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Chavarika, Gugu Valerie (2016) The influence of motives on consumer attitudes toward participating in co-creation activities: a study on digital banking in South Africa, University of the Witwatersrand, Johannesburg, <http://wiredspace.wits.ac.za/handle/10539/21985>

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THE INFLUENCE OF MOTIVES ON CONSUMER ATTITUDES TOWARD PARTICIPATING IN CO-CREATION ACTIVITIES: A STUDY ON DIGITAL BANKING IN SOUTH AFRICA

By

Gugu Valerie Chavarika

A DISSERTATION

Submitted in full fulfilment of the requirements for the degree of

Master of Commerce

(Marketing)

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Under Supervision of

Marike Venter

at the

UNIVERSITY OF THE WITWATERSRAND

2016~~5~~

ABSTRACT

The financial services sector in South Africa is known for its innovative capability worldwide. Although 'concentrated' with few major players, the banking sector remains competitive as each bank continues to broaden its products and services to attract new customers and satisfy its existing client base. Therefore, it is of interest for banks to examine how to motivate consumers to take part in co-creation activities and develop favourable attitudes toward participating in those activities, and ultimately influence adoption intentions. Although significant research has been conducted on consumer motivation, attitudes, perceived characteristics of innovation and innovation adoption, respectively, little is known about the relationships between these constructs in the South African digital banking sector. Thus, the study aims to fill a gap by determining how intrinsic factors influence consumer attitudes toward participating in co-creation activities. Additionally, the study presents the impact of these attitudes on the perceptions consumers have toward innovation and then on adoption intentions. For the purposes of this study, intrinsic motives represent the predictor variable, while adoption intention is the outcome variable. There are four mediators, namely: attitude toward the act, perceived relative advantage, perceived complexity and perceived compatibility. This study undertakes a quantitative research approach in which 339 surveys were distributed online and in person. The findings support all seven hypotheses. Thus, indicating that intrinsic motives have a positive influence on a consumer's attitudes toward participating in co-creation activities. Additionally, favourable attitudes toward the act have a positive relationship with perceived relative advantage and perceived complexity and a negative relationship with perceived complexity. Lastly, the results indicate that relationships exist between perceived relative advantage, perceived complexity and perceived compatibility, respectively and adoption intention. The contributions of this paper are as follows: this study adds to contextual knowledge of consumer motivation on adoption intention. Additionally, the study contributes to current knowledge by using relevant literature and empirical evidence regarding co-creation, motivation, attitudes and innovation in the South African banking industry. Lastly, the study provides guidance to managers on how to better manage their co-creation activities and investments, particularly in the financial services industry, and how to effectively engage and collaborate with their consumers and turn these co-innovation interactions into tangible profits for the firm.

~~The financial services sector in South Africa is known for its innovative capability worldwide. Although 'concentrated' with few major players, the banking sector remains competitive as each bank~~

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continues to broaden its products and services to attract new customers and satisfy its existing client base. Therefore, it is of interest for banks to examine how to motivate consumers to take part in co-creation activities and develop favourable attitudes toward participating that influence adoption intentions. Although significant research has been conducted on consumer motivation, attitudes toward co-creation activities, perceived characteristics of innovation and innovation adoption, respectively, little is known about the relationships between these constructs in the South African digital banking sector. Thus, the study aims to fill a gap by determining what intrinsic and extrinsic factors influence consumer attitudes toward participating in co-creation activities. Additionally, the study presents the impact of these attitudes on the perceptions on innovation and then on adoption intentions. For the purposes of this study, intrinsic motives and extrinsic motives represent the predictor variables with adoption intention as the outcome variable. There are four mediators, namely: attitude toward the act, relative advantage, complexity and compatibility. This study undertakes a quantitative research approach in which 339 surveys were distributed online and in person. The findings support all eight hypotheses. Therefore indicating that intrinsic motives have a positive influence on a consumer's attitudes toward participating in co-creation activities, which in turn has an impact on relative advantage, complexity and compatibility. Lastly, the results indicate that relationships exist between relative advantage, complexity and compatibility, respectively and adoption intention. The contributions of this paper are as follows: this study adds to contextual knowledge of consumer motivation on adoption intention. Additionally, the study contributes to current knowledge by using relevant literature and empirical evidence regarding co-creation, motivation, attitudes and innovation in the South African banking industry. Lastly, the study provides guidance to managers on how to better manage their co-creation activities and investments, particularly in the financial services industry, and how to effectively engage and collaborate with their consumers and turn these co-innovation interactions into tangible profits for the firm.

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Keywords: *consumer motivation, co-creation, digital banking, innovation adoption, attitudes, characteristics of innovations.*

ACKNOWLEDGEMENTS

I owe a great deal of gratitude and appreciation to many people for supporting me in this journey to complete this dissertation. Firstly, I would like to thank Ms. Marike Venter, without her supervision I would never have completed this research. My gratitude also goes out to the rest of the faculty and staff of SEBS – thank you for your dedication and for the knowledge presented on the course. Lastly, I would also like to thank my family and friends for keeping me motivated. Your love, support and

belief in me throughout this journey are appreciated. I am eternally grateful.

DECLARATION

I, Gugu Chavarika, declare that this research report is my own unaided work. It is submitted in full fulfillment of the requirements for the degree of Master of Commerce in Marketing at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Gugu Chavarika

~~November 2015~~January 2016

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CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

'The co-creation paradigm can usher in a new era of wealth creation through new economics of interactions and human experiences.' – Venkat Ramaswamy

South African financial institutions are described as well developed, proactively regulated and on par with global standards (The Banking Association, 2015). Although 'concentrated' with four major players, the banking sector remains competitive as each bank continues to broaden its products and services to attract new customers and satisfy its existing client base (Mlambo & Ncube, 2011). The competitive and dynamic nature of the banking sector is a response to forces of change in the context of technology, customer behaviour and regulation (Grosskopf & Beyers, 2014). In particular, changes in technology and customer behaviour have led to the global emergence of digital banking. Digital banking is an enabler that allows the delivery of financial services. The emphasis of digital banking is on using technology to design meaningful experiences for the consumer (Cross, 2014). Furthermore, digital banking focuses on electronic data and online platforms as the core of a bank's operations, instead of being organiszed around money in branches (Groenfeldt, 2014 and Chong, Ooi & Tan, 2010). Since consumer behaviour is changing, consumers want to the ability to manage their money anytime and anywhere through personalized digital offeringss (Sengupta, Lam & Desmet, 2014), central to the successful implementation of digital banking offerings is the consumer.

Moreover, the pervasiveness of changing consumer behaviour patterns has led to another crucial shift. Co-creation, a still emerging concept (Ind & Coates, 2013), is a creative and social process based on the collaboration between a firm and its consumers to generate valuable and innovative services and products (Roser, et.al, 2009).Roser, Samson, Humphreys, & Cruz-Valdivieso, 2009). Surprisingly, few organisations (e.g. Starbucks, Amazon.com, Dell and LEGO) have realised that they can no longer act autonomously without interaction from consumers in the innovation process (Prahalad & Ramaswamy, 2004). Firms in all industries need to consider the

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implementation of innovative strategies that are consumer-centric to survive the constantly changing marketplace. The future of competition and sustained competitive advantage is based on an individual-centred co-creation system between the firm and its consumers. Despite the small number of organisations implementing co-creation activities, Roberts, ~~Kertbo &~~ Hughes and Kertbo (2014) suggest that the notion of engaging in co-creation activities with consumers is slowly gaining traction.

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Previous research on co-creation suggests the outcomes of ~~of~~ conducting co-creation activities with consumers are abundant and are mutually beneficial for the firm and its consumers (Roberts, Hughes & Kertbo, 2014; Roser, Samson, Humphreys & Cruz-Valdivieso, 2009 and Prahalad & Ramaswamy, 2004). Research shows that some of the benefits of co-creation include value creation for the firm and consumer (Verleye, 2015; Domegan, Collins, Stead, McHugh & Hughes, 2013; Roser, Samson, Humphreys & Cruz-Valdivieso, 2009 and Prahalad & Ramaswamy, 2004); increased consumer loyalty and commitment (Verleye, 2015; García Haro, Martínez Ruiz & Martínez Cañas, 2014 and Roser, DeFillippi & Samson, 2013); strong competitive advantage (García Haro, Martínez Ruiz & Martínez Cañas, 2014 and Roser, DeFillippi & Samson, 2013) and a re-ignition of the firm's growth and innovation capabilities (Bughin, 2014; Roser, Samson, Humphreys & Cruz-Valdivieso, 2009).

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Despite such compelling evidence to the benefits of co-creation a gap exists in the market and in research. Firstly, it appears that innovative co-creation activities do not dominate banking strategies aimed at reigniting growth and profits. The financial services sector in South Africa is known for its innovative capability worldwide and the sector faces similar factors the global marketplace is subjected to such as Internet advancements, connected consumers and a difficult competitive environment (Matoti, 2014). It is time for South African banks to shift to a consumer-centric approach that seeks to co-create value with motivated consumers through personalised interactions. Secondly, more empirical research is necessary to fully understand how co-creation can be used to develop digital banking innovations.

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Thus, the focus of the present study is on the motives that compel consumers to behave in certain ways. In particular, the study aims to fill a gap by determining ~~what~~ how intrinsic ~~and extrinsic~~ factors influence consumer attitudes toward acts such as participating~~ion~~ in co-creation activities in the digital banking industry in South Africa. Additionally, the study presents the impact of these attitudes on the perceptions on innovation and then on adoption intentions.

~~The present paper is structured in the following way: Chapter 1 provides an overview of the research problem, purpose statement, objectives and significance of the study; Chapter 2 discusses the context of the study, while Chapter 3 discusses the theoretical groundings of the study and empirical literature relating to the construct in the study. This is followed by a discussion on the conceptual model and hypotheses development (Chapter 4) the research methodology is covered in Chapter 5, while the statistical analysis is discussed in Chapter 6. The final two chapters discuss the findings of the study (Chapter 7) and the concluding remarks are provided in Chapter 8.~~

1.2 Statement of Research Problem

Many studies have explored the topics found in the present study. For instance, Roberts, Hughes ~~&~~ and Kertbo (2014), Kundagrami (2011), Stubberup (2010) and Prahalad and~~&~~ Ramaswamy (2004) respectively studied the factors that motivate consumers to engage in co-creation activities; the future of co-creation; co-creation in Danish retail banking and what co-creation really is. On the other hand, the motivational factors influencing online buying decisions, whether or not motivational theory still resonates today and how motivation can be used to bring human creativity to organisations that rely on innovation were discussed by Sahney, Ghosh ~~&~~ and Shrivastava (2014), Bassett-Jones ~~&~~ and Lloyd (2005) and Amar (2004) respectively. Furthermore, several studies have focused on specific theories in the field of motivation such as the Expectancy Theory (e.g. Chou & Pearson, 2012; Johnson, 2009 and Lee S., 2007), the Social Exchange Theory (e.g. Lee, Mohamad & Ramayah, 2010 and Sierra & McQuitty, 2005) and the Self-Determination Theory (e.g. Zhao & Zhu, 2014). Moreover, research has been conducted on consumer attitudes in various contexts (e.g. Ishida & Taylor, 2012; Jaafar, Lalp & Naba,

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2012; Ajzen & Fishbein, 2005; Ahmed, 2001; Percy & Rossiter, 1992 and Lutz, 1981). Hosseini, Chileshe, Zuo ~~&~~ and Baroudi (2015), Zhang, Yu, Yan ~~&~~ and Spil, (2015) and Sahin (2006) have used the diffusion of innovation theory in their respective studies when investigating how innovations are adopted into society over time. Lastly Olanrewaju (2014) and in a study conducted by First Data (2014) it was shown that the rise of digital banking is ~~has been~~ enabled by new and emerging technologies and changing consumer behaviour. Although significant research has been conducted on consumer motivation, attitudes toward ~~co-creation activities~~acts and innovation adoption, respectively, little is known about the relationship between these constructs in the South African digital banking sector. This presents a problem: managers and researchers do not understand what motivates consumers to participate in co-creation activities. Additionally, firms are not able to use empirical research to leverage these motives to create effective strategies that could result in cost benefits, increased competitive advantages and stronger loyalty relationships.

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1.3 Research Gap and Justification of the Study

As discussed above, research has been conducted that looks at consumer motivation, attitudes toward co-creation activities, innovation perceptions and adoption intentions, respectively, however there is some knowledge absent from the debate, including a comprehensive examination of how these factors interact with one another in the context of digital banking in South Africa. Understanding the factors that compel consumers to engage in co-creation activities enables firms to leverage their co-creation strategies and innovation processes efficiently and effectively. Additionally, the study determines what happens, in terms of adoption intention; when consumers are allowed participate in co-creation activities. The present study aims to provide firms in the banking sector with empirical and theoretical information that can be adopted to place the firm in a better position where they are able to create the most effective co-creation activities for South African consumers to engage in.

1.43 Purpose Statement

The purpose of the study is to determine how ~~extrinsic and~~ intrinsic motivations influence a South African consumer's attitude toward participating in innovative co-creation activities in the context of digital banking. The study will investigate the impact of these attitudes toward co-creation on a consumer's perceptions of an innovation and how perceptions influence the adoption of digital banking offerings.

1.55 Research Objectives

This section explores the theoretical and empirical research objectives of the study.

1.5.1 Theoretical Objectives

The following theoretical objectives have been developed for the study:

- To review literature on intrinsic ~~and extrinsic~~ motivation;
- To review literature on attitudes toward co-creation activities;
- To review literature on the perceived attributes of innovation; and
- To review literature on adoption intention.

1.5.2 Empirical Objectives

Given the purpose of the study, the following are the empirical objectives:

- To investigate the influence of *intrinsic motives* on a consumer's *attitude* toward engaging in co-creation activities;
- ~~To investigate the influence of *extrinsic motives* on a consumer's *attitude* toward engaging in co-creation activities;~~

- To determine the effect of a consumer's *attitude* toward participating in co-creation activities on the perceived *relative advantage* of an innovation;
- To determine the effect of a consumer's *attitude* toward participating in co-creation activities on the perceived *complexity* of an innovation;
- To determine the effect of a consumer's *attitude* toward participating in co-creation activities on the perceived *compatibility* of an innovation;
- To determine the relationship between a consumer's perceived *relative advantage* of an innovation and the *adoption* of digital banking offerings;
- To determine the relationship between a consumer's perceived *complexity* of an innovation and the *adoption* of digital banking offerings; and
- To determine the relationship between a consumer's perceived *compatibility* of an innovation and the *adoption* of digital banking offerings.

1.6 Research Questions

To address the identified research gap and satisfy the study objectives, the present study is guided by the following research questions:

- To what extent do intrinsic motivators influence a consumer's attitudes toward engaging in co-creation activities?
- ~~To what extent do extrinsic motivators influence a consumer's attitudes toward engaging in co-creation activities?~~
- What effect does a consumer's attitude toward participating in co-creation activities have on the perceived relative advantage of an innovation?
- What effect does a consumer's attitude toward participating in co-creation activities have on the perceived complexity of an innovation?

- What effect does a consumer's attitude toward participating in co-creation activities have on the perceived compatibility of an innovation?
- What kind of relationship exists between a consumer's perceived relative advantage of an innovation and the adoption of digital banking offerings?
- What kind of relationship exists between a consumer's perceived complexity of an innovation and the adoption of digital banking offerings?
- What kind of relationship exists between a consumer's perceived compatibility of an innovation and the adoption of digital banking offerings?

1.7 Significance and Contribution of the Study

The gap in knowledge that this study intends to fill is in the understanding of intrinsic ~~and extrinsic~~ motives that influence consumer attitudes toward participation in co-creation activities. Furthermore, the proposed study will provide insights to how these attitudes affect perceptions of innovations, in terms of relative advantage, complexity and compatibility, and the adoption of innovations. The study will contribute to current knowledge by using relevant literature and empirical evidence regarding co-creation, motivation, attitudes and innovation in the South African banking industry. The intention of the study is to also provide guidance to managers on how to better manage their co-creation activities and investments, particularly in the financial services industry, and how to effectively engage and collaborate with their consumers and turn these co-innovation interactions into tangible profits for the firm.

1.8 Theoretical Framework

This study is grounded in two theories, namely Deci ~~&~~ and Ryan's (1985) Self-Determination theory (SDT) and Rogers' (1962) Diffusion of Innovation theory. A brief explanation of these theories is presented in this section. However, Chapter 3 provides an in-depth discussion on these theories.

Self-Determination Theory by Deci ~~&~~ and Ryan (1985)

Since Deci ~~&~~ and Ryan (1985) first proposed the Self-Determination Theory (SDT), it has been popularly used to examine motivational factors that affect an individual's behavior in various contexts. SDT is focused on the processes through which an individual acquires motivation to initiate new behaviours and maintain them over time (Ryan, Patrick, Deci & Williams, 2008). Furthermore, the theory is broken down into three areas: needs, level of self-determination and type of motivation. In terms of the present study, the type of motivation is of interest. SDT distinguishes between different types of motivation (intrinsic and extrinsic) based on the reasons that give rise to an action, which regulate an individual's behaviour (Teixeira, Carraça, Markland, Silva & Ryan, 2012). Intrinsic motivation occurs when an individual engages in an activity or behaviour because of the inherent pleasure it provides (Miller & Prior, 2010). ~~On the other hand, a consumer who is motivated by extrinsic reasons participates in an activity for instrumental reasons (Teixeira, Carraça, Markland, Silva & Ryan, 2012).~~ Hence, the present study makes use of intrinsic motives ~~and extrinsic motives~~ in the proposed conceptual model and uses these motives to determine what kind of relation exists between the constructs and a consumer's attitudes toward participating in co-creation activities, respectively.

