times Live (5) are popular local and international new

[3] Traditional news and information services providers which currently provide access to MNSs via numerous mobile media platforms: (BBC, 2017; CNN, 2017; DailySun, 2017; Google, 2017; IAB, 2017; TimesMedia, 2017).

service providers that participants regularly interact with in order to access news.

Figure 6.2-1: Top MNS providers ranked according to number of occurrences

A tree map visualisation of the most popular MNSs used by participants, is depicted in the Figure 6.2-2 to highlight the diversity of news interests and service provider choices.

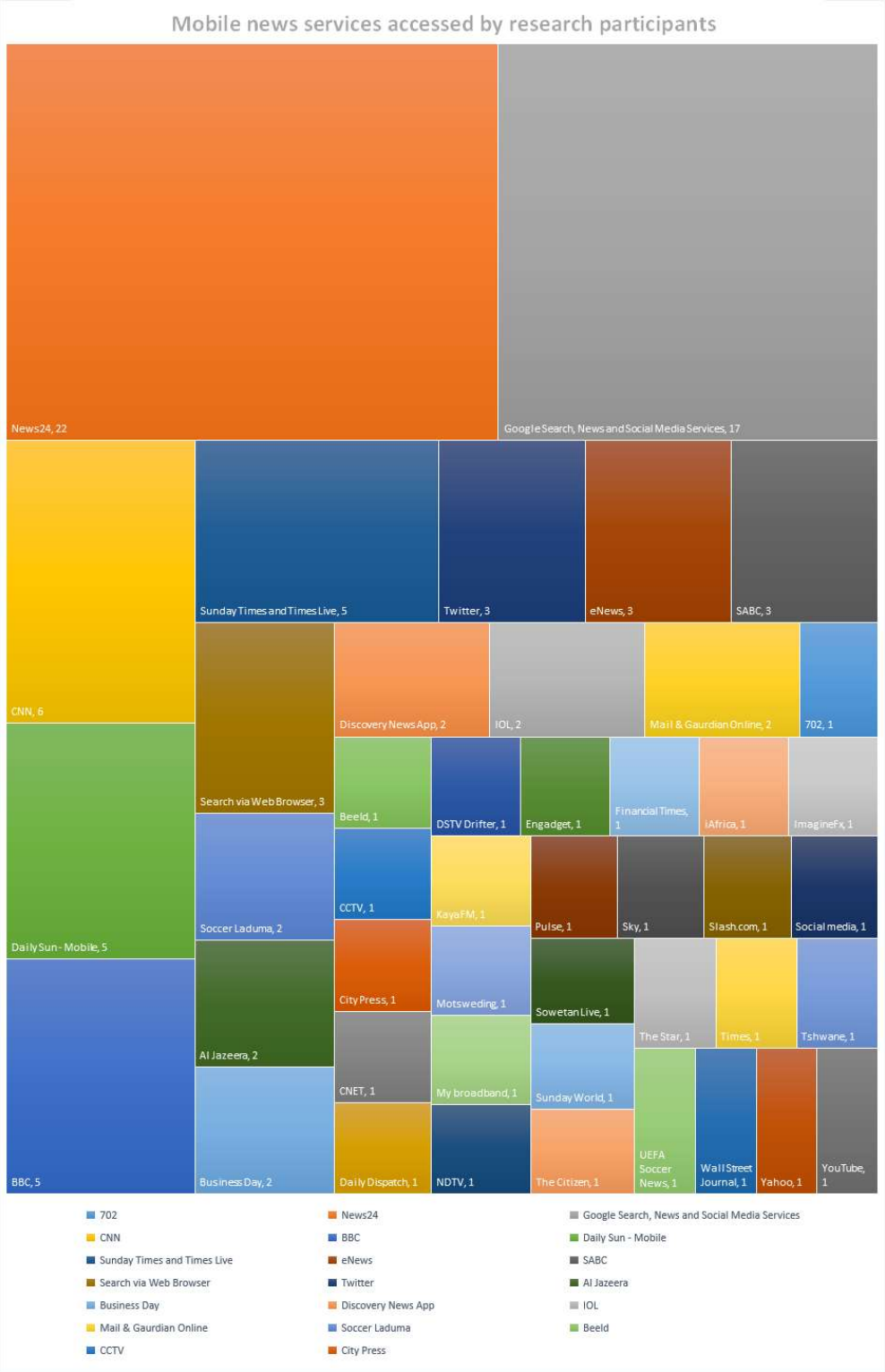


Figure 6.2-2: MNSs accessed by participants

6.3 OBSERVABILITY

Formally, *observability* can be defined as the degree to which the results of an innovation are visible to others (Rogers, 2010). Two-hundred and ten occurrences could be attributed to *observability*. In the content of the empirical inquiry, *observability* refers to the perception that news consumers can view, engage, and interact with mobile news content, with the means of appropriate media format (e.g. textual narrative, photography, or videography) and representation of news content. *Observability* refers to the personalisation of news content for different news consumers, for different scenarios, including personal and professional engagement. The findings of the study support previous researches on the visualisation of information on mobile interfaces (Baduza et al., 2012; Miniukovich & De Angeli, 2014; Mitchelstein & Boczkowski, 2010; Nguyen & Western, 2007; Sheller, 2015).

In this study, *observability* is an important factor with regards to the use of MNSs. The news consumers affirmed that their interaction with MNSs is dependent on how *observable* MNSs are to the news consumer. *Observability* can therefore stimulate the concentration of engagement with MNSs. Table 6.3-1 presents excerpts of evidence related to *Observability*.

Table 6.3-1: Data extracts for *Observability*

Positive responses: "One needs to be presented news that is relevant and important, i.e. prioritised and also presented in a digestible form that can easily be interpreted.' (F26TLICT) [4] -------- "It should provide me with a 'snap-shot' view within a limited time (e.g. 30 seconds) of the news events and link you to the detailed text as well, if you wish. I prefer illustrations, video clips that can capture my attention better in the form of storytelling." (F29TLICT) -------- "I glance over the headlines and will only read if I think it's important." (F24TLICT) **Negative responses:** "It can be distracting at times." (M35TLICT) -------- "Should not be overwhelmed with news." (F32TLADSUP)

[4] **Coding for Participants**: Data extracts indicate the participant's gender, age, level of education (PL – primary level, SL – secondary level, TL – tertiary level), and industry of economic activity (AFF, ICT, WR, ADSUP, FIN, OS, TS, EDU).

6.4 USABILITY

Theoretically, *usability* is a multi-faceted theme referring to how news consumers perceive their interaction with MNSs via various mobile devices and related interfaces, e.g. smartphone, tablet, netbook, or laptop devices (Harrison et al., 2013; Ma et al., 2013; Siebra et al., 2017). The empirical findings suggest that users do not expect to be challenged or overwhelmed with a number of actions or functions to access mobile news content. News consumers prefer user-friendly, easy to access, simple to 'touch' and 'scroll', attention-focused news content. A one-page interface, preferably content appropriate for the mobile device of choice of the news consumer is preferred. Mobile news content articles should also contain a single illustrative image or video clip, exemplifying the presented content of the news article. Moreover, users prefer navigating via hyperlinks, to access and possibly interact with the auxiliary information, for an in-depth review and additional related news content. The design of usability of MNSs need to ensure that it is relevant to different user profiles that is users with different literacy and interaction needs.

Table 6.4-1 presents excerpts which are representative of 148 occurrences that could be attributed to *usability.*

Older consumers are less likely to use MNSs, unless their usability needs are satisfied (expected frequency for older news consumers = 26,27, refer to *Appendix E: Quantitative Data Analysis*, Tables APE 9 and 10).

Table 6.4-1: Data extracts for *Usability*

Positive Responses: "You have more freedom to browse and choose what you want using MNSs." (F31HLICT) -------- "I enjoy the digital experience of zooming in and linking to extra information, additional insight in the actual interviews, videos and barcode features" (F32HLICT) -------- I can also select the category and go immediately to that section and articles. In the newspaper, I have to turn and turn until I can see what I want." (M22SLOS) -------- **Negative Responses:** "[It is] not really challenging, but my S4 has a smaller screen than my iPad so it's not as comfortable or legible to read. I do not like scrolling, up and down and side by side. The iPad is bigger, easier to open and read the article and no zooming or scrolling." (F29HLICT) -------- "I don't want to interact with it too much." (F24HLICT) -------- "Sometimes it is difficult and I don't know if I am doing right thing. The phone is also small, so I must keep moving up and down to see everything." (F35SLADSUP)

6.5 FACILITATING CONDITIONS

As discussed, *facilitating conditions* are considered a consumer's perceptions of the resources and support available to perform a particular behaviour (Brown & Venkatesh, 2005; Venkatesh et al., 2003b; Venkatesh et al., 2012). The 137 empirical responses from the study suggest that *facilitating conditions* are a significant aspect to be considered in using and adopting MNSs. The news consumers sampled, refer to *facilitating conditions* as a means to provide access to MNSs and/or assistance with regards to the correct use of MNSs. Most news consumers believe that having a smartphone and a network connectivity is crucial to interacting with MNSs, like viewing images or video content associated with mobile news content.

These findings support the literary findings, related to the studies focusing on the acceptance and adoption of the advanced mobile services, mobile internet, mobile baking services and mobile (Carlsson et al., 2006; Islam et al., 2013; López-Nicolás et al., 2008; Zhou, 2011; Zhou et al., 2010). These findings are closely related to the

nature, of how news consumers access MNSs via mobile internet or mobile news applications and notifications.

Table 6.5-1 presents excerpts of evidence, relating to *facilitating conditions*. The excerpts suggest that the cost of access to mobile services, level of education and socio-economic context of news consumers, and problematic connectivity must be considered in providing MNSs.

Table 6.5-1: Data extracts for *Facilitating Conditions*

"It can be challenging to connect to the network at times." (F29TLICT) -------- "It would be nice if someone can help me and show me how and I can also try and learn it by myself. I would require instructions from the person I am buying the device to show me how to go about, for the first time, at least." (F40SLADSUP) -------- "The challenge is that I don't know how to use it, I don't have [a] good phone and also it mustn't be too much work. It must be simple and must not charge me too much. I don't want to pay a lot of money and not get [the] right information." (M32SLTS)

6.6 COMPATIBILITY

The theoretical understanding of *compatibility,* states that *compatibility* refers to the degree to which an innovation is perceived as consistent with the existing values (Rogers, 2010). One hundred and twenty-one empirical references could be attributed to *compatibility*. Participants believe that MNSs should uphold the same standards and reputability of professional journalistic integrity as portrayed in other media channels such as print, radio, or televised news media. News consumers and potential news consumers are generally optimistic regarding the use of MNSs in comparison to other media platforms such as printed, televised and web-accessible news services. News consumers expect the same level that they have come to expect from alternate mediums for accessing news content.

Older consumers are more likely to use MNSs that satisfy their compatibility needs (expected frequency for older news consumers = 24,92), refer to *Appendix E: Quantitative Data Analysis*, Tables APE 15 and 16).

These findings correspond with the findings from related and similar studies studying the concept of compatibility and perceived compatibility (Aiash et al., 2013; Koivumaki et al., 2008; Tan & Chou, 2007). The researchers suggest that users must find mobile services reconcilable with the users existing behavioural patterns, in order to promote acceptance and adoption of such services. Excerpts providing evidence of *compatibility* appear in Table 6.6-1. The consumers believe that along with the ease of accessibility of news content via MNSs, the expected

levels of reporting and journalistic quality should be maintained. The expectation that MNSs can provide news content which meets or surpasses current mechanisms to receive news, is also evident as consumers view technological innovations as an improvement over traditional or current means.

Table 6.6-1: Data extracts for *Compatibility*

"It's more innovative and flexible. It does not matter where you are. This is the best. Print is boring and digital is free. It depends, print is comprehensive to some extent, but if I have to compare mobile is readily available and its new technology." (M33TLICT)

"[The] paper-based version [is] echoed in [the] digital version." (M30TLICT)

"Quality is key, just like a printed newspaper. Editorial work should not be skimped." (F38TLICT)

"I think journalistic writing needs to be improved, not just one side of the story should be given. Spelling and quality journalism must be checked. You read the article and still need to read more to understand what they are trying to convey." (F28TLICT)

". [The content should be checked] for biases and also present good quality work. [It] doesn't mean it's online [that] it should suffer from a lack of good editing." (M32TLICT)

6.7 RELATIVE ADVANTAGE AND VALUE

According to, Rogers (2010) *relative advantage* refers to the degree to which an innovation is perceived as being better than the idea it supersedes. *Relative advantage* can be interpreted in terms of three dimensions, including *economic profitability*, *social prestige*, or *other benefits*.

In the context of this study, many news consumers consider paying for MNSs, if it provides benefits and values which could not otherwise be derived from any other alternate sources. The cost of payment is not regarded as significant if the content provided is considered of a significant value to the news consumer. Other news consumers, however, felt that since data is used to access MNSs no additional services should be charged for interacting with MNSs or accessing mobile news content. The value of MNSs needs to be considered for the payment and data expenses to be incurred.

One hundred and eighteen responses related to *relative advantage and value*. Most news consumers view the use of MNSs as a means to be informed of news events which may affect his/her personal or professional surrounds. The respondents

believe that knowing the news first would be useful for awareness and decision making. The findings of this study conform to findings from studies determining the viability of mobile payment services, in which relative advantage for using the mobile service was regarded as a dominant factor in mobile service adoption (Al-Jabri & Sohail, 2012; Yang et al., 2012; Zhou, 2013) and inhibited adoption (Blechar et al., 2006; Ramburn & van Belle, 2011).

The heightened awareness of news events serves as a form of *relative advantage and value* from the perspective of the news consumer. Several excerpts illustrative of *relative advantage and value* are presented in Table 6.7-1.

Table 6.7-1: Data extracts for *Relative Advantage and Value*

Positive responses:

"Really important. If you are stuck in traffic you can just find the traffic report on your mobile phone." (M35TLICT)

"I need to know the trends and therefore subscribe for news feeds to get the latest trends and future forecasts and beyond." (M30TLICT)

"Yes, I am willing to pay but it's can't be too much. I know some services give you discounts on subscription for 1 year." (F25TLICT)

"Yes, affordability and access so that you wouldn't have to pick print over other means." (M28TLFIN)

Negative responses:

"It is not life threatening if I don't have it." (F28TLICT)

"It's only a priority if it's something happening to me." (M25TLICT)

"Not now. I would only pay if absolutely necessary. Search with other mediums first. Pay maybe 10c per article." (F31TLICT)

-- *continues on next page* --

"No, it should be freely available. I do not like the idea of registration. It should be open. In my view, "news should be free". If you have to pay for it, I'm sure there are other alternatives to access it." (M29TLICT)

The respondents believe that MNSs will be advantageous in the sense of *being the first to know* and *knowing news as it happens*. Very few respondents do not see MNSs as providing a relative advantage unless it is considered 'life-threatening' affecting the news consumers.

6.8 PORTABILITY

As discussed, a theoretical understanding of *portability* suggests that the factor referring to the quality of being light enough to be carried, relates to the 'physical characteristics' of the device. *Portability* can also refer to the spatial and temporal constraints, reflecting varying levels of *mobility* within the social domain. *Portability* and *mobility* are important aspects to be considered in relation to *perceived ubiquity* of mobile services (Okazaki & Mendez, 2013). The findings of this study supports these findings posited by several other studies, particularly in terms of aspects related to the ability to access and use mobile commerce applications based on varying contextual parameters (Benou & Vassilakis, 2010) and MNSs via a variety of mobile devices, at any location, more specifically whilst travelling (De Pessemier et al., 2016; Okazaki & Mendez, 2013; Van Damme et al., 2015; Wolfe, 1994).

One hundred and six responses can be referenced to the concept of *portability*. It was determined that *portability* referred to the perception that MNSs could be accessed on different mobile devices including, laptops, feature phones, smart phones, tablet devices and mobile TV devices. Smaller devices such as smartphones are generally used for brief and quick access during commuting and travelling, whereas tablets are used for interacting with MNSs for longer and more leisurely circumstances during longer commutes and at defined spaces including work and residential domains at specific times. Table 6.8-1 presents findings relating to the *location and device portability* in terms of interacting with MNSs. It was found that generally technology-savvy, constantly-travelling students and professionals on the move prefer the use of multiple devices to access and interact with MNSs. Therefore, it can be derived that age, education, gender, and industry have an influence on *portability*, which is considered crucial to the usage of MNSs by these types of news consumers.

Table 6.8-1: Data extracts for *Portability*

Location portability
"I like the currency of accessing the news, especially from home and when I'm on the move." (M35TLICT)

"It's more innovative and flexible. It doesn't matter where you are." (F32TLADSUP)

Device portability
"Larger screens such as the laptop and tablet, but I'm ok with using a mobile phone which is more portable" (M38TLICT)

"I use my iPhone more for mobility. For mobility, I feel that a smaller device would be better." (F29TLICT)

6.9 IMMEDIACY

Theoretically, *immediacy* is regarded as the quickness or currency of an action or occurrence. *Immediacy* implies light, effortless, and easy displacement (Okazaki & Mendez, 2013). Eighty-one occurrences suggest that *immediacy* refers to the instantaneous access to MNSs (e.g. breaking news alerts), or on-demand and within real-time delivery of MNSs. Some news consumers do not prefer the *immediacy* of interacting with MNSs and prefer interacting with MNSs at a time more convenient for the news consumer.

This understanding of *immediacy* conforms to the understanding of *immediacy* as studied by Okazaki and Mendez (2013). Table 6.9-1 presents excerpts of findings relating to *immediacy*.

Table 6.9-1: Data extracts for *Immediacy*

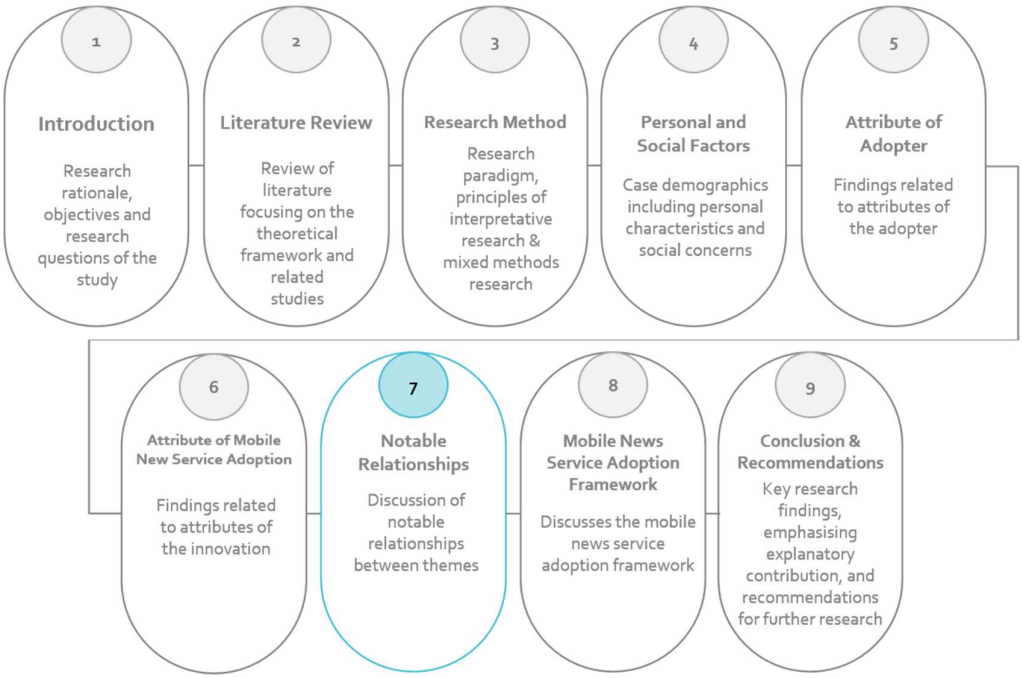
Positive responses: "I like to get it as fresh as it happened." (F30TLICT) -------- "I love it! I like to be informed about live news, not five hours later." (M32TLICT) -------- **Negative responses:** "Not interested in real-time push notifications. It is an irritant. I like to find out the news myself." (M38TLFIN) -------- "No, I don't rely on real-time updates unless it's critical or breaking news." (M28TLFIN)

6.10 SUMMARY

The findings related to the *attributes of MNSs* such that these attributes are integral to the adoption of MNSs. *Observability*, *usability* and *facilitating conditions* are themes which occur prominently during iterative cycles of thematic analysis. The importance of factors such as *Usability* and *Compatibility* varied depending on either the user's age, education, or industry. Older, non-postgraduate and non-IT news consumers are more concerned with the usability of MNSs to access news content. *Compatibility* ensures that MNSs can serve the news needs and desires of the older news consumers, better than if the news was provided through other mediums, such as televised or printed news. The *relative advantage and value* of MNSs suggests that consumers are willing to pay for news content, if it is considered exclusive and is inaccessible through any other mediums. The accessibility of MNSs though *portable* provision is a necessary mechanism to

ensure constant use of MNSs. Lastly the timing of accessing news content in real-time, suggests that *immediacy* is an essential factor. The findings therefore suggest that visualisation, accessibility, and interaction with MNSs is necessary for adoption to occur. Several co-occurrences of factors could be identified. Chapter 7 presents a discussion on notable relationships between and amongst attributes of adopter, attributes of MNSs, and personal and social factors.

CHAPTER 7: NOTABLE RELATIONSHIPS



7.1 INTRODUCTION

This chapter discusses selected relationships (one-to-one relationships) that were identified upon the completion of the data analysis phase of the study. The relationships between individual factors with personal factors have been discussed in preceding chapters, 4 to 6.

A set of twelve notable relationships were identified and selected upon completion of the qualitative and quantitative analysis. The selection was based on a pragmatic interpretation of the thematic analysis and the Spearmen rank correlation between the specific factors. The outcomes of qualitative analysis appear in *Appendix D: Qualitative Data Analysis* (Tables APD 2 to 4) and the outcomes of quantitative analysis appear in *Appendix E: Quantitative Data Analysis* (Tables APE 1 to 16). These relationships appear in the Table 7.1-1. In terms of statistical ranking, the Spearmen rank, provides correlation, co-efficient measures, and monotonic relationships to determine if the relationships between the two factors are linear. A Spearmen correlation of +1 indicates a strong correlation between the two factors, when statistical observations indicate a similar rank order between the two factors. The rank is an indication of the relative position of the observations within the factor. Similarly, a spearmen correlation of -1 indicates an opposing rank order correlation between the two factors, when observations indicate a dissimilar rank order between the two factors. In this study, the qualitative findings were first considered and co-occurrences between factors needed to be analysed and interpreted for selection in the proposed framework. Both correlation and co-occurrence measures for each relationship are therefore accounted and presented to indicate the selection and significance of the relationships.