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Diffusion of Innovation Theory by Rogers (1962)

The innovation diffusion model developed by Rogers (1962) is the most popular, in determining how innovations are adopted over time, amongst researchers (e.g. Hosseini, Chileshe, Zuo & Baroudi, 2015; Zhang, Yu, Yan & Spil, 2015 and Sahin, 2006) from various fields such as political science (Sahin, 2006), public health (Aslani & Naaranoja, 2015), and marketing (Murray, 2009). According to Rogers (2003~~10~~): "the diffusion of an innovation is the process in which an innovation is communicated through certain channels over time among members of a social system." This definition suggests that four key elements of the diffusion of innovation exist: (1) innovation, (2) communication channels, (3) time and (4) social system. In

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terms of the present study, the innovation element is of importance as the theory proposes five attributes (or perceived characteristics) of an innovation, which help consumers decide whether or not to adopt an innovation and the rate at which the innovation is likely to be adopted. Moreover, the present study makes use of three of the characteristics (perceived relative advantage, perceived compatibility and perceived complexity) in the proposed conceptual model and uses these to determine what kind of relation exists between the constructs and adoption intention, respectively. According to Murray (2009), relative advantage, complexity and compatibility are the most significant characteristics in determining adoption intentions. Based on the theory, consumers who believe that an innovation provides a relative advantage and is compatible with their current values and knowledge are more likely to adopt the innovation (Ganiyu & Adeosun, 2013). However, if a consumer believes an innovation is complex, he/she is less likely to adopt the innovation (Reynolds & De Maya, 2013).

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1.9 Definitions

This section provides brief definitions of important concepts found in the thesis. A more comprehensive discussion is provided in Chapter 2 and in Chapter 3.

Adoption Intention: the strength of a consumer's intention to use a product or service once they are aware of its attributes

Attitudes: a learned predisposition to respond in a consistently favourable or unfavourable manner

Co-creation: an active, creative and social process based on collaboration between a firm and its consumers

Compatibility: the degree to which an innovation is consistent with a consumer's existing values and needs

Complexity: describes a consumer's perceived level of difficulty in understanding and using an innovation

Digital banking: use of electronic data and online platforms as the core of a bank's operations

~~***Extrinsic motivation:*** activity is performed in order to obtain a separable outcome~~

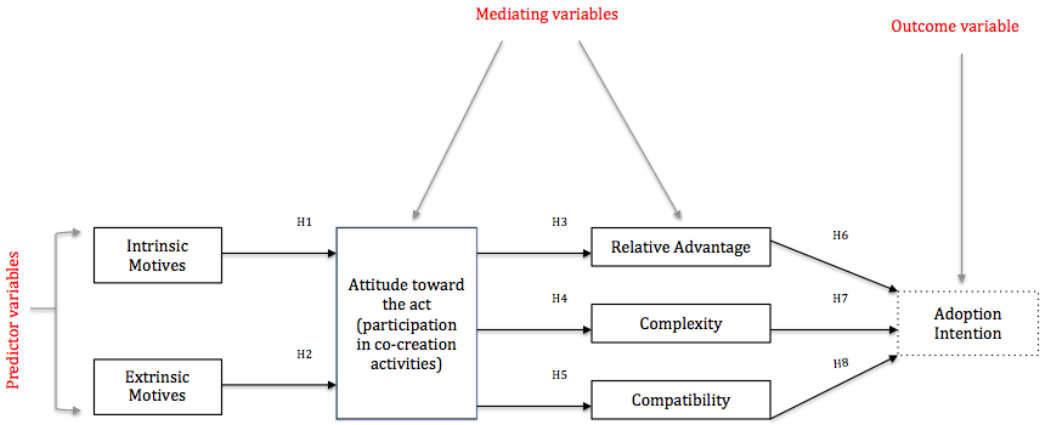
Innovation: process of making changes, radical and incremental, to products, processes and services that result in the introduction of something new

Intrinsic motivation: engaging in an activity or behaviour because of the inherent pleasure it provides

Relative advantage: degree to which an innovation is considered as being superior to the idea it has replaced

1.10 Conceptual Model and Hypotheses

Figure 1.1 presents the proposed conceptual model for the study. Firstly, intrinsic motives ~~and extrinsic motives~~ represent the predictor variable with adoption intention as the outcome variable. Within the proposed model, there are four mediators, namely: attitude toward the act, perceived relative advantage, perceived complexity and perceived compatibility. It is therefore proposed that intrinsic ~~and extrinsic~~ motives have a positive influence on attitudes toward participating in co-creation activities, which in turn has a positive impact on relative advantage and compatibility and a negative impact on complexity. It follows that relative advantage and compatibility have a positive relationship with adoption intention, respectively, while complexity has a negative relationship with adoption intention.



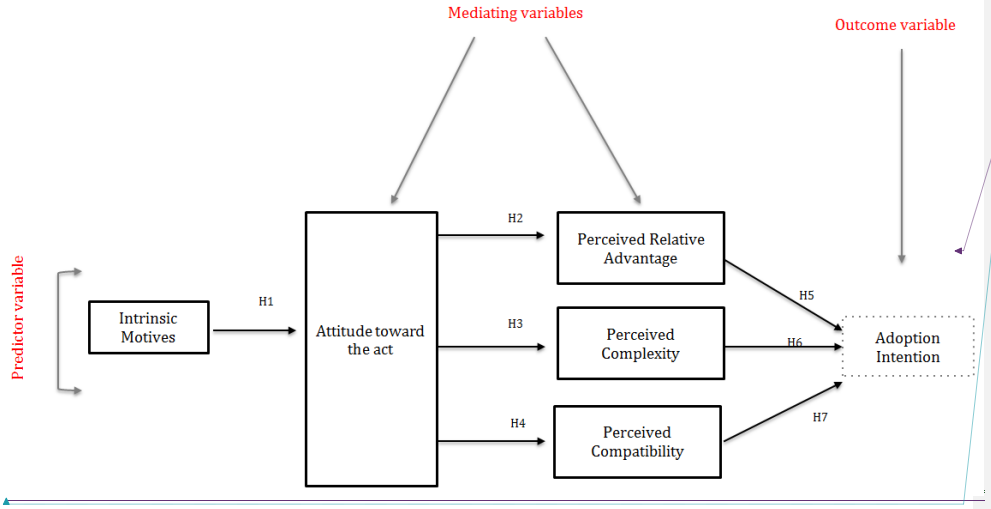


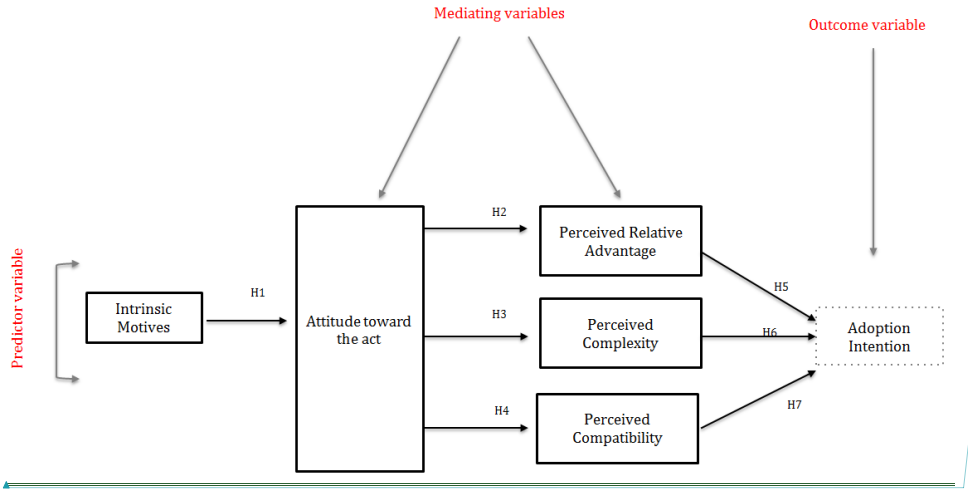
Figure 1.1: Proposed Conceptual Model

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In practice, this means that when banks leverage the right type of motives, it will have a positive effect on a consumer's attitudes toward participating in co-creation activities. If the consumer's attitudes are favourable, this will lead to favourable perceptions of the innovation and in turn lead to an increase in adoption intention. An in-depth discussion of the hypotheses development is provided in Chapter 4.

Derived from the conceptual model, the following hypotheses are proposed:

H1: *Intrinsic motives* have a positive influence on *attitudes* toward participating in co-creation activities.the act.

H2: There is a positive relationship between *attitudes* toward participating in co-creation activitiesthe act and *perceived relative advantage*.*Extrinsic motives* have a positive influence on *attitudes* toward participating in co-creation activities.

H3: There is a negative relationship between *attitudesattitude* toward participating in co-creation activitiesthe act on and *perceived complexity*. There is a positive relationship between *attitudes* toward participating in co-creation activities and perceived *relative advantage*

H4: [illegible]

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H5: There is a positive relationship between *perceived relative advantage* and *adoption intention.* ~~There is a positive relationship between *attitudes* toward participating in co-creation activities and *perceived compatibility*~~

H6: There is a negative relationship between *perceived complexity* and *adoption intention.* ~~There is a positive relationship between *perceived relative advantage* and *adoption intention*~~

H7: There is a positive relationship between *perceived compatibility* and *adoption intention.* ~~There is a negative relationship between *perceived complexity* and *adoption intention*~~

~~**H8:** There is a positive relationship between *perceived compatibility* and *adoption intention*~~

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1.11 Research Design and Methodology

This study follows a~~re~~ positivism research paradigm. Additionally, the research adopts a deductive reasoning approach. The study begins with theory, followed by hypothesis and data is collected and analyzed, the study concludes with confirmation. Data is collected from 399 respondents, by distributing surveys to male and female consumers between the ages of 18 -64 years who have active bank accounts with South African retail banks. To select the sample, the research makes use of convenience sampling. Furthermore, the measurement instrument selected for the study is based on survey research where existing measurement scales were adapted from previous research to suit the context of the present study. All scale items are anchored on a 7-point Likert scale. Intrinsic motives are measured using Zheng, Li ~~&~~ and Hou's (2011) scale items ~~and extrinsic motivation using Zhao & Zhu's (2014) scale items~~. Moreover, attitude toward the act is measured using a combination of Allen, Machlet ~~&~~ and Kleine's (1992), Ahluwalia, Unnava ~~&~~ and Burnkrant's (2001) and Bansal, Taylor ~~&~~ and St. James' (2005) scale items. Perceived r~~R~~elative advantage, perceived complexity and perceived compatibility are measured using Ewe, Yap ~~&~~ and Lee's (2015) scale items. Lastly, Lopez-Nicolas, Molina-Castillo ~~&~~ and Bouwman's (2008) and Barber, Kuo, Bishop ~~&~~ and Goodman Jr's (2012) adoption intention scales are used. To analyse the profile data and to obtain descriptive statistics, the Statistical

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Package for Social Sciences (SPSS) will be used. To perform structural equation modelling (SEM) the Analysis of Moment Structures (AMOS) statistical software will be used. SEM with AMOS has two stages: (1) Confirmatory Factor Analysis and (2) Path Modelling. Additionally, AMOS will be used to assess model fit, check reliability and validity of the instruments and to test the proposed hypotheses.

1.12 Ethical Considerations

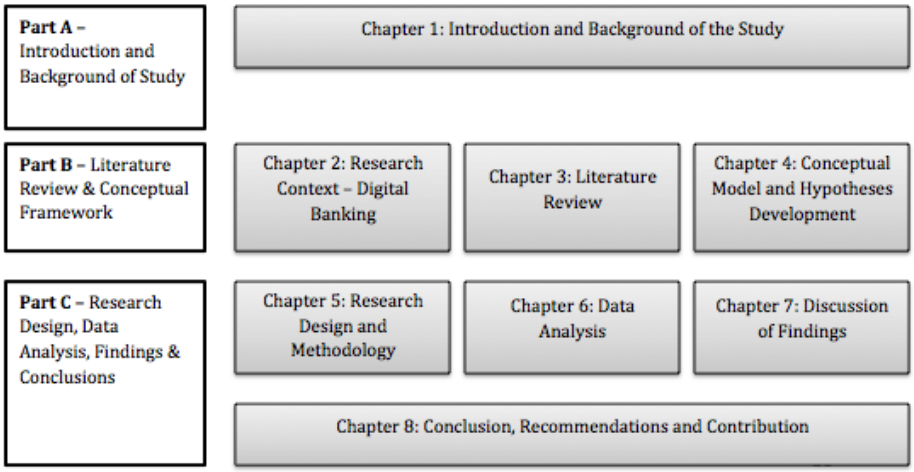
It is required that the individuals who participate in the study must grant the researcher permission to do so. No harm is inflicted on the respondents and the ~~personal information of the respondents~~answers respondents share are ~~is~~ processed and studied fairly and lawfully~~.~~ The study follows the ethical principles of honesty, objectivity, integrity and carefulness. Additionally, the Ethical Committee at the University of the Witwatersrand granted ethical clearance for the study to be conducted.

1.13 Thesis Structure

The thesis is structured in the following way (see Figure 1.2 below):

- **Chapter 2-** provides an overview of the context of the study.
- **Chapter 3-** discussion on the theoretical groundings of the study and the empirical literature relating to the constructs of the study.
- **Chapter 4-** discussion on the conceptual model and hypotheses development based on the research constructs grounded in theory.
- **Chapter 5-** explanation of the research methodology, which covers sampling, data collection and data analysis procedures, among others.
- **Chapter 6-** a statistical analysis which discusses the results of the data and tests the validity, reliability and model fit.
- **Chapter 7-** continues from Chapter 6 by comprehensively discussing the findings of the study.
- **Chapter 8-** concluding remarks are provided.

Figure 1.2: Thesis Structure



CHAPTER 2: RESEARCH CONTEXT

2.1 Introduction

This chapter discusses the research context by providing some insight into co-creation activities, followed by a~~n overview~~ discussion on ~~of~~ digital banking in South Africa. In particular, an overview will be given; definitions of the concepts will be provided as well as the findings of studies focused on co-creation and digital banking.

2.2 Co-creation

This section provides insights into co-creation activities under the following headings: an overview of co-creation, definition of co-creation, related studies and lastly, by providing a discussion on how leading brands have implemented co-creation strategies.

2.2.1 An Overview of Co-creation

Co-creation, an emerging concept (Ind & Coates, 2013), is an exciting research discipline and managerial paradigm (Roser, DeFillippi, & Samson, 2013). The interest in this concept has been spurred on various factors including the mainstream adoption of Internet technologies; the orientation toward services and experiences (the Service-Dominant (S-D) Logic); a more open approach to innovation and the growth of social collaboration and customisation (Garcia Haro, Martinez Ruiz & Martinez Canas, 2014 and Ind & Coates, 2013). Marketing literature has noted a shift from a transactional approach to a collaborative approach of customer relationships (Roser, DeFillippi, & Samson, 2013). Furthermore, from the managerial perspective, firms across industries (Ponsignon, Klaus, & Muall, 2015) are implementing co-creation strategies to respond to a dynamic and complex marketplace where greater interconnectedness between stakeholders exists (Roser, DeFillippi, & Samson, 2013). Thus, the interconnectedness suggests that value creation takes places through various networks rather than solely through the firm (Ind & Coates, 2013). Co-creation with various stakeholders allows firms to generate and leverage a range of mutually beneficial advantages (Roser, DeFillippi, & Samson, 2013) such as building

sustained value and reducing risks in the areas of strategy, innovation and new product development (Roser, et.alSamson, Humphreys, & Cruz-Valdivieso, 2009).

2.2.2 Definition of Co-creation

Prahalad & and Ramaswamy (2000) first described co-creation as a concept amid the continuously spreading prevalence of the Internet in daily life; challenging competitive environments and consumers who were becoming motivated, empowered and connected. Prahalad & and Ramaswamy (2004) state that firms need to consider implementing innovative strategies that are consumer-centric to survive the constantly changing marketplace (Cundari, 2015 and Selden & MacMillan, 2006). Therefore, the future of competition and sustained competitive advantage is based on an individual-centred co-creation system between the corporation and its consumers (Prahalad & Ramaswamy, 2004). Accordingly, co-creation is based on the premise that firms and consumers must collaborate to create value (Kundagrami, 2011; Ohern & Rindfleisch, 2010; Stubberup, 2010 and Prahalad & Ramaswamy, 2004). The collaboration that occurs between the consumer and the firm is mutually beneficial because it allows the firm to have access to (1) a resource (the consumer) that voluntarily contributes to the innovation process (Roberts, Hughes, & Kertbo, 2014) and (2) innovative methods that can reignite growth and the innovation capabilities within the firm (Prahalad & Ramaswamy, 2004). Moreover, this results in The consequences of this include innovations that are of better quality, leading to greater levels of customer satisfaction (Bughin, 2014). Furthermore, Prahalad & Ramaswamy (2004) stress that firms must understand that co-creation is not just about outsourcing activities to consumers; instead it is a joint effort where consumers engage in the co-ideation, co-design and co-creation of new products and services (Roberts, Hughes & Kertbo, 2014 and Ohern & Rindfleisch, 2010). This suggests that co-creation is an interactive, creative and social process (Roser, DeFillippi & Sampson, 2013) that transforms the role of the consumer (Roser, et.al, 2009)Roser, Samson, Humphreys, & Cruz-Valdivieso, 2009) and expands the innovation capability of an organisation (Roser, DeFillippi & Sampson, 2013).

Since Prahalad & Ramaswamy (2004), the interest in co-creation has grown over the past decade (Ind & Coates, 2013). Today, the concept of co-creation is made up of a rich mix of disciplines including marketing and management, psychoanalytics and processes relating to innovation (Ind & Coates, 2013 and Roser, et.al, 2009Roser, Samson, Humphreys, & Cruz-Valdivieso, 2009). Therefore, the definition of co-creation differs according to context and disciplinary approach. For instance, according to marketing theory, co-creation is understood as any form of consumer engagement or involvement in the creation of value, a product, a service or a brand experience (Roser, et.al, 2009).Roser, Samson, Humphreys, & Cruz-Valdivieso, 2009). On the other hand, in the context of innovation management, co-creation is occurs between the firm and consumers at the beginning of the value chain, specifically in the early new product development stages (Roser, et.al, 2009).Roser, Samson, Humphreys, & Cruz-Valdivieso, 2009).

Table 2.1: Various Definitions of Co-creation

Author	Definition
Verleye (2015)	Co-creation involves customer engagement in the creation of offerings through ideation, design and development.
Gouillart (2014)	Co-creation is about the production of goods, services and experiences of unique value by involving customers and other stakeholders in the process of continuous innovation.
Ramaswamy & Chopra (2014)	Co-creation focuses on engaging external and internal stakeholders – including customers, employees, suppliers and dealers – to create value together through platforms of engagement and environments of interactions.
Ind & Coates (2013)	Co-creation is a term used to describe a shift in thinking, where the firm defines value to a more participative engagement where various stakeholders come together to create value.
Roser, DeFillippi & Samson (2013)	Co-creation occurs when stakeholders interact with firms and have an active role in shaping the experiences with the product or service.
Roser, Samson, Humphreys & Cruz-Valdivieso (2009)	Co-creation is a form of collaborative creativity that is initiated by the firm to enable innovation *with* consumers, rather than *for* consumers.

Zhang & Chen (2008)	Co-creation is a new source of competence for business strategies.
Prahalad & Ramaswamy (2004)	Co-creation is a management initiative that brings different parties together in order to jointly produce a mutually beneficial ~~values~~ outcome.

The definitions of co-creation are plentiful as researchers who study the concept have each conceptualised and understood the term differently. The table above (Table 2.1) shows a selection of various definitions of co-creation. Based on the table, one can see that co-creation may be confused with or used interchangeably with other similar terms such as co-innovation, open innovation and consumer engagement. These concepts, and others, are defined in the Table 2.2 (below).

~~An analysis of Table 2.2 demonstrates that each of the concepts contains one of the following elements: (1) purpose-driven, (2) consumer involvement and (3) cross-boundary collaboration. All of which, together, are important for effective co-creation (Roser, Samson, Humphreys, & Cruz-Valdivieso, 2009). Therefore, for the purposes of this study, the definition of co-creation is based on connections and interactions between people; collaboration rather than involvement and creativity. Hence, co-creation is defined as an active, creative and social process based on collaboration between a firm and its consumers, which is initiated by the firm to generate value with the consumer.~~

Table 2.2: Concepts Associated with Co-creation

Concept	Description	Example
Co-innovation	Working hand-in-hand with customers to co-design a solution that meets needs and delivers value in a mutually beneficial way.	**SAP:** On-Demand Application that allows various stakeholders to partner with SAP to create innovations.
Open innovation	Occurs when a company commercialises its own ideas and innovations to other firms and seeks ways to bring its in-house ideas to market by deploying pathways outside the business.	**Procter & Gamble:** P&G's Connect + Develop programme enables two-way sharing on innovation between the firms and external organisations.
Customer engagement	It describes the intensity of an individual's participation and connection with an organisation's offerings and activities.	**Crayola:** Celebrated a milestone: ~~a~~ gaining 1 million ~~on~~ frien on Facebook~~)~~ by creating an animated ad ~~in~~ which consume helped develop.
Mass customisation	Mass customisation refers to firms applying technology and management methods to provide product variety and customisation through flexibility and quick responsiveness. Mass customisation produces enough variety so that each consumer finds exactly what he or she wants at a reasonable price.	**Dell:** Dell computers allow consumers to configure the specifications of the PC that they want to purchase.
User-generated content	Content made publicly available through the internet. UGC reflects a certain amount of creative input that is created outside of professional routines.	**YouTube:** online video sharing service, which allows users to upload their own content and view content.
Mass collaboration	A kind of collaboration model based on collective actions, which occur when large numbers of contributors work independently, but in collaboration on a single project.	**Wikipedia:** articles on the world's largest encyclopaedia, written entirely by internet users.
Collaborative innovation	Gaining competitive advantage by expanding the borders of a business through widespread involvement between participants at all levels.	**Boeing 787:** Boeing and its global partners ~~did~~ participate development of planes, ranging from concept to production.
Prosumption	Acronym for the combined activities of production and consumption. The consumer is seen as an active participant in the production process.	**Betty Crocker:** cake mixes that require an optimal level of prosumption.
Participatory design	A Scandinavian approach, which is based on the premise that a firm should involve the people (usually the employees) who are going to use a service, space or product in the process.	**Norwegian Iron and Metal Workers Union:** approach was used in the 1970s to empower workers and generate their active input.
Consumer involvement	The concept has been used in two ways: (1) psychological: a consumer's perceived importance, risk or emotional appeal of a product and (2) behavioural: when a firm engages consumers in some way which leads to benefits for the firm, customer or both.	**Nike ID:** generates ideas from consumers about product improvements and allows options for customisation.

~~Adapted~~ Source: ~~from:~~ Ind & Coates (2013); SAP AG (2012); Brodie, Hollebeek, Juric & Ilic (2011); Roser, Samson, Humphreys & Cruz-Valdivieso (2009) and Xie, Bagozzi, & Troye (2008)

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2.2.3 Related Studies

Studies relating to co-creation focus on both the factors that lead to co-creation and the outcomes of implementing co-creation strategies. For instance, Roser, Samson, Humphreys & Cruz-Valdivieso (2009) suggest~~s~~ that a possible antecedent of co-creation is the change in consumer behaviour patterns. The report indicates that consumers are demanding greater levels of personalisation and are placing their favourite brands under pressure to generate and develop value *with* them, rather than *for* them. Many researchers share these sentiments (e.g. Hughes, 2015; Barkworth, 2014; Beckett, Hewer & Howcroft, 2000 and Gordon & Valentine, 2000). Furthermore, Roser, Samson, Humphreys & Cruz-Valdivieso (2009) find that another driver of co-creation is the strength of the collective intelligence of consumers, derived from experience, should be viewed as a key asset for businesses. According to Bothos, Apostolou & Mentzas (2009), collective intelligence focuses on drawing out information and knowledge from a wide range of individuals and combining it in such a way that it is useful. This suggests that firms should be particularly interested to leverage the knowledge of their consumers to create innovations through co-creation activities.

Moreover, in a study conducted by Ind & Coates (2013), which focuses on the managerial perspective of co-creation, the escalating appreciation of the importance of co-creation is two-fold. Firstly, there is a move towards constructing brand meaning beyond the walls of the organisation (Ind & Coates, 2013). Secondly, there is an apparent move away from products to a

more service orientated approach (Ind & Coates, 2013). This has been spurred on by the S-D Logic, which focuses on the creation of value through relationships (Roser, DeFillippi & Samson, 2013). Furthermore, the S-D Logic suggests that value is determined through intangible services and the important role of shared knowledge (Mele, Colurico, & Russo-Spena, 2014). Additionally, Ind & Coates (2013) conclude that ~~co-creation~~ the antecedents of co-creation include the mainstream adoption of Internet technologies, a more open approach to innovation and the growth of social collaboration.

More recently, Verleye (2015) conducted a study, which aimed to provide insight into determinants of the customer experience in co-creation situations, specifically from the consumer's perspective. The study considered the following factors: customer role readiness, level of technologisation and level of connectivity. The results of the study found customer role readiness and the co-creation environment (level of technologisation and connectivity) had a positive impact on a consumer's experience of co-creation activities (Verleye, 2015).

The outcomes of conducting co-creation activities with consumers are abundant and are mutually beneficial for the firm and its consumers (Roberts, Hughes & Kertbo, 2014; Roser, Samson, Humphreys & Cruz-Valdivieso, 2009 and Prahalad & Ramaswamy, 2004). The table below (Table 2.3) illustrates the range of results, found in various studies, accrued from implementing effective co-creation activities.

~~In a study conducted by Vega-Vazquez, Revilla-Camacho & Cossio-Silva (2013), the aim was to highlight the positive influence of co-creation from the consumer's perspective. The findings suggest there is a positive relationship between value co-creation and customer satisfaction.~~

Table 2.3: Various Studies Indicating the Outcomes of Co-creation

Outcome	Source
Builds value for the firm and its consumers	Verleye (2015) Domegan, Collings, Stead, McHugh & Hughes (2013) Roser, Samson, Humphreys & Cruz-Valdivieso (2009) Prahalad & Ramaswamy (2004)
Reduces risks in the areas of strategy, innovation and new product development	García-Haro, Martínez-Ruiz & Martínez-Cañas (2014) Roser, Samson, Humphreys & Cruz-Valdivieso (2009)
Greater personalisation for consumers	France, Merrilees & Miller (2015) Verleye (2015) Ramaswamy & Chopra (2014) Roser, DeFillippi & Samson (2013)
Builds a strong competitive advantage	García-Haro, Martínez-Ruiz & Martínez-Cañas (2014) Roser, DeFillippi & Samson (2013)
Firm is given access to a resource (the consumer) that can increase the sources of innovation	Roberts, Hughes & Kertbo (2014) Roser, Samson, Humphreys & Cruz-Valdivieso (2009)
Reignites growth and the innovative capability of the firm	Bughin (2014) Roser, Samson, Humphreys & Cruz-Valdivieso (2009) Prahalad & Ramaswamy (2004)
Consumers become change agents	France, Merrilees & Miller (2015) Verleye (2015) Roser, Samson, Humphreys & Cruz-Valdivieso (2009)
Better and quicker innovations because of potential increased speed to market, lower costs and greater satisfaction	Bughin (2014) García-Haro, Martínez-Ruiz & Martínez-Cañas (2014) Roser, DeFillippi & Samson (2013)
Positive impacts on business processes and triggers business transformation	Domegan, Collings, Stead, McHugh & Hughes (2013) García-Haro, Martínez-Ruiz & Martínez-Cañas (2014) Roser, DeFillippi & Samson (2013)
Consumer becomes brand advocate, which leads to increased loyalty, commitment and positive word-of-mouth	Verleye (2015) García-Haro, Martínez-Ruiz & Martínez-Cañas (2014) Roser, DeFillippi & Samson (2013)

In a study conducted by Vega-Vazquez, Revilla-Camacho & Cossio-Silva (2013), the aim was to highlight the positive influence of co-creation from the consumer's perspective. The findings suggest there is a positive relationship between value co-creation and customer satisfaction. According to Vega-Vazquez, Revilla-Camacho & Cossio-Silva (2013), the implications of such findings are as follows: service firms should foster an environment in which consumers are allowed active participation in the value creation process. Similarly, Bughin (2014), García Haro, Martínez Ruiz & Martínez Cañas (2014) and Roser, DeFillippi & Samson (2013) found that consumers who are given the opportunity to co-create with their favourite brands develop strong feelings of satisfaction and commitment. Additionally,

Oldemaat (2013) conducted a study, which investigated how awareness of the fact that a product or service is developed through co-creation affects a consumer's perception of the brand. The results of the study suggest that co-creation can indeed influence brand evaluations. In particular, Oldemaat (2013) found that a high level of involvement in co-creation activities leads to a positive attitude toward the brand. Additionally, the favourable attitude leads to more customer satisfaction. Correspondingly, researchers such as Bughin (2014), García Haro, Martínez Ruiz & Martínez Cañas (2014) and Roser, DeFillippi & Samson (2013) have concluded the same results. Furthermore, the results of the study suggest that a favourable attitude toward co-created services and products leads to high purchase intentions (Oldemaat, 2013).

2.2.4 How Leading Brands Have Implemented Co-creation Strategies

This section will present two cases illustrating how leading brands have implemented co-creation strategies and the results thereof.

Starbucks

In 2008, Starbucks publicly invited their consumers to create with them through an online co-creation community (Menzies, 2015). Through the 'My Starbucks Ideas' platform, consumers provided value by submitting ideas for new flavoured products and any service improvements such as Molasses Cookies, recyclable coffee cups and mobile payments. As consumers uploaded

their ideas, other members of the platform community were able to vote for their favourite ideas. In return, Starbucks provided consumers with a new value offering by bringing the best ideas into its stores (Menzies, 2015). A few examples of ways consumers have enhanced their Starbucks experience follows:

- Free Wi-Fi which can be accessed easily and at no cost;
- Mobile payments when using 'Drive Thru' facilities; and
- New flavours such as Pumpkin Spice Latte & Hazelnut Macchiato.

Moreover, Bughin (2014) suggests that what is crucial to the success of co-creation activities is to lure in the largest number possible of participants. Since the platform has been operational, consumers have submitted over 200 thousand ideas; over two million votes have been cast and in the first five years of the projects 277 ideas had come to life (EY, 2014). Based on the results of the co-creation process, the initiative is said to be a success. Furthermore, Starbucks has no intentions of closing up this form on engagement with its consumers because the firm is able to continuously tap into and leverage the passion of its consumer base to improve their products and services (Menzies, 2015).

P&G Wella Shockwaves

Procter & Gamble (P&G), a multinational consumer goods company, is described as a famous innovator with a strategy to systematize innovation and growth in the company (Brown & Anthony, 2011). P&G were looking for a way to better understand their consumers of its Wella Shockwaves brand. To do so, the company abandoned a traditional approach to the focus group and opted for a co-creation community that worked like a social network platform (Wilmot, 2015).

According to Wilmot (2015), P&G used the following process to develop new ideas for the Wella Shockwave brand through co-creation:

- Insight generation: 500 consumers participated in the co-creation community. Through high levels of discussion and engagement, consumers collectively created a range of ideas that were condensed into 10 in-depth insights.

- Ideation: consumers were then encouraged to co-create marketing ideas linked to the 10 insights.
- Concept creation: from this point an in-house project team was put together to develop creative concepts based on the commentary shared in the ideation stage.
- Validation: the brand reached out to the co-creation community to rank and comment on the concepts developed by the project team.

P&G found the co-creation process to be successful, as they were able to engage with their consumers at a fraction of the cost of traditional collaboration initiatives. Additionally, P&G was able to gain better insights in a shorter space of time by harnessing the creativity of their consumers. P&G strongly believes in the benefits of co-creation so much, that it has gone on to use this strategy for its other brands such as Ariel and Febreeze (Wilmot, 2015).

2.3 Digital Banking

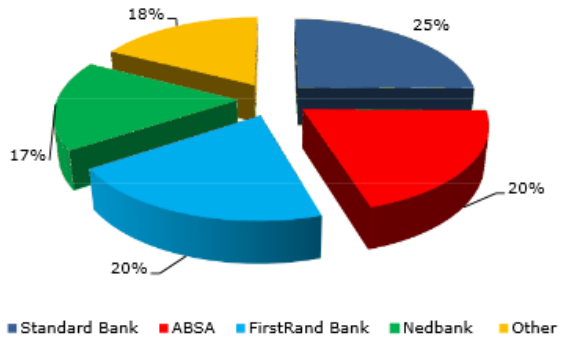
This section provides insights into digital banking under the following headings: an overview of the banking industry in South Africa, definition of digital banking, related studies and lastly, by providing examples of digital banking innovations.

2.3.1 An Overview of the Banking Industry in South Africa

South African financial institutions are described as well developed, proactively regulated and on par with global standards (The Banking Association, 2015). Furthermore, the banking sector has been ranked 3rd out of 148 countries in the 2013/14 World Economic Forum Global Competitiveness Survey (Matoti, 2014). As of 2013, the industry was made up of 17 registered banks, 2 mutual banks, 14 local branches of foreign banks, 2 cooperative banks and 43 foreign banks with approved local representative office (Matoti, 2014). Specifically, the banking sector consist of four major players: are Barclay's Africa Group (includes ABSA), FirstRand Limited (includes FNB), Nedbank Group Limited and Standard Bank Group Limited (CNBC Africa , 2015) whose market share as of 2014 is shown in Figure 2.1. Although 'concentrated' with a few major players, the banking sector remains competitive as each bank continues to broaden its

products and services to attract new customers and satisfy its existing client base (Mlambo & Ncube, 2011). This is despite challenges such as electricity supply challenges, higher interest rates which are negatively impacting consumers and a volatile rand exchange rate (Grosskopf & Beyers, 2015).

Figure 2.1: South African Banking Sector Market Share



Source: Matoti (2014)

2.3.2 The Emergence of Digital Banking

Traditionally, banks were organised around money in branches (Groenfeldt, 2014). Specifically, banks were built for the physical distribution of money in a network of branches (John, 2015). At that time, the technologies banks used, their incentives and knowledge about their customers were structured around physical branches (Groenfeldt, 2014). However, at present banks are facing various challenges, including technological advancements, changing consumer patterns and competitive markets that are leading to the emergence of a new kind of banking.

Digital banking is fundamentally changing financial institutions around the world (Bareisis & Latimore, 2014). According to India infoline News (2015) digital banking is about driving innovation and creating a unique digital experience for digital natives through omni-channel, gen-next payments and secure mobile banking. Furthermore, digitization in the banking sector requires banks to shift the core of their businesses to electronic platforms and data rather than focusing on money around branches (India infoline News, 2015). According to Groenfeldt (2014) digital banking is about being intune with technology, including social networks as a way to engage with consumers to fully understand their technological needs (India infoline News, 2015). The views on what digital banking is, are diverse and little consensus exists in the industry (Bareisis & Latimore, 2014).

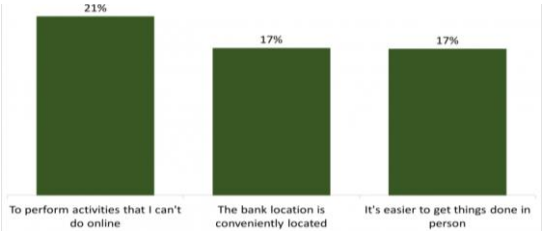
Although not all services are suitable to be offered digitally, most of a bank's can be delivered over digital channels (Singh, 2004) and if traditional banks do not invest in digital banking they will be left behind. For instance, there are virtual banks which exist only on the internet such as Egg in Britain (Singh, 2004) and Fidor Bank in Germany (Groenfeldt, 2014). However, banks face a further threat from other innovations such as that are making use of digitization such as 'nonbanks' like Currency Cloud and Lending Club (Groenfeldt, 2014), which could completely take over the banking business (India infoline News, 2015). Additionally due to lower barriers of entry, technology firms such as Amazon and Google have the flexibility to offer banking services that are more profitable than traditional bank offerings (John, 2015).