Table 7.1-1: Selected relationships

Prop. #	Proposition	Instances of text co-occurrences	Spearman (r)	t(N-2)	p-value	Co-occurrence Index
P1	**Observability (AI1) <> Usability (AI3)** *Observability* of MNSs is inter-related with *Usability* of MNSs	36	0,583	4,922	0,000	0,11
*P2	**Gender → Hedonic Motivation** An adopter's *Hedonic motivation* is influenced by an adopter's *Gender*	68 – number of all text occurrences	0,428	3,248	0,002	n/a

Prop. #	Proposition	Instances of text co-occurrences	Spearman (r)	t(N-2)	p-value	Co-occurrence Index
P3	**Observability (AI1) → Drive to Bond and Defend (AA2)** *Observability* of MNSs satisfies an adopter's *Drive to Bond and Defend*	8	0,403	3,025	0,004	0,02
*P4	**Age → Usability (AI3)** The *Usability* of MNSs is influenced by an adopter's *Age*	148 – number of all text occurrences	-0,403	-3,021	0,004	n/a
P5	**Portability (AI6) → Desire to be Informed (AA1)** *Portability* of MNSs satisfies an adopter's *Desire to be Informed*	4	0,381	2,827	0,007	0,01
P6	**Usability (AI3) → Desire to be Informed (AA1)** *Usability* of MNSs satisfies an adopter's *Desire to be Informed*	12	0,372	2,748	0,008	0,03
P7	**Desire to be Informed (AA1) <> Drive to Learn (AA5)** An adopter's *Desire to be Informed* is inter-related with an adopter's *Drive to Learn*	11	0,361	2,659	0,011	0,03
P8	**Facilitating Conditions (AI2) <> Compatibility (AI4)** *Facilitating Conditions* of MNSs is inter-related with *Compatibility* of MNSs	5	0,345	2,523	0,015	0,02
P9	**Habitual Convenience (AA3) <> Drive to Bond and Defend (AA2)** An adopter's *Habitual Convenience* is inter-related to an adopter's *Drive to Bond and Defend*	4	0,340	2,481	0,017	0,01
P10	**Relative Advantage & Value (AI5) → Drive to Bond and Defend (AA2)** *Relative Advantage and Value* of MNSs satisfies an adopter's *Drive to Bond and Defend*	3	0,334	2,429	0,019	0,01
P11	**Trust Sensitivities (AA4) <> Drive to Learn (AA5)** An adopter's *Trust Sensitivities* is inter-related with an adopter's *Drive to Learn*	2	0,319	2,312	0,025	0,01
***P12**	**Age → Compatibility (AI4)** The *Compatibility* of MNSs is influenced by an adopter's *Age*	121 – number of all text occurrences	-0,312	-2,25	0,029	n/a
P13	**Social Concerns (AI8) <> Drive to Learn (AA5)** *Social concerns* are inter-related with an adopter's *Drive to Learn*	17	0,302	2,179	0,034	0,11
P14	**Social Concerns (AI8) <> Desire to be Informed (AA1)** *Social concerns* are inter-related with am adopter's *Desire to be Informed*	6	0,283	2,023	0,049	0,02
P15	**Immediacy (AI7) → Desire to be Informed (AA1)** *Immediacy* of MNSs satisfies an adopter's *Desire to be Informed.*	16	0,192	1,345	0,185	0,05

Subsequent discussions argue an interpretation of the 12 identified relationships in further detail and the potential influence of the relationship on MNS adoption.

7.2 OBSERVABILITY AND USABILITY

The data analysis revealed that *Usability* is inter-related to *Observability*, with 36 co-occurrences which serves as empirical evidence of the relationship. The statistical analysis also indicates a significant relationship exists between the factors.

Respondents that find *Usability* important also find *Observability* important, refer to Table 7.2-1 for excerpts which serve as evidence of the relationship. Research participants enjoy the *Usability* of MNSs to view news content. The first excerpt typifies the importance for news consumers to access brief or summarised news content. It is also evident that bad *Usability* and design of functionality such as buttons and labels can also make it difficult for some users to access and view news as suggested in the second excerpt.

Table 7.2-1: Data extracts for *Observability* and *Usability*

"It's easy to scroll and view. I like summarised versions of news that give the most important news information." (F29TLICT)

"I like it, but sometimes it is difficult to use. I don't know if I am pressing right to see." (F35SLADSUP)

This relationship therefore suggests that news consumers access and view mobile news content if *Observability* and *Usability* are afforded, thereby stimulating usage and adoption of MNSs.

These findings are evident in similar studies exploring the nature of *Observability* and *Usability* of mobile services users in developing economies, thus advocating for the significance of the relationship between *Usability* and *Observability* (Baduza et al., 2012; Colace et al., 2017; Darin et al., 2016; Jung & Kim, 2015). The studies found that perception related to *Usability* and *Observability* are intrinsically related and vital to user satisfaction with modern mobile applications.

7.3 GENDER AND HEDONIC MOTIVATION

The results from the Spearman Rank Order Correlation test resulted in a Spearmen (r) coefficient = 0,43, t(N-2) = 3,25, and p-value = 0,00). The Mann-Whitney U value = 181,50, p-value of 0,02, and 2*1-sided exact p = 0,019 and the Chi square test indicate a correlation between age and hedonic motivation with an

expected frequency of Pearson Chi-square: 8,98333, df=1, p=,002725. The findings of the statistical analysis can be referred to in *Appendix E: Quantitative Data Analysis*, Tables APE 2, 5, 7 and 8, respectively.

Male consumers are more interested in news that satisfy their hedonic motivation needs, refer to Table 7.3-1 for excerpts which serve as evidence of the relationship. The news consumers access news which satisfy their personal awareness and interests.

Table 7.3-1: Data extracts for *Gender* and *Hedonic Motivation*

"I particularly enjoy the political news alerts I can set." (M21TLICT) -------- "I like South African news, especially related to democracy and voting in elections. It is critical to know this kind of news in South Africa. I like to know what is happening internationally, e.g. what is happening where the Arabs stay in the Middle East, so many things are happening [there]. I also find editorials and columnists interesting and helpful. I like to know about Sports news, e.g. soccer watching. I look at weather forecasts and health and lifestyle news, I want to live healthy…" (M42SLADSUP)

This relationship is supported in similar research studying the gender differences of using technology and find that male and female users have different interests and preferences for interacting with information technology and related services (Faqih & Jaradat, 2015; Jung et al., 2013; Noguti et al., 2016; Venkatesh & Morris, 2000). The studies find that male users prefer accessing information which satisfy their research, learning and awareness needs. Male users enjoy the convenience of accessing functions or features that supports the ability to access desired information.

7.4 OBSERVABILITY AND DRIVE TO BOND AND DEFEND

The data analysis revealed that *Observability* of MNSs supports an adopter's, *Drive to bond and defend* with 8 co-occurrences which serves as empirical evidence of the relationship. The statistical analysis also indicated a significant relationship exists between the factors.

The more important the *Drive to bond and defends* is, the more important *Observability* becomes to news consumers of MNSs, refer to Table 7.4-1 which highlights selected verbatim to exemplify the relationship. The excerpts suggest that news consumers are heavily influenced by what they observe on MNSs. The decision to engage with other users on forums is based on the user's personal observations and understanding of comments made. The use of emotive words and

emoticons appear to be either appealing or unappealing to news consumers. News consumers may or may not wish to engage with other users, using the online forums, and share personal opinions based on their perceptions of what was observed. Some users prefer to bond and engage with users in more personal and physical settings.

Table 7.4-1: Data extracts for *Observability* and *Drive to Bond and Defend*

"I like to be informed but not comment. I can verbally discuss my opinions, but as I said it depends on the forum. I like to read the complaints and comments on companies. I would read about 3 to 4 stories and this helps me to understand what most people feel about the company. I like the use of images and graphics and the use of applicable symbols (sad and happy emoticons). I like the real-time response and it really reflects what happens on a day and what people think about it." (F29TLICT)

"I like to participate in discussions on specific topics. I do not mind sharing my comments. I also don't mind offensive comments as long as the content doesn't relate to me specifically" (M27TLICT)

It can be suggested that news consumers engagement with mobile news content in order to bond with others and or defend personal perspectives. This interpretation of the relationship is evident in similar research that studied how users observed news content and shared news using mobile application (Boczkowski et al., 2017; Hermida et al., 2012; Lee & Ma, 2012). Studies found that MNSs supports the viewing of news content on social networks and enables the sharing of news. Lee and Ma (2012) argue that it 'has become a phenomenon of increasing social, economic and political importance because individuals can now participate in news … diffusion in large global virtual communities. Studies have found that advances in networked media technologies supports the ability to view news content and enables discussion of views related to news with others who may share similar interests.

7.5 AGE AND USABILITY

The results from the Spearman Rank Order Correlation test between usability and age resulted in a Spearmen (r) coefficient = -0,40, t(N-2) = -3,02, and p-value = 0,004064). The Mann-Whitney U value = 172,50 and p-value of 0,01, and the Chi square test indicate a correlation between usability and age with an expected frequency of Pearson Chi-square: 7,96892, df=1, p=,004759. The findings of the statistical analysis can be referred to in *Appendix E: Quantitative Data Analysis*, Tables APE 2, 3, 9 and 10, respectively. Older consumers are less likely to use MNSs, unless their usability needs are satisfied (expected frequency for older news consumers = 26,27), refer to Table 7.5-1 for excerpts which serve as evidence of the

relationship. Usability is a concern for older users who may not be familiar or have used mobile devices and services to access news.

Table 7.5-1: Data extracts for *Age* and *Usability*

"No, I wish I could see news on the laptop, I can go and check. Also, on a better smartphone, yes. If someone can show me how to go and browse properly." (F71SLEDU) -------- "I won't discourage people to read the news on the phone but why would I recommend to friends if I don't use it myself…" (M42SLADSUP)

This relationship is supported in similar research studying the usability of mobile services by older age groups of users (Claypoole et al., 2016; Grindrod et al., 2014; Lee & Coughlin, 2015). The findings of this study support current understanding that older users may be marginalised and therefore unable to fully utilise the services provided. Mobile services need to consider the needs of older users and design services that will be tactile and supportive of these needs. It is only through improved design for usability that adoption of services by older users can proliferate.

7.6 PORTABILITY AND DESIRE TO BE INFORMED

The data analysis revealed that *Portability* satisfies an adopter's, *Desire to be informed*, with 4 co-occurrences which serves as empirical evidence of the relationship. The *Desire to be informed* is positively correlated with *Portability*

The more important the *Desire to be informed* is, the more important *Portability* becomes to news consumers of MNSs. News consumers prefer to access MNSs at their discretion whilst using the capability of *Portability* through preferred mobiles devices and location to interact with MNSs. Table 7.6-1, which highlights an excerpt which provides evidence of the relationship. Most news consumers prefer the ubiquitous access of MNSs whilst travelling or as part of their news engagement regime or need to be informed of specific news at a specific point in time viz on-demand access to information. The portable and contextual functions of MNSs, therefore need to fulfil the news consumer's *Desire to be informed* as required. It can therefore be inferred that the *Desire to be informed* is supported with the convenience of portable access to MNSs, thereby stimulating usage and adoption of MNSs.

Table 7.6-1: Data extract for *Portability* and *Desire to be Informed*

"…It should also consider when I get the information - where, what and when I am able to read it. Intelligence of delivery news alerts and messages at an appropriate time…" (M29TLICT)

These findings support existing studies on the influence of an individual's preferences in terms of *Portability* and desire to be made of aware of news (Billsus & Pazzani, 2000; Struckmann & Karnowski, 2016). The studies found that online news consumption need to adhere to the continual advent of smartphones, tablets, as these devices can influence news media consumption. Struckmann and Karnowski warn of the urgency to support news consumption into varying 'niches in time and space'. This view is supported by the assertion that as a user's information need may shift based on the nature of interaction with the information (Billsus & Pazzani, 2000). The empirical findings thus confirm theoretical findings of this relationship.

7.7 USABILITY AND DESIRE TO BE INFORMED

The data analysis revealed that *Usability* satisfies an adopter's *Desire to be informed* with 12 co-occurrences which serves as empirical evidence of the relationship. The *Desire to be informed* is significantly and positively correlated with *Usability.*

The more important the *Desire to be informed*, the more important *Usability* becomes to news consumers of MNSs. It can therefore be suggested that *Usability* influences the news consumers' *Desire to be informed*, refer to Table 7.7-1, which highlights excerpts which serve as evidence of the relationship. The excerpts exemplify how news consumers expect the *Usability* of MNSs to support access to their personal news information needs. Information should be easily and readily accessible. It should not be a laborious task to search and find relevant, current, or historical news articles of interest to the news consumer.

Table 7.7-1: Data extracts for *Usability* and *Desire to be Informed*

"It is easy to use it. You just open the app, look for the type of news you want and there you go seeing a list of articles with the date and time to show you how updated the information is." (M44SLWR) -------- "I want to customise my news, make it mine. I use it every day so I must say how it should give me news. I think that is what people want. We do not just want to get it, we want to say what we want and they must help me get it. (M19SLOS)

These findings are evident in similar studies (Fine & Clark, 2014; Hübel et al., 2007; Su et al., 2016). Fine and Clark (2014) found that user characteristics (attributers of adopter), such as attitude toward technology, combined with mobile application characteristics, (attributes of innovation), such as usability contribute to a consumer's attitude to access news through mobile means. The studies found that users enjoyed the interactive participation and usability of news applications. The

empirical findings thus support the notion that by understanding the information and usability needs of news consumers of MNSs, the desire to be informed can be understood with better insight.

7.8 DESIRE TO BE INFORMED AND DRIVE TO LEARN

The data analysis revealed that *Desire to be informed* is inter-related to *Drive to learn*, with 11 co-occurrences which serves as empirical evidence of the relationship. The *Desire to be informed* is significantly correlated with *Drive to learn*. As news consumers require news content to support learning needs, the news consumers *desire to be informed* is strengthened. The strength of the relationship supports access and use of MNSs, thereby stimulating usage and adoption of MNSs.

The more important the *Drive to learn* is, the more important the *Desire to be informed* becomes to news consumers of MNSs, refer to Table 7.8-1, highlights excerpts which serve as evidence of the relationship. The selected texts are suggestive of the ideal of accessing and understanding news content, which may have a personal or wider socio-economic consequence for the news consumers. News consumers believe that news should inform and enlighten concerns such as socio-economic, financial market and inflation woes which may affect individuals from an intrinsically personal and financial well-being perspective. News consumers do not simply have a *Desire to be informed* but rather have a need to learn of the implications and possible corrective measures that can offset concerns in matters of interest to the news consumer. The need to learn and understand is therefore closely related with the *Desire to be informed*.

Table 7.8-1: Data extracts for *Desire to be Informed* and *Drive to Learn*

"I think it is very important for me to be aware of, so that I understand what is going on and the cause and effect of dramatic changes in our economy and how international markets also influence our economy and businesses (M35SLWR)

"Yes, news creates fear in me. For e.g. if something may affect me, it troubles me, what can I do now. If the price of food is going up, what am I going to budget and if petrol is going up, transport will be up. I need more truthful information and advice that will help me understand. I know that you can't stop bad news, but any helpful news that can help calm us will be better." (F34SLADSUP)

These findings are evident in studies exploring the innate human behaviour to be aware of and learn from understanding information which could serve informational needs of humans in society (Scholl et al., 2016; Shoemaker, 1996). Shoemaker (1996) argues that humans are intrinsically attuned to be aware of

news and specific news can support an understanding to avoid environmental threats and deviances from what may be considered as normal behaviour. The researcher also argues that the desire to receive information is both biologically and culturally derived, and that biology and culture can influence the desire to be informed and the desire to learn from news. An experiment testing the influences of related news content on stem cell research found that the desire to learn from the news story increased as awareness and need for further information increased (Scholl et al., 2016).

7.9 FACILITATING CONDITIONS AND COMPATIBILITY

The data analysis revealed that *Facilitating conditions* is inter-related to *Compatibility*, with 5 co-occurrences which serves as empirical evidence of the relationship. The strength of the relationship supports access and use of mobile news event, thereby stimulating usage and adoption of MNSs.

As a need for *Compatibility* increases, the need for *Facilitating conditions* is increasingly important., refer to Table 7.9-1 which highlights an excerpt evident of the relationship. The text implies that appropriate *functions or conditions* be met in order to facilitate the provision of MNSs. In context of the empirical phenomena, *facilitating conditions* are predominately regarded as conditions which enable the news consumer to access and use MNSs. The news consumer wants to feel assured that the same information is obtainable from comparable avenues of accessing MNSs.

Table 7.9-1: Data extract for *Facilitating Conditions* and *Compatibility*

"I think the type of mobile device you have can influence how you use MNSs e.g. an Apple iPhone and Samsung Galaxy. It is very different devices so the news must be presented in the right way and of course make it easy for you to get to it. How you get to it can be a challenge if you are unfamiliar with the type of phone and platform you are using and being familiar with the internet is also necessary, especially for users who might not use MNSs. It can be challenging." (F32TLADSUP)

These findings are evident in studies exploring the facilitating conditions and contrasts of accessing news on different media channels (Ha et al., 2016; Westlund & Fardigh, 2014; Xu et al., 2014). Ha et al. (2016) found that social media facilitated greater news consumption compare to mobile media use for access to news. Another study by Westlund and Fardigh (2014) investigated the consumption of evening tabloid news via newspapers and news sites in the context of Sweden. According to the study, as of 2012, the uptake of mobile news and cross-media news consumption reached new records, whereas the single-media use of printed newspapers reached a new low. The findings of the studies this confirm

findings from the empirical study and support the argument that traditional or legacy news media should find innovative opportunities and support cross-media use on different mobile devices and tablets.

7.10 HABITUAL CONVENIENCE AND DRIVE TO BOND AND DEFEND

The data analysis revealed that *Drive to bond and defend* is inter-related to *Habitual convenience*, with 4 co-occurrences that serves as empirical evidence of the relationship. The *Drive to bond and defend,* is significantly and positively correlated with *Habitual convenience*.

Habitual convenience supports the news consumer's *Drive to bond and defend*, refer to Table 7.10-1, highlights excerpts which serve as evidence of the relationship. The excerpts suggest that news consumers only share and argue personal opinion if personal time constraints allow the news consumer to share such comments. This implies that perception surrounding time and *Habitual convenience* is a pivotal factor for news consumers. News consumer would only make use of online and personal forums to share comments if it is not time consuming or affects the news consumer routine access of news by the news consumer.

Table 7.10-1: Data extracts for *Habitual Convenience* and *Drive to Bond and Defend*

"Typically, every morning. I … read various people's comment on news sites. However, people can get carried away occasionally." (F38TLICT)

"I like to see when I am in taxi in morning, but I must be careful, just now someone steal my phone. I also like during break at work or after work with my friends when we rest and talk" (F35SLADSUP)

These findings are evident in similar studies (Lee & Song, 2017; Thorson & Edgerly, 2017). A study by Lee and Song (2017) found that the more frequently Korean participants participated in political discourse, the more news portals or applications on smartphone are used to engage with news. The findings also suggested that users who habitual use news portal applications, are more likely to consume news using mobile devices and applications to bond with closer social relations, whereas users who made use of traditional and social media for political discussion, were more likely to engage with distant social relations. A recent study by Thorson and Edgerly (2017) suggest that the regular consumers of news tend to be more knowledgeable about current events as we and are more likely to engage in civic and political discourse more regularly. The empirical findings thus support

the proposition that sharing or defending personal opinions of news events with others is supported by the news consumer's *habitual convenience*.

7.11 RELATIVE ADVANTAGE AND VALUE AND DRIVE TO BOND AND DEFEND

The data analysis revealed that *Relative advantage and value* satisfies an adopter's *Drive to bond and defend* with 3 co-occurrences which serves as empirical evidence of the relationship. The *Drive to bond and defend* is positively correlated with *Relative advantage and value*.

Respondents with a high *Drive to bond and defend* perceive a high *Relative advantage and value* of MNS, refer to Table 7.11-1 highlights excerpts which serve as evidence of the relationship. The excerpts suggest that news consumers believe that accessing news via MNSs will promote their awareness and communication of socially-related news with important relations – specifically close relations such as friends and family. The value of accessing news through the means of MNSs means that news consumers can be informed of news events that are related to communal concerns, and then share/discuss the news - either in a physical environment or via other communication mechanisms.

Table 7.11-1: Data extracts for *Relative Advantage and Value* and *Drive to Bond and Defend*

"Yes, definitely more informed and more opinions. You know your surroundings, and by knowing you can make better decisions and improve your communications and reasoning with friends and family." (F25TLICT)

"It will make me happy that 'I am the first to know', I know about it and once you get the news, you can relay it to your friends." (F40SLADSUP)

Albeit limited research on the *Drive to bond and defend* and *Relative advantage and value*, in the context of mobile services, these results are similar to findings from studies focused on the value of the mobile phone to harness social engagement and sharing of news content (Bacishoga et al., 2015; Chan-Olmsted et al., 2013; Lee & Ma, 2012). Bacishoga et al. (2015) study supports similar findings from this empirical inquiry in terms of news consumers preference to sharing content and defending personal opinion with trusted individuals. The studies investigating this relationship, found that respondents who were driven by the relative of reward information seeking, need for socialising, and desire for status would be more likely to share news using online social platforms. The findings of this empirical study are also evident of findings studying mobile news adoption by young adults, where the *relative advantage and value* are perceived as invaluable to the news

consumers need to be aware of information which may be beneficial to social discourse (Chan-Olmsted et al., 2013).

7.12 TRUST SENSITIVITIES AND DRIVE TO LEARN

The thematic analysis revealed that an adopter's *trust sensitivities* is inter-related with an adopter's *drive to learn*, with 2 co-occurrences which serves as empirical evidence of the relationship. The more important an adopter's *drive to learn* is, the more important *trust sensitivities* becomes to the adopter, refer to Table 7.12-1.

Table 7.12-1: Data extracts for *Trust Sensitivities* and *Drive to Learn*

"Yes, news creates fear in me. For e.g. if something may affect me, it troubles me, what can I do now. If the price of food is going up, what am I going to budget and if petrol is going up, transport will be up. I need more truthful information and advice that will help me understand. I know that you cannot stop bad news, but any helpful news that can help calm us will be better." (F34SLADSUP)
….
"I prefer accessing news via social media services such as Twitter. This helps me to understand the mood of what is trending and important to others. I want to understand the news that is important to others. I barely use mobile apps unless they are provided from trusted sources." (M326TLICT)

The table highlights excerpts which serve as evidence of the relationship. The excerpts exemplify how trust sensitivities can be influenced by the perceived impression of the presentation of the news content.

The findings of the study confirm theoretical findings on the importance of drive to learn and trust sensitivities (Braasch et al., 2014; Chattopadhyay, 2017; Gao et al., 2011; Van Damme et al., 2015; von Watzdorf et al., 2010). The consumer of the mobile news content is more likely to learn from news if the information can be regarded as trustworthy and appeases trust sensitivities and informational requirements. Trustworthiness is determined through engagement with the news content provided from a trusted media service provider.

7.13 AGE AND COMPATIBILITY

The results from the Spearman Rank Order Correlation test resulted in a Spearmen (r) coefficient = -0,312, t(N-2) = -2,25, and p-value = 0,03). The Mann-Whitney U value = 188,50 and p-value of 0,03, and the Chi square test indicate a correlation between compatibility and age with an expected frequency of Pearson

Chi-square: 4,76577, df=1, p=,029031. The findings of the statistical analysis can be referred to in *Appendix E: Quantitative Data Analysis*, Tables APE 2, 3, 15 and 16, respectively. Older consumers are more likely to use MNSs which satisfy their compatibility needs (expected frequency for older news consumers = 24,92), refer to Table 7.13-1 for excerpts that serve as evidence of the relationship.

Table 7.13-1: Data extracts for *Age* and *Compatibility*

"I don't have to buy newspaper. I have on phone. It is better." (F35SLADSUP)

"The quality of the writing. Gone are the days of good journalism. I suppose I have to get use to all of this." (M48SLWR)

This relationship is supported in similar research studying the compatibility of digital and advanced mobile services by older age groups of users (Islam et al., 2013; Tan & Chou, 2007; Tsai et al., 2015). The studies affirm that compatibly is a concern for older users. Older users may not be considered in the provision of innovative mobile and digital services. The constant changing landscape of media and services means that older users may be overlooked and services may not accommodate older user needs. The relationship between compatibility and age can be thematically assimilated to the relationship between usability and age, refer to Section 7.5. It is thus apparent that older news consumers could be regarded as a distinct class of users which should be distinguished and carefully profiled in order to improve design and provision of services to ensure sustained adoption of MNSs.

7.14 SOCIAL CONCERNS AND DRIVE TO LEARN

The data analysis revealed that *Social concerns* and an adopter's *Drive to learn* are inter-related, with 17 co-occurrences which serves as empirical evidence of the relationship. The *Drive to learn* is positively correlated with *Social concerns*.

The more important *Social concerns* is, the more important *Drive to learn* becomes to news consumers of MNSs, refer to Table 7.14-1, which presents two excerpts which serve as evidence of the relationship. The excerpts suggest that the need to understand the implications of news events is vital to the personal, social, and work interests of news consumers. News consumers expect news services to provide information on matters which are considered pertinent to societal interests.

Table 7.14-1: Data extracts for *Social Concerns* and *Drive to Learn*

"As I said, news can cause chaos and confusion. We need to know exactly, exactly what is happening, not influence or incite trouble" (M22SLOS)

"As a developer for personal and career-based interest. I need to keep up-to-date what people want and what they are interested in" (F24TLICT)

These findings are evident in similar studies investigating learning through news media (Eveland, 2001; Hartley, 2013). A study by Eveland (2001) found that learning from news media is dependent on knowledge of news content which can be mediated by several information seeking factors, including news attention and elaborations. The study found that the seeking of knowledge of political news, which is a dominant social concern, can support such news attention, elaborations and in turning personal learning gratifications. In Hartley (2013), is was found that cultural influencers can support the drive to learn from news that is considered a social necessity, for purposes of common and shared communication.

It can therefore be conjectured that the need to be aware of *Social concerns* news supports news consumers *Drive to learn*, which could encourage sustained access and use of MNSs.

7.15 SOCIAL CONCERNS AND DESIRE TO BE INFORMED

The thematic analysis revealed that *Desire to be informed* is inter-related to *Social concerns*, with 6 co-occurrences which serves as empirical evidence of the relationship. The *Desire to be informed* is positively correlated with *Social concerns*.

The more important *Social concerns* is, the more important *Desire to be informed* becomes to news consumers of MNSs, refer to Table 7.15-1, highlights two excerpts which serve as evidence of the relationship. The excerpts reiterate the need of news consumers to access news to understand and empathise with concerns that affect society. The need for information is not limited to an immediate societal location in which the news consumer resides in, it can refer to news on concerns in other societal contexts. The need to know of events that shape the world inform the curiosity and knowledge need of news consumers to connect with their immediate society and broader society at large. This relationship can be closely related to the relationships between, *Social concerns* and *Drive to Learn*.

Table 7.15-1: Data extracts for *Social Concerns* and *Desire to be Informed*

"I like getting the news express. You know what is happening around in the world. I have to know what and how things are happening because I am living there." (F34SLADSUP)

"In society, today, we need to get news on the go to help us make decisions and be aware of what is happening." (F29TLICT)

These findings are evident in similar studies investigating the *Desire to be informed* of social concerns (Hille & Bakker, 2014; Pentina & Tarafdar, 2014; Weeks & Holbert, 2013). The studies found that users prefer to be aware of and share news items which are of social interests to others. The desire to be made aware of news can indeed influence news consumption and support news sense-making and awareness of civic knowledge, which are of social concern to social media users. The studies also find that users are more likely to read and engage in news items if found to be important by others, more specifically friends on social networking sites. It is thus evident from social media research that the desire to be informed is supported by awareness of social concerns.

The news consumers' need to be informed of social issues which are perceived as important, support a news consumer's *Desire to be informed*, which could encourage frequent and sustained use of MNSs.

7.16 IMMEDIACY AND DESIRE TO BE INFORMED

The data analysis has revealed that *immediacy* satisfies the *desire to be informed*, with 16 co-occurrences which serves as empirical evidence of the relationship. Although the p-value of 0,185 indicates weak evidence against the proposition, the thematic analysis provides strong evidence which supports the significance of the relationship. It is therefore due to an interpretation of the findings that the relationship between *immediacy* and *desire to be informed* was selected.

The greater the need for *immediacy* of accessing MNSs*,* the greater is the adopter's, *desire to be informed*, refer to Table 7.16-1. These excerpts serve as evidence of the relationship. The text excerpts exemplify how providing alerts to any current or breaking news events fulfils the information needs and desires of news consumers. News consumers are more likely to access news immediately, particularly if it is important to the respective interests and context of the consumer.

Table 7.16-1: Data extracts for *Immediacy* and *Desire to be Informed*

"[I would like] current and breaking news events. It can be any current that the news site feels are current or breaking news, good or bad. If this application can customise the updates and alerts, if it asks me to answer questions that can help provide me with news that can affect me, for example, if it knew where I work and there was an emergency and that is something, I should be aware of, that is if a situation happened. In terms of alerts, I want personal context. E.g. Starbucks opening is not important to me as I am not a coffee fan." (F24TLICT)

"I want to be informed of the soccer scores as they happen." (M28SLADSUP)

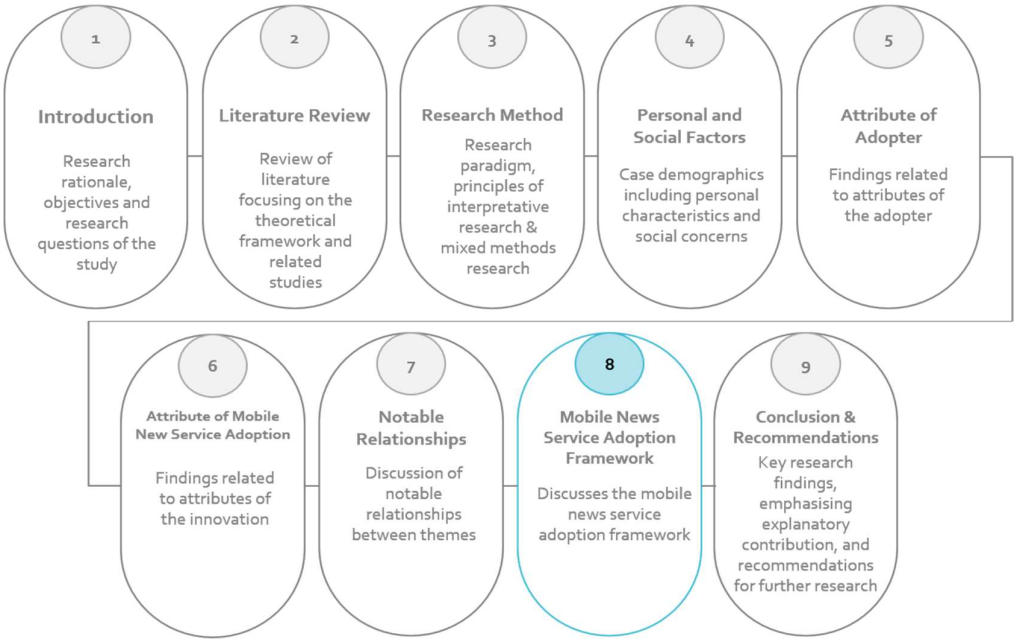
The empirical findings of the study confirm the findings from previous studies (Bjornestad et al., 2011; Karlsson, 2011; Westlund, 2008). The need to immediately access the desired news content is becoming more prominent as MNSs and mobile devices are expected to improve the dissemination of mobile news content which is relevant to news consumers. The *desire to be informed* must therefore be supported with immediate access to the required content.

7.17 SUMMARY

This chapter presents a discussion of both statistically significant and thematically relevant relationships and associations identified as a result of the data analysis. The findings offer new insights on how individual and related factors could influence the adoption of MNSs by South African news consumers. Amongst the individual factors which are related to other factors, several factors have relationships with one or more factors. The individual actors and their inter- and intra- relationships are strong indicators of intention to use and potentially adopt MNSs, within the empirical context of the study. The stated factors, and their respective relationships are consequently regarded as instrumental to MNS adoption in the context of South African news consumers. Chapter 8 discusses the proposed conceptual framework and notable associations between factors in further detail.

The empirical observations, and reflections of theoretical understanding, had been pertinent to inform this new understanding of the complexities of technology and mobile service adoption.

CHAPTER 8: MOBILE NEWS SERVICE ADOPTION FRAMEWORK



8.1 INTRODUCTION

The analysis revealed that several factors are both inter-related as well as intra-related. The material enactments, however suggest that personal and social factors and attributes of MNSs satisfy the needs and desires of adopters, referring specifically to certain attributes of adopters. A number of factors within the specific categorisation of factors are also related. This entanglement of relationships sheds light on the complexity of adoption both from an internal and external influence perspective. A number of factors have been confirmed theoretically and some themes have emerged and merged with other themes, as has been identified from the empirical context, is discussed in Chapter 7. This chapter extends the discussion of the relationship identified between the factors and introduces the *Mobile News Service Adoption Framework* which serves as the proposed model for MNS adoption.

8.2 MOBILE NEWS SERVICE ADOPTION FRAMEWORK

A visual representation of the factors appears in Figure 8.2-1. It was found that particular factors have two or more associations with other relationships. This finding suggests that the individual factors and associated moderating factors of age and gender could be influential in the adoption of MNSs. This finding supports propositions of UTAUT2 (Section 2.4.2) which considers age, gender, and experience as significant moderating factors. In the context of this study, personal initiatives and characteristics (as proposed in the Mobile Service Acceptance model (Gao et al., 2008)) , can be assimilated to experience as proposed in UTAUT2. The constructs of *habit*, as proposed by UTAUT2, is reconsidered in the MNS adoption framework with extending the concept of *habit* to include *time convenience*. The UTAUT2, *price value* construct is matched by *relative advantage and value* construct as proposed in the MNS adoption framework.

It is imperative to note that that the association between the individual factors needed to be interpreted to determine if the relationship supports intention to adopt MNSs, refer to Section 8.3.

It is necessary to understand that these factors and respective relationships may not be applicable and meaningful if the context of the empirical phenomena is not considered. Adoption is a profoundly contextual variable and both social and personal context must be appreciated in order to understand the influence of individual and related factors on adoption (Davison & Martinsons, 2016; Ng et al., 2012; Tsang, 2013).

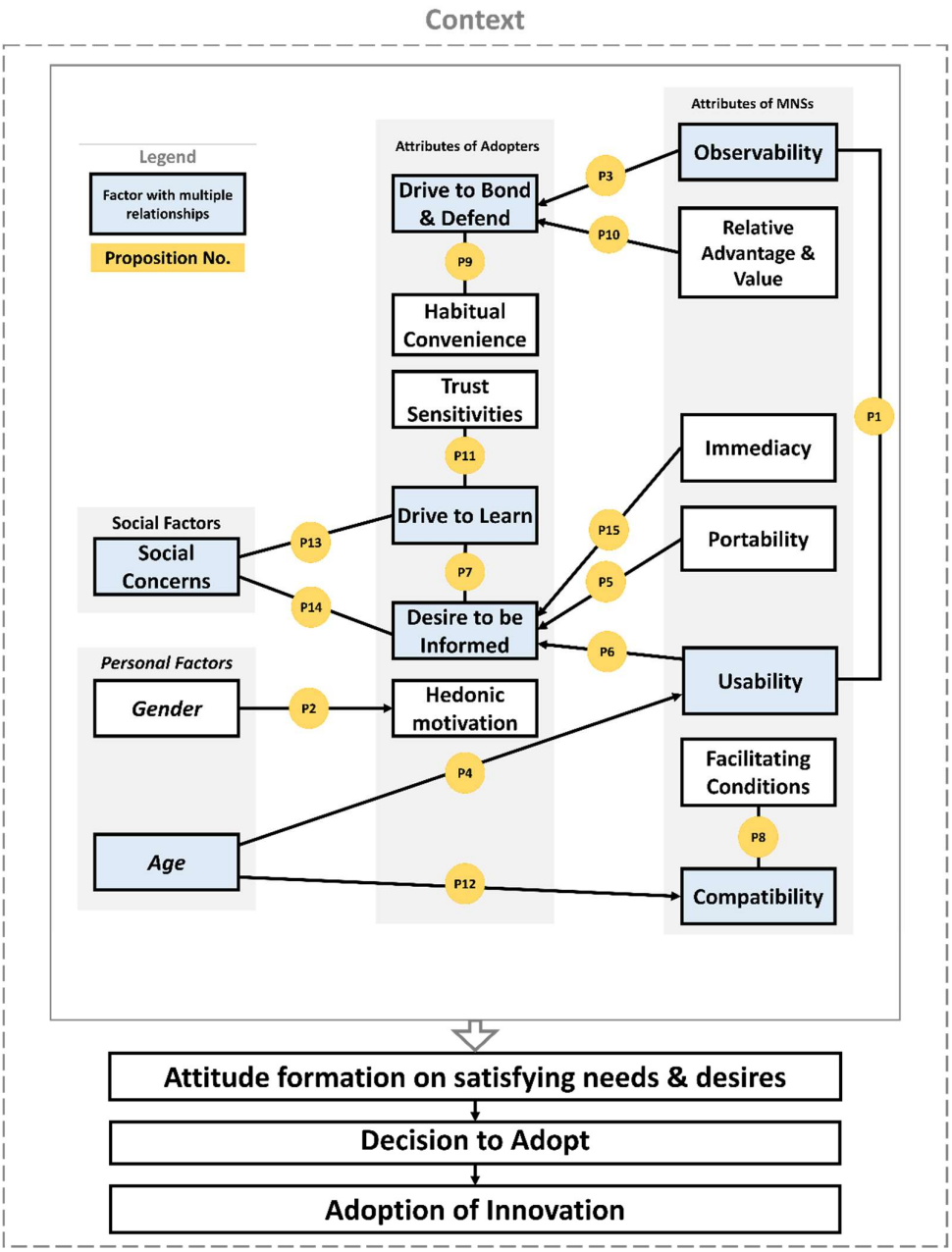


Figure 8.2-1: Mobile News Service Adoption Framework

This entanglement of inter-related and intra-related factors supports attitude formation in terms of satisfying the needs and desires of adopters. This satisfaction can then lead to a positive decision to adopt, which can ultimately support continued and consistent use of the innovation within the context of use.

8.3 ASSOCIATION BETWEEN THEMES

In order to represent the multiple relationships and associations between themes in meaningful manner it is necessary to discuss prominent factors. Eight factors; *drive to learn, desire to be informed*, *drive to bond and defend, usability, observability, compatibility, age, and social concerns* have two or more relationships with other factors.

These relationships imply that even factors within the same category have intra-category association. The factor of *desire to be informed* has relationships with five factors which includes: *drive to learn, immediacy, portability, usability*, and *social concerns*. The factor of *desire to be informed,* therefore is a significant factor both individually and relationally. The number of occurrences and number of relationships with *desire to be informed* support the notion that the adopter's main motivating desire to be aware of information is fundamental to the adoption of mobile services.

The *drive to bond and defend* is associated to *habitual convenience, observability,* and *relative advantage and value.* These relationships imply that the *drive to bond and defend* is invoked from a need to share news and comments at a time which is suitable to the consumer. *Observability* is also an important element to satisfy the process of bonding with others and defending personal opinions of news. Adopters are more like to use MNSs if *relative advantage and value* satisfies the news consumer's need to engage with other new consumers.

The *drive to learn* is another dominant theme that is inter-related with *social concerns* and correlated to *trust sensitivities* and *desire to be informed*. News consumers want to learn from MNSs within a safe confine. *Social concerns* support the news consumers need to fulfil learning needs. The *drive to learn is* also influenced by an adopter's desire to be informed. The two attributes of adopters are fundamentally related with the need to be aware of and learn from MNSs.

One of the main aspects to MNSs is *usability*. *Usability* supports *desire to be informed* and *observability,* ensuring that adopters can access relevant information both efficiently and effectively in different usability contexts. *Usability* enables MNSs to be accessible to adopters during their informational, interaction and observation needs. *Usability* is influenced by the age of the news consumer and more research is required to determine how usability may be affected by aging news consumers.

The theoretical foundation and empirical study suggest that the selected individual factors, relationships, and associations are most likely to support attitude formation in the pursuit of satisfying an adopter's needs and desires, which in turn would inform a decision to adopt the information (MNSs).

8.4 DISTINCTION OF MNS ADOPTION FRAMEWORK

It is imperative to understand that due to the research analysis of the study, from an abductive study and mixed method of data analysis, the outcomes resulted in complexities of interpretation, suggesting an 'inseparability of matter and meaning', (Scott & Orlikowski, 2014). The steady proliferation and influence of MNSs, generated both by service providers and engaged with interactions from news consumers suggest that the use of such services are revolutionising media services and compatible platforms.

It therefore becomes essential to understand these dynamic roles of social concerns, attributes of the adopter, and attributes of the innovation, in a web of inter-changeability. The outcome of this study thus emphasizes the realisation that technology adoption can no longer be viewed in classical models, that depict technology adoption as a quantifiable and linear process.

When compared to TAM, *behavioural intention* to adopt a technology is not merely based on *perceived ease of use* and *perceived usefulness* but rather on very distinct needs and desires of users that are constantly changing during different phases of adoption. As discussed, TAM lacks the specificity of users' opinions on specific technology and simply reducing social dynamics to external variables which can be mathematically assessed, resulting in some or all external variables positively linked to improved technology acceptance is arguable. The constant shift in perceptions during use of MNSs, challenges pre-existing notions of technology adoption. It is imperative to understand that users' expectations, perceptions and notions of what is acceptable and usable (refer to *Usability*) vary significantly as users engage with modern technology and media more frequently. Attitudes towards the usefulness and ease of use of mobile and digital services are shaped on a number of user and innovation attributes. Whilst, classical TAM presents significant positive relationships between *perceived ease of use* and its independent variables, the significance of various factors can strengthen or weaken these relationships.

The proposed framework (Figure 8.2-1) thus extends the classical notion of TAM and technology adoption. The findings present new insight on the strength and significance of relationships between *usability*, *observability* and *compatibility* with other media and technology. The MNS adoption framework upholds that inter-relationships and intra-relationships amongst factors need to be critically examined within the context of use. The interdependent relationships between social (concerns), personal (including attitudes and attributes of consumers), and technological factors support a comprehensive understanding of intra-relationships and sociomateriality, which can harness a sustained adoption of mobile service innovations.

Furthermore, mediating factors related to age and gender suggest that adopters are unique and these adopter profiles can be influential in the use and adoption of mobile services. Further inquiry needs to be conducted to determine the adoption of MNSs by different news consumers, particularly users that are increasingly becoming more digitally astute, consumers that make habitual use of numerous social media platforms, and the trend towards gender neutral technology.

Furthermore, the findings from the statistical analysis indicated that hedonic motivation and gender, compatibility and age, and usability and age are related and could influence adoption of MNSs. However; a particular point of concern is determining further insight regarding educational and industry appropriateness of mobile media to such audiences. It is important to determine influential personal characteristics and factors, and the provision of facilitating conditions, in the pursuit of accessible and interactive MNSs for specific news consumers. This appreciation of discriminating factors can only accelerate the design and delivery of personalised services that can satisfy the needs and desires of demand-driven news consumers.

8.5 SUMMARY

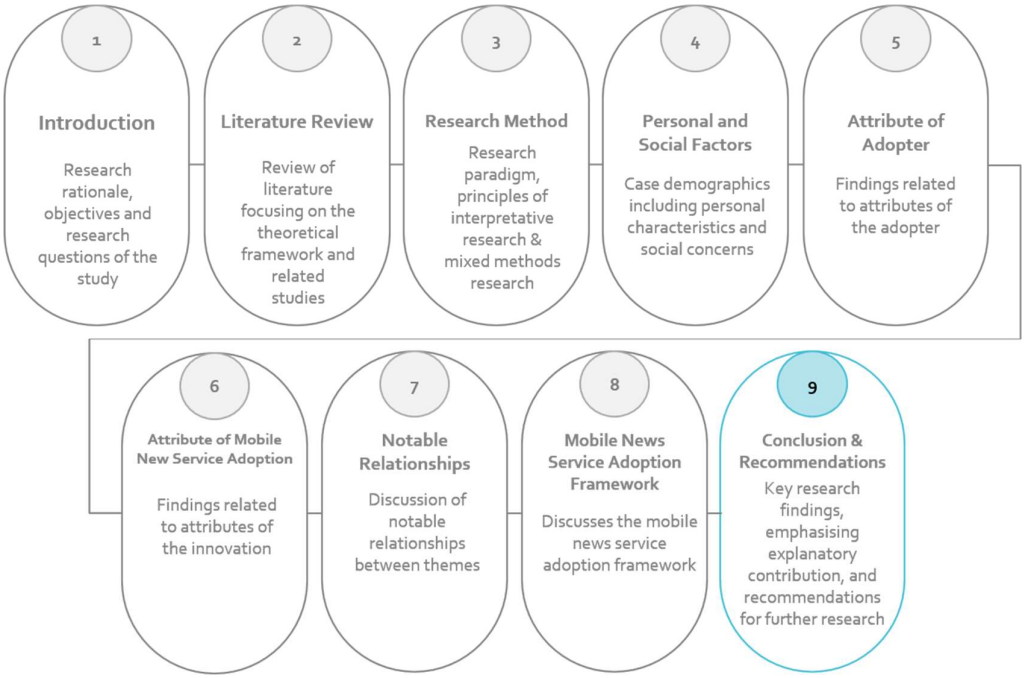
The *Mobile News Adoption Service Framework* indicates that personal and social factors, attributes of adopters, and attributes of MNSs are influenced by contextual and personal initiatives and characteristics. The material enactments suggest that the relationships are dynamic and are influenced both internally within categories and across categories. The complexity of interrelationships and intrarelationships suggest that technology adoption needs to understood from a number of facets. One factor is not more important than another within the context of the adoption framework, even though some factors may have numerus associations with other factors. It is this multiple-perspective and not individualistic understanding of relationships that can support an improved understanding of agency and adoption of MNSs.

The framework demonstrates a need to understand contextual and personal initiatives and characteristics which could promote adoption. The framework addresses the shortcomings of existing frameworks by considering both interrelationship and intrarelationships between factors. The framework encapsulates a sociomaterial understanding of the dynamic and entangled relationships between personal and social factors, attributes of adopter, and attributes of MNSs. The framework therefore may have a potential to improve MNS adoption outcomes in news consumers, which is becoming more prevalent in modern and developing societies as media service providers vie for consumer engagement with MNSs, compared to other compatible and mainstream media platforms such as television and newspaper. The framework may assist in leading to positive adoption outcomes during the process of MNS adoption by promoting

contemporary material enactments and sociomaterial understanding of adoption. The framework thus has a number of implications which can support current and future research endeavour.

Chapter 9 concludes the discourse of this study with a summary of how research questions were addressed, a reflection of significant findings, limitations, and recommendations to support forthcoming research in technology adoption studies.

CHAPTER 9: CONCLUSION AND RECOMMENDATIONS



9.1 INTRODUCTION

This chapter presents the final results and discusses how the research questions and objectives were addressed. The outcome of each chapter is summarised before an overview of the research questions and the methods employed to empirically investigate the research questions is presented. The key research findings that arose from the study are discussed. The significance and implications of the culminating contribution, to IS theory and mobile service practitioners is emphasised. The limitations that impacted the study are articulated. A number of recommendations for future research are proposed to extend current research findings. Finally, closing remarks reflect on the rationale and outcomes of this study.

9.2 SUMMARY OF KEY CHAPTERS

The introductory chapter discussed the rationale and the context of the study. The intent of this study was to understand the adoption of MNSs by South African users.

The classification schema aided in the classification of empirical findings. The literature review chapter discussed current discourse in technology adoption of mobile services. Thirty-two concepts were briefly discussed in general and then a more focused view was used to comprehend technology adoption of MNSs. An important finding was the lack of literature explaining the adoption of MNSs by consumers. This lack of theoretical understanding of factors, and notion of understanding intra-relationships makes this study a unique explanatory study within the context of South Africa.