Slow changes in the banking industry indicate that some firms are indeed moving to a more digital business model (Groenfeldt, 2014) by provding more services on electronic channels and shutting down branches (John, 2015). Banks are shutting down branches in response to changing consumer behaviour patterns. For example, the most important reason why Millennials visit branches is to perform activities that are not available online (see Figure 2.2). Furthermore, research predicts that the ratio of branches will move from 1:20 000 to 1:250 000 (John, 2015). Changing consumer behaviour patterns are not the only reason that some banks are moving towards digitization. In a report conducted by Bareisis & Latimore (2014) indicates that the main reason that bank managers are investing in digital is to keep up with the competition.

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Figure 2.2: Top Three Reasons Why Millennials Visit Branches



Source: John (2015)

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2.3.3 Antecedents and Outcomes

Research into digital banking is still in its infancy; however some studies are breaking ground on the topic (e.g. Grosskopf & Beyers, 2015). According to a study conducted by Bareisis & Latimore (2014) the emergence of digital banking is led by various factors including challenging competitive environments; consumer-centrisism, technological advances and cost reduction strategies. Grosskopf & Beyers (2015) conducted a study which looked into South Africa's banking sector and found that two key trends are driving the move to digital. Additionally, the research suggests that changes in technology and consumer behaviour are strongly linked to each other. For example, India infoline News (2015) suggests that one of the key drivers of digitization is changing consumer behaviour, which Groenfeldt (2014) states is because a considerable amount of the population are digital natives who make use of computers and smartphones. Additionally, consumers are looking for an experience which is secure and

seamless (India infoline News, 2015). Research by John (2015), suggests that to create such an experience technology is critical. Furthermore, in the report produced by Grosskopf & Beyers (2015), technological advances are disrupting the foundations of the financial system, creating an all-power consumer, reducing the barriers to entry and therefore, redrawing the industry boundaries.

The results of this transfromation in the industry include an enhanced consumer experience (Toplin, 2015). In a study conducted by Singh (2004), the outcome of digital banking offerings include convenience as consumers are able to bank at their leisure. In a study conducted by (Ahmad & Al-Zu'bi, 2011) it was found that digital banking has an impact and consumer satisfaction, loyalty and positive word of mouth. With regards to the benefits a bank receives from digital banking both Groenfeldt (2014) and John (2015) found that banks that have implemented digital banking recorded a significant drop in the transaction cost. Additionally, Olanrewaju (2014) found that banks which pursue a digital transformation can expect improvements in earnings, taxes, depreciation and amortisation of more than 40%.

2.3.4 Examples of Digital Banking Innovations

Olanrewaju (2014) suggest that banks wishing to leverage the benefits of digital should consider the following:

- Maximise the use of existing technology;
- Apply lightweight technology interventions;
- Place a few big bets; and
- Address the people dynamics by setting the right structure and incentives, increase the focus on business outcomes and not digital activity and lastly, formulate and implement a people vision.

The table (Table 2.4) below consists of various examples of how digital banking is being successfully implemented. The examples illustrate suggest that these firms adhered to similar principles such as those outlined by Olanrewaju (2014).

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Table 2.4: Digital Banking Innovations

Innovation	Description
M-Pesa	- Mobile payment service which began in Kenya in 2007 was launched by Safaricom (nation's largest cell phone provider) - Allows the 'unbanked' population access to basic banking services - 90% of Kenyan adults make use of M-Pesa
Hello Bank!	- Start-up mentally - 100% digital/virtual bank - Parent company is BNP Paribas, based in Europe - Clients can complete all banking transactions from their smartphones through the bank's app
Cloud Currency	- FinTech company which allows global money transfers - Processes $10B in payments annually - Operates in 212 countries
RainFin	- Online lending marketplace that connects borrowers with lenders - Collective funding network for individuals and businesses - Developed in South Africa by Barclays
NextBank	- First cryptocurrency bank - Provides advanced banking services for Bitcoin clients globally - Supports over 75 currencies and precious metals - Launching in 2016

2.4 Conclusion

This chapter discussed the research context by providing some insight into co-creation activities, followed by an overview of digital banking in South Africa. The research context indicates the importance of engaging with consumers to co-create value, especially in the digital banking industry where the future of traditional banking is under threat. The following chapter presents the theoretical groundings and empirical literature.

CHAPTER 3: THEORETICAL GROUNDINGS AND EMPIRICAL LITERATURE

3.1. Introduction

The theoretical groundings, the Self-Determination Theory as well as the Diffusion of Innovation Theory, of the study are discussed in this chapter. Each discussion of the theories will be focused on the history of the theory, the characteristics of the theory as well as a look at how the theory relates to the present study. Following this, a ~~, followed by a~~ review of the empirical literature on each of the constructs related to the ~~present~~ study is presented, namely intrinsic motives, attitude toward the act, perceived relative advantage, perceived complexity, perceived compatibility and adoption intention. ~~.~~

3.2. Theoretical Groundings of Study

This study is grounded in two theories, namely Deci & Ryan's (1985) Self-Determination Theory (SDT) and Rogers' (1962) Diffusion of Innovation theory. An in-depth discussion of these theories is presented in this section.

3.2.1. Self-Determination Theory

This section will begin by providing a background to the Self-Determination Theory. Important definitions relating to the theory will follow, as well as a discussion of the characteristics of the Self-Determination Theory.

3.2.1.1 Background

The Self-Determination Theory examines how different types of motivation can drive an individual's behaviours (Teixeira, Carraça, Markland, Silva & Ryan, 2012). In some cases, individuals are driven by external factors such as reward or even fear. Similarly, interest or curiosity can drive the behaviour of individuals (Self-Determination Theory Org, 2015). Additionally, the theory focuses on an individual's needs of autonomy, competence and

relatedness affect an individual's choice (Sweeney, Webb, Soutar, & Mazzarol, 2014). Since Deci & Ryan (1985) first proposed the Self-Determination Theory (SDT), it has been popularly used to examine the motivation factors that affect an individual's behaviour in various contexts. For instance, SDT has been used in studies relating to healthcare Ryan, Patrick, Deci & Williams, 2008), educational psychology (Ryan & Deci, 2000), brand management (O'Donnell & Brown, 2012) and social networking communities (Miller & Prior, 2010).

3.2.1.2 Definition

The SDT represents a broad framework for the study of human motivation and personality (Self-Determination Theory Org, 2015), which is used to explain motivational dynamics behind the regulation of behaviour (Ryan, Patrick, Deci & Williams, 2008). According to the SDT, motivation is a continuum, where one's motivation for behaviour can range from 'amotive' to active personal commitment (Ryan & Deci, 2000). Thus, reflecting varying degrees of ~~self determined~~self-determined motivation (Miller & Prior, 2010). Additionally, the SDT focuses on how various needs facilitate an individual's sense of volition (Self-Determination Theory Org, 2015). Therefore, this suggests that the SDT is formed by interplay between individual motivation and needs (Miller & Prior, 2010).

3.2.1.3 Characteristics

Based on the aforementioned definition of the SDT, the framework is subdivided into motivation and needs.

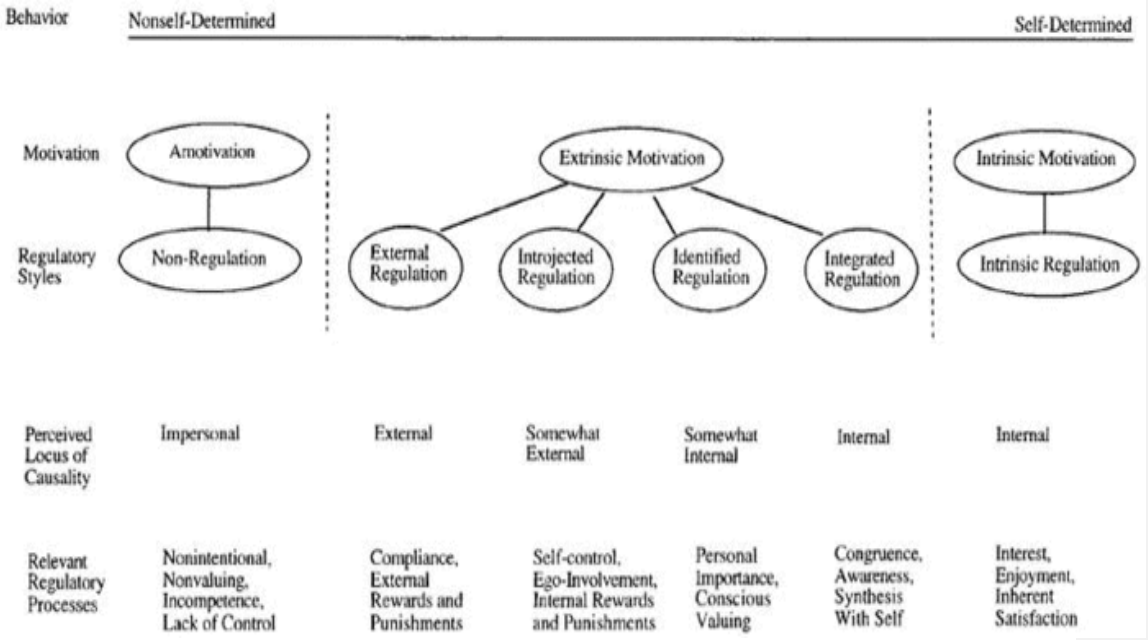
Motivation

SDT distinguishes between different types of motivation based on the reasons that give rise to an action. The theory distinguishes between intrinsic and extrinsic motivation, which regulate an individual's behaviour (Ryan & Deci, 2000). Extrinsic motivation is governed by the organismic integration theory (OIT), which describes the different forms of extrinsic motivation (Ryan & Deci, 2000). On the other hand, the cognitive evaluation theory (CET) governs intrinsic

motivation and details the central role of intrinsic motivation (Ryan, Williams, Patrick & Deci, 2009). As mentioned, the SDT suggests that motivation should be seen as a continuum ranging from nonself-determined behaviour to self-determined behaviour. Figure 3.1 (below) illustrates the motivation continuum.

~~Based on the information provided in Figure 3.1 three types of motivation exist: amotivation, extrinsic motivation and intrinsic motivation, each of them ranging from the least self-determined behaviour (amotivation) to the most self-determined behaviour (intrinsic motivation). Additionally, the types of motivation differ according to regulatory styles, the perceived locus on causality and the regulatory processes.~~

Figure 3.1: Self-Determination Theory



Source: Ryan & Deci (2000)

Based on the information provided in Figure 3.1 three types of motivation exist: amotivation, extrinsic motivation and intrinsic motivation, each of them ranging from the least self-determined behaviour (amotivation) to the most self-determined behaviour (intrinsic motivation). Additionally, the types of motivation differ according to regulatory styles, the perceived locus on causality and the regulatory processes.

Amotivation is the state of lacking motivation (Ng, et al., 2012). Based on Figure 3.1, the regulatory style of amotivated individuals is non-regulation. Additionally, the perceived locus of causality is impersonal and individuals who are amotivated participate in activities unintentionally and with a lack of control (Ryan & Deci, 2000). In the context of co-creation participation, a consumer who is amotivated may express the following thoughts: "I don't see why I should even bother participating."

Extrinsic motivation refers to activities that are performed in order to obtain a separable outcome (Ryan, Williams, Patrick & Deci, 2009) such as a tangible reward, avoidance of a punishment or the attainment of recognition (Miller & Prior, 2010). Furthermore, Teixeira, Carraça, Markland, Silva & Ryan (2012) describe individuals who participate in an activity for instrumental reasons as individuals who are extrinsically motivated.

According to the SDT, different types of regulatory styles exist within extrinsic motivation exist (Ryan, Williams, Patrick & Deci, 2009). Each of them differs based on their relative autonomy (Teixeira, Carraça, Markland, Silva & Ryan, 2012). The types of regulatory styles are divided into two groups: controlled and autonomous self-regulation. Controlled regulation include external regulation and introjected regulation, while autonomous motives includes identified regulation and integrated regulation (Ryan, Williams, Patrick & Deci, 2009). External regulation is the motivation to comply with external pressures (Ng, et al., 2012). A consumer who is driven by external regulation may express the following thoughts: "I am participating in co-creation activities because my bank says I should." Furthermore, introjected regulation describes behaviours that are driven by self-approval, whereas identified regulation refers to the participation in activities because of its value to the individual and the utility it provides (Teixeira, Carraça, Markland, Silva & Ryan, 2012). Consumers driven by introjected regulation

may express the following thoughts: “I am participating in co-creation activities because I will feel guilt if I don’t.” whereas, a consumer who is motivated by identified regulation would express the following: “I am participating in co-creation activities because I value the benefits I could get out of it.”

Lastly, a consumer who expresses the following: “I participate in co-creation activities because I consider developing innovations that make like easier a fundamental part of who I am.” is said to be driven by integrated regulation. Thus, integrated regulation refers to an individual’s motivation to engage in behaviours that are in line with his or her personal goals (Ng, et al., 2012). Intrinsic motivation occurs when an individual engages in an activity or behaviour because of the inherent pleasure it provides (Miller & Prior, 2010). Furthermore, when an individual is intrinsically motivated he or she experiences feelings of enjoyment, accomplishment and excitement (Teixeira, Carraça, Markland, Silva & Ryan, 2012).

Needs

The SDT proposes three human needs (autonomy, competence and relatedness) that are central to understanding autonomous or internal forms of motivation (Teixeira, Carraça, Markland, Silva & Ryan, 2012). Firstly, autonomy refers to behaviours driven by volition or will (Miller & Prior, 2010). Furthermore, the SDT suggests that if behaviours are to be maintained, an individual must value the behaviour and endorse its importance (Ryan, Patrick, Deci & Williams, 2008). This suggests that intrinsic motivation; identified regulation and integrated regulation are associated with high levels of autonomy (Sweeney, Webb, Soutar, & Mazzarol, 2014). Competence, on the other hand, is necessary for an individual to change his or her behaviour. The individual must feel confident and able to adopt a new behaviour (Ryan, Patrick, Deci & Williams, 2008). Lastly, relatedness refers to the psychological need to feel connected to others (Miller & Prior, 2010). In conclusion, the SDT suggests that individuals who have their needs for autonomy, competence and relatedness met; the more likely they are to sustain behaviours (Ryan, Patrick, Deci & Williams, 2008).

3.2.2. Diffusion of Innovation Theory

This section will begin by providing a background to the diffusion of innovation theory. Important definitions relating to the theory will follow, as well as a discussion of the characteristics of the diffusion of innovation theory.

3.2.2.1. Background

The process of the adoption of innovation has been studied for many years. This line of research has been based on various adoption models (e.g. Technology Acceptance Model (Davis, Bagozzi, & Warshaw, 1989), Theory of Reasoned Action (Fishbein & Ajzen, 1975) and Theory of Planned Behaviour (Ajzen, 1985)). However, the innovation diffusion model developed by Rogers (1962) is the most popular amongst researchers (e.g. Hosseini, Chileshe, Zuo & Baroudi, 2015; Zhang, Yu, Yan & Spil, 2015 and Sahin, 2006) from various fields such as political science, communications, economics, education (Sahin, 2006), public health (Aslani & Naaranoja, 2015), construction (Suprun & Stewart, 2015) engineering, architecture (Hosseini, Chileshe, Zuo, & Baroudi, 2015) and marketing (Murray, 2009). Furthermore, the reason behind the popularity of Rogers' (1962) innovation-diffusion is because it can be used to explain how *any* new idea, process or product is taken up in society (Robinson, 2009). Additionally, the diffusion of innovation theory suggests valuable insights into the process of social change. Specifically, the theory proposes: (1) the qualities of an innovation that make it spread, (2) the significance of peer-to-peer conversations and peer networks and (3) the importance of distinguishing between the needs of different user segments (Robinson, 2009).

3.2.2.2. Definitions

Some researchers (e.g. Hosseini, Chileshe, Zuo & Baroudi, 2015) suggest that innovation literature focuses on two major processes: (1) diffusion and (2) implementation. The diffusion process involves the innovation-decision process of making a choice to adopt an innovation, while the implementation process refers to an organization being involved in the initiation of innovation adoption and the implementation of the adopted innovation (Suprun & Stewart, 2015). The focus of the present study is on the diffusion process, specifically, the innovation-decision process consumers follow when deciding to adopt or reject an innovation. From this perspective, diffusion results in adoption (Murray, 2009). To fully understand the theory, some terminology associated with innovation-diffusion must be explained. The table below (Table 3.1) defines concepts relating to the diffusion of innovation theory.

Thus, the diffusion of an innovation refers to the spread of an innovation (a new idea, practice or technology) through the population (Hosseini, Chileshe, Zuo & Baroudi, 2015 and Murray, 2009). Robinson (2009) states the theory explains how, why and at what rate innovations spread through social systems. Furthermore, diffusion of innovation can be described as a 'hypothesis' charting how technological advancements spread throughout cultures from introduction to adoption (Investopedia, 2015). Additionally, Pijpers, van Montefort & Heemstra (2002) describe the theory as one that focuses on the conditions which increase or decrease the likelihood that a new offering will be adopted by members of a social context. However, Rogers (2003) provides the most comprehensive definition of the theory. He states: "the diffusion of an innovation is the process in which an innovation is communicated through certain channels over time among members of a social system." This definition suggests that four key elements of the diffusion of innovation exist: (1) innovation, (2) communication channels, (3) time and (4) social system.

~~Concept~~	~~Definition~~	~~Source~~
~~Innovation~~	~~An idea, behaviour or object percieved as new by its audience.~~	~~Hosseini, Chileshe, Zu & Baroudi (2015)~~
~~Technology~~	~~A design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome.~~	~~Rogers (2010)~~
~~Adoption~~	~~A decision to purchase or use a new product or acquire and perform a new behaviour.~~	~~Sahin (2006)~~

These characteristics of the diffusion of innovation theory will be discussed in the following subsection.

~~Concept~~	~~Definition~~	~~Source~~

Concept	Definition	Source
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Technology	A design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome.	Rogers (2003)
Adoption	A decision to purchase or use a new product or acquire and perform a new behaviour.	Sahin (2006)

Table 3.1: Concepts Associated with the Diffusion of Innovation Theory

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3.2.2.3. Characteristics

Based on the aforementioned definition of the diffusion of innovation theory, four characteristics exist: (1) innovation, (2) communication channels, (3) time and (4) social system.

(1) The Innovation

The innovation diffusion process is about reducing uncertainty, for the consumer, as much as possible (Rogers, 2010). Thus, the theory proposes attributes (or perceived characteristics) of an innovation (relative advantage, compatibility, complexity, trialability and observability) to help decrease a consumer's uncertainty. These qualities determine the rate at which the innovation will potentially spread (Robinson, 2009). Therefore, the attributes of an innovation predict the rate of adoption of an innovation (Rogers, 2010). The table below (Table 3.2) defines each of the attributes.

Table 3.2: Perceived Characteristics of Innovation

Attribute	Definition
Relative Advantage	Ewe, Yap & Lee (2015), Lee, Hsieh & Hsu (2011) and Sahin (2006) defined the relative advantage as the degree to which an innovation is considered as being superior to the idea it has replaced.
Compatibility	The degree to which an innovation is consistent with a consumer's existing values and needs (Ganiyu & Adeosun, 2013).
Complexity	Describes a consumer's perceived level of difficulty in understanding and using an innovation (Ewe, Yap & Lee, 2015 and Lee, Hsieh & Hsu, 2011).
Trialability	The degree to which an innovation may be experimented with on a limited basis (Almobarraz, 2007).
Observability	The degree to which the results of an innovation is visible to others (Robinson, 2009).

(2) Communication Channels

Communication refers to the process with which consumers create and share information with one another (Sahin, 2006). Furthermore, this communication can occur through various channels such as mass media or interpersonal channels (Sahin, 2006), which play an important role in the diffusion process (Murray, 2009). The diffusion of an innovation is said to be a social process, which involves interpersonal communication relationships (Rogers, 2010), thus suggesting that interpersonal channels of communication are more powerful to create or change strong attitudes

(Sahin, 2006). Furthermore, interpersonal channels are valuable because most consumers evaluate an innovation through the subjective evaluations of peers who have already adopted the innovation (Murray, 2009). Even if an innovation demonstrates the correct attributes, it will never be adopted if it does not reach the right audience (Murray, 2009).

(3) Time

Time consists of three dimensions: innovation-decision process, innovativeness of individuals and rate of adoption.

Innovation-decision process: this describes an information-seeking and information–processing activity (Rogers, 2010) where individuals pass stages beginning with knowledge of an innovation, to forming attitudes, to a decision to adopt or reject, to implement the new idea and to the confirmation of this decision (Götze, Prange, & Uhrovska, 2009). Moreover, movement through these stages (see Figure 3.2 below) is influenced by factors such as the characteristics of the adopter, perceived characteristics of the innovation and the communication channel (Götze, Prange, & Uhrovska, 2009). An explanation of each of the stages follows:

- *Knowledge:* individual learns about the innovation and begins seeking information about the offering (Götze, Prange, & Uhrovska, 2009).
- *Persuasion*: individual becomes more involved with the innovation and actively seeks more innovation (Götze, Prange, & Uhrovska, 2009) while shaping his or her attitudes (Sahin, 2009).
- *Decision*: individual chooses to adopt or reject the innovation (Götze, Prange, & Uhrovska, 2009).
- *Implementation*: the innovation is put into practice (Sahin, 2009).
- *Confirmation*: the innovation-decision already has been made, but at the confirmation stage the individual looks for support or reinforcement for his or her decision (Götze,

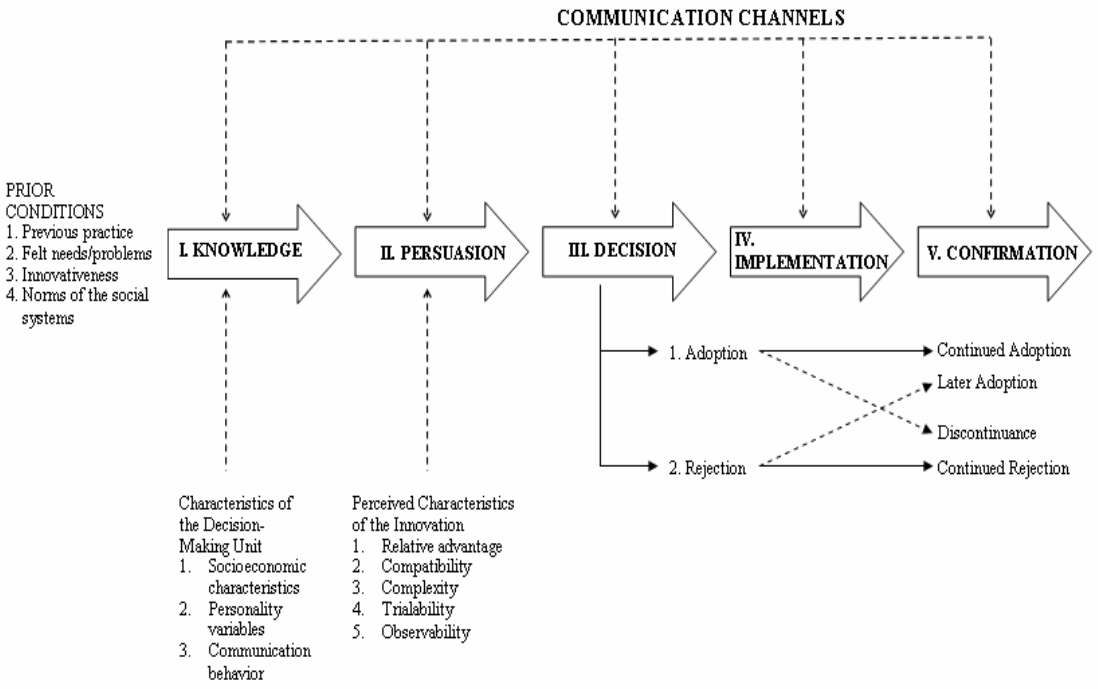
Prange, & Uhrovska, 2009). A consumer's decision can be reversed if he/she is exposed to conflicting messages about the innovation (Rogers, 2010).

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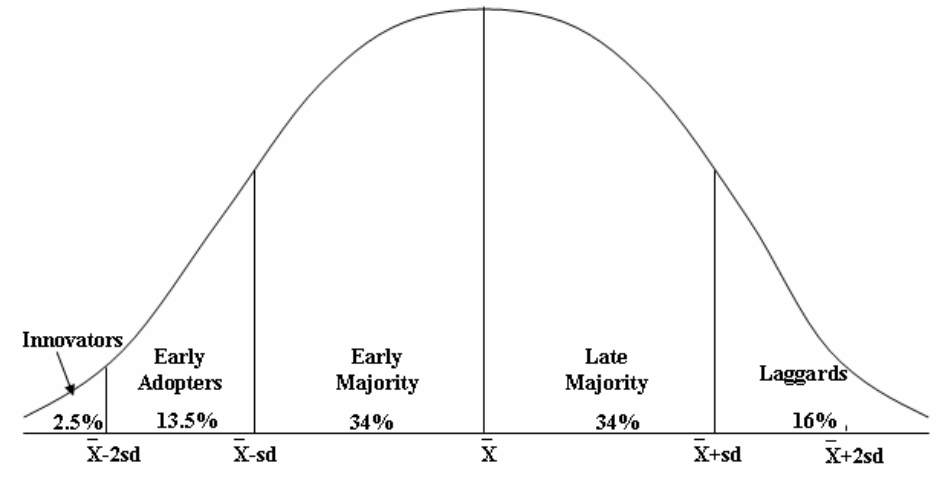
Figure 3.2: Innovation-Decision Process



Source: ~~Rogers (2010)~~Rogers (2003)

Innovativeness of individuals: according to the diffusion theory, the population can be broken down into five segments (see Figure 3.3 below) based on their propensity to adopt an innovation (Robinson, 2009): innovators, early adopters, early majority, late majority and laggards. Individuals vary in their willingness to accept new ideas and change (Hosseini, Chileshe, Zuo, & Baroudi, 2015). ~~Furthermore, their willingness is determined by personality characteristics, motivation to change, perceived needs, the meaning they attribute to the innovation and the amount of information they have about the innovation (Murray, 2009). A description of each of the segments can be found in Table 3.3~~.

Figure 3.3: Innovator Segments



Source: ~~Rogers (2010)~~Rogers (2003)

Furthermore, their willingness is determined by personality characteristics, motivation to change, perceived needs, the meaning they attribute to the innovation and the amount of information they have about the innovation (Murray, 2009). A description of each of the segments can be found in Table 3.3.

Rate of adoption: relative speed at which an innovation is adopted by society (Rogers, 2010). Adoption of an innovation does not happen simultaneously in the social system (Boston University School of Public Health, 2013), usually it is strongly determined by the perceived characteristics of an innovation (Murray, 2009). Additionally, the rate of adoption begins with a slow period of growth, followed by more rapid expansion and ending with a plateau or another slow growth period (Murray, 2009).

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Table 3.3: Innovator Segments

Segment	Description
Innovators	• Small group of visionaries • Spend a great amount of time, energy and creativity developing new ideas and gadgets • Adventurous and cosmopolite
Early Adopters	• Adopt an innovation once the benefits of the offering become apparent • Have time and money to invest in first generation innovations • Fashion conscious and want to be seen as influencers and trendsetters • Integrated closely into the social network and are often opinion leaders
Early Majority	• If an innovation leaps the chasm, it may reach the early majority segment • This segment is described as pragmatists who are comfortable with moderately progressive ideas but will not act with clear proof of the benefits of an innovation • Cost sensitive and risk averse hence, they look for simple and better ways of doing things
Late Majority	• This group consists of conservative pragmatists who dislike risk and are uncomfortable with new offerings • Driven to adopt innovations out of fear of not fitting in. Therefore, are influenced by trend influencers
Laggards	• This group of the population sees a high risk in adopting an offering or behaviour

~~Adapted~~Source**:** Murray (2009) and Robinson (2009).

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~~**Rate of adoption:** relative speed at which an innovation is adopted by society (Rogers, 2010). Adoption of an innovation does not happen simultaneously in the social system (Boston University School of Public Health, 2013), usually it is strongly determined by the perceived characteristics of an innovation (Murray, 2009). Additionally, the rate of adoption begins with a slow period of growth, followed by more rapid expansion and ending with a plateau or another slow growth period (Murray, 2009).~~

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(4) Social System

As mentioned, diffusion takes place in a social system (Rogers, 2010); therefore the rate of adoption is influenced by the structure of the social system (Sahin, 2006). The social system or context refers to the social network surrounding the potential consumer, which includes opinion leaders in the network and organizational characteristics (Murray, 2009). Thus, a consumer's decision is influenced by the opinions of peers in his or her social system (Murray, 2009) while the nature of the social system affects the individuals' innovativeness (Sahin, 2006).

3.3. Empirical Literature

This section provides a discussion on the empirical literature of the study. The following constructs are discussed: motivation, attitudes, perceived characteristics of innovation and adoption intention.

3.3.1 Consumer Motivation

Based on the aforementioned Self-Determination Theory (SDT), a consumer's motivations affect his or her behaviour. Since marketing management begins and ends with the consumer, the study of their motives is necessary (Durmaz & Diyarbakırlıoğlu, 2011). Thus, motivation becomes a critical factor when trying to encourage consumers to adopt and sustain a behavioural change (Teixeira, Carraça, Markland, Silva & Ryan, 2012). Motivation, a complex research topic, has been studied in many different contexts such as sport (Funk, Beaton, & Alexandris, 2012) and co-creation (Roberts, Hughes, & Kertbo, 2014) because its principles can help firms in any

industry understand why their consumers initiate, choose and persist with certain behaviours (Shcheglova, 2009).

3.3.1.1 Definition of Consumer Motivation

The term 'motivation' appeared in the vocabularies of psychologists in the early 1880s (Durmaz & Diyarbakırlıoğlu, 2011). Since then, motivation has been studied and defined in many different contexts. Most recently, Lazauskaite-Zabielske, Urbanaviciute & Bagdziuniene (2015) defined motivation as a 'set of energectic forces, that originate from within and beyond an individual to initiate a behaviour.' This definition indicates three elements cruical to understanding what motivation truly is. Firstly, motivation is a force. This suggests that motivation compels human behaviour to occur (Roberts, Hughes, & Kertbo, 2014) and it can be described as any sort of drive of inclination to do something (Durmaz & Diyarbakırlıoğlu, 2011). These forces, drivers or inclinations to behave in a certain way are so strong and pervasive that consumer may not be fully aware of the forces that drive them towards certain behaviours (Durmaz & Diyarbakırlıoğlu, 2011). Secondly, motivation can originate from internal or external factors. The SDT distinguishes between intrinsic and extrinsic motivation, which regulates an individual's behaviours (Teixeira, Carraça, Markland, Silva & Ryan, 2012). When a consumer is intrinsically motivated, he/she is driven by internal factors such as enjoyment and fun (Brabham, 2008). On the other hand, a consumer who is said to be extrinsically motivated is compelled to behaviour because of external influences such as monetary reward (Archak, 2010). Lastly, Lazauskaite-Zabielske, Urbanaviciute & Bagdziuniene's (2015) definition suggests a relationship between motivation and behaviour. Roberts, Hughes, & Kertbo (2014) acknowledge the link between the two by defining motivation as the 'antecedent condition' that compels human behaviour. Similary, motivation is defined as a predisposition to behave in a certain way (Espinoza, 2007); an activation of internal desires and needs which energise behaviour way (Mallalieu, 2000) or a stimulation of an emotion upon an individuals will which prompts him/her to action (Durmaz & Diyarbakırlıoğlu, 2011).

However, missing from Lazauskaite-Zabielske, Urbanaviciute & Bagdziuniene's (2015) understanding of motivation is that it a process. Both Shcheglova (2009) and Espinoza (2007) acknowlegdes motivation as a dynamic and goal-orientated process that causes people to behave the way they do. More specifically, the process of motivation is the interaction of emotional (affective) and cognitive components (Shcheglova, 2009). Durmaz & Diyarbakırlıoğlu (2011) stated that the process of motivation begins when an individual wishes to satisfy a need which has been aroused. Once the need has been activated, a state of tension exists, which drives the individual to elminate the feelings of tension.

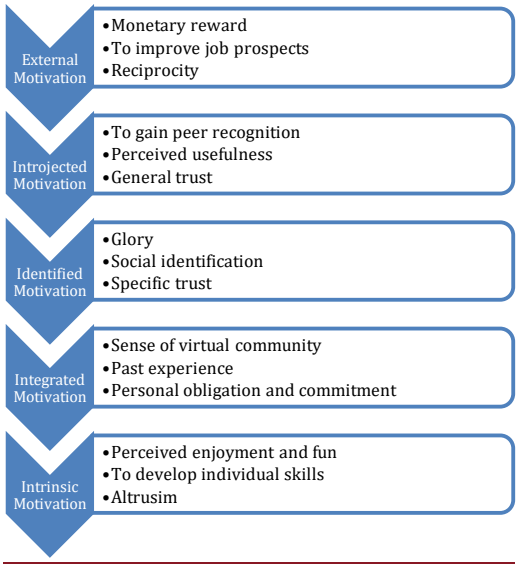
3.3.1.2 Types of Motivation

The SDT distinguishes between different types of motivation, intrinsic and extrinsic motivation, which regulate an individual's behaviour (Teixeira, Carraça, Markland, Silva & Ryan, 2012; Durmaz & Diyarbakırlıoğlu, 2011 and Ryan & Deci, 2000). ~~Intrinsic motivation reflects the natural human propensity to learn and assimilate, while extrinsic motivation varies considerably in its relative autonomy and thus can reflect external control or true self-regulation (Ryan & Deci, 2000).~~ Figure 3.4 presents the motivation spectrum, which details motivation from the least self-determined behaviour (external motivation) to the most self-determined behaviour (intrinsic motivation). Although various types of motivation exist, the focus of this study is on the influence of intrinsic motivation as it is described as pervasive and important (Ryan & Deci, 2000).