The third chapter presented the overall research design for the study. The research design specifically catered to the needs of this study so as to ensure the required data would be collected and validated for reliability. The thematic data analysis process was reiterated and reflected upon within this discourse so as to clarify how the empirical findings were compared in relation to current theoretical understanding.

The demographic data and social context were presented in Chapter 4. The details pertaining to the demographics of the sample of participants were summarised so as to understand the personal initiatives and characteristics of the participants. The demographic details were also important for the observation of possible similarities and identification of propositions amongst participants. The main demographic data which were important to this study include: industry of economic activity, age, gender, and level of education.

Chapters 5 and 6 presented key empirical findings. These findings were categorised according to attribute of adopter and attribute of MNSs, in respective

chapters. The discussion of research findings included evidence and excerpts to substantiate the presented findings.

Chapter 7 and 8 provided a synthesis of findings in terms of selected propositions between selected factors. The proposed framework is also discussed in detail. A reflection of the main research findings is addressed in the next section.

9.3 RESEARCH QUESTIONS ADDRESSED

In Chapter 1, the main research question and two sub-research questions together with the respective objectives was posed. The theoretical findings derived from a review of literature and the findings from the empirical investigation of the phenomenon aided in addressing the research questions.

SRQ1: What factors influence the adoption of MNSs in South Africa?

The objective of the first SRQ was to determine specific adoption factors influencing the adoption (or non-adoption) of MNSs in South Africa. The factors were selected for purpose of reflecting the key outcomes of this study are tabulated in Table 9.3-1. The constructs were selected after careful interpretation and is believed to play a significant role in influencing adoption of MNSs. Each of the factors were defined and discussed in Chapters 4, 5, and 6, respectively and selected propositions are discussed in Chapters 7 and 8.

Table 9.3-1: Individual factors influencing the adoption of MNSs

Personal and Social Factors	Attributes of Adopter	Attributes of MNSs
Social Concerns	Desire to be Informed	Compatibility
Age	Drive to Bond and Defend	Facilitating Conditions
Gender	Drive to Learn	Immediacy
	Habitual Convenience	Observability
	Hedonic Motivation	Portability
	Trust Sensitivities	Relative advantage and value
		Usability

The most dominant themes corresponded to the attributes of adopters, which suggest that it is imperative to be cognisant of consumer needs and desires of mobile services. In the context of the study, the concepts of "Desire to be Informed", "Drive to Bond and Defend", "Habitual Convenience" and "Relative advantage and value" extend current understanding of the respective factors: "Drive to Acquire, "Drive to Bond", "Drive to Defend", "Habit", "Time Convenience", and "Relative

Advantage". The stated themes were inductively-informed to offer a more meaningful understanding, compare to the associated theoretical concepts. The terms reflect the intrinsic need of news consumers to be informed of news.

News consumers also wish to share and argue personal opinion with others to understand societal concerns and to contribute to the current social dialogue that dominates media and public attention. Furthermore, access to news at a preferential time which is aligned to the routine of the news consumers is generally more preferred than access to news as it happens, albeit a preference for some users to access real-time news. Lastly, the perception of purchasing value and relative advantage of using MNSs means that consumers are willing to pay for news depending on the perceived value and exclusivity which can be obtained from accessing MNS. Other users do not wish to pay for MNSs as a cost is implied in terms of data expenditure.

The abductive research approach considered factors which could be studied within the context of the empirical phenomenon. An analysis of findings informed a comparative study to determine if empirical evidence was indicative of theoretical understand. Several related studies were used to assist in interpreting meaning and validate meaning from a theoretical and empirical stance.

SRQ2: How are the factors that influence the adoption of MNSs in South Africa inter-related?

The objective of the second SRQ was to understand the inter- and intra-relationships between identified adoption factors influencing the adoption of MNSs in South Africa. The propositions that were selected for purpose of reflecting the key outcomes of this study are tabulated in Table 9.3-2. The 15 selected propositions were discussed in Chapter 7 and 8.

Table 9.3-2: Selected propositions

P1: *Observability* of MNSs is inter-related with *Usability* of MNSs	**P9:** An adopter's *Habitual Convenience* is inter-related to an adopter's *Drive to Bond and Defend*
P2: An adopter's *Hedonic motivation* is influenced by an adopter's *Gender*	**P10:** *Relative Advantage and Value* of MNSs satisfies an adopter's *Drive to Bond and Defend*
P3: *Observability* of MNSs satisfies an adopter's *Drive to Bond and Defend*	**P11:** An adopter's *Trust Sensitivities* is inter-related with an adopter's *Drive to Learn*
P4: The *Usability* of MNSs is influenced by an adopter's *Age*	**P12:** The *Compatibility* of MNSs is influenced by an adopter's *Age*
P5: *Portability* of MNSs satisfies an adopter's *Desire to be Informed*	**P13:** *Social concerns* are inter-related with an adopter's *Drive to Learn*
P6: *Usability* of MNSs satisfies an adopter's *Desire to be Informed*	**P14:** *Social concerns* are inter-related with am adopter's *Desire to be Informed*
P7: An adopter's *Desire to be Informed* is inter-related with an adopter's *Drive to Learn*	**P15:** *Immediacy* of MNSs satisfies an adopter's *Desire to be Informed.*
P8: *Facilitating Conditions* of MNSs is inter-related with *Compatibility* of MNSs	

MRQ: *Why do South Africans adopt MNSs?*

The objective of the MRQ was to understand factors which influence why news consumers would adopt MNSs and what factors would support the adoption of MNSs. A review of literature on South African news consumer revealed a lack thereof. In addition to a lack of current research, it was found that studies focused mainly from the perspective of digital news services providers and not from the perspective of consumer of news services. An empirical study was therefore conducted and numerous findings could be assimilated from the data analysis. Chapter 4, 5, 6 discussed findings related to personal and social factors, attributes of adopter, and attributes of MNSs. Chapter 7 and 8 discussed propositions between individual factors. The Mobile News Service Adoption Framework, Figure 8.2-1, depicts 15 notable propositions. The framework illustrates how the factors and their relationships can support attitude formation, the decision to adoption, and adoption of the innovation. The findings suggest that personal and social factors, attributes of adopter, and attributes of MNSs influences the adoption of MNSs. The findings correspond to similar findings in literature, however, the extent of importance of factors vary, in terms of the context of the empirical investigation. Chapter 6 discusses factors related to attributes of MNSs which influence usage and adoption of MNSs. *Portability* and *usability* of MNSs affect how South African news consumers prefer to access MNSs from a variety of mobile devices, including mobile phones and other portable devices. South African news consumers generally prefer accessing news as required and do not like to be bombarded with immediate alerts for breaking news unless it is of importance to the consumer. It was also found that users prefer accessing news for personal consumption and would only engage with other news consumers if they feel a sense of safety through anonymity. It is also imperative for the consumers to be aware of

social concerns which affect their immediate and national vicinity. Some users prefer accessing news to fulfill personal interests in specific areas of interest. South Africans are conscientious of facilitating conditions in terms of using MNSs. South African news consumers view facilitating conditions as enabler to facilitate the use of MNSs, be that through some form of infrastructure or assistance from others to use MNSs. The high cost of data also affect use of MNSs and most consumers are not willing to pay for news content unless if could provide exclusive content which cannot be obtained from other sources. The ability to access news using a medium such as mobile services allows users to access news at their own discretion rather than using other channels such as print or television which can be regarded as time-bound and restrictive in terms of engaging with the content. It therefore becomes necessary to consider these factors in terms of South African news consumers.

9.4 REFLECTION ON FINDINGS

The most prominent factors relate to the need for news to serve a desire for awareness of information. The findings suggest that news plays a prominent role in the daily-life of news consumers. Some consumers, however, require access to news on a more regular basis when compared to other users who require news on a need only basis. News consumers require news for awareness, personal interest, and for knowledge purposes in either a personal or professional capacity. It is also important to note that some consumers are more concerned than others with regards to being tracked whilst interacting with MNS. Some consumers are also concerned that personal information can be attributed to the consumer when personal information is shared at the time user comments are shared.

In addition to personal attributes which are specific to the consumer, a number of factors or attributes related to the MNSs can be considered over other factors. One of the most critical concerns is the visual appeal and design to interact with mobile services. Furthermore, the ability to access MNSs through the provision of appropriate facilitating conditions needs to be considered. In a mobile society with access to numerous mobile devices, portability of MNSs needs to be considered. The advent of numerous distribution services means that users have to make decisions as to which channels and media outlets are most suitable to use for accessing news content. It is thus imperative to consider compatibility of accessing MNSs. Finally, the ability to access MNSs on-demand at the requested time, is essential to the use of MNSs.

It becomes apparent from the findings that no single factor or group of factors is likely to influence MNS adoption. It is necessary to consider the harmonious associations between factors which support adoption of MNSs. The factors influencing the adoption of MNSs therefore need to be considered in unison. The propositions have been analysed rigorously both qualitatively and quantitatively, as discussed in Chapter 3. Further studies, which can provide more insights on

choice and prioritisation of adoption factors within specific contexts, is recommended.

The need for assistance with regards to using mobile services by younger and older consumers, who may be more accustomed to different media platforms, needs to be studied further. Lastly, a gender-based study could inform further nuances of adoption that could support ongoing use and consistent adoption of mobile services.

9.5 SIGNIFICANCE AND CONTRIBUTION OF RESEARCH

Section 1.6 stated that a framework depicting identified adoption factors would serve as the core contribution to the IS discipline and domain of Social Informatics. The rationality for conducting this study was to gain a pragmatic understanding of MNSs adoption, thereby assisting varying entities, more specifically the IS research community, mobile service providers and news consumers.

As mentioned, the outcomes of the study serve the research community within social informatics, service sciences, technology adoption and mobile computing research streams. In terms of designing and developing relevant and applicable services, more specifically MNSs, this research does address the call for mobile service innovation (Ziv & Mulloth, 2007) and classification within the service science discipline (Dolk & Carlsson, 2012; Endam et al., 2011; Heinonen & Pura, 2006; Papazoglou et al., 2007; Rong et al., 2011; Shih & Shim, 2002).

This study thus contributed to the current understanding of how MNS are adopted by South African mobile news consumers. The holistic analysis of this study added to existing research by validating individual factors and identifying propositions that were not previously identified. To holistically analyse the findings using a mixed methods approach, has not been done before in the context of MNSs. The study confirmed results of existing studies that also emphasised the importance of certain factors including, social concerns, psychological drivers, motivators, trust sensitivities for accessing information, relative advantage and value, observability, usability, portability, immediacy, compatibility, and facilitating conditions. The propositions introduced a new perspective to the prior models of technology adoption, by highlighting connections between the social environment, the adopter, and MNSs. However, this study also identified relationships between factors that were not emphasised in existing technology adoption and mobile media literature. The resultant MNS adoption model therefore offers new insights in the adoption of MNSs in terms of personal and social factors, attributes of adopters, and attributes of MNSs. The context-bound relevance serves to address the lack of research in the domain. This study also informs directions for further research, within other research domains. The findings from this study are thus important to the academic body of knowledge in that:

- The findings offer new explanatory insight into the adoption of MNSs by South African news consumers.
- The findings offer an understanding of how news consumers use or expect to use MNSs.
- The findings from this study aided in the conceptualisation of a new context-bound theoretical contribution which extends current theoretical understanding of technology adoption. This study employed pragmatic sense-making, contextualised explanation, empirical regularity, and theory building and testing in developing the conception framework (Llewelyn, 2003; Tsang, 2013).
- This study serves as a basis for further research initiatives in different research domains, in both developing and developed economies, to stimulate further inquiry.

Secondly, it is believed that this new understanding of technology adoption, can provide mobile services designers and providers with an informed understanding of news consumer needs and desires. This understanding should enable practitioners and mobile services providers to articulate specificities of mobile service innovation design. The research findings from this study are important to designers and providers, in that:

- The findings offer insight into the adoption of MNSs by South African news consumers.
- The findings offer an understanding of how news consumers perceive MNSs; in terms of branding, accessibility, and fulfilment of personal and innovation needs. A reputable and established news service provider is likely to attract more consumers to use MNSs.
- The proposed framework offers better categorisation and formalisation of adoption factors and their respective relationships.

Lastly, the research findings did affirm the desirability of adopting MNSs. The research sought to the determine the broader implications of use of MNSs in terms of media freedom and democracy, access to news and current event information, and access to information and communication technologies by news consumers within developing economies. The findings confirmed that some news consumers engage with MNSs to actively participate in social, economic, and political discourse, thereby contributing to thriving knowledge-based environments, both within physical and digital domains

The significance and contribution of this study thus provides an informed understanding of individual news consumer needs and desires. This study supports the call for mobile service innovation and ongoing inquiry in improving adoption of technological innovations, by understanding the symbiosis between attributes of adopters, attributes of MNSs, and personal and social factors.

9.6 LIMITATIONS OF RESEARCH

The research design of this study posed a few challenges. Amongst the challenges, the study included a large representation of participants holding or studying towards a higher education information technology degree, refer to Section 4.3.6. This sample was thus homogenous. The inclusion of participants with varying levels of education and literacy could have provided further insights into variable adoption needs. Additionally, the study was conducted in Gauteng, South Africa. The study could have been conducted across all 9 provinces of South Africa, to enrich further contextual-understanding and generalisability.

However, due to resource restrictions, including funding and scheduling, the PhD research study could not have conducted additional data collection and analysis. Due to time constraints and the nature of the study, the researcher could not ascertain if there were any changes in the adoption behaviour after interviews were conducted. The use of specific MNSs over other MNSs was not studied in detail and may prove useful for further comparative studies.

The interview questions were designed for news consumers, however, perspectives from other stakeholders (e.g. MNSs providers and telecommunication services) could have informed further insight and perspectives on the usage of MNSs

The selection, labelling and definition of concepts which most represented the perspectives of news consumers proved to be problematic. This is a common challenge of mixed method studies as multiple perspectives are considered. The abductive research approach, although useful in supporting the identification and selection of factors, was also restrictive. The main objective of abductive reasoning was to explore data, find thematic patterns, and suggest plausible hypotheses; however, deductive reasoning may be better suited to refining the hypotheses, based upon plausible premises and inductive reasoning would provide further empirical substantiation.

9.7 DIRECTIONS FOR FUTURE RESEARCH

A number of recommendations for future work can be made for further comparative investigations. These recommendations can be categorised according to the research scope and design of the study:

9.7.1 Research design

- *Consider longitudinal studies to assess technology adoption over time*. It may be beneficial to conduct more longitudinal studies be conducted in order to determine

habitual usage and regular use of mobile services, in order to determine if such services are merely used on a need only basis or regularly over a period of time.

- *Obtain feedback from other stakeholders to ensure a multitude of perspectives are considered*. The insights gained can be used to enhance the delivery of high-quality mobile services within resource-restricted contexts. It is only through gaining more diverse perspectives from a range of stakeholders in the technological ecosystem that further studies be conducted to improve continuous usage of mobile services. The perspectives from news consumers and prospective consumers offer limited insights and do not reflect other aspects such as current technological restrictions which may not be able to fulfil consumer needs. These views on inclusive perspectives is also support by other researchers (Aiash et al., 2013). The findings from inclusive and comparative studies could inform technology adoption of other similar technological innovations including predictions of adoption of emerging artificial intelligence and voice-interactive search services. An extension of field work is therefore suggested for future studies to enrich the collection of data for further inquiry.

- *Diversify sampling and consumer-profiling across region, age, gender, industry, and level education in order to determine moderating effects on adoption factors*. This study consisted of consumers with higher levels of education and either working or studying within the Information Technology industry. It may be valuable to examine how varying social environment factors and personal initiatives and characteristics related to, age, gender, industry of expertise, and level of education could influence adoption of mobile services. The use of mobile services by male, female, and other gender groupings could differ based on additional factors that were not inextricably identified from the current study, due to the sample employed. The only correlations which could be found was between, hedonic motivation and gender, usability and age, and compatibility and age. The findings suggest that male consumers are more likely to use MNSs to support hedonic motivation needs and younger consumers are more vocal on usability and compatibility concerns. It would thus be advantageous to consider studying the use of mobile services by varying users, including younger or older mobile service consumers. The distinct social, cultural and belief systems which define different social environments, such as urban and rural societies, may yield further contextual understanding on adoption of mobile services.

- *Consider different research strategies, instrumentation, including surveys, group interviews, and user experiments and testing of mobile services*. As mentioned in the preceding section, new studies can consider the viability of different research strategies which need to be justified within the context of empirical inquiry. These additional findings can be juxtaposed against current analysis and interpersonal interview findings. The choice of interview and questioning technique could be extended to focus groups discussions or other feedback mechanisms such as surveys to prompt feedback which would otherwise not be captured during face-to-

face interviews. It may also be beneficial to consider design science research to gather new knowledge through the innovative design, implementation, and assessment of novel IT artefacts such as MNSs. The analysis, abstraction and reflection of findings could support external validity and inform new understanding on usage behaviour of such IT artefacts It is essential that methodological rigour be substantiated to ensure purposeful collection and analysis of data. Alternate qualitative research methods such as grounded theory could lead to the discovery of additional insights. Furthermore, it is recommended that longitudinal observations be conducted to provide distinctive insights on adoption of MNSs over selective periods of time.

9.7.2 Research scope

- *Collaborative and multi-disciplinary research exploring the adoption of mobile services*. It is essential that collaborative and multi-disciplinary research support a range of key disciplines, such as: the psychology of human and technology interaction; mobile service innovation, development, and deployment; traditional and digital media, and mass communication studies. A number of critical collaborative research scenarios could extend technology adoption research in order to find unique perspectives which may not have been considered previously. Although technology adoption has been well studied and documented, the rapidly evolving mobile services arena poses a number of challenges and fresh opportunities for new and challenging research.

- *Refine proposed adoption factors and relationships between factors*. Further studies can test the validity of the proposed framework, and study the selected factors and propositions within similar and different contexts to enrich our understanding of technology adoption. Further studies can extend the research findings in varying contexts and support the external validity of current findings. A number of factors and possible inter- and intra-relationships were not included in the proposed framework of adoption, for selective purposes, related to significance of findings within the context of the study and for ensuring parsimony of representation. The proposed model can be refined and further validated through the consideration of issues as diverse as the complexities of relevancy, ubiquitous access, trust-sensitivities related to factual and false news content, impediments to adoption, and customisation and personalisation of specific mobile services, and usability and portability functions across mobile media channels, and financial affordability of devices and services. The refinement and selection of adoption factors will ultimately foster a greater understanding of material enactments, mobile service adoption and possibly non-adoption. The perceived constructs can also be verified to assess actual adoption and further support theoretical and empirical understanding of technology adoption.

- *Social and environmental influences*. As stated earlier, more research can be done to assess the synergetic influence of social and environmental factors in which

mobile services are provided. Additional research could consider factors related to socio-economic conditions, consumer price preferences, perceived quality, perceived credibility, and omni-channel media use to extend interpretation of theoretical and empirically-derived concepts.New research needs to determine optimal contexts to support the innovative delivery of mobile services, including social influence, social standards, support to use mobile devices within specific user group, the provision of persistent telecommunication services, and cost of data, particular in countries which have limited resources. The different facets of social and environmental factors need to be identified and justified within the context of the phenomenon under investigation. Future research studies could employ a social materiality, agential realism, entanglement, or social constructionism perspective from which to understand material enactments of the phenomena under study.

- *Influence of social media*. Other studies can also look at the social aspects of engaging and encouraging the use of mobile services, including social media and other social platforms on the Internet. Although the influences and impact of social media is well studied, ongoing research can be conducted as technology is designed to be socially-inclusive. Further studies can determine if the popularity of social media supports or detracts consumers from engaging in mobile services for personal needs.

9.8 CONCLUDING STATEMENTS

The research findings that culminated support the research questions and objectives of the study. The conceptual framework of MNS adoption has been an endeavour to explain the adoption of specific mobile services, within the context of South Africa.

Studies in technology adoption have been published extensively. A number of technology adoption theories have been proposed over time and have been applied to determine an individuals' behaviour towards a technological innovation. Shortcomings of prominent theoretical frameworks were discussed in a review of technology adoption theory. The key concern raised by researchers is that no single construct is sufficient or more important than other constructs. It is the relationships between constructs which assist in determining the influence the constructs have on attitude formation and behavioural decisions to use, accept, and adopt innovations.

This challenge is further compounded by the notion that a single theory cannot be generalised to predict all user attitudes and adoption behaviours towards an innovation. It is, therefore, imperative to understand that generalisability is difficult to ensure across technological innovations. No one theoretical framework fits all research scenarios. A number of factors or attributes need to be considered including social-environmental factors, attributes of adopter factors, and

attributes of innovation. The General Model of Influencing Factors and Diffusion Process (Askarany, 2003) served as a classification schema through which constructs were tested and considered for inclusion in the conceptual framework of MNS adoption.

Through pragmatism, an abductive research approach, and mixed method data analysis, this study considered a number of constructs which could be applied within the context of the empirical phenomenon under study. The selected constructs were selected after comprehensive analysis and is believed to play a significant role in influencing adoption of MNSs.

The outcomes of the study suggest that technology adoption needs to be addressed in lieu of the intricacies of individual adopter needs, desires, environmental context, and characteristics of the innovation. The expectation that consumers can acquire what is required during moments of need is crucial in the provision of mobile services. A holistic perspective of the use of MNSs must inform the delivery of mobile service experiences. It is this integrative and complementary view of technology adoption which will support an initial and sustained use of mobile services as consumers continually seek to try mobile services which will meet their present and future needs and desires.

This formative study contributed to the repertoire of technology adoption knowledge within the IS discipline. As discussed, the propositions should not be considered in isolation to or absolute in application to other contexts. The findings were determined from insights gathered from a sample of MNSs consumers in a region in South Africa. This study does, however, provide profound revelations of adoption factors which can support the call to study technology adoption within varying mobile service innovation contexts, both in developing and developed countries. The web of inter- and intra-relationships, in the context of MNS adoption, can serve as a stimulus for further research inquiry. It is pivotal that future research continues to discriminate insight in relation to the sociomaterial and performative view of contemporary IT artifacts, such as advanced mobile and digital services.

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APPENDICES

APPENDIX A: ETHICS APPROVAL

"This application has been approved, contingent on the consent form being revised to inform the participant that they can refuse to answer any questions they wish." – Approval received from Prof. Harold Kincaid on 14th October 2013 before commencement of data collection.

For further clarification, kindly contact:

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APPENDIX B: INTERVIEW QUESTIONS

Research Interview

This research interview is in support of fulfilling the PhD Research Study:

Embracing Mobile News Services: Understanding South African New Consumer perspectives

Rubina Maurya
PhD Information Systems
Department of Information Systems
University of Cape Town
South Africa

2017, v2

Supervisor:

Assoc. Prof. Lisa Seymour

Before the Interview

Important information to note before the start of the interview

A. About the study

Mobile news services can be regarded as intangible news services distributed wirelessly through the use of a portable, mobile device. The researcher is investigating factors influencing the adoption of mobile news services by South Africans.

The outcome of this study should help fellow academics and mobile news service providers to better understand factors to consider when providing such services to news consumers.

B. Your participation in the study

The interview should not take more than **45 minutes** of your time to complete.

C. Confidentially and publication of information

The information you provide will be treated with strict confidentiality. It is possible that anonymised summarised results will be used for publication in research conferences and journals. Any personal references to you or your company or institution will be made anonymous. You are requested to sign the "Research Participant's Permission" form to confirm your willingness to participate and that you understand that your information will be treated in confidence. A copy of this form will be given to you for your own record.

Research Participant's Permission

Signature to confirm participation in research study

I, **Rubina Maurya** hereby state that I will not use the information provided in this interview for any other purpose other than the intended purpose, that being for use during analysis and discussion of findings of the study. I will respect the information with strict confidence and anonymity.