Figure 3.4: Motivation Spectrum

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~~Figure 3.4: Motivation Spectrum~~

External Motivation	Introjected Motivation	Identified Motivation	Integrated Motivation	Intrinsic Motivation
1. Monetary reward (Archak, 2010; Bayus, 2010; DiPalantino and Vojnovic, 2009; Horton and Chilton, 2010; Stewart *et al.*, 2010) 2. To improve job prospects (Brabham, 2008, 2010) 3. Reciprocity 4. To signal capability to potential employers (Lakhani and Wolf, 2005)	1. To gain peer recognition (Brabham 2008, 2010) 2. Perceived usefulness (Zhong *et al.*, 2011) 3.General trust (Zheng *et al.*, 2011) 4. Subjective norm	1. Glory (Archak, 2010) 2. Social identification (Lakhani and Wolf, 2005) 3. Specific trust (Zheng *et al.*, 2011) 4.Task requirement and fit	1. Sense of virtual community (Brabham, 2010; Zhong *et al.*, 2011) 2. Past experience (Bayus, 2010) 3. Sense of belonging 4. Personal obligation and commitment	1. Perceived enjoyment and fun (Brabham, 2008, 2010; Stewart *et al.*, 2010) 2. To develop individual skills (Brabham, 2010; Zhong *et al.*, 2011) 3. Curiosity and interest (Brabham, 2010) 4. Self-affirmation (Zhong *et al.*, 2011) 5. Pastime (Ipeirotis, 2010) 6. Altruism

Source: Rogers (20030)

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Extrinsic Motivation

Although intrinsic motivation is a pervasive and important type of motivation, most activities that people engage in are not intrinsically motivated (Ryan & Deci, 2000). Thus, an understanding of extrinsic motivation becomes important. Extrinsic motivation refers to activities that are performed to obtain a separable ouctome such as tangible reward, avoidance of a punishment or the attainment of recognition (Miller & Prior, 2010 and Ryan, Williams, Patrick & Deci, 2009). Thus, common extrinsic motivations include tangible or verbal rewards like money (Ankli & Palliam, 2012) or coercion, competition and threat of punishment (Durmaz & Diyarbakırlıoğlu, 2011). Some theories of motivation view extrinsically motivated behaviour as non-autonomous (Ryan & Deci, 2000). However, the SDT proposes that extrinsic motivation can vary greatly in the degree of autonomy (Ryan & Deci, 2000), if an individual goes through a process of internalization if the task fits with their values and beliefs (Durmaz & Diyarbakırlıoğlu, 2011). This suggests that there are different forms of extrinsic motivation spilt into two groups: controlled and uncontrolled (or autonomous) (Ryan, Williams, Patrick & Deci, 2009), which represent different degrees of internalization and self-determination (Reinholt, 2006). External motivation and introjected motivation fall under the controlled (or external) category of extrinsic motivation, while identified motivation and integrated motivation fall under the uncontrolled (or internal) category. An overview of the types of extrinsic motivations follows:

- *External regulation:* classic case of extrinsic motivation (Reinholt, 2006) because the consumer is driven by external pressures (Ng, et al., 2012).
- *Introjection:* motivation comes from within the individual but is relatively externally controlled (Reinholt, 2006).
- *Identification:* individual adopts behaviour because he or she identifies with the behaviour (Reinholt, 2006).
- *Integration:* highest level of internalised extrinsic motivation. Integration differs from intrinsic motivation on the basis that the activity is not engaged in out of interest, but because it is important to personal goals (Reinholt, 2006).

Intrinsic Motivation

From birth humans are active, inquisitive and curious creatures who display a readiness to learn and explore. This natural motivational tendency is critical because acting on one's inherent interests gives the opportunity to develop knowledge and skills (Ryan & Deci, 2000). From this intrinsic motivation develops. Thus, intrinsic motivation refers to engaging in an activity or behaviour because of the inherent pleasure it provides rather than for some separable outcome (Ryan, Williams, Patrick & Deci, 2009; Miller & Prior, 2010 Ryan & Deci, 2000). However, intrinsic motivation does not mean that an individual will not seek rewards, instead it suggests that external rewards are not enough to compel the individual into action. (Durmaz & Diyarbakırlıoğlu, 2011). Various researchers have studied intrinsic motivation and some authors have defined it in terms of the task being interesting while others have defined it based on the satisfaction an individual gains from the task (Ryan & Deci, 2000). For example, Lazauskaite-Zabielske, Urbanaviciute, & Bagdziuniene (2015) defines intrinsic motivation in terms of the task being interesting. The authors define intrinsic motivation as the desire to desire to engage in an activity because it is interesrting and satisfying (Lazauskaite-Zabielske, Urbanaviciute, & Bagdziuniene, 2015). While Durmaz & Diyarbakırlıoğlu (2011) define intrinsic motivation of the basis of satisfaction by defining the term as motivation that comes from the pleasure one gets from the task itself. When an individual is intrinsically motivated, he/she experiences feelings of enjoyment, personal accomplishment and excitement (Teixeira, Carraça, Markland, Silva & Ryan, 2012). For instance, a consumer who is intrinsically motivated will participate in a co-creation activity which aims to find solutions to digital banking problems because finding a solution provides a sense of pleasure or personal accomplishment.

3.3.1.3 Related Studies on Consumer Motivation

Zhao & Zhu (2014) conducted a study that investigated what motivates consumers to participate in crowdsourcing contests. The purpose was to investigate the category or type of motivation and synthesise various motivation factors. The results of the study show that various types of motives

play different roles in determining participation effort in the crowdsourcing contest. Furthermore, Zhao and& Zhu (2014) found that both intrinsic and extrinsic motivational components are important in motivating consumers. Similarly, (Funk, Beaton, & Alexandris, 2012) found like results in their study, which examined sport consumer motivation. The researchers found that both intrinsic motivated and extrinsically motivated behaviour compels consumers to attend sporting events and activities.

With regards to intrinsic motivation,Furthermore, researchers (e.g. Gefen & Straub, 2000; Yoo, Han, & Huang, 2010; Watchravesringkan, Hodges & Kim, 2012 and Adbuljalil & Zainuddin, 2015) have found that a consumer's intention to adopt an innovation is driven by the nature of the individual's intrinsic motivation. In particular, Roberts, Hughes & Kertbo (2014) conducted an exploratory research study that explored what factors motivated consumers to engage in co-creation innovation activities. The results of the study found that motivations differed across the type of co-creation activities. It was suggested that when consumers co-create as part of a community it is driven by intrinsic motives. Thus, if a consumer is motivated by intrinsic motives, firms should leverage this insight and develop co-creation activities that are centred around a community of users.

On the other hand, in a study conducted by Fandos & Flavian (2006) the results revealed the relationship between extrinsic factors and consumer loyalty was significant and positive. Although a direct relationship between extrinsic motives and consumer intentions did not exist, the study found that when consumers have positive feelings and affects (attitudes), the loyalty is created lead to consumers exhibiting behavioural intentions. However, more recently researchers (e.g. Watchravesringkan, Hodges & Kim, 2012) have found that a consumer's intention to adopt an innovation is directly driven by the nature of his or her extrinsic motivations. Thus, if a consumer is motivated by extrinsic motives, firms should leverage this insight and develop co-creation activities that are centred around separable outcomes (Ryan & Deci, 2000).

3.3.1.4 The Conceptualisation of Consumer Motivation

Based on the aforementioned literature, according to the SDT, motivation is a multidimensional construct. Motivation consists of the following dimensions: amotivation, extrinsic motivation and intrinsic motivation. Furthermore, based on the work of Zheng, Li & Hou (2011) and Zhao & Zhu (2014), a model was developed which yields an instrument that can quantify the dimensions of motivation.

3.3.2 Consumer Attitudes

3.3.2.1 Definition of Consumer Attitudes

In psychology, an attitude can be described as 'a relatively enduring organisation of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events of symbols' (Hogg & Vaughan, 2005). Furthermore, Hawkins, Best & Coney (2004) suggested that an attitude as an enduring organisation of motivational, emotional, perceptual and cognitive processes with respect to some aspect of our environment. On the other hand, Crano & Prislin (2011) defined attitudes as evaluative judgements, which integrate and summarize cognitive/affective reactions.

In the marketing context an 'attitude' refers to a consumer's immediate and overall evaluation of an object, act or behaviour in relation to its perceived ability to meet his or her motivations (Percy & Rossiter, 1992 and Ajzen & Fishbein, 2005). This definition suggests that attitudes can depend on motivations. Percy & Rossiter, (1992) suggested that if the consumer's motivations changed- their evaluation of the brand might change too. According to Lutz (1981), attitudes refer to positive or negative feelings directed at some object or behaviour. Ajzen & Fishbein (2005) defined an attitude as 'a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given attitude.' This definition suggests that the attitudes a consumer adopts about a particular behaviour or act is learned. For example, consumers learn their feelings by processing information about the behaviour through direct experiences with the type of behaviour (Lutz, 1981). The definition proposed by Ajzen & Fishbein (2005) suggests that attitudes are a predisposition to respond. This means that attitudes are covert and

unobservable internal reactions that are precursors of certain behaviours (Lin, Zhou, & Chen, 2014). Lastly, the responses are consistently favourable or unfavourable. This suggests that a consumer's feelings toward an act can either be positive or negative. Furthermore, the pattern of behaviour resulting from those feelings will be consistent (Lin, Zhou, & Chen, 2014).

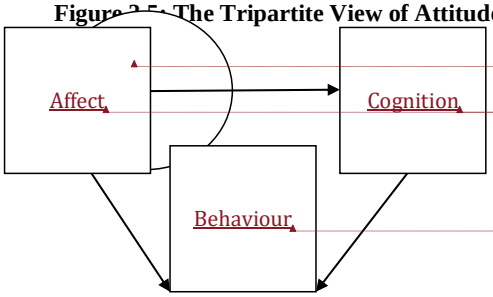
3.3.2.2 Theories of Consumer Attitudes

Over the years, many theories have been proposed which assist in the understanding of attitude. However, this study will briefly discuss two theoretical orientations explaining how attitudes are formed and how attitudes can be changed.

The Tripartite View of Attitude

This view suggests there is a clear distinction between thoughts, emotions and behavioural intentions (Brown, et al., 2014). According to this theoretical orientation, there are three underlying components of attitude namely: cognition, affect and conation (behaviour) Hawkins, Best & Coney (2004). Figure 3.5 (below) is a graphic representation of the Tripartite View of Attitude. All three of the components are necessary when a consumer is forming an attitude but the degrees of each component can vary (Hawkins, Best & Coney, 2004). The reason for the varying degrees depends on the motivations of the consumer. This suggests that the components show consistency with regards to favourability (Lutz, 1981). Thus, if the cognitive component results in positive attitudes, so will the affective component, which will result in positive intentions and actual behaviour.

Figure 3.5: The Tripartite View of Attitude



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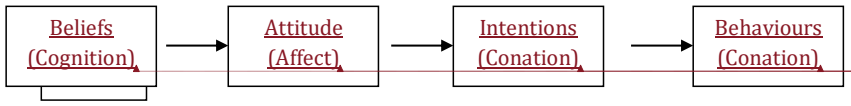
Source: Lutz (1981)

Cognition refers to the beliefs a consumer holds to a brand (Hawkins, Best & Coney, 2004) and the consumer's logical thoughts about the brand (Percy & Rossiter, 1992). The affect component refers to the positive or negative emotional reactions and feelings a consumer holds (Albarracin, Johnson, & Zanna, 2014). Lastly, conation (behaviour and intentions) describes the actual and intended behaviours toward the brand (Lutz, 1981).

The Unidimensionalist View of Attitude

This view differs from the Tripartite View because it treats attitude as single affect construct (Hawkins, Best & Coney, 2004). Simply put, attitude consists of only affect. This suggests that attitude is one-dimensional and the other belief and behavioural elements are originators or consequences of attitude (Ajzen & Fishbein, 2005). Based on this model, attitudes (affect) are different from beliefs (cognition) and intentions and behaviours (conation) (Albarracin, Johnson, & Zanna, 2014). The figure below (Figure 3.6) depicts the Unidimensionalist View of Attitude.

Figure 3.6: The Unidimensionalist View of Attitude



Source: Lutz (1981)

The three constructs are central to forming attitudes and at the same time attitudes have a reciprocal impact on affects, beliefs and behaviours (Albarracin, Johnson, & Zanna, 2014). Therefore, the model suggests that if a consumer learns something about a brand, a belief will be formed. The belief will give rise to an attitude about the brand, which leads to an intention to buy

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the brand and an actual purchase (if the attitude formed was positive) (Hawkins, Best & Coney, 2004).

3.3.2.3 Related Studies on Consumer Attitudes

With innovation attracting considerable interest in recent years Lee (2012) conducted a study that used the concept of the Theory of Reasoned Action to examine consumer attitudes toward service innovation and the relating antecedents. The results of the study showed that perceived ease of use, perceived price fairness, risk averseness and satisfaction with an existing service significantly influence consumer attitudes and the influence a consumer's intention to adopt service innovations (Lee, 2012).

Additionally, it is well documented that attitudes have a significant impact on consumer behaviour (Lin, Zhou, & Chen, 2014; Li, Jiang, An, Shen, & Jin, 2009 and Povee & Roberts, 2014) and judgements (Povee & Roberts, 2014). In a study conducted by de Matos, Ituassu, & Rossi, (2007) it was found that It is not only the attitude one has toward an act that matters, consumers are also influenced by the information he/she receives from his/her reference group. A study, conducted by Ahmed (2001), sought to highlight the importance of a consumer's brand attitude and its influence on purchase intention. The study was carried out on a sample of Yemen women for a particular product. The results of the study indicate a consumer's attitude toward the brand significantly influences their adoption intentions. Additionally, Jaafar, Lalp & Naba (2012) conducted research that investigated the factors such as perception and attitude that may influence a consumer's intention to purchase private label food in Malaysia. The results suggest that the most significant factor that influences consumer intention is brand attitude and perceived price.

3.3.2.4 Conceptualisation of Consumer Attitudes

The present study adopts the proposal of the Unidimensionalist View of Attitude. According to this view, attitude is a one dimensional construct consisting of affect only (Albarracin, Johnson,

& Zanna, 2014). Furthermore, based on the work of Allen, Machlet & Kleine (1992), Ahluwalia, Unnava & Burnkrant (2001) and Bansal, Taylor & St. James (2005), a model was developed which yields an instrument that can quantify attitudes.

3.3.3 Innovation: Perceived Characteristics and Adoption Intention

3.3.3.1 Innovation

Most people can provide an example of innovative products such as the iPod or the PC, but few can clearly define what an innovation is (O'Sullivan & Dooley, 2008). This includes the scientific community, who agrees about the importance of innovation, but no consensus exists on what counts as innovation (Palm, Lilja, & Wiklund, 2015). According to Trott (2012), innovation is concerned with the commercial and practical application of ideas or inventions. Similarly, Allio (2005) suggests that innovation focuses invention implemented and taken to market. Specifically, innovation involves the development of scientific discoveries and inventions, which are brought into the market in hopes that they will be used by a wide range of users (Torun, 2007 and Garcia & Calantone, 2002). However, some authors (Palm, Lilja, & Wiklund, 2015; Trott, 2012 and O'Sullivan & Dooley, 2008) suggest that innovation is a process that starts with an invention and ends with a product that is commercially viable. However, the innovation process should not be seen as one with an ending, as it is repetitive in nature (Garcia & Calantone, 2002). In other words, the first introduction of a new innovation will automatically pave the way for the reintroduction of an improved innovation (Garcia & Calantone, 2002). This iterative process suggests that innovation is one of the key strategies for increasing customer value sustainably (Palm, Lilja, & Wiklund, 2015) and helping firms sustain growth (O'Sullivan & Dooley, 2008). Based on the aforementioned explanations of innovation, for the purposes of this study, the definition of innovation is as follows:

> *"Innovation is the process of making changes, large and small, radical and incremental, to products, processes and services that results in the introduction of something new for the organisation that adds values for consumers and contributes to the knowledge store of the firm"*
>
> (O'Sullivan & Dooley, 2008).

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Models of Innovation

According to Trott (2012) there are various models of innovation that have developed over the year including technology push, market pull, dominant design, architectural innovation and open innovation. The linear models of innovation, dominant design and architectural innovation are explained in the table below (Table 3.4).

Table 3.4: Models of Innovation

Model of Innovation	Definition
Linear Model	View innovation as a sequential linear process with separate stages. Involves interactions between the science base, technological development and the needs of the market. There are two variations: technological-pull and market-push.
Dominant Design	The origin of this theory was first introdued by Abernathy & Utterback (1975) – they introduced the notion that the emergence of a dominant design would provde to be a major milestone in the industry evolution, and as a result change the behaviour patterns of consumers.
Architectural Innovation	Henderson & Clark (1990) divide technological knowledge along two dimensions: knowledge of components and architectural knowledge. This model distinguishes between the components of a product and the wats they are integrated into and linked to the system, which is known as architectural knowledge (Trott, 2012). These two dimensions (components and linkages) result in four possible types of innovation: incremental, modular, radical and architectural (Henderson & Clark, 1990).

In the last four years, it has been suggested that co-creation is in itself an innovation model (Kukkuru, 2011). Open innovation, strongly associated with co-creation, is a concept promoted by Chesbrough (2003). It differs from traditional innovation, in that it does not believe that innovation should be started by a firm's R&D activities and then products are developed and distributed to consumers (Chesbrough, 2006). Instead, this approach to innovation is based on the premise that firms can use external knowledge, as well as internal capabilities, to create innovative offerings (Duarte & Sarkar, 2011). Chesbrough (2006) defines open innovation as 'the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation, respectively.' Thus, open innovation moves beyond traditional business models and helps open up the firm's boundaries (Inauen &

Schenker-Wicki, 2012). Open innovation is about using external and internal ideas as firms look for ways to advance their innovations (Chesbrough, 2006). At the root of understanding open innovation, firms must note that even the most capable R&D organisations cannot succeed in isolation. Firms must identify, connect and leverage external and internal knowledge sources as the core of the innovation process (Schroll & Mild, 2011).

3.3.3.2 Perceived Characteristics of Innovation

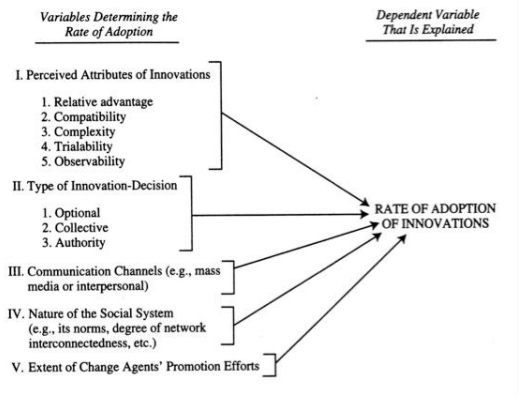
Rogers' (2003) model of innovation diffusion has been used to examine the rate of innovation adoption and the factors that influence adoption (Haggman, 2009). The figure below (Figure 3.7) illustrates the variables determining the rate of innovation adoption. Of the five proposed variables, which explore the rate of adoption, this study focuses on one, the perceived characteristics/attributes of innovations, which consists of relative advantage, compatibility and complexity, trialability and observability.