_____ _____

Signature *Date*

I_____ hereby voluntarily give my permission to participate in this research study as explained to me by the researcher, **Rubina Maurya**. The nature, objective, confidentiality, and publication of information have been explained to me and I understand them.

_____ _____

Signature of Participant *Date*

_____ _____

Witness *Date*

For any queries, please contact Rubina Maurya at:

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060 661 6229

Procedure for Interview

- It is important that the interviewee answer questions with sincere honesty. If the interviewee feels uncomfortable in answering particular questions, the interviewee can inform the interviewer that he/she does not wish to answer the question.

- The interview comprises three parts:

  - **Part 1** focuses on the interviewee's mobile phone usage
  - **Part 2** focuses on the interviewee's mobile news service experience and expectations.
  - **Part 3** concludes the interview

- Demographic data will only be collected for research purposes.

	Interviewee Profile	***Factors**
Interviewee No.	**INT_____**	
User Group	****UG_____**	
Name of Research Participant		
Occupation		**Demographics:** 1. *Individual culture* 2. *Experience* 3. *Personal initiatives and characteristics* 4. *Level of development…* 5. *Opinion leaders* 6. *Communication and channel change agents* [***Optional*** questions: Emphasise that participants are not obliged to answer the questions if '*preferred not to answer*' the questions]
Location	**_____, Gauteng**	
Mobile Number		
Age		
Gender [Optional]		
Religious Beliefs/Affinity [Optional]		
Race/Ethnicity [Optional]		
Highest Level of Education		
Date and Time		
Duration of Interview		

	1: Mobile Phone Usage	*Factors
1.1.	When did you **start using** mobile phones?	**Demographics:** 1. Individual culture 2. Experience 3. Personal initiatives and characteristics **Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience
1.2.	How **frequently** do you use your mobile phone? [Example: daily, weekly, periodically [breaking news]]	
1.3.	What is the **brand and model** of your mobile phone? Can you tell me what motivated you to use this particular brand and model?	
1.4.	What do you **use** your mobile phone for on a regular basis?	

	1.4.1.	Making and receiving voice calls
	1.4.2.	Sending and receiving: Text messages (SMS), Multimedia messages (MMS), Video messages, and/or Instant messaging (IM) chat
	1.4.3.	Browsing the internet
	1.4.4.	Managing your calendar
	1.4.5.	Managing your email
	1.4.6.	Mobile applications and services: Social Networking, Banking, News
	1.4.7.	Photography
	1.4.8.	Music
	1.4.9.	Gaming
	1.4.10.	Shopping or making payments
	1.4.11.	Other, please specify: _____

	2: Mobile News Service Usage	*Factors
2.1.1.	1) Do you **use mobile news services**? [*If response is **yes**, proceed with question 2.1.1.2. If response is **no**, proceed to 2.1.2*] 2) When did you **start** using mobile news services? 3) What was your **experience** using mobile news services for the **first time**?	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors**

		1. Social concerns
2.1.2	1) Why **don't** you use mobile news services? [Please elaborate your response.] 2) Have you **heard** of any mobile news services? [Please elaborate your response.] [Explain to interviewee what mobile news services are] 3) Based on what I just described to you about mobile news services, would you **consider using mobile news services in the future**? [Please elaborate your response.] [Only applicable to PEU]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.2	What **motivates** you to use mobile news services? [Emphasis: Why do you use mobile news services?] Or What **would motivate** you to use mobile news services? [Emphasis: Why would you use mobile news services?]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns

2.3	How were you **introduced or informed** about mobile news services? [Explanation: Was it preloaded on your mobile device, did you download the app from an app store, do you hear about it in an advertisement, friends/ family/ co-workers, other] [Only applicable to EU]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience **Social Factors** 1. Social concerns
2.4	How do you **prefer accessing** mobile news services? Or How would you **prefer to access** mobile news services? [Example: have shortcuts on mobile devices; use several mobile devices, other means.]	**Attributes of Adopters**: 1. Drive to acquire **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.5	Do you **trust the news** that you can access via mobile news services? Or Would you **trust the news** that you could access via mobile news services? [Please elaborate your response.]	**Attributes of Adopters**: 1. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value *2. Trialability* 3. Observability
2.6	How **important** is it for you to use mobile news services? Or How **important** would it be for you to use mobile news services? [Please elaborate your response.]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience **Social Factors** 1. Social concerns

2.7	How **often** do you **access** mobile news services? [Emphasis: Do you like to receive alerts to news events?] Or How **often** would you like to **access** mobile news services? [Emphasis: Would you like to receive alerts of news events? And how frequently would you like to receive these alerts?]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.8	Are there specific types of **mobile news service providers** that you use? **Why** do use these specific news service providers? Or Are there specific types of **mobile news service providers** that you would consider using? **Why** would you consider using these specific new service providers?	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.9	Do you prefer **a specific media service provider**? If yes, which service provider and **why** do you prefer the service provider? Or	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation

<table>
<tr><td></td><td>Would you prefer to use a specific media service provider? If yes, which service provider and why would you prefer the service provider?</td><td>5. Habitual Convenience
6. Trust sensitivities

Attributes of Innovation:
1. Relative advantage and value
2. Usability
3. Observability
4. Compatibility
5. Immediacy
6. Portability
7. Facilitating conditions</td></tr>
<tr><td>2.10</td><td>What news do you like to be kept informed about and why?

<table>
<tr><td></td><td>2.10.1</td><td>Current and breaking news events [Imminent Syrian strike, Strike Season in SA, Politics in the run up to the election, Governments request for more ‘positive’ news]</td></tr>
<tr><td></td><td>2.10.2</td><td>Local and regional news</td></tr>
<tr><td></td><td>2.10.3</td><td>South African news</td></tr>
<tr><td></td><td>2.10.4</td><td>International news</td></tr>
<tr><td></td><td>2.10.5</td><td>Editorials and columnists</td></tr>
<tr><td></td><td>2.10.6</td><td>Sports news</td></tr>
<tr><td></td><td>2.10.7</td><td>Business and financial news</td></tr>
<tr><td></td><td>2.10.8</td><td>Weather Forecasts</td></tr>
<tr><td></td><td>2.10.9</td><td>Science and Technology news</td></tr>
<tr><td></td><td>2.10.10</td><td>Health and Lifestyle news</td></tr>
</table></td><td>Attributes of Adopters:
1. Desire to be informed
2. Drive to Bond and Defend
3. Drive to Learn
4. Hedonic motivation</td></tr>
</table>

		2.10.11	Entertainment news
		2.10.12	Other, please specify: _____
2.11	Are you concerned that the news you access using mobile news services is **true**? Or Are you concerned that accessing news via mobile news services would be **true**? [Concerns surrounding fake, false, alternative, or improvised news in different forms of media, including social media] [Please elaborate your response.]		**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Learn 3. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Observability 3. Compatibility **Social Factors** 1. Social concerns
2.12	Have you **introduced or encouraged others** to use mobile news services? Or Would you **introduce or encourage others** to use mobile news services?		**Attributes of Adopters**: 1. Drive to Bond and Defend **Social Factors** 2. Social concerns
2.13	1) How necessary is it for you **to be informed of news** events on a regular basis? 2) Is it important for you **to be aware** of what is happening in your world and in your areas of interest [Example: political news, sports, business/finance, etc.]? [Question applies to EU and PEU]		**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns

2.14	What are your **impressions** of engaging with mobile news services? Or What do you expect your **impressions** to be with regards to **engaging** with mobile news services? [Concerns surrounding quality, value, accessibility and in terms of content- professional journalism, including writing and unbiased reporting and presentation of information] [Please elaborate your response.]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Learn 3. Hedonic motivation 4. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.15	Are you pleased with **data connectivity** in terms of accessing and viewing mobile news content? [Please elaborate your response.] [Only applicable to EU]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.16	1) In your experience of using mobile news service, how do you find using mobile news services **compare** to other means.	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend

	[Explanation: Viewing televised news services, reading printed newspapers and magazines, viewing news on desktop accessible web browsers, viewing news on mobile internet services, etc.]? 2) Do you think the **information you receive** is the same as though you would receive it on another means? [Only applicable to EU]	3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.17	Do you think the real-time or **immediate** nature in which news is relayed you to affects how you use mobile news services? Or Do you think the real-time or i**mmediate** nature in which news would relayed to you, would affect how you use mobile news services? [Explanation: would you prefer time relevant news on certain matters, e.g. breaking news that could affect you]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.18	Would you **pay** for the ability to access premium news content delivered on your mobile device? [If you currently pay for access to premium news services, please elaborate your experience]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend

	[Question applies to EU and PEU]	3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.19	1) How do you find the **way news is presented** to you? 2) Do you like the **format** in which news is provided to you? [*Elaborate: It is easy to use; would you consider this useful and appropriate?*] [Only applicable to EU]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.20	1) Do you think it is important to be able **to share opinions and views on news** content? [Please elaborate your response.] 2) If yes, do you prefer sharing opinions or viewing opinions? [Question applies to EU and PEU]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience

		6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.21	Do you think the **society** we live in should make use of mobile news services to be informed about current news events? [Please elaborate your response.] [Question applies to EU and PEU]	**Social Factors** *1. Level of development of society and social environment* *2. Communication channel change agents* *3. Opinion leaders* *4. Social norms* **5. Social concerns** *6. Social influence*
2.22	Do you think more should be done to **promote the use of mobile news services**? [Example: by news agencies, media and press freedom associations, society at large, game changers, others]? [Please elaborate your response.] [Question applies to EU and PEU]	**Social Factors** *1. Level of development of society and social environment* *2. Communication channel change agents* *3. Opinion leaders* *4. Social norms* **5. Social concerns** *6. Social influence*
2.23	**When** [*time of day*] and **where** [*home, work, school, other*] do you prefer using mobile news services? Or **When** [*time of day*] and **where** [*home, work, school, other*] would you prefer using mobile news services?	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities

		Attributes of Innovation: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.24	Do you **share** news content with others? If yes, what mediums do you use to share news content? Or Would you **share** news content with others? If yes, what mediums would you use to share news content? [Example: email, instant messaging, or other social networking services]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns
2.25	Are you concerned about **privacy and/or security issues** regarding the use of mobile news services? Or Would you be concerned **about privacy and/or security issues** regarding the use of mobile news services? [Example: sharing of news content and information.] [Please elaborate your response.]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**:

		1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.26	Do you prefer viewing mobile news services on specific **mobile devices** rather than other mobile devices/other mediums? Or Would you prefer viewing mobile news services on specific **mobile devices** rather than other mobile devices/other mediums?	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.27	How important is it for you to be part of the **news community?** [Explanation: sharing a platform with other news service users (irrespective of mobile news service use) to share comment/ opinion and to be informed of news content.] [Question applies to EU and PEU]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability

		7. Facilitating conditions **Social Factors** 1. Social concerns
2.28	What are the **challenges** that you experience whilst using mobile news services? Or What are the **challenges** that you think you will experience using mobile news services?	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions
2.29	What kind of **media** do you prefer accessing and sharing? Or What kind of **media** would you prefer accessing and sharing? [Emphasis: text content, graphic content, e.g. photographs or illustrations, audio clips and/or video clips of news content]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions

2.30	Based on your overall impressions of using mobile news services what would you like to be improved, changed, or added to enhance your experience of using mobile news services on a regular basis? [Only applicable to EU]	**Attributes of Adopters**: 1. Desire to be informed 2. Drive to Bond and Defend 3. Drive to Learn 4. Hedonic motivation 5. Habitual Convenience 6. Trust sensitivities **Attributes of Innovation**: 1. Relative advantage and value 2. Usability 3. Observability 4. Compatibility 5. Immediacy 6. Portability 7. Facilitating conditions **Social Factors** 1. Social concerns

	3: Conclusion:	***Factors**
3.1	Is there anything further you would like to share about your experience or expectations of using mobile news services? [Question applies to EU and PEU]	**Could apply to any factors related to:** 1. Attributes of adopters, 2. Attributes of Innovation or 3. Social Factors
3.2	[Briefly summarise highlights of the interview.]	

Thank you for your time and invaluable participation

For research analysis purposes. This column will be removed when conducting the interviews

** **User Groups**		
End users:	Use mobile news services	**EU**
Potential end users:	Does not use mobile news services	**PEU**

APPENDIX C: CODE MANUAL OF THEORETICAL DEFINITIONS AND EMPIRCAL DEFINTIONS

Themes identified during different phases of analysis

		Theoretical Concepts		Empirical Observations 1		Analysis Iteration 1		Analysis Iteration 2
1.	**AoA**	Drive to acquire	1.	Drive to acquire	1.	Desire to be informed – reflect purposeful need for acquiring mobile news	1.	Desire to be informed
2.		Drive to bond	2.	Drive to bond	2.	Drive to bond	2.	Drive to bond and defend
3.		Drive to defend	3.	Drive to defend	3.	Drive to defend		
4.		Drive to learn	4.	Drive to learn	4.	Drive to learn	3.	Drive to learn
5.		Habit	5.	Habit	5.	Habitual convenience *_Habit + Time convenience_	4.	Habitual convenience
6.		Hedonic motivation	6.	Hedonic motivation	6.	Hedonic motivation	5.	Hedonic motivation
7.		Trust sensitivities	7.	Trust sensitivities	7.	Trust sensitivities	6.	Trust sensitivities
8.		Engagement motivation	8.	Engagement motivation				
9.		Experience						
10.		Individual culture						
11.		Personal initiatives and characteristics						
12.	**AoI**	Observability	9.	Observability	8.	Observability	7.	Observability
13.		Usability	10.	Usability	9.	Usability	8.	Usability
14.		Relative advantage	11.	Relative advantage	10.	Relative advantage	9.	Relative advantage and value * merged with Purchasing
15.		Facilitating conditions	12.	Facilitating conditions	11.	Facilitating conditions	10.	Facilitating conditions
16.		Compatibility	13.	Compatibility	12.	Compatibility	11.	Compatibility
17.		Immediacy	14.	Immediacy	13.	Immediacy	12.	Immediacy
18.		Portability	15.	Portability	14.	Portability	13.	Portability
19.		Searchability	16.	Searchability	15.	Searchability		
20.		Trialability	17.	Trialability				
21.		Complexity	18.	Complexity				
22.		*Time convenience	19.	Time convenience *_merged with Habit_				
23.		Performance expectancy						
24.		Effort expectancy						
25.		Continuity						
26.		Perceived ubiquity						
					16.	Purchasing – New concept		

		Theoretical Concepts		**Empirical Observations 1**		**Analysis Iteration 1**		**Analysis Iteration 2**
27.	**SF**	Social concerns	20.	Social concerns	17.	Social concerns	**14.**	Social concerns
28.		Social influence	21.	Social influence	18.	Social influence		
29.		Social norms	22.	Social norms	**19.**	Social norms		
30.		Communication channel change agents	23.	Communication channel change agents				
31.		Level of development of society and social environment	24.	Level of development of society and social environment				
32.		Opinion leaders	**25**.	Opinion leaders				

A. Attributes of Adopters		
Factors	**Theoretical Understanding**	**Empirical Understanding**
Individual Culture	Refers to the reliance on personal beliefs in making decisions. Individual beliefs do not prescribe to group beliefs and is therefore not strictly followed.	Refers to the news consumer's cultural, religious, or social adherences.
Experience	Refers to the extent to which earlier and later adopters of an innovation adopt a new idea completely at the time of their first trial.	Refers to the news consumer's experience of using MNSs.
Drive to acquire	Refers to some evolved psychological mechanisms in order to seek out status, take control, and retain objects and personal experiences which humans' value.	Refers to the news consumer's need to access MNSs.
Drive to bond	Refers to an evolved psychological mechanism supporting the development of social relationships and mutual caring commitments with other humans.	Refers to the news consumer's need to be informed of news events affecting the news consumer. The 'drive to bond' can also refer to the news consumer's relationships or associations with other news consumer is and the greater society which may be affected by the news.

Drive to defend	Refers to an inherent categorisation of evolved psychological mechanisms which could make us defend ourselves and our valued accomplishments whenever we perceive threats to our self, values, beliefs, or status. The level of the defence can vary as threats are intensified or eased.	Refers to the news consumer's need to engage in news event discussions and debates so as to contribute personal perspectives and identify with the importance of the news event.
Drive to learn	Refers to a categorisation of evolved psychological mechanisms which could drive humans to search, find and access information. Information can also be assessed and evaluated to fulfil needs, satisfy curiosity, address uncertainty, and assist in making decisions and judgments which can be viewed as 'normal'.	Refers to the news consumer's need to seek news and be informed of news events either affecting the society in which the news consumer is placed or events affecting other societies, which the news consumer can empathise with and learn about. News consumers can use knowledge obtained from the news to assist in personal decision making, e.g.
Personal initiatives and characteristics	Refers to the user's willingness to experiment with the innovation.	Refers to news consumer's personal interest and curiosity in using MNSs to access the news.
Hedonic motivation	Refers to the user's fun, enjoyment or pleasurable experiences derived from using a technology. Hedonic motivation is defined in the context of a consumer as the user.	Refers to the enjoyment experienced or expected by the news consumer whilst using MNSs, either through a user-friendly usage experience or presentation of news content in desired media formats and presentation.

Engagement motivations	Refers to a user's motivations which can impact a user's intention to keep engaging behaviour with the technology. Engagement motivations can support a primary and functional need, referring to *utilitarian motivation,* or *hedonic motivation*, or *social motivation*, which can affect the manner in which a consumer views and conducts their social networking activities. Engagement motivations are defined in the context of smartphone usage.	Refers to the news consumer's engagement in news forums to view and share opinion on news events.
Habit	Refers to the extent to which people tend to perform behaviours based on prior and repeated behaviour and secondly can be measured as the extent to which an individual believes the behaviour to be automatic.	Refers to the perception that MNSs should understand the news consumer's regular and habitual news access and usage patterns.

	B. Attributes of MNSs			
No.	**Theoretical Concept**	**Theoretical Understanding**	**Empirical Concept**	**Empirical Understanding**
1.	*Relative advantage*	Refers to the degree to which an innovation is perceived as being better than the idea it supersedes. This can be interpreted in terms of three dimensions, including economic profitability, social prestige, or other benefits. Attributes of prospective adopters can determine the level of importance of each of the three dimensions of relative advantage.	Purpose, Need, Want,	Refers to the need to be informed of news instantaneously and know about breaking news as it happens or when the news consumer is in control, without having to necessarily pay for use of the service.
2.	*Complexity*	Refers to the degree to which an innovation is perceived as relatively difficult to understand and use	Difficult, Confusing,	Refers to how difficult or confusing MNSs are to use.
3.	*Usability*	Usability refers to a quality attribute which assesses how easy user interfaces are to use.	Easy to use, Simple, User-friendly	Refers to the perception of simplicity, ease of use and user-friendliness of the interaction with MNSs.
4.	*Trialability*	Refers to the degree to which an innovation may be experimented with on a limited basis.	Try mobile news service, Test MNSs	Refers to the perception that news consumers can use MNSs for free—of-charge, without paying for access and use.

5.	*Observability*	Refers to the degree to which the results of an innovation are visible to others.	See news when I want, Choose what to view, Check news, Read news, Listen to news, View video	Refers to the perception that news consumers can view news content and share news content with other news consumers or potential news consumers.
6.	*Compatibility*	Refers to the degree to which an innovation is perceived as consistent with the existing values.	Compare news media	Refers to the perception that MNSs should uphold the same journalistic standards as portrayed in print, radio, or televised news media.
7.	*Performance Expectancy*	Refers to the degree to which using a technology will provide benefits to consumers in performing certain activities.	Expect news to be brief and informative	Refers to the perception that MNSs will inform the news consumer of required and relevant news events as requested – considering the news consumer's preference for category of news content, timelessness of news event, news event coverage, media format, journalist professionalism brevity and quality of news content.

8.	*Effort Expectancy*	Refer to the degree of ease associated with consumers' use of technology.	Easy-to-use, Simple, Quick,	Refers to the perception that MNSs should be easy and seamless to access and use.
9.	*Perceived ubiquity*	Refers to a multidimensional construct consisting of *continuity*, *immediacy*, *portability*, and *searchability*.	Compatible with all devices	Refers to the perception that MNSs can be accessed and used at any time of day, at any location, and on any device on demand.
10.	*Continuity*	Continuity refers to the state or quality of being continuous, that is, "always on."	Anytime, Anywhere, Any device	Refers to the perception that MNSs will always be updated with the latest information which can be accessible at any time requested, both present and past – referring to archive records of past news events.
11.	*Immediacy*	Immediacy refers to the quickness of an action or occurrence. Immediacy implies light, effortless, and easy displacement.	Immediately, Instantaneously, In real-time, as it happens	Refers to the perception that MNSs can be accessed instantaneously (e.g. breaking news alerts) or on demand when required.
12.	*Time convenience*	Refers to the time-saving convenience of consuming advanced mobile services, stemming from ubiquitous use of mobile services.	As it happens, now, At a time, I require	Refers to the perception that MNSs can be either as news events happen or when news consumer controls request for news services.

13.	*Portability*	Refers to the quality of being light enough to be carried, which relates to the 'physical characteristics' of the device. Portability can also refer to spatial and temporal constraints, reflecting varying levels of mobility within the social domain.	Multiple mobile devices, On the go	Refers to the perception that MNSs can be accessed on one or more mobile devices including, laptops, feature phones, smart phones, and tablet devices.
14.	*Searchability*	Refers to the capability of making a thorough examination by the user for information or data required. Searchability can also refer to the search of location-specific news consumers.	Search news, Find news, Browse news, View archive, news articles View news categories, News filters, Interest to me	Refers to the perception that MNSs can be accessed on demand when required and searched for news articles that are presently trending or past news events which are important to the news consumers.
15.	*Facilitating Conditions*	Refers to the to a consumer's perceptions of the resources and support available to perform a behaviour.	Support, Help	Refers to the perception that MNSs should support first-time or unfamiliar news consumers making using of mobile news service content for the first time; or news consumers who may not be mobile technology literate; or news consumers who may be elderly and in need of support.

16.	*Trust Sensitivities*	Refers to the user's beliefs or faith in the degree to which a specific service can be regarded to have no security, vulnerabilities, and personal privacy threats. Trust sensitivities can also be likened to the branding of MNSs. News consumers are likely to adopt services based on brand awareness and trust.	Secure, Privacy, Anonymity, Block advertisements	Refers to the expectation that MNSs should be safe to use, with secure usage of personal information (e.g., sharing opinions on news forums) and limited directed advertisements.

	C. Social factors			
No.	**Theoretical Concept**	**Theoretical Understanding**	**Empirical Concept**	**Empirical Understanding**
1.	*Level of development of society and social environment*	Refers to the different levels of society and context in which different user needs can be addressed, through provision of adapted service offerings. These societal-sensitivities could promote increased diffusion.	Society, Rural, Urban, Literacy of citizens	Refers to the expectation that MNSs should support all levels of societal and development thereof.
2.	*Communication channel change agents*	Refers to the process of providing and sharing information by and between participants for better understanding. A communication channel is the means through which new ideas are exchanged between one individual and another.	View opinions of news consumers, Share personal opinions	Refers to a two-fold expectation that MNSs should enable new discussion forums for expressing opinion and engaging in debates and discussion of newsworthy content.
3.	*Opinion leaders*	Refers to the degree to which an individual can informally influence another individual's attitudes or overt behavior in a desired way with relative frequency.	Share, Inform, Comment	Refers to the expectation that MNSs should support news consumers to share news content with potential news consumers so as to encourage and inform others of using the service.