- *Relative Advantage:* Ewe, Yap & Lee (2015), Sahin (2006) and Lee, Hsieh & Hsu (2011) defined the relative advantage of an innovation as the degree to which it is considered as being superior to the idea it has replaced.
- *Complexity:* describes a consumer's perceived level of difficulty in understanding and using an innovation (Ewe, Yap & Lee, 2015 and Lee, Hsieh & Hsu, 2011).
- *Compatibility:* the degree to which an innovation is consistent with a consumer's existing values and needs (Ganiyu & Adeosun, 2013).
- *Trialability:* the degree to which an innovation may be experimented with on limited bases (Almobarraz, 2007).
- *Observability:* the degree to which the result of the innovation is visible to others (Almobarraz, 2007).

Figure 3.7: Variables Determining Rate of Innovation Adoption

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Source: ~~Rogers (2003)~~Rogers (2003)

The present study focuses on relative advantage, compatibility and complexity because these particular characteristics have the most significant and influential relationship with intention to use (Ewe, Yap, & Lee, 2015).

3.3.3.3 Adoption Intention

In the study of psychology, intention is the perceived likelihood of a person performing certain behaviours (Ko, 2012). Furthermore, Ko (2012) stated that an individual's intention is an indication of their 'readiness' to perform the given behaviours. This suggests that intention is an immediate antecedent of behaviour (Ko, 2012). Thus, in the innovation context, adoption intention is a part of the consumer decision-making process (Khan, Ghauri & Majeed, 2012) and refers to a consumer's intent to adopt (or use) an offering once they are aware of its attributes (Oliver & Lee, 2010). According to Thamizhvanan & Xavier (2013), adoption intention is the strength of a customer's intention to use an innovation and refers to the consumer's plan to adopt the offering in the future. Furthermore, not only can a consumer's intent be a plan but it can be seen as an 'implied promise to one's self to adopt' (Tariq, Nawaz, Nawaz, & Butt, 2013). Because intention is indicator of future behaviour (Rootman & Galloway, 2013) and a depiction

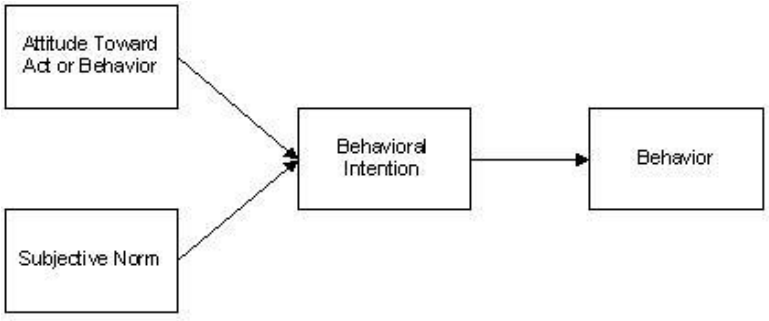
of customer retention (Tariq, Nawaz, Nawaz, & Butt, 2013), managers should focus on intentional measures more than behavioural measures because intentional measures are more effective (Thamizhvanan & Xavier, 2013). This is due to the fact that the stronger the intention is to engage in certain behaviour; the more likely it will actually be performed (Ko, 2012).

Theories of Intention

Academics understand adoption intention based on two psychological theories that describe human behaviour: (1) the Theory of Reasoned Action (TRA) and (2) the Theory of Planned Behaviour (TPB).

The Theory of Reasoned Action (Ajzen & Fishbein, 1980) has been used in various contexts (Ko, 2012; Chiou, Huang & Chuang, 2005; Son, Jin & George, 2013) and suggests that an individual's behaviour can be predicted by looking at that individual's corresponding intentions and their intention is determined by their attitudes and normative values (Ajzen & Fishbein, 1980). Figure 3.8 depicts the theory.

Figure 3.8: Theory of Reasoned Action

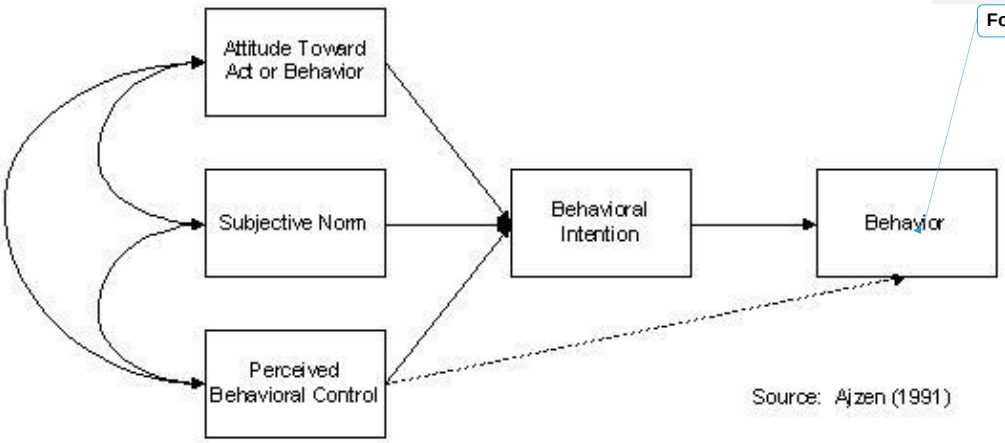


Source: Ajzen & Fishbein (1980)

Attitude toward the act refers to the degree with which a consumer has a favourable evaluation toward purchasing the brand (Chiou, Huang & Chuang, 2005). Subjective norms refer to the perceived social pressures the consumer feels to buy or not to buy the product (Chiou, Huang & Chuang, 2005) or it can explain a consumer's perceptions of the opinions of others toward the brand (Ko, 2012). Furthermore, according to Ko (2012), the adoption of behaviour is the immediate result of behavioural intention. Additionally, actual behaviour is driven by intentions, where intention is a function of a consumer's attitude and subjective norm surrounding the performance of the behaviour (Ko, 2012). Hence, Son, Jin & George (2013) stated that behavioural intention leads to actual behaviour. This suggests that intentions are the best predictors of actual behaviour, both in the social/psychological context and in the marketing context.

The Theory of Reasoned Action cannot fully explain intention. Thus, the Theory of Planned Behaviour (Ajzen, 1985) was developed. The extension of the TRA was necessary to deal with the limitations of the model. The TRA did not deal with behaviours over which individuals have 'incomplete volitional control' (Son, Jin & George, 2013). Thus, the TPB addresses this limitation by adding another variable to the model: perceived behavioural control. Figure 3.9 illustrates the TPB model.

Figure 3.9: Theory of Planned Behaviour



Source: Ajzen (1991)

Therefore the three determinants of adoption intention are, based on the TPB: attitude toward the act, perceived norms and perceived behavioural control. The added element, perceived behavioural control, is the degree of the perceived resources and control that one has over making a purchase (Chiou, Huang & Chuang, 2005).

3.3.3.4 Related Studies

Rogers (2003) proposed the existence of a relationship between relative advantage, complexity and compatibility, respectively, and adoption intentions. Furthermore, Rogers (2003) found that innovations which consumer perceive as having a high relative advantage and compatibility as well as a being low in complexity will be adopted faster than other innovations. These findings have since been confirmed by researchers such as Sahin (2006), Haggman (2009), Lee, Hsieh & Hsu (2011), Ganiyu & Adeosun (2013) and Ewe, Yap & Lee (2015). Specifically, Lee, et al. ~~Hsieh & Hsu~~ (2011) conducted a study which developed a hybrid Technology Adoption Model by combining TAM with the Diffusion of Innovation theory to explore the impact of innovation characteristics on the behavioural intentions of individuals to use a specific innovation. The results of the study were consistent with previous studies (e.g. Lee, 2007, Wu & Wang 2005) that

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found that compatibility and relative advantage had significant positive effects on behavioural intentions while complexity had a negative impact on the adoption intentions of consumers.

Ndubisi & Sinti (2006) suggest that relative advantage is an important factor in determining the adoption of new innovations as the construct is positively related to its rate of adoption. Similarly, Lee (2007), Keesee & Shepard (2011) and Lee, Hsieh & Hsu (2011) confirmed these findings and concluded that relative advantage is the best predictor in adoption intentions because it is the most relevant attribute/characteristic in influencing adoption. Specifically, a study conducted by Lin (2011) developed a research model to examine the effect of innovation attributes such as relative advantage on consumer attitudes and behavioural intentions of consumers to adopt mobile banking. The results of the study found that relative advantage does indeed have a positive impact on intentions to adopt or continue to use mobile banking.

Cheung, Chang & Lai (2000) found that complexity negatively influences the adoption of an innovation. For this reason, complexity is described as the opposite of ease of use, which has been found to directly impact the adoption of the internet-based technologies (Ndubisi & Sinti, 2006), This finding is confirmed by in other studies (e.g. Lee, 2007). Thus, it is suggested that the less complex something is to understand and use, the more likely a consumer will adopt it (Lee, Hsieh, & Hsu, 2011). For instance, a study conducted by (Reynolds & De Maya, 2013) considered the inherent complexity of new technology. The study aimed to determine the impact of complexity and perceived difficulty on a consumer's intention to use and continue to use a new technology. The study found that both complexity and perceived difficulty had a negative impact on the consumer's behavioural intention.

Researchers found that an innovation is more likely to be adopted when it is compatible with an individual's current value system (Ndubisi & Sinti, 2006) suggesting that compatibility may be the most relevant attributes influencing the potential adoption of an innovation (Keesee & Shepard, 2011). The findings of Wu & Wang (2005) confirmed that the compatibility of an

~~innovation with a consumer's value system has a significant positive and direct effect on the consumer's intentions. Thus, it can be said that a lack of compatibility of an innovation with a consumer's lifestyle, needs and experiences may negatively affect his/her use of the innovation (Sahin, 2006). More recent research was conducted by Duan, He, Feng, Li & Fu (2010) in which the intentions of taking up e-learning were examined. The findings of the study revealed that only compatibitly had a significant influence on the e-learning adoption intention when compared to other relavant innovation attributes.~~

3.3.3.5 Conceptualisation

Based on the reviewed literature, the perceived characteristics of innovation are a dimension of the innovation construct, a multidimensional construct. Furthermore, the perceived characteristics of innovation is measured using the following indicators: relative advantage, complexity, compatibility, trialability and observability. Furthermore, based on the work of Rogers (2003), which was adapted by Ewe, Yap & Lee (2015), the perceived characteristics of innovations are useful for the measurement of a consumer's response to an innovation. In the context of the present study, consumers are asked to rate their feelings with regards to the advantages, complexities and compatibilities associated with the innovation on a seven-point likert scale. For example, consumers can be asked if they believe an innovative digital banking service developed through co-creation would allow them to bank more quickly.

According the TRA, adoption intention has two dimensions: attitude toward the act and subjective norm (Son, Jin & George, 2013). Whereas the TPB suggests that adoption intention is made of three dimensions: attitude toward the act, subjective norm and perceived behavioural control (Chiou, Huang & Chuang, 2005). The present study, adopts the proposal of the TPB. Thus, adoption intention is a multidimensional construct. Furthermore, based on the work of Lopez-Nicolas, Molina-Castillo & Bouwman (2008) and Barber, Kuo, Bishop & Goodman Jr. (2012), a model was developed which yields an instrument that can quantify the dimensions of adoption intention.

3.4. Conclusion

This chapter provided an overview of the theoretical groundings that underpin the present study. The Self-Determination Theory as well as the Diffusion of Innovation Theory were comprehensively discussed. Following this, a ~~, followed by a~~ discussion of the empirical literature underlying the constructs of the study was presented. Each of the constructs (intrinsic motives, attitude toward the act, perceived relative advantage, perceived complexity, perceived compatibility and adoption intention) were reviewed based on the definition, related theories and studies and conceptualisation. ~~.~~ In the next chapter, the conceptual model and hypotheses development are presented.

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CHAPTER 4: CONCEPTUAL MODEL AND HYPOTHESES DEVELOPMENT

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4.1 Introduction

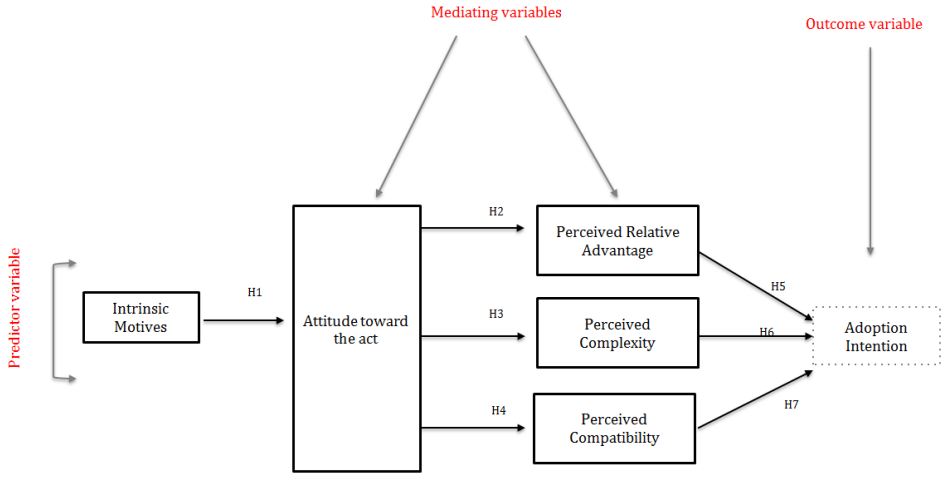
This chapter provides an in-depth discussion of the proposed conceptual model and the hypotheses development. A discussion on how variables were selected to create the proposed conceptual model is presented. Following this, the hypotheses are developed by reviewing each individual variable and its relationship with other variables in the proposed conceptual model.

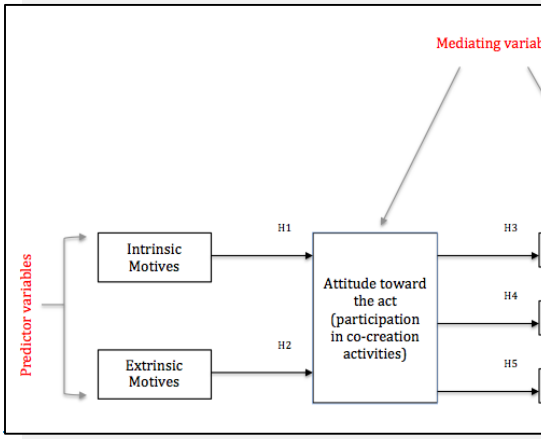
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4.2 Conceptual Model

The initial literature review reveals a number of variables associated with consumer motivation and attitudes toward co-creation activities. These variables have been selected to create the proposed conceptual model depicted in the figure below (Figure 4.1). This model will be used to fulfil the purpose of the study.

Figure 4.1: Proposed Conceptual Model





Firstly, intrinsic motives ~~and extrinsic motives~~ represent the predictor variables with adoption intention as the outcome variable. Within the proposed model, there are four mediators, namely: attitude toward the act, perceived relative advantage, perceived complexity and perceived compatibility. The purpose of the study is to determine how ~~extrinsic and~~ intrinsic motivations influence adoption intentions through the mediating role of the aforementioned mediators. It is therefore proposed that intrinsic ~~and extrinsic~~ motives have a positive influence on attitudes toward participating in co-creation activities, which in turn has a positive impact on perceived relative advantage and perceived compatibility and a negative impact on perceived complexity. It follows that perceived relative advantage and perceived compatibility have a positive relationship with adoption intention, respectively, while perceived complexity has a negative relationship with adoption intention. In practice, this means that when banks leverage the right type of motive, it will have a positive effect on a consumer's attitudes toward participating in co-creation activities. If the consumer's attitudes are favourable, this will lead to favourable perceptions of the innovation and in turn lead to an increase in adoption intention.

4.3 Hypotheses Development

4.3.1 Intrinsic Motives

Although the Self-Determination Theory has been widely studied, the discussion around intrinsic motivation still remains an important one, as the construct has shown to be so pervasive in consumer behaviour research (Ryan & Deci, 2000). Motivation refers to the condition that compels individuals to behave in a particular way (Roberts, Hughes, & Kertbo, 2014). Furthermore, when an individual is motivated by intrinsic factors it means he or she is compelled to behave in a certain way because he or she finds the act inherently enjoyable, interesting or fun (Ryan & Deci, 2000; Kivetz, 2003; Brabham, 2008 and Stewart, Lubensky & Huerta, 2010). Additionally, if a consumer is driven toward an act because he or she wishes to develop a personal skill (Brabham, 2008), fufill self-affirmation desires (Zhong, Wang, & Qiu, 2011) or because he or she considers the act a pastime (Roberts, Hughes, & Kertbo, Exploring Consumers'

Motivations to Engage in Innovation through Co-creation Activities, 2014): it is said the consumer is driven by intrinsic motives.

Researchers (e.g. Gefen & Straub, 2000; Yoo, Han, & Huang, 2010; Watchravesringkan, Hodges & Kim, 2012 and Adbuljalil & Zainuddin, 2015) have found that a consumer's intention to adopt an innovation is driven by the nature of the individual's intrinsic motivation. In particular, Roberts, Hughes & Kertbo (2014) conducted an exploratory research study that explored what factors motivated consumers to engage in co-creation innovation activities. The results of the study found that motivations differed across the type of co-creation activities. It was suggested that when consumers co-create as part of a community it is driven by intrinsic motives. Thus, if a consumer is motivated by intrinsic motives, firms should leverage this insight and develop co-creation activities that are centred around a community of users.

4.3.1.1 Intrinsic Motives and Attitude toward the Act (Hypothesis 1)

The relationship between intrinsic motives and attitudes has been explored in studies such as those conducted by Budiman (2012) and Watchravesringkan, Hodges, & Kim (2012).