4.	*Social norms*	Refers to the extent to which an individual follows the expectation of other people who think it is significant to execute a particular behavior. Social norms can be viewed as common beliefs and behavioral codes of a social group, influencing common behavior.	Freedom of expression and engagement, Ensure anonymity to participate in discussion/ debate	Refers to the expectation that MNSs should be used by everyone across society, in unison with other media forms for improved dissemination of relevant and meaningful information.
5.	*Social concerns*	Refers to the extent to which a user is affected and influenced by concerns that are perceived as relevant to the society in which the user engages.	Social problems, Social issues, Social concerns	Refers to the expectation that MNSs should inform the news consumer of newsworthy content which affects the news consumer within the society or community in which the news consumer resides, studies, works or travels.
6.	*Social influence*	Refer to the extent to which consumers perceive that important others believe they should use a particular technology.	Referrals by friends, family, work, or other individuals	Refers to news consumer's perception of the influence of important others (such as family, friends, colleagues, and work associates) in encouraging or inhibiting the use of MNSs.

APPENDIX D: QUALITATIVE DATA ANALYSIS

Table APD 1: Demographics

User Type	RP	Industry	Location	Age	Gender	Religious Beliefs/ Affinity	Race/ Ethnicity	Highest Level of Education
EU	001	Information and communication	Pretoria	27	Female	Christianity	White	Masters
EU	002	Information and communication	Pretoria	29	Female	Christianity	Black	Masters
EU	004	Information and communication	Pretoria	26	Female	Christianity	Xhosa, Black	Masters
EU	005	Information and communication	Pretoria	31	Female	Christianity	Xhosa, Black	Honours
EU	006	Information and communication	Pretoria	35	Male	Christianity	Black	Masters
PEU	007	Information and communication	Pretoria	30	Female	Prefer not to say	Black	Masters
EU	008	Information and communication	Pretoria	33	Male	Christianity	Black	Masters
EU	009	Administrative and support service activities	Centurion	32	Female	Christianity	Black	Diploma
EU	010	Information and communication	Pretoria	32	Female	Christianity	Black	Masters
EU	011	Information and communication	Pretoria	25	Female	Christianity	Black	Masters
PEU	012	Information and communication	Pretoria	38	Female	Christianity	Black	Masters
EU	013	Information and communication	Pretoria	38	Male	Christianity	Black	Masters
EU	014	Information and communication	Pretoria	29	Male	Christianity	White	Honours
EU	015	Information and communication	Johannesburg	30	Male	Hinduism	Indian	Doctorate
EU	016	Financial and insurance activities	Johannesburg	28	Male	Not following	White	Honours

User Type	RP	Industry	Location	Age	Gender	Religious Beliefs/ Affinity	Race/ Ethnicity	Highest Level of Education
EU	017	Financial and insurance activities	Johannesburg	28	Male	Hinduism	Indian	Honours
EU	018	Information and communication	Johannesburg	29	Female	Christianity	Black	Undergraduate
EU	019	Information and communication	Pretoria	25	Female	Christianity	White	Honours
EU	020	Information and communication	Pretoria	23	Female	None	White	Honours
EU	021	Information and communication	Pretoria	23	Male	Christianity	Black	Diploma
EU	022	Information and communication	Pretoria	21	Male	Christianity	Black	Diploma
EU	023	Information and communication	Pretoria	27	Male	None	White	Masters
EU	024	Information and communication	Pretoria	24	Female	Atheist	White	Honours
EU	025	Information and communication	Pretoria	25	Male	Christianity	White	Honours
EU	026	Information and communication	Pretoria	24	Female	Christianity	White	Honours
EU	027	Information and communication	Centurion	28	Female	Christianity	Black	Undergraduate
PEU	028	Education	Centurion	71	Female	Hinduism	Indian	Undergraduate
EU	029	Administrative and support service activities	Mamelodi	40	Female	Christianity	Black	Matriculation
PEU	030	Administrative and support service activities	Atteridgeville	42	Female	Christianity	Black	Matriculation
EU	031	Administrative and support service activities	Soshanguve	35	Female	Christianity	Black	Matriculation
PEU	032	Transport and storage	Olievenhoutbosch	38	Male	Christianity	Black	High School
EU	033	Information and communication	Kempton Park	32	Male	Buddhism	Asian	Masters
PEU	034	Financial and insurance activities	Pretoria	20	Male	None	Black	Matriculation
EU	035	Administrative and support service activities	Mamelodi	35	Male	Christianity	Black	Matriculation
EU	036	Administrative and support service activities	Atteridgeville	42	Male	Christianity	Black	Matriculation
EU	037	Other service activities	Johannesburg	22	Male	Christianity	Black	Matriculation
EU	038	Other service activities	Johannesburg	19	Male	Christianity	Black	Matriculation
PEU	039	Wholesale and retail trade; repair of motor vehicles and motorcycles	Pretoria	38	Male	Christianity	Black	Matriculation
PEU	040	Administrative and support service activities	Pretoria	35	Male	Christianity	Black	High School
PEU	041	Financial and insurance activities	Pretoria	24	Male	Christianity	Black	Matriculation

EU	042	Wholesale and retail trade; repair of motor vehicles and motorcycles	Pretoria	44	Male	Islam	Indian	Matriculation
PEU	043	Wholesale and retail trade; repair of motor vehicles and motorcycles	Pretoria	35	Male	Islam	Indian	Matriculation
EU	044	Administrative and support service activities	Pretoria	28	Male	Christianity	Black	Matriculation
EU	045	Wholesale and retail trade; repair of motor vehicles and motorcycles	Pretoria	48	Male	Christianity	Black	High School
PEU	046	Information and communication	Johannesburg	24	Female	Christianity	Black	Honours
EU	047	Administrative and support service activities	Johannesburg	34	Female	Christianity	Black	High School
PEU	048	Administrative and support service activities	Johannesburg	36	Female	Christianity	Black	High School
EU	049	Information and communication	Johannesburg	26	Male	Christianity	Black	Masters
EU	050	Agriculture, forestry, and fishing	Johannesburg	32	Male	Christianity	Coloured	Undergraduate

Table APD 2: Number of occurrences of themes (TH) by Participant (P)

C	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	T
TH																																																		
COM	2	4	1	1	1	4	2	4	7	2	5	2	2	4	2	2	5	0	0	1	2	1	4	2	2	2	3	1	1	3	1	3	0	4	3	3	3	1	5	2	1	10	2	2	3	2	1	2	1	121
DI	2	3	3	3	2	2	3	5	3	3	4	5	3	4	4	6	6	6	7	4	1	9	10	5	6	4	6	3	4	2	5	5	4	5	7	6	8	2	6	4	6	6	8	4	13	11	6	8	9	251
DBD	3	4	3	4	4	2	4	4	3	5	4	5	3	5	3	3	7	2	3	5	5	3	5	3	3	4	5	3	6	2	1	4	5	3	6	5	4	2	5	4	3	4	5	4	5	6	3	5	6	195
DL	0	0	2	4	3	0	3	1	1	1	2	0	2	1	0	3	3	2	0	0	0	1	0	2	0	0	0	1	2	1	0	4	4	2	9	3	2	1	1	3	2	0	0	2	3	6	4	7	7	95
FC	1	0	1	3	3	1	2	2	3	6	4	1	3	1	3	2	1	5	1	4	1	2	1	4	2	4	5	5	3	5	3	3	7	5	4	2	1	1	6	4	1	0	8	0	2	1	5	3	2	137
HC	3	5	1	4	3	1	3	4	1	4	4	6	3	3	3	4	6	4	6	2	3	3	5	3	3	3	4	3	3	4	5	3	1	2	4	5	1	9	4	2	5	3	4	5	1	4	4	3	4	173
HM	0	0	0	0	1	0	1	0	1	2	1	2	1	0	1	2	0	1	0	2	2	4	4	2	2	1	2	0	2	0	1	1	0	1	2	1	4	1	0	2	3	3	2	1	4	3	0	3	2	68
IMM	1	1	1	2	3	0	0	2	1	2	1	3	2	1	1	3	2	1	1	2	0	1	0	1	1	1	2	0	1	0	1	3	1	2	1	3	2	4	1	1	1	1	3	4	5	2	2	3	4	81
OBS	2	4	3	4	2	1	4	3	2	2	7	2	1	4	4	4	4	3	7	7	9	8	4	7	4	8	7	2	4	4	1	7	4	1	3	9	2	1	4	1	6	3	0	3	9	5	6	7	11	210

POR	0	3	2	3	2	1	2	1	3	0	2	2	3	3	3	1	3	2	3	3	1	0	4	2	1	3	1	4	4	1	0	7	2	1	3	2	2	2	1	3	3	2	1	2	2	2	2	3	3	106
RAV	0	2	2	5	3	1	4	3	2	3	1	2	1	2	1	1	5	3	1	3	3	2	3	2	3	2	2	3	2	2	3	4	2	1	3	3	2	6	1	5	3	1	2	3	2	2	1	1	4	118
SC	0	2	1	1	2	0	1	0	1	1	1	0	0	1	1	4	0	1	1	4	2	3	0	4	0	2	1	2	0	1	1	4	3	3	1	4	4	1	1	2	1	1	0	0	0	1	3	5	4	76
TS	0	2	4	2	3	0	1	1	2	2	4	3	1	2	1	1	2	2	1	2	2	1	4	3	2	0	2	1	6	1	5	3	4	2	1	5	3	2	3	3	2	0	0	5	8	3	3	4	6	120
USB	1	1	1	2	1	0	4	3	5	4	3	3	2	3	2	6	3	1	1	4	1	1	2	3	2	4	4	1	4	3	3	3	1	2	3	1	1	7	1	4	2	7	3	1	8	5	3	7	11	148
T	15	33	26	39	34	14	38	35	37	40	45	38	27	37	32	47	47	38	37	47	34	45	50	46	32	41	45	31	43	32	34	59	41	37	54	58	43	44	43	42	41	41	40	40	67	55	45	66	77	2032

COM	Compatibility	IMM	Immediacy
DI	Desire to be Informed	OBS	Observability
DBD	Drive to Bond and Defend	POR	Portability
DL	Drive to Learn	RAV	Relative Advantage and Value
FC	Facilitating Conditions	SC	Social Concerns
HC	Habitual Convenience	TS	Trust Sensitivities
HM	Hedonic Motivation	USB	Usability

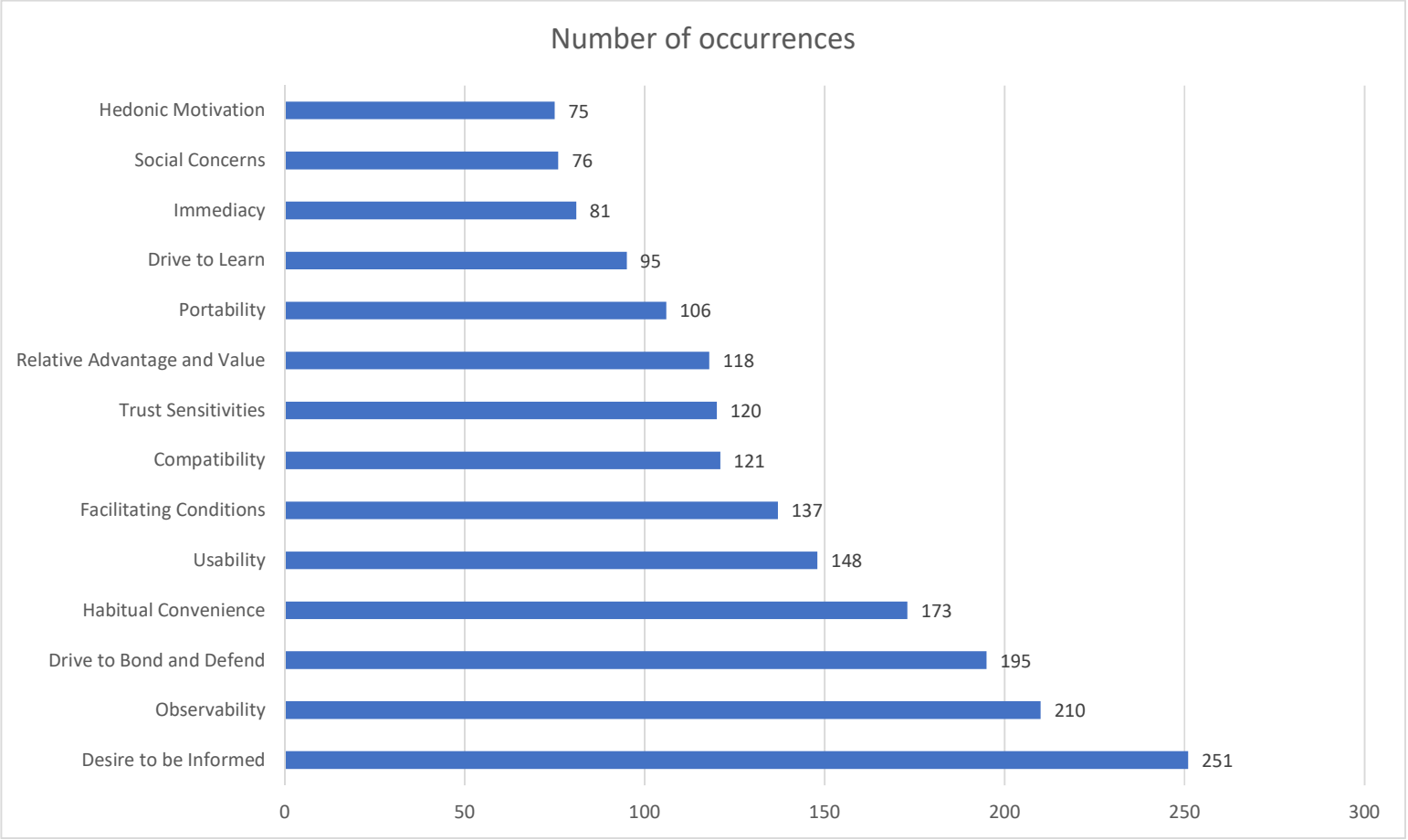
Number of occurrences
Hedonic Motivation
75
Social Concerns
76
Immediacy
81
Drive to Learn
95
Portability
106
Relative Advantage and Value
118
Trust Sensitivities
120
Compatibility
121
Facilitating Conditions
137
Usability
148
Habitual Convenience
173
Drive to Bond and Defend
195
Observability
210
Desire to be Informed
251
0
50
100
150
200
250
300

Table APD 3: Analysis: Research Participant Profiles

		001	002	004	005	006	007	008	009	010	011	012	013	014	015	016	017	018	019	020	021	022	023	024	025	026	027	028	029	030	031	032	033	034	035	036	037	038	039	040	041	042	043	044	045	046	047	048	049	050
	UG	EU	EU	EU	EU	EU	**PEU**	EU	EU	EU	EU	**PEU**	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	**PEU**	EU	**PEU**	EU	**PEU**	EU	**PEU**	EU	EU	EU	EU	**PEU**	**PEU**	**PEU**	EU	**PEU**	EU	EU	**PEU**	EU	**PEU**	EU	EU
Attributes of Adopters																																																		
1	**DI**	▲	▼	▲	▲	▲	▼	▲	▲	▲	▲	▲	▲	▼	▲	▲	▲	▲	▲	▲	▲	▲	▼	▼	▲	▲	▲	▲	▲	▲	▲	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	▲	▲	▲	▲	▲	▲	▲
2	**DBD**	▼	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	▲	▲	▲	▼	▲	▲	▼	▲	▲	▼	▲	▼	▼	▼	▲	▲	▲	▲	▲	▼	▲	▲	▼	▼	▼	▼	▼	▲	▲	▲	▼
3	**HC**	▲	▼	▲	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	▼	▲	▲	▲	▲	▲	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
5	**DL**	–	–	▲	▲	▲	–	▲	▲	▲	▲	▲	–	▲	▲	–	▲	▲	▲	–	–	–	▲	–	▲	–	–	–	▲	▲	▲	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	–	–	▲	▲	▲	▲	▲	▲
4	**TS**	–	▲	▲	▲	▲	–	▼	▲	▼	▲	▲	▲	▲	▲	▼	–	▼	▲	▲	▼	▲	▲	▼	▼	▼	–	▼	▼	▼	▼	▲	▲	▲	▲	▼	▲	▲	▼	▲	▲	▼	–	–	▲	▲	▲	▲	▼	▲
6	**HM**	–	–	–	–	▲	–	▲	–	▲	▲	▲	▲	▲	–	▲	▲	–	▲	–	▲	▲	▲	▲	▲	▲	▲	▲	–	▲	–	▲	▲	–	▲	▲	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	▲	▲
Attributes of MNSs																																																		
7	**OBS**	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▼	–	▼	▲	▲	▲	▲	▲
8	**FC**	▼	–	▼	▼	▼	▼	▼	▼	▲	▼	▼	▲	▲	▲	▼	▲	▲	▲	▼	▼	▼	▲	▼	▲	▲	▼	▲	▲	▲	▲	▼	▼	▼	▼	▼	▼	▲	▲	▲	▼	▲	–	▲	–	▲	▲	▲	▼	▲
9	**RAV**	–	▲	▲	▲	▲	▼	▲	▼	▲	▲	▼	▼	▼	▲	▼	▲	▲	▼	▲	▲	▲	▼	▲	▼	▼	▼	▲	▲	▲	▼	▼	▼	▼	▲	▲	▼	▼	▼	▼	▼	▲	▼	▼	▼	▼	▲	▲	▲	▲

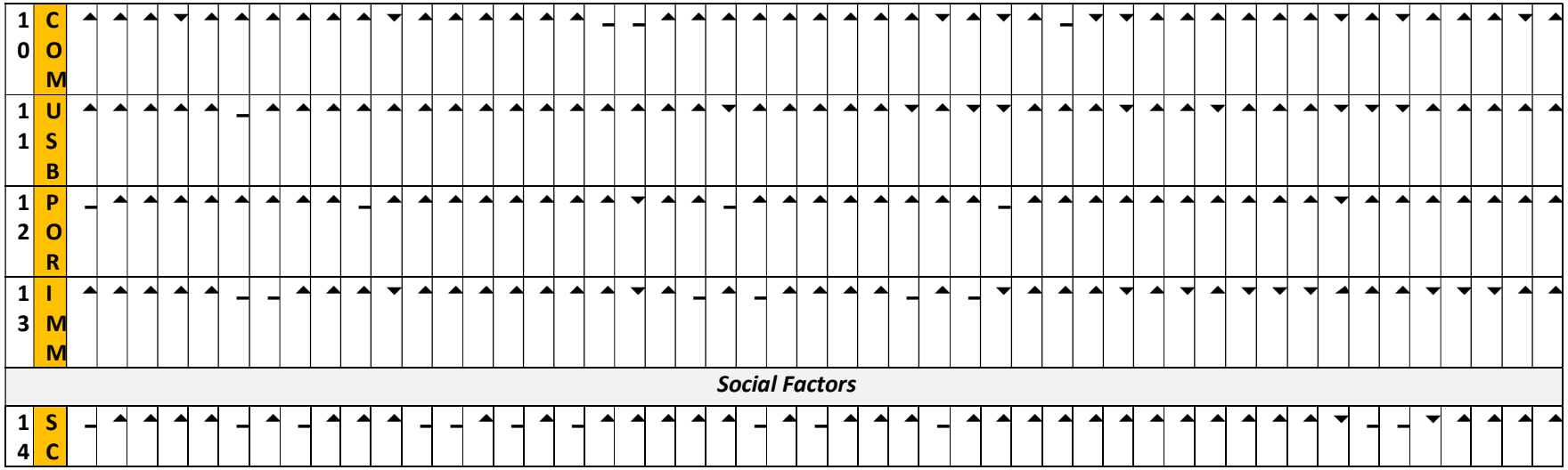
10 COM
11 USB
12 POR
13 IMM
Social Factors
14 SC

Table APD 4: Analysis: Research Participant Profiles																															
		Attributes of Adopter												Attributes of MNSs														Social Factors			
		AA1		AA2		AA3		AA4		AA5		AA6		AI1		AI2		AI3		AI4		AI5		AI6		AI7		AI8			
C	UT	DI	#	DBD	#	HC	#	TS	#	DL	#	HM	#	OBS	#	FC	#	USB	#	COM	#	RAV	#	POR	#	IM	#	SC	#		
1	EU	High	2	Low	3	High	3	Low	0	Low	0	Low	0	High	2	Low	1	High	1	High	2	Low	0	Low	0	High	1	Low	0		
2	EU	Low	3	Low	4	Low	5	High	2	Low	0	Low	0	High	4	Low	0	High	1	High	4	High	2	High	3	High	1	High	2		
4	EU	High	3	High	3	High	1	High	4	High	2	Low	0	High	3	Low	1	High	1	High	1	High	2	High	2	High	1	High	1		
5	EU	High	3	High	4	Low	4	High	2	High	4	Low	0	High	4	Low	3	High	2	Low	1	High	5	High	3	High	2	High	1		
6	EU	High	2	High	4	High	3	High	3	High	3	High	1	High	2	Low	3	High	1	High	1	High	3	High	2	High	3	High	2		
7	PEU	Low	2	High	2	High	1	Low	0	Low	0	Low	0	High	1	Low	1	Low	0	High	4	Low	1	High	1	Low	0	Low	0		
8	EU	High	3	High	4	High	3	Low	1	High	3	High	1	High	4	Low	2	High	4	High	2	High	4	High	2	Low	0	High	1		
9	EU	High	5	High	4	High	4	High	1	High	1	Low	0	High	3	Low	2	High	3	High	4	Low	3	High	1	High	2	Low	0		
10	EU	High	3	High	3	High	1	Low	2	High	1	High	1	High	2	High	3	High	5	High	7	High	2	High	3	High	1	High	1		
11	EU	High	3	High	5	High	4	High	2	High	1	High	2	High	2	Low	6	High	4	High	2	High	3	Low	0	High	2	High	1		
12	PEU	High	4	High	4	High	4	High	4	High	2	High	1	High	7	Low	4	High	3	Low	5	Low	1	High	2	Low	1	High	1		
13	EU	High	5	High	5	High	6	High	3	Low	0	High	2	High	2	High	1	High	3	High	2	Low	2	High	2	High	3	Low	0		
14	EU	Low	3	High	3	High	3	High	1	High	2	High	1	High	1	High	3	High	2	High	2	Low	1	High	3	High	2	Low	0		
15	EU	High	4	High	5	High	3	High	2	High	1	Low	0	Low	4	High	1	High	3	High	4	High	2	High	3	High	1	High	1		
16	EU	High	4	High	3	High	3	Low	1	Low	0	High	1	High	4	Low	3	High	2	High	2	Low	1	High	3	High	1	High	1		

17	EU	High	6	High	3	High	4	High	1	High	3	High	2	High	4	High	2	High	6	High	2	High	1	High	1	High	3	High	4
18	EU	High	6	High	7	High	6	Low	2	High	3	Low	0	High	4	High	1	High	3	High	5	High	5	High	3	High	2	Low	0
19	EU	High	6	Low	2	High	4	High	2	High	2	High	1	High	3	High	5	High	1	Low	0	Low	3	High	2	High	1	High	1
20	EU	High	7	High	3	High	6	High	1	Low	0	Low	0	High	7	Low	1	High	1	Low	0	High	1	Low	3	Low	1	High	1
21	EU	High	4	High	5	High	2	Low	2	Low	0	High	2	High	7	Low	4	High	4	High	1	High	3	High	3	High	2	High	4
22	EU	High	1	High	5	High	3	High	2	Low	0	High	2	High	9	Low	1	High	1	High	2	High	3	High	1	Low	0	High	2
23	EU	Low	9	Low	3	High	3	High	1	High	1	High	4	High	8	High	2	Low	1	High	1	Low	2	Low	0	High	1	High	3
24	EU	Low	10	High	5	High	5	Low	4	Low	0	High	4	High	4	Low	1	High	2	High	4	High	3	High	4	Low	0	Low	0
25	EU	High	5	High	3	High	3	Low	3	High	2	High	2	High	7	High	4	High	3	High	2	Low	2	High	2	High	1	High	4
26	EU	High	6	Low	3	High	3	Low	2	Low	0	High	2	High	4	High	2	High	2	High	2	Low	3	High	1	High	1	Low	0
27	EU	High	4	High	4	High	3	Low	0	Low	0	High	1	High	8	Low	4	High	4	High	2	Low	2	High	3	High	1	High	2
28	**PEU**	High	6	High	5	High	4	Low	2	Low	0	High	2	High	7	High	5	High	4	High	3	High	2	High	1	High	2	High	1
29	EU	High	3	Low	3	High	3	Low	1	High	1	Low	0	High	2	High	5	Low	1	High	1	High	3	High	4	Low	0	High	2
30	**PEU**	High	4	High	6	High	3	Low	6	High	2	High	2	High	4	High	3	High	4	Low	1	High	2	High	4	High	1	Low	0
31	EU	High	2	Low	2	High	4	Low	1	High	1	Low	0	Low	4	High	5	Low	3	High	3	Low	2	High	1	Low	0	High	1
32	**PEU**	Low	5	Low	1	Low	5	High	5	Low	0	High	1	Low	1	Low	3	Low	3	Low	1	Low	3	Low	0	Low	1	High	1
33	EU	High	5	Low	4	Low	3	High	3	High	4	High	1	High	7	Low	3	High	3	High	3	Low	4	High	7	High	3	High	4
34	**PEU**	High	4	High	5	High	1	High	4	High	4	Low	0	High	4	Low	7	High	1	Low	0	Low	2	High	2	High	1	High	3
35	EU	High	5	High	3	High	2	High	2	High	2	High	1	High	1	Low	5	High	2	Low	4	High	1	High	1	High	2	High	3
36	EU	High	7	High	6	High	4	Low	1	High	9	High	2	High	3	Low	4	Low	3	Low	3	High	3	High	3	Low	1	High	1

37	EU	High	6	High	5	High	5	High	5	High	3	High	1	High	9	Low	2	High	1	High	3	Low	3	High	2	High	3	High	4
38	EU	High	8	High	4	High	1	High	3	High	2	High	4	High	2	High	1	High	1	High	3	Low	2	High	2	Low	2	High	4
39	**PEU**	High	2	Low	2	Low	9	Low	2	High	1	High	1	High	1	High	1	Low	7	High	1	Low	6	High	2	High	4	High	1
40	**PEU**	High	6	High	5	High	4	High	3	High	1	Low	0	High	4	High	6	High	1	High	5	Low	1	High	1	Low	1	High	1
41	**PEU**	High	4	High	4	High	2	High	3	High	3	High	2	High	1	Low	4	High	4	High	2	Low	5	High	3	Low	1	High	2
42	EU	High	6	Low	3	High	5	Low	2	High	2	High	3	High	6	High	1	High	2	High	1	High	3	High	3	High	1	High	1
43	**PEU**	Low	6	Low	4	High	3	Low	0	Low	0	High	3	Low	3	Low	0	Low	7	Low	10	Low	1	Low	2	Low	1	Low	1
44	EU	High	8	Low	5	High	4	Low	0	Low	0	High	2	Low	0	High	8	Low	3	High	2	Low	2	High	1	High	3	Low	0
45	EU	High	4	Low	4	High	5	High	5	High	2	High	1	Low	3	Low	0	Low	1	Low	2	Low	3	High	2	High	4	Low	0
46	**PEU**	High	13	Low	5	High	1	High	8	High	3	High	4	High	9	High	2	High	8	High	3	Low	2	High	2	Low	5	Low	0
47	EU	High	11	High	6	High	4	High	3	High	6	High	3	High	5	High	1	High	5	High	2	High	2	High	2	Low	2	High	1
48	**PEU**	High	6	High	3	High	4	High	3	High	4	Low	0	High	6	High	5	High	3	High	1	High	1	High	2	Low	2	High	3
49	EU	High	8	High	5	High	3	Low	4	High	7	High	3	High	7	Low	3	High	7	Low	2	High	1	High	3	High	3	High	5
50	EU	High	9	Low	6	High	4	High	6	High	7	High	2	High	11	High	2	High	11	High	1	High	4	High	3	High	4	High	4
		T	**251**	**T**	**195**	**T**	**173**	**T**	**120**	**T**	**95**	**T**	**68**	**T**	**210**	**T**	**137**	**T**	**148**	**T**	**121**	**T**	**118**	**T**	**106**	**T**	**81**	**T**	**76**

Co-occurrence Indices

	Compatibility	Desire to be Ir	Drive to Bond	Drive to Learn	Facilitating Cc	Habitual Conv	Hedonic Moti	Immediacy	Observability	Portability	Relative Adva	Social Concer	Trust Sensitivi	Usability
Compatibility		9 - 0,02	3 - 0,01	1 - 0,00	5 - 0,02	7 - 0,02	2 - 0,01	4 - 0,02	12 - 0,04	11 - 0,05	17 - 0,08	n/a	2 - 0,01	18 - 0,07
Desire to be Informed	9 - 0,02		6 - 0,01	11 - 0,03	18 - 0,05	25 - 0,06	9 - 0,03	16 - 0,05	27 - 0,06	4 - 0,01	10 - 0,03	6 - 0,02	6 - 0,02	12 - 0,03
Drive to Bond and Defend	3 - 0,01	6 - 0,01		11 - 0,04	4 - 0,01	4 - 0,01	2 - 0,01	2 - 0,01	8 - 0,02	n/a	3 - 0,01	14 - 0,05	14 - 0,05	1 - 0,00
Drive to Learn	1 - 0,00	11 - 0,03	11 - 0,04		2 - 0,01	7 - 0,03	4 - 0,03	3 - 0,02	4 - 0,01	1 - 0,01	23 - 0,12	17 - 0,11	2 - 0,01	n/a
Facilitating Conditions	5 - 0,02	18 - 0,05	4 - 0,01	2 - 0,01		3 - 0,01	n/a	n/a	11 - 0,03	13 - 0,06	6 - 0,02	1 - 0,00	4 - 0,02	8 - 0,03
Habitual Convenience	7 - 0,02	25 - 0,06	4 - 0,01	7 - 0,03	3 - 0,01		4 - 0,02	9 - 0,04	6 - 0,02	29 - 0,12	3 - 0,01	2 - 0,01	1 - 0,00	4 - 0,01
Hedonic Motivation	2 - 0,01	9 - 0,03	2 - 0,01	4 - 0,03	n/a	4 - 0,02		1 - 0,01	7 - 0,03	n/a	5 - 0,03	3 - 0,02	2 - 0,01	4 - 0,02
Immediacy	4 - 0,02	16 - 0,05	2 - 0,01	3 - 0,02	n/a	9 - 0,04	1 - 0,01		3 - 0,01	6 - 0,03	2 - 0,01	1 - 0,01	2 - 0,01	4 - 0,02
Observability	12 - 0,04	27 - 0,06	8 - 0,02	4 - 0,01	11 - 0,03	6 - 0,02	7 - 0,03	3 - 0,01		4 - 0,01	4 - 0,01	7 - 0,03	17 - 0,05	36 - 0,11
Portability	11 - 0,05	4 - 0,01	n/a	1 - 0,01	13 - 0,06	29 - 0,12	n/a	6 - 0,03	4 - 0,01		2 - 0,01	n/a	n/a	24 - 0,10
Relative Advantage and Va	17 - 0,08	10 - 0,03	3 - 0,01	23 - 0,12	6 - 0,02	3 - 0,01	5 - 0,03	2 - 0,01	4 - 0,01	2 - 0,01		3 - 0,02	n/a	4 - 0,02
Social Concerns	n/a	6 - 0,02	14 - 0,05	17 - 0,11	1 - 0,00	2 - 0,01	3 - 0,02	1 - 0,01	7 - 0,03	n/a	3 - 0,02		6 - 0,03	1 - 0,00
Trust Sensitivities	2 - 0,01	6 - 0,02	14 - 0,05	2 - 0,01	4 - 0,02	1 - 0,00	2 - 0,01	2 - 0,01	17 - 0,05	n/a	n/a	6 - 0,03		5 - 0,02
Usability	18 - 0,07	12 - 0,03	1 - 0,00	n/a	8 - 0,03	4 - 0,01	4 - 0,02	4 - 0,02	36 - 0,11	24 - 0,10	4 - 0,02	1 - 0,00	5 - 0,02	

APPENDIX E: QUANTITATIVE DATA ANALYSIS

Codes for selected themes

	Attributes of Adopter	
AA1	Desire to be Informed	DI
AA2	Drive to Bond and Defend	DBD
AA3	Habitual Convenience	HC
AA4	Trust Sensitivities	TS
AA5	Drive to Learn	DL
AA6	Hedonic Motivation	HM
	Attributes of MNSs	
AI1	Observability	OBS
AI2	Facilitating Conditions	FC
AI3	Usability	USB
AI4	Compatibility	COM
AI5	Relative Advantage and Value	RAV
AI6	Portability	POR
AI7	Immediacy	IMM
	Social Factors	
AI8	Social Concerns	SC

Groups	**0**	**No. of research participants**		**1**	**No. of research participants**	**Total no. of research participants**
Age	15-34 (Younger)	33		>34 (Older)	16	49
Education	Postgraduate	24		Non-postgraduate	25	49
Gender	Female	22		Male	27	49
Industry	IT	26		Non-IT	23	49

Table APE 1: Data preparation for statistical tests																
AA1	**AA2**	**AA3**	**AA4**	**AA5**	**AA6**	**AI1**	**AI2**	**AI3**	**AI4**	**AI5**	**AI6**	**AI7**	**AI8**	**Age**	**Education**	**Gender-Code**	**IT/non**
1	0	1	0	0	0	1	0	1	1	0	0	1	0	0	0	0	0
0	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0	0	0
1	1	1	1	1	0	1	0	1	1	1	1	1	1	0	0	0	0
1	1	0	1	1	0	1	0	1	0	1	1	1	1	0	0	0	0
1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0
0	1	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0
1	1	1	0	1	1	1	0	1	1	1	1	0	1	0	0	1	0
1	1	1	1	1	0	1	0	1	1	0	1	1	0	0	1	0	1
1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0
1	1	1	1	1	1	1	0	1	1	1	0	1	1	0	0	0	0
1	1	1	1	1	1	1	0	1	0	0	1	0	1	1	0	0	0
1	1	1	1	0	1	1	1	1	1	0	1	1	0	1	0	1	0
0	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0	1	0
1	1	1	1	1	0	0	1	1	1	1	1	1	1	0	0	1	0
1	1	1	0	0	1	1	0	1	1	0	1	1	1	0	0	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1
1	1	1	0	1	0	1	1	1	1	1	1	1	0	0	1	0	0
1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	0	0
1	1	1	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0
1	1	1	0	0	1	1	0	1	1	1	1	1	1	0	1	1	0
1	1	1	1	0	1	1	0	1	1	1	1	0	1	0	1	1	0
0	0	1	1	1	1	1	1	0	1	0	0	1	1	0	0	1	0
0	1	1	0	0	1	1	0	1	1	1	1	0	0	0	0	0	0
1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	0	1	0
1	0	1	0	0	1	1	1	1	1	0	1	1	0	0	0	0	0
1	1	1	0	0	1	1	0	1	1	0	1	1	1	0	1	0	0

1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	1
1	0	1	0	1	0	1	1	0	1	1	1	0	1	1	1	0	1
1	1	1	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1
1	0	1	0	1	0	0	1	0	1	0	1	0	1	1	1	0	1
0	0	0	1	0	1	0	0	0	0	0	0	0	1	1	1	1	1
1	0	0	1	1	1	1	0	1	1	0	1	1	1	0	0	1	0
1	1	1	1	1	0	1	0	1	0	0	1	1	1	0	1	1	1
1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1
1	1	1	0	1	1	1	0	0	0	1	1	0	1	1	1	1	1
1	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	1
1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1
1	0	0	0	1	1	1	1	0	1	0	1	1	1	1	1	1	1
1	1	1	1	1	0	1	1	1	1	0	1	0	1	1	1	1	1
1	1	1	1	1	1	1	0	1	1	0	1	0	1	0	1	1	1
1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	1	1
1	0	1	0	0	1	0	1	0	1	0	1	1	0	0	1	1	1
1	0	1	1	1	1	0	0	0	0	0	1	1	0	1	1	1	1
1	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1
1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	1
1	1	1	0	1	1	1	0	1	0	1	1	1	1	0	0	1	0
1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1

Spearman Rank Order Correlations

	Pair of Variables	Table APE 2: Spearman Rank Order Correlations (NEW) MD pairwise deleted Marked correlations are significant at p <,05000			
		Valid N	Spearman R	t(N-2)	p-value
1	AA1 & AA1				
2	AA1 & AA2	49	0,213201	1,49603	0,141332
3	AA1 & AA3	49	0,247717	1,75289	0,086141
4	AA1 & AA4	49	0,000000	0,00000	1,000000
5	AA1 & AA5	49	0,361551	2,65851	0,010695
6	AA1 & AA6	49	0,000000	0,00000	1,000000
7	AA1 & AI1	49	0,203331	1,42371	0,161135
8	AA1 & AI2	49	0,150251	1,04189	0,302791
9	AA1 & AI3	49	0,372104	2,74838	0,008469
10	AA1 & AI4	49	0,038749	0,26585	0,791517
11	AA1 & AI5	49	0,166667	1,15882	0,252385
12	AA1 & AI6	49	0,381246	2,82722	0,006877
13	AA1 & AI7	49	0,192539	1,34515	0,185033
14	AA1 & AI8	49	0,283069	2,02338	0,048741
15	AA1 & Age	49	0,035533	0,24376	0,808478
16	AA1 & Education	49	0,183333	1,27854	0,207337
17	AA1 & Gender-Code	49	-0,016751	-0,11485	0,909051
18	AA1 & IT/non	49	0,150251	1,04189	0,302791
19	AA2 & AA1	49	0,213201	1,49603	0,141332
20	AA2 & AA2				
21	AA2 & AA3	49	0,340353	2,48149	0,016716
22	AA2 & AA4	49	0,100504	0,69253	0,492015
23	AA2 & AA5	49	0,104062	0,71731	0,476735

24	AA2 & AA6	49	-0,055048	-0,37796	0,707159
25	AA2 & AI1	49	0,403701	3,02509	0,004021
26	AA2 & AI2	49	-0,217116	-1,52485	0,133998
27	AA2 & AI3	49	0,511256	4,07829	0,000174
28	AA2 & AI4	49	0,008261	0,05664	0,955073
29	AA2 & AI5	49	0,334014	2,42941	0,018999
30	AA2 & AI6	49	0,270940	1,92965	0,059699
31	AA2 & AI7	49	-0,050379	-0,34582	0,731022
32	AA2 & AI8	49	0,173005	1,20422	0,234534
33	AA2 & Age	49	-0,164773	-1,14528	0,257892
34	AA2 & Education	49	-0,072844	-0,50072	0,618905
35	AA2 & Gender-Code	49	-0,016071	-0,11019	0,912729
36	AA2 & IT/non	49	-0,129914	-0,89826	0,373628
37	AA3 & AA1	49	0,247717	1,75289	0,086141
38	AA3 & AA2	49	0,340353	2,48149	0,016716
39	AA3 & AA3				
40	AA3 & AA4	49	-0,155700	-1,08060	0,285388
41	AA3 & AA5	49	0,068664	0,47185	0,639215
42	AA3 & AA6	49	0,085280	0,58679	0,560153
43	AA3 & AI1	49	0,079750	0,54849	0,585953
44	AA3 & AI2	49	0,181963	1,26865	0,210813
45	AA3 & AI3	49	0,163869	1,13883	0,260547
46	AA3 & AI4	49	0,121585	0,83978	0,405285
47	AA3 & AI5	49	0,060553	0,41589	0,679381
48	AA3 & AI6	49	0,079750	0,54849	0,585953
49	AA3 & AI7	49	-0,104062	-0,71731	0,476735
50	AA3 & AI8	49	-0,202572	-1,41816	0,162739
51	AA3 & Age	49	-0,052813	-0,36258	0,718547

52	AA3 & Education	49	0,074315	0,51089	0,611819
53	AA3 & Gender-Code	49	-0,033195	-0,22770	0,820866
54	AA3 & IT/non	49	0,046869	0,32167	0,749127
55	AA4 & AA1	49	0,000000	0,00000	1,000000
56	AA4 & AA2	49	0,100504	0,69253	0,492015
57	AA4 & AA3	49	-0,155700	-1,08060	0,285388
58	AA4 & AA4				
59	AA4 & AA5	49	0,319569	2,31209	0,025203
60	AA4 & AA6	49	-0,091287	-0,62846	0,532747
61	AA4 & AI1	49	0,053916	0,37017	0,712918
62	AA4 & AI2	49	-0,094438	-0,65034	0,518637
63	AA4 & AI3	49	0,277735	1,98203	0,053340
64	AA4 & AI4	49	-0,109599	-0,75593	0,453464
65	AA4 & AI5	49	-0,058926	-0,40468	0,687551
66	AA4 & AI6	49	-0,071889	-0,49412	0,623522
67	AA4 & AI7	49	-0,024754	-0,16975	0,865932
68	AA4 & AI8	49	0,226848	1,59682	0,117008
69	AA4 & Age	49	-0,100504	-0,69253	0,492015
70	AA4 & Education	49	-0,106066	-0,73128	0,468240
71	AA4 & Gender-Code	49	0,130289	0,90090	0,372236
72	AA4 & IT/non	49	-0,011805	-0,08094	0,935837
73	AA5 & AA1	49	0,361551	2,65851	0,010695
74	AA5 & AA2	49	0,104062	0,71731	0,476735
75	AA5 & AA3	49	0,068664	0,47185	0,639215
76	AA5 & AA4	49	0,319569	2,31209	0,025203
77	AA5 & AA5				
78	AA5 & AA6	49	-0,028006	-0,19207	0,848513
79	AA5 & AI1	49	0,157138	1,09083	0,280908

80	AA5 & AI2	49	0,269805	1,92093	0,060818
81	AA5 & AI3	49	0,103143	0,71091	0,480656
82	AA5 & AI4	49	-0,069349	-0,47658	0,635872
83	AA5 & AI5	49	0,119312	0,82385	0,414189
84	AA5 & AI6	49	0,292221	2,09480	0,041605
85	AA5 & AI7	49	0,074042	0,50901	0,613130
86	AA5 & AI8	49	0,302938	2,17924	0,034360
87	AA5 & Age	49	0,084791	0,58340	0,562413
88	AA5 & Education	49	0,057848	0,39725	0,692980
89	AA5 & Gender-Code	49	0,112645	0,77720	0,440933
90	AA5 & IT/non	49	0,181077	1,26227	0,213079
91	AA6 & AA1	49	0,000000	0,00000	1,000000
92	AA6 & AA2	49	-0,055048	-0,37796	0,707159
93	AA6 & AA3	49	0,085280	0,58679	0,560153
94	AA6 & AA4	49	-0,091287	-0,62846	0,532747
95	AA6 & AA5	49	-0,028006	-0,19207	0,848513
96	AA6 & AA6				
97	AA6 & AI1	49	0,039375	0,27015	0,788227
98	AA6 & AI2	49	0,051726	0,35509	0,724110
99	AA6 & AI3	49	0,016013	0,10979	0,913041
100	AA6 & AI4	49	-0,045023	-0,30897	0,758708
101	AA6 & AI5	49	-0,103280	-0,71186	0,480073
102	AA6 & AI6	49	0,039375	0,27015	0,788227
103	AA6 & AI7	49	0,108465	0,74801	0,458179
104	AA6 & AI8	49	0,029235	0,20051	0,841945
105	AA6 & Age	49	0,055048	0,37796	0,707159
106	AA6 & Education	49	0,012910	0,08851	0,929845
107	AA6 & Gender-Code	49	0,428174	3,24823	0,002147

108	AA6 & IT/non	49	0,051726	0,35509	0,724110
109	AI1 & AA1	49	0,203331	1,42371	0,161135
110	AI1 & AA2	49	0,403701	3,02509	0,004021
111	AI1 & AA3	49	0,079750	0,54849	0,585953
112	AI1 & AA4	49	0,053916	0,37017	0,712918
113	AI1 & AA5	49	0,157138	1,09083	0,280908
114	AI1 & AA6	49	0,039375	0,27015	0,788227
115	AI1 & AI1				
116	AI1 & AI2	49	-0,022913	-0,15712	0,875819
117	AI1 & AI3	49	0,583216	4,92213	0,000011
118	AI1 & AI4	49	0,221595	1,55791	0,125963
119	AI1 & AI5	49	0,241456	1,70581	0,094644
120	AI1 & AI6	49	0,240310	1,69722	0,096269
121	AI1 & AI7	49	0,120117	0,82948	0,411024
122	AI1 & AI8	49	0,198571	1,38900	0,171381
123	AI1 & Age	49	-0,270940	-1,92965	0,059699
124	AI1 & Education	49	-0,241456	-1,70581	0,094644
125	AI1 & Gender-Code	49	-0,212019	-1,48734	0,143603
126	AI1 & IT/non	49	-0,272410	-1,94095	0,058274
127	AI2 & AA1	49	0,150251	1,04189	0,302791
128	AI2 & AA2	49	-0,217116	-1,52485	0,133998
129	AI2 & AA3	49	0,181963	1,26865	0,210813
130	AI2 & AA4	49	-0,094438	-0,65034	0,518637
131	AI2 & AA5	49	0,269805	1,92093	0,060818
132	AI2 & AA6	49	0,051726	0,35509	0,724110
133	AI2 & AI1	49	-0,022913	-0,15712	0,875819
134	AI2 & AI2				
135	AI2 & AI3	49	-0,031060	-0,21304	0,832215

136	AI2 & AI4	49	0,345444	2,52360	0,015055
137	AI2 & AI5	49	-0,021703	-0,14882	0,882330
138	AI2 & AI6	49	0,226584	1,59486	0,117446
139	AI2 & AI7	49	0,084157	0,57901	0,565349
140	AI2 & AI8	49	-0,083172	-0,57218	0,569924
141	AI2 & Age	49	0,129914	0,89826	0,373628
142	AI2 & Education	49	0,103506	0,71343	0,479105
143	AI2 & Gender-Code	49	-0,055369	-0,38018	0,705527
144	AI2 & IT/non	49	0,180602	1,25885	0,214303
145	AI3 & AA1	49	0,372104	2,74838	0,008469
146	AI3 & AA2	49	0,511256	4,07829	0,000174
147	AI3 & AA3	49	0,163869	1,13883	0,260547
148	AI3 & AA4	49	0,277735	1,98203	0,053340
149	AI3 & AA5	49	0,103143	0,71091	0,480656
150	AI3 & AA6	49	0,016013	0,10979	0,913041
151	AI3 & AI1	49	0,583216	4,92213	0,000011
152	AI3 & AI2	49	-0,031060	-0,21304	0,832215
153	AI3 & AI3				
154	AI3 & AI4	49	0,182637	1,27352	0,209096
155	AI3 & AI5	49	0,293549	2,10522	0,040644
156	AI3 & AI6	49	0,274269	1,95527	0,056511
157	AI3 & AI7	49	0,269209	1,91635	0,061413
158	AI3 & AI8	49	0,154486	1,07197	0,289207
159	AI3 & Age	49	-0,403275	-3,02129	0,004064
160	AI3 & Education	49	-0,293549	-2,10522	0,040644
161	AI3 & Gender-Code	49	-0,151669	-1,05196	0,298196
162	AI3 & IT/non	49	-0,335453	-2,44120	0,018459
163	AI4 & AA1	49	0,038749	0,26585	0,791517

164	AI4 & AA2	49	0,008261	0,05664	0,955073
165	AI4 & AA3	49	0,121585	0,83978	0,405285
166	AI4 & AA4	49	-0,109599	-0,75593	0,453464
167	AI4 & AA5	49	-0,069349	-0,47658	0,635872
168	AI4 & AA6	49	-0,045023	-0,30897	0,758708
169	AI4 & AI1	49	0,221595	1,55791	0,125963
170	AI4 & AI2	49	0,345444	2,52360	0,015055
171	AI4 & AI3	49	0,182637	1,27352	0,209096
172	AI4 & AI4				
173	AI4 & AI5	49	-0,011625	-0,07970	0,936814
174	AI4 & AI6	49	0,221595	1,55791	0,125963
175	AI4 & AI7	49	0,083424	0,57393	0,568752
176	AI4 & AI8	49	-0,019744	-0,13538	0,892888
177	AI4 & Age	49	-0,311866	-2,25028	0,029151
178	AI4 & Education	49	-0,083311	-0,57314	0,569280
179	AI4 & Gender-Code	49	-0,036997	-0,25381	0,800746
180	AI4 & IT/non	49	-0,130027	-0,89905	0,373209
181	AI5 & AA1	49	0,166667	1,15882	0,252385
182	AI5 & AA2	49	0,334014	2,42941	0,018999
183	AI5 & AA3	49	0,060553	0,41589	0,679381
184	AI5 & AA4	49	-0,058926	-0,40468	0,687551
185	AI5 & AA5	49	0,119312	0,82385	0,414189
186	AI5 & AA6	49	-0,103280	-0,71186	0,480073
187	AI5 & AI1	49	0,241456	1,70581	0,094644
188	AI5 & AI2	49	-0,021703	-0,14882	0,882330
189	AI5 & AI3	49	0,293549	2,10522	0,040644
190	AI5 & AI4	49	-0,011625	-0,07970	0,936814
191	AI5 & AI5				

192	AI5 & AI6	49	0,116916	0,80707	0,423693
193	AI5 & AI7	49	0,028006	0,19207	0,848513
194	AI5 & AI8	49	0,311376	2,24636	0,029419
195	AI5 & Age	49	0,014213	0,09745	0,922782
196	AI5 & Education	49	-0,020000	-0,13714	0,891506
197	AI5 & Gender-Code	49	-0,182582	-1,27312	0,209237
198	AI5 & IT/non	49	-0,103506	-0,71343	0,479105
199	AI6 & AA1	49	0,381246	2,82722	0,006877
200	AI6 & AA2	49	0,270940	1,92965	0,059699
201	AI6 & AA3	49	0,079750	0,54849	0,585953
202	AI6 & AA4	49	-0,071889	-0,49412	0,623522
203	AI6 & AA5	49	0,292221	2,09480	0,041605
204	AI6 & AA6	49	0,039375	0,27015	0,788227
205	AI6 & AI1	49	0,240310	1,69722	0,096269
206	AI6 & AI2	49	0,226584	1,59486	0,117446
207	AI6 & AI3	49	0,274269	1,95527	0,056511
208	AI6 & AI4	49	0,221595	1,55791	0,125963
209	AI6 & AI5	49	0,116916	0,80707	0,423693
210	AI6 & AI6				
211	AI6 & AI7	49	0,120117	0,82948	0,411024
212	AI6 & AI8	49	0,057557	0,39525	0,694450
213	AI6 & Age	49	-0,005419	-0,03715	0,970523
214	AI6 & Education	49	0,132165	0,91410	0,365330
215	AI6 & Gender-Code	49	0,038317	0,26288	0,793793
216	AI6 & IT/non	49	0,101836	0,70180	0,486266
217	AI7 & AA1	49	0,192539	1,34515	0,185033
218	AI7 & AA2	49	-0,050379	-0,34582	0,731022
219	AI7 & AA3	49	-0,104062	-0,71731	0,476735

220	AI7 & AA4	49	-0,024754	-0,16975	0,865932
221	AI7 & AA5	49	0,074042	0,50901	0,613130
222	AI7 & AA6	49	0,108465	0,74801	0,458179
223	AI7 & AI1	49	0,120117	0,82948	0,411024
224	AI7 & AI2	49	0,084157	0,57901	0,565349
225	AI7 & AI3	49	0,269209	1,91635	0,061413
226	AI7 & AI4	49	0,083424	0,57393	0,568752
227	AI7 & AI5	49	0,028006	0,19207	0,848513
228	AI7 & AI6	49	0,120117	0,82948	0,411024
229	AI7 & AI7				
230	AI7 & AI8	49	-0,049547	-0,34010	0,735300
231	AI7 & Age	49	-0,223906	-1,57501	0,121963
232	AI7 & Education	49	-0,199540	-1,39605	0,169259
233	AI7 & Gender-Code	49	0,117864	0,81371	0,419915
234	AI7 & IT/non	49	-0,173574	-1,20831	0,232974
235	AI8 & AA1	49	0,283069	2,02338	0,048741
236	AI8 & AA2	49	0,173005	1,20422	0,234534
237	AI8 & AA3	49	-0,202572	-1,41816	0,162739
238	AI8 & AA4	49	0,226848	1,59682	0,117008
239	AI8 & AA5	49	0,302938	2,17924	0,034360
240	AI8 & AA6	49	0,029235	0,20051	0,841945
241	AI8 & AI1	49	0,198571	1,38900	0,171381
242	AI8 & AI2	49	-0,083172	-0,57218	0,569924
243	AI8 & AI3	49	0,154486	1,07197	0,289207
244	AI8 & AI4	49	-0,019744	-0,13538	0,892888
245	AI8 & AI5	49	0,311376	2,24636	0,029419
246	AI8 & AI6	49	0,057557	0,39525	0,694450
247	AI8 & AI7	49	-0,049547	-0,34010	0,735300

248	AI8 & AI8				
249	AI8 & Age	49	0,024140	0,16555	0,869225
250	AI8 & Education	49	0,058501	0,40175	0,689689
251	AI8 & Gender-Code	49	0,201043	1,40701	0,166003
252	AI8 & IT/non	49	0,102075	0,70347	0,485235
253	Age & AA1	49	0,035533	0,24376	0,808478
254	Age & AA2	49	-0,164773	-1,14528	0,257892
255	Age & AA3	49	-0,052813	-0,36258	0,718547
256	Age & AA4	49	-0,100504	-0,69253	0,492015
257	Age & AA5	49	0,084791	0,58340	0,562413
258	Age & AA6	49	0,055048	0,37796	0,707159
259	Age & AI1	49	-0,270940	-1,92965	0,059699
260	Age & AI2	49	0,129914	0,89826	0,373628
261	Age & AI3	49	-0,403275	-3,02129	0,004064
262	Age & AI4	49	-0,311866	-2,25028	0,029151
263	Age & AI5	49	0,014213	0,09745	0,922782
264	Age & AI6	49	-0,005419	-0,03715	0,970523
265	Age & AI7	49	-0,223906	-1,57501	0,121963
266	Age & AI8	49	0,024140	0,16555	0,869225
267	Age & Age				
268	Age & Education	49	0,421071	3,18262	0,002588
269	Age & Gender-Code	49	0,103566	0,71385	0,478849
270	Age & IT/non	49	0,478723	3,73814	0,000502
271	Education & AA1	49	0,183333	1,27854	0,207337
272	Education & AA2	49	-0,072844	-0,50072	0,618905
273	Education & AA3	49	0,074315	0,51089	0,611819
274	Education & AA4	49	-0,106066	-0,73128	0,468240
275	Education & AA5	49	0,057848	0,39725	0,692980

276	Education & AA6	49	0,012910	0,08851	0,929845
277	Education & AI1	49	-0,241456	-1,70581	0,094644
278	Education & AI2	49	0,103506	0,71343	0,479105
279	Education & AI3	49	-0,293549	-2,10522	0,040644
280	Education & AI4	49	-0,083311	-0,57314	0,569280
281	Education & AI5	49	-0,020000	-0,13714	0,891506
282	Education & AI6	49	0,132165	0,91410	0,365330
283	Education & AI7	49	-0,199540	-1,39605	0,169259
284	Education & AI8	49	0,058501	0,40175	0,689689
285	Education & Age	49	0,421071	3,18262	0,002588
286	Education & Education				
287	Education & Gender-Code	49	0,182582	1,27312	0,209237
288	Education & IT/non	49	0,757931	7,96541	0,000000
289	Gender-Code & AA1	49	-0,016751	-0,11485	0,909051
290	Gender-Code & AA2	49	-0,016071	-0,11019	0,912729
291	Gender-Code & AA3	49	-0,033195	-0,22770	0,820866
292	Gender-Code & AA4	49	0,130289	0,90090	0,372236
293	Gender-Code & AA5	49	0,112645	0,77720	0,440933
294	Gender-Code & AA6	49	0,428174	3,24823	0,002147
295	Gender-Code & AI1	49	-0,212019	-1,48734	0,143603
296	Gender-Code & AI2	49	-0,055369	-0,38018	0,705527
297	Gender-Code & AI3	49	-0,151669	-1,05196	0,298196
298	Gender-Code & AI4	49	-0,036997	-0,25381	0,800746
299	Gender-Code & AI5	49	-0,182582	-1,27312	0,209237
300	Gender-Code & AI6	49	0,038317	0,26288	0,793793
301	Gender-Code & AI7	49	0,117864	0,81371	0,419915
302	Gender-Code & AI8	49	0,201043	1,40701	0,166003

303	Gender-Code & Age	49	0,103566	0,71385	0,478849
304	Gender-Code & Education	49	0,182582	1,27312	0,209237
305	Gender-Code & Gender-Code				
306	Gender-Code & IT/non	49	0,273491	1,94928	0,057244
307	IT/non-& AA1	49	0,150251	1,04189	0,302791
308	IT/non-& AA2	49	-0,129914	-0,89826	0,373628
309	IT/non-& AA3	49	0,046869	0,32167	0,749127
310	IT/non-& AA4	49	-0,011805	-0,08094	0,935837
311	IT/non-& AA5	49	0,181077	1,26227	0,213079
312	IT/non-& AA6	49	0,051726	0,35509	0,724110
313	IT/non-& AI1	49	-0,272410	-1,94095	0,058274
314	IT/non-& AI2	49	0,180602	1,25885	0,214303
315	IT/non-& AI3	49	-0,335453	-2,44120	0,018459
316	IT/non-& AI4	49	-0,130027	-0,89905	0,373209
317	IT/non-& AI5	49	-0,103506	-0,71343	0,479105
318	IT/non-& AI6	49	0,101836	0,70180	0,486266
319	IT/non-& AI7	49	-0,173574	-1,20831	0,232974
320	IT/non-& AI8	49	0,102075	0,70347	0,485235
321	IT/non-& Age	49	0,478723	3,73814	0,000502
322	IT/non-& Education	49	0,757931	7,96541	0,000000
323	IT/non-& Gender-Code	49	0,273491	1,94928	0,057244
324	IT/non-& IT/non				

Mann-Whitney U Tests

Variable	Table APE 3: Mann-Whitney U Test (w/ continuity correction) (NEW) By variable Age Marked tests are significant at p <,05000									
	Rank Sum Group 1	Rank Sum Group 2	U	Z	p-value	Z adjusted	p-value	Valid N Group 1	Valid N Group 2	2*1sided exact p
AA1	818,0000	407,0000	257,0000	-0,13858	0,889782	-0,22860	0,819181	33	16	0,890975
AA2	868,5000	356,5000	220,5000	0,91676	0,359267	1,12846	0,259128	33	16	0,357528
AA3	834,0000	391,0000	255,0000	0,18122	0,856195	0,34557	0,729663	33	16	0,857737
AA4	853,0000	372,0000	236,0000	0,58630	0,557673	0,68388	0,494054	33	16	0,561520
AA5	803,0000	422,0000	242,0000	-0,45838	0,646679	-0,57410	0,565901	33	16	0,650048
AA6	811,0000	414,0000	250,0000	-0,28782	0,773484	-0,36776	0,713049	33	16	0,775836
AI1	875,0000	350,0000	214,0000	1,05534	0,291269	1,85836	0,063119	33	16	0,294658
AI2	788,5000	436,5000	227,5000	-0,76752	0,442771	-0,88774	0,374682	33	16	0,440518
AI3	916,5000	308,5000	172,5000	1,94013	0,052365	2,77871	0,005458	33	16	0,050366
AI4	900,5000	324,5000	188,5000	1,59901	0,109820	2,14636	0,031845	33	16	0,108017
AI5	821,0000	404,0000	260,0000	-0,07462	0,940517	-0,08616	0,931336	33	16	0,941166
AI6	826,0000	399,0000	263,0000	0,01066	0,991495	0,01877	0,985024	33	16	0,991588
AI7	885,0000	340,0000	204,0000	1,26854	0,204605	1,53834	0,123968	33	16	0,206966
AI8	819,0000	406,0000	258,0000	-0,11726	0,906654	-0,15331	0,878153	33	16	0,907668
Education	706,5000	518,5000	145,5000	-2,51577	0,011878	-2,90496	0,003673	33	16	0,010447
Gender-Code	796,0000	429,0000	235,0000	-0,60762	0,543439	-0,70516	0,480714	33	16	0,547339
IT/non	690,5000	534,5000	129,5000	-2,85689	0,004278	-3,30436	0,000952	33	16	0,003396

variable	Table APE 4: Mann-Whitney U Test (w/ continuity correction) (NEW) By variable Education Marked tests are significant at p <,05000									
	Rank Sum Group 1	Rank Sum Group 2	U	Z	p-value	Z adjusted	p-value	Valid N Group 1	Valid N Group 2	2*1sided exact p
AA1	561,5000	663,5000	261,5000	-0,76000	0,447255	-1,25367	0,209961	24	25	0,444730
AA2	620,5000	604,5000	279,5000	0,40000	0,689157	0,49237	0,622461	24	25	0,684447
AA3	586,5000	638,5000	286,5000	-0,26000	0,794864	-0,49580	0,620035	24	25	0,789042
AA4	631,5000	593,5000	268,5000	0,62000	0,535258	0,72318	0,469568	24	25	0,532033
AA5	584,0000	641,0000	284,0000	-0,31000	0,756561	-0,38826	0,697825	24	25	0,758681
AA6	596,5000	628,5000	296,5000	-0,06000	0,952156	-0,07667	0,938890	24	25	0,944710
AI1	647,5000	577,5000	252,5000	0,94000	0,347218	1,65525	0,097875	24	25	0,345285
AI2	569,0000	656,0000	269,0000	-0,61000	0,541862	-0,70554	0,480472	24	25	0,545164
AI3	671,0000	554,0000	229,0000	1,41000	0,158541	2,01944	0,043442	24	25	0,159876
AI4	621,5000	603,5000	278,5000	0,42000	0,674486	0,56377	0,572910	24	25	0,669926
AI5	606,0000	619,0000	294,0000	0,11000	0,912409	0,12702	0,898927	24	25	0,913216
AI6	574,0000	651,0000	274,0000	-0,51000	0,610052	-0,89806	0,369154	24	25	0,613091
AI7	657,0000	568,0000	243,0000	1,13000	0,258477	1,37033	0,170586	24	25	0,261059
AI8	584,5000	640,5000	284,5000	-0,30000	0,764177	-0,39223	0,694887	24	25	0,758681
Age	481,5000	743,5000	181,5000	-2,36000	0,018276	-2,90496	0,003673	24	25	0,016824
Gender-Code	545,5000	679,5000	245,5000	-1,08000	0,280143	-1,25336	0,210076	24	25	0,278449
IT/non	373,0000	852,0000	73,0000	-4,53000	0,000006	-5,23953	0,000000	24	25	0,000001

variable	Table APE 5: Mann-Whitney U Test (w/ continuity correction) (NEW) By variable Gender-Code Marked tests are significant at p <,05000									
	Rank Sum Group 1	Rank Sum Group 2	U	Z	p-value	Z adjusted	p-value	Valid N Group 1	Valid N Group 2	2*1sided exact p
AA1	553,5000	671,5000	293,5000	0,06030	0,951915	0,09947	0,920763	22	27	0,944439
AA2	554,5000	670,5000	292,5000	0,08040	0,935917	0,09897	0,921163	22	27	0,928601
AA3	556,0000	669,0000	291,0000	0,11055	0,911970	0,21082	0,833029	22	27	0,912791
AA4	511,5000	713,5000	258,5000	-0,76383	0,444970	-0,89095	0,372958	22	27	0,442478
AA5	519,0000	706,0000	266,0000	-0,61307	0,539828	-0,76784	0,442581	22	27	0,543181
AA6	434,5000	790,5000	181,5000	-2,31159	0,020801	-2,95364	0,003141	22	27	0,019273
AI1	591,5000	633,5000	255,5000	0,82413	0,409866	1,45121	0,146721	22	27	0,407608
AI2	566,5000	658,5000	280,5000	0,32161	0,747747	0,37199	0,709903	22	27	0,742416
AI3	586,5000	638,5000	260,5000	0,72363	0,469295	1,03640	0,300016	22	27	0,466624
AI4	559,5000	665,5000	287,5000	0,18091	0,856441	0,24283	0,808135	22	27	0,849949
AI5	604,5000	620,5000	242,5000	1,08544	0,277727	1,25336	0,210076	22	27	0,276054
AI6	542,5000	682,5000	289,5000	-0,14071	0,888103	-0,24777	0,804314	22	27	0,881278
AI7	516,5000	708,5000	263,5000	-0,66332	0,507123	-0,80440	0,421167	22	27	0,504150
AI8	497,0000	728,0000	244,0000	-1,05529	0,291294	-1,37973	0,167671	22	27	0,294191
Age	521,0000	704,0000	268,0000	-0,57287	0,566732	-0,70516	0,480714	22	27	0,569996
Education	495,5000	729,5000	242,5000	-1,08544	0,277727	-1,25336	0,210076	22	27	0,276054
IT/non	468,5000	756,5000	215,5000	-1,62816	0,103492	-1,88318	0,059677	22	27	0,101727

variable	Table APE 6: Mann-Whitney U Test (w/ continuity correction) (NEW) By variable IT/non-Marked tests are significant at p <,05000									
	Rank Sum Group 1	Rank Sum Group 2	U	Z	p-value	Z adjusted	p-value	Valid N Group 1	Valid N Group 2	2*1sided exact p
AA1	618,5000	606,5000	267,5000	-0,62104	0,534576	-1,02444	0,305627	26	23	0,531361
AA2	686,5000	538,5000	262,5000	0,72120	0,470785	0,88774	0,374682	26	23	0,468092
AA3	641,5000	583,5000	290,5000	-0,16027	0,872671	-0,30562	0,759896	26	23	0,866023
AA4	653,5000	571,5000	295,5000	0,06010	0,952076	0,07010	0,944112	26	23	0,944620
AA5	600,0000	625,0000	249,0000	-0,99165	0,321367	-1,24200	0,214239	26	23	0,324441
AA6	636,0000	589,0000	285,0000	-0,27045	0,786813	-0,34557	0,729666	26	23	0,788707
AI1	703,5000	521,5000	245,5000	1,06177	0,288340	1,86967	0,061530	26	23	0,286630
AI2	596,0000	629,0000	245,0000	-1,07179	0,283816	-1,23966	0,215101	26	23	0,286630
AI3	731,0000	494,0000	218,0000	1,61269	0,106813	2,30974	0,020903	26	23	0,107260
AI4	683,5000	541,5000	265,5000	0,66110	0,508547	0,88741	0,374861	26	23	0,505553
AI5	681,0000	544,0000	268,0000	0,61102	0,541187	0,70554	0,480472	26	23	0,544506
AI6	630,0000	595,0000	279,0000	-0,39065	0,696055	-0,68790	0,491517	26	23	0,698615
AI7	699,5000	525,5000	249,5000	0,98164	0,326279	1,19041	0,233886	26	23	0,324441
AI8	623,0000	602,0000	272,0000	-0,53089	0,595498	-0,69410	0,487619	26	23	0,598618
Age	515,5000	709,5000	164,5000	-2,68448	0,007265	-3,30436	0,000952	26	23	0,006266
Education	423,0000	802,0000	72,0000	-4,53757	0,000006	-5,23953	0,000000	26	23	0,000001
Gender-Code	568,5000	656,5000	217,5000	-1,62271	0,104653	-1,88318	0,059677	26	23	0,102895

Chi-square Test

AA6

	Table APE 7: Summary Frequency Table (NEW) Marked cells have counts > 10 (Marginal summaries are not marked)			
	Gender-Code	**AA6 0**	**AA6 1**	Row Totals
Count	0	11	11	22
Row Percent		50,00%	50,00%	
Count	1	3	24	27
Row Percent		11,11%	88,89%	
Count	All Grps	14	35	49

Table APE 8: Summary Table: Expected Frequencies (NEW) Marked cells have counts > 10 Pearson Chi-square: 8,98333, df=1, p=,002725			
Gender-Code	**AA6 0**	**AA6 1**	Row Totals
0	6,28571	15,71429	22,00000
1	7,71429	19,28571	27,00000
All Grps	14,00000	35,00000	49,00000

AI3

	Table APE 9: Summary Frequency Table (NEW) Marked cells have counts > 10 (Marginal summaries are not marked)			
	Age	**AI3 0**	**AI3 1**	Row Totals
Count	0	3	30	33
Row Percent		9,09%	90,91%	
Count	1	7	9	16
Row Percent		43,75%	56,25%	
Count	All Grps	10	39	49

Table APE 10: Summary Table: Expected Frequencies (NEW) Marked cells have counts > 10 Pearson Chi-square: 7,96892, df=1, p=,004759			
Age	**AI3 0**	**AI3 1**	Row Totals
0	6,73469	26,26531	33,00000
1	3,26531	12,73469	16,00000
All Grps	10,00000	39,00000	49,00000

	Table APE 11: Summary Frequency Table (NEW) Marked cells have counts > 10 (Marginal summaries are not marked)			
	Education	**AI3 0**	**AI3 1**	Row Totals
Count	0	2	22	24
Row Percent		8,33%	91,67%	
Count	1	8	17	25
Row Percent		32,00%	68,00%	
Count	All Grps	10	39	49

Table APE 12: Summary Table: Expected Frequencies (NEW) Marked cells have counts > 10 Pearson Chi-square: 4,22238, df=1, p=,039894			
Education	**AI3 0**	**AI3 1**	Row Totals
0	4,89796	19,10204	24,00000
1	5,10204	19,89796	25,00000
All Grps	10,00000	39,00000	49,00000

	Table APE 13: Summary Frequency Table (NEW) Marked cells have counts > 10 (Marginal summaries are not marked)			
	IT/non	**AI3 0**	**AI3 1**	Row Totals
Count	0	2	24	26
Row Percent		7,69%	92,31%	
Count	1	8	15	23
Row Percent		34,78%	65,22%	
Count	All Grps	10	39	49

Table APE 14: Summary Table: Expected Frequencies (NEW) Marked cells have counts > 10 Pearson Chi-square: 5,51392, df=1, p=,018866			
IT/non	**AI3 0**	**AI3 1**	Row Totals
0	5,30612	20,69388	26,00000
1	4,69388	18,30612	23,00000
All Grps	10,00000	39,00000	49,00000

AI4

	Table APE 15: Summary Frequency Table (NEW) Marked cells have counts > 10 (Marginal summaries are not marked)			
	Age	**AI4 0**	**AI4 1**	Row Totals
Count	0	5	28	33
Row Percent		15,15%	84,85%	
Count	1	7	9	16
Row Percent		43,75%	56,25%	
Count	All Grps	12	37	49

Table APE 16: Summary Table: Expected Frequencies (NEW) Marked cells have counts > 10 Pearson Chi-square: 4,76577, df=1, p=,029031			
Age	**AI4 0**	**AI4 1**	Row Totals
0	8,08163	24,91837	33,00000
1	3,91837	12,08163	16,00000
All Grps	12,00000	37,00000	49,00000