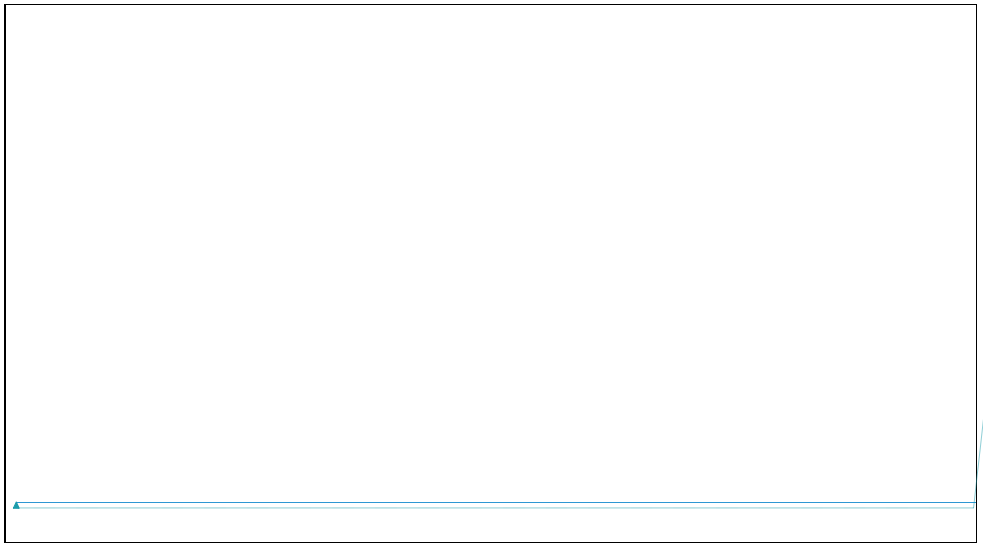
Budiman (2012) conducted a study that investigated the effect of both intrinsic and extrinsic factors in determining the attitudes consumers towards counterfeit products. Budiman (2012) surveyed 200 respondents in Hong Kong and found that intrinsic motives had a positive influence on consumer attitudes toward pirated bags. In addition, the results suggest that a more positive attitude will further strengthen the behavioural intentions of the consumer. Although, the context of Budiman (2012) differs from that of the present study, the results found can be applicable to the proposed conceptual model. Moreover, in the context of co-creation, Kohler, Fueller, Stieger & Matzler (2011) found that when participants in co-creation activities experienced an "inspiring, intrinsically motivating, involving and fun" engagement with a brand, the consumer participated more intensely. This suggests that intrinsically motivated consumers are likely to have favourable attitudes to the co-creation activities. Additionally,

Watchravesringkan, Hodges, & Kim (2012) conducted a study that sought to develop and test a model of consumer adoption of technological fashion products (e.g. Apple Watch, Google Glass & FitBit (PWC, 2014)). The empirical results of Watchravesringkan, Hodges, & Kim (2012) revealed that intrinsic motivational dimensions contribute to a consumer's attitudes toward using an innovation, which in turn affects their adoption intention.

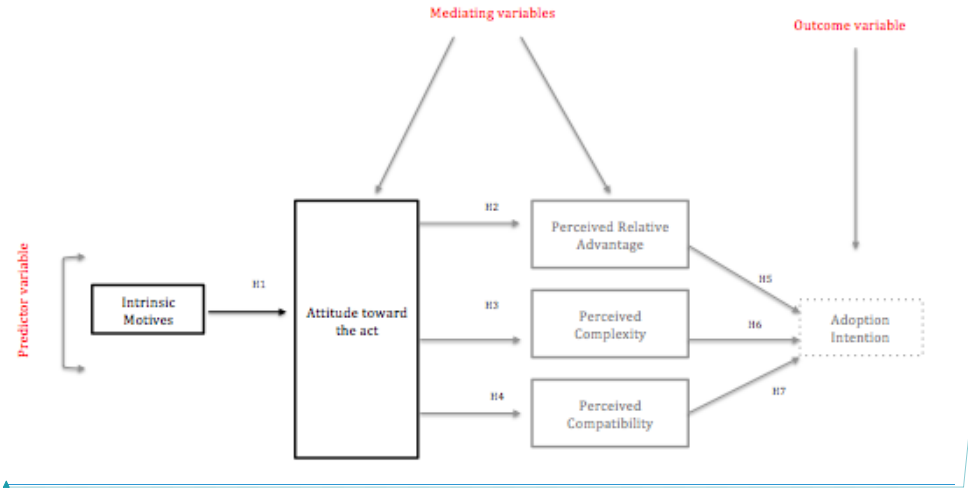
Derived from the literature above, it is evident that intrinsic motives influence the attitudes a consumer has. Thus, the proposed study seeks to determine if a consumer is motivated by intrinsic factors, will he or she likely to have a positive attitude toward participating in innovative co-creation activities.

H1: *Intrinsic motives ~~have~~ have a positive influence on attitude~~s~~ toward the act. ~~participating in co-creation activities.~~*

Figure 4.2: Intrinsic Motives Positively Influence Attitude toward the Act



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~~4.3.2 Extrinsic Motives~~

~~Although intrinsic motivation appears to be a clearly important construct in the proposed conceptual model, many activities individuals engage in are not entirely intrinsically motivated (Ryan & Deci, 2000). Thus, the influence of extrinsic motivation on consumer attitudes toward participating in co-creation activities is necessary to determine. According to the Self-Determination Theory, extrinsic motivation refers to "doing something because it leads to a separable outcome" (Ryan & Deci, 2000). Furthermore, an individual's extrinsic motivations are governed by reinforcement contingencies (Lai, 2011). As noted by Zhao & Zhu (2014), extrinsic motivation should not be seen as a unitary construct, but rather as a fluid transition between internal and external motivation depending on the type of regulation and internationalisation. Thus, an individual who is driven by extrinsic motives will participate in an activity because of monetary gains (Stewart, Lubensky, & Huerta, 2010), to gain peer recognition (Zhong, Wang, & Qiu, 2011), for glory (Zhao & Zhu, 2014) or for a sense of sense of virtual community (Zhong, Wang, & Qiu, 2011 and Brabham, 2010).~~

In a study conducted by Fandos & Flavian (2006) the results revealed the relationship between extrinsic factors and consumer loyalty was significant and positive. Although a direct relationship between extrinsic motives and consumer intentions did not exist, the study found that when consumers have positive feelings and affects (attitudes), the loyalty is created lead to consumers exhibiting behavioural intentions. However, more recently researchers (e.g. Watchravesringkan, Hodges & Kim, 2012) have found that a consumer's intention to adopt an innovation is directly driven by the nature of his or her extrinsic motivations. Thus, if a consumer is motivated by extrinsic motives, firms should leverage this insight and develop co-creation activities that are centred around separable outcomes (Ryan & Deci, 2000)

4.3.2.1 Extrinsic Motives and Attitude toward the Act (Hypothesis 2)

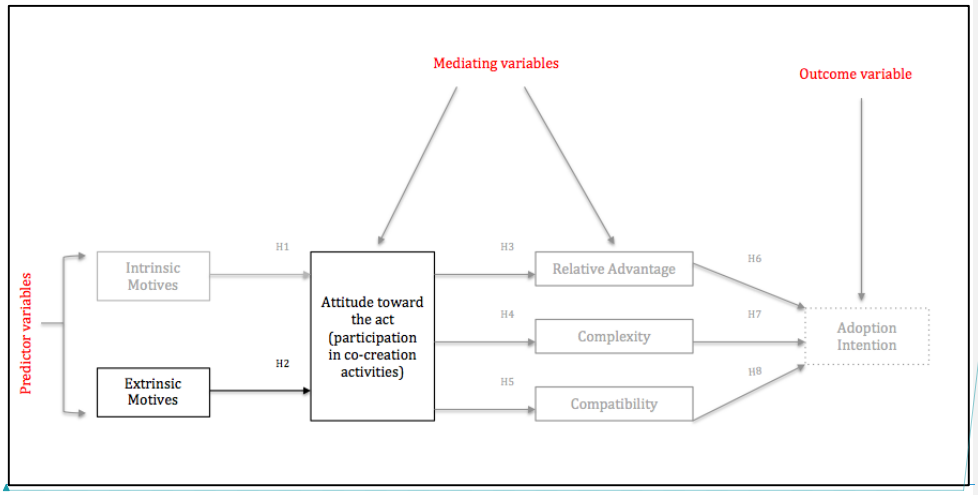
Although the evidence is mixed regarding the relative influence of extrinsic motivational factors, some studies (Krishnamurthy, 2006 and Zhao & Zhu, 2014) have found extrinsic components of motivation (external regulation, introjection, identification and integration) to be of importance. In particular, financial gain (an extrinsic motive) is significantly associated with participation effort and the attitudes consumers hold (Zhao & Zhu, 2014). The results found in Zhao & Zhu (2014) are consistent with those found in previous studies by various authors including Horton & Chilton (2010), Stewart, Lubensky & Huerta (2010) and Zhong, Wang & Qiu (2011).

Based on the preceding research, it is evident that extrinsic motives influence the attitudes a consumer has. Thus, the proposed study seeks to determine if a consumer is motivated by extrinsic factors, will he or she be likely to have a positive attitude toward participating in innovative co-creation activities.

H2: *Extrinsic motives have a positive influence on attitudes toward participating in co-creation activities*

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Figure 4.3: Extrinsic Motives Positively Influence Attitude toward the Act



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4.3.23 Attitude toward the Act

Both Budiman (2012) and Jusoh & Ling (2012) defined attitudes as an individual's positive or negative feelings or beliefs related to accomplishing an act or behaviour. Ajzen & Fishbein (2005) defined an attitude as a 'learned predisposition to respond in a consistently favourable or unfavourable manner. Similarly, other researchers have also stated that attitudes can be learned and are consistent over time, for example, de Matos, Ituassu & Rossi (2007) defined consumer's attitudes as being 'learned inclinations to behave in a consistent manner.'

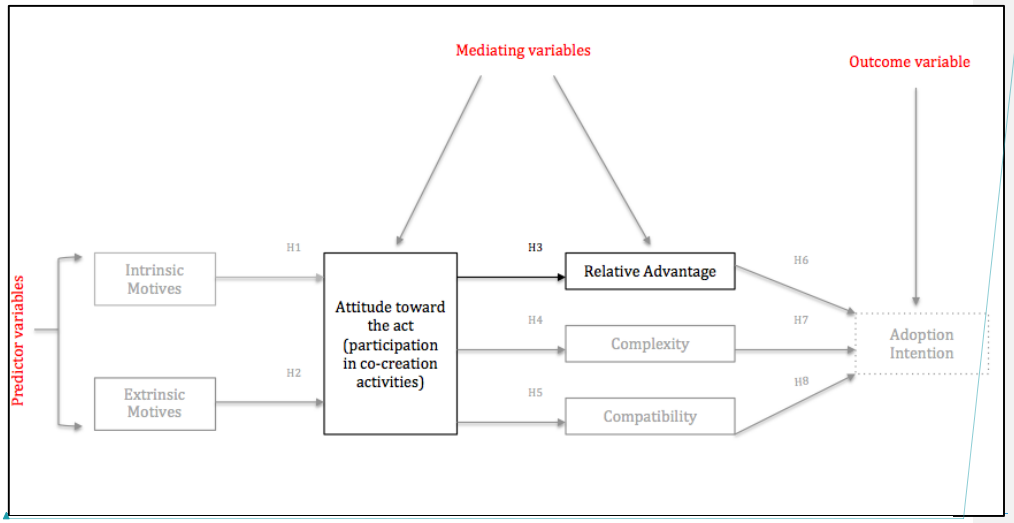
Researchers (e.g. Lutz, 1981; Percy & Rossiter, 1992; Ahmed, 2001; Ajzen & Fishbein, 2005; de Matos, Ituassu & Rossi, 2007; Budiman, 2012; Ishida & Taylor, 2012 and Jaafar, Lalp & Naba, 2012) have found that consumer attitudes are a strong predictor of a consumer's future behaviour and intentions. A study conducted by Ndubisi & Sinti (2006) set out to examine the determinant structure of a consumers attitude system on the adoption of internet banking by Malaysian customers. The results showed that attitudinal factors play a significant role in the adoption of Internet banking. Thus, if a consumer has a favourable attitude toward participating in co-creation activities, he or she is likely to have intentions to adopt the innovation.

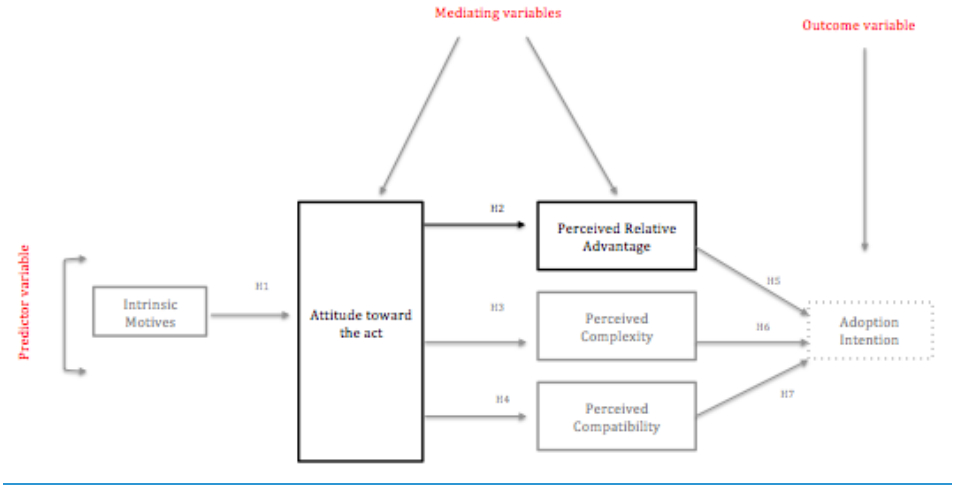
4.3.23.1 Attitude toward the Act and Perceived Relative Advantage (H23)

Based on the aforementioned studies, it is evident that attitudes toward participation in co-creation activities impact a consumer's perceptions of relative advantage of a co-created innovation. Thus, the proposed study seeks to determine if a consumer has a positive attitude toward participating in co-creation activities, will he or she be likely to perceive the innovation as possessing a relative advantage.

H23: *There is a positive ~~impact of~~relationship between attitude~~s~~ toward ~~participating in co-creation activities~~the act and perceived ~~on~~ relative advantage.*

Figure 4.34: ~~Attitude toward the Act Positively Impacts Relative Advantage~~ Positive Relationship between Attitude toward the Act and Perceived Relative Advantage





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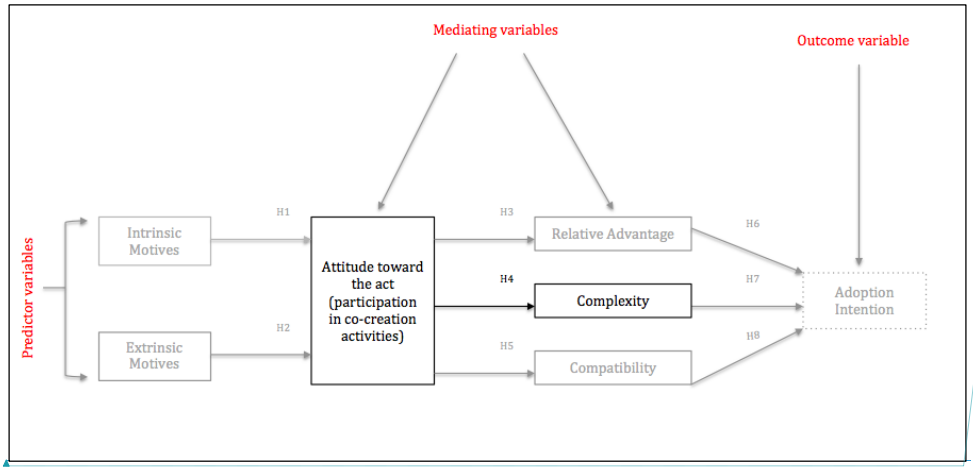
4.3.23.2 Attitude toward the Act and Perceived Complexity (H34)

Accordingly, it is evident that attitudes toward participation in co-creation activities impact a consumer's perceptions of the complexity of a co-created innovation. Thus, the proposed study

seeks to determine if a consumer has a negative attitude toward participating in co-creation activities, will he/she be likely to perceive the innovation being complex.

H34: *There is a negative ~~impact of attitudes toward participating in co-creation activities on complexity.~~ relationship between attitude toward the act and perceived complexity.*

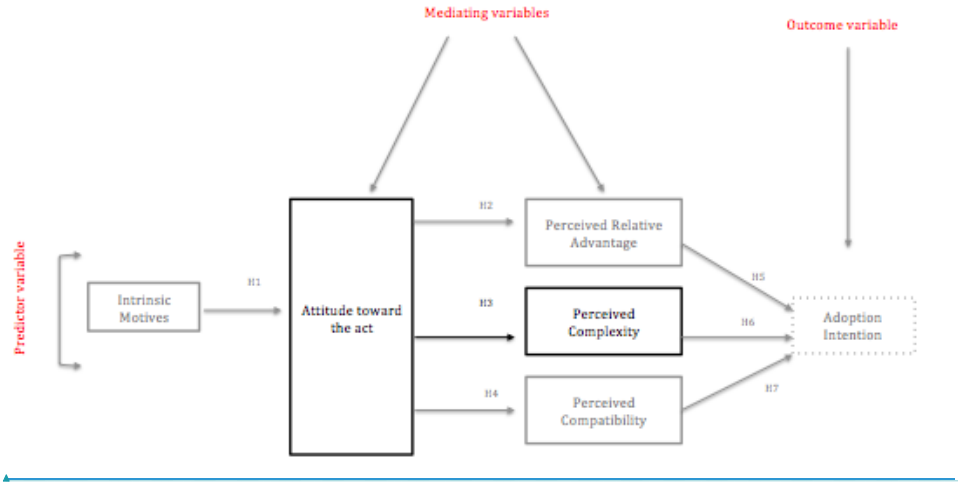
Figure 4.45: Negative Relationship between Attitude toward the Act and Perceived Complexity ~~Attitude toward the Act Negatively Impacts Complexity~~



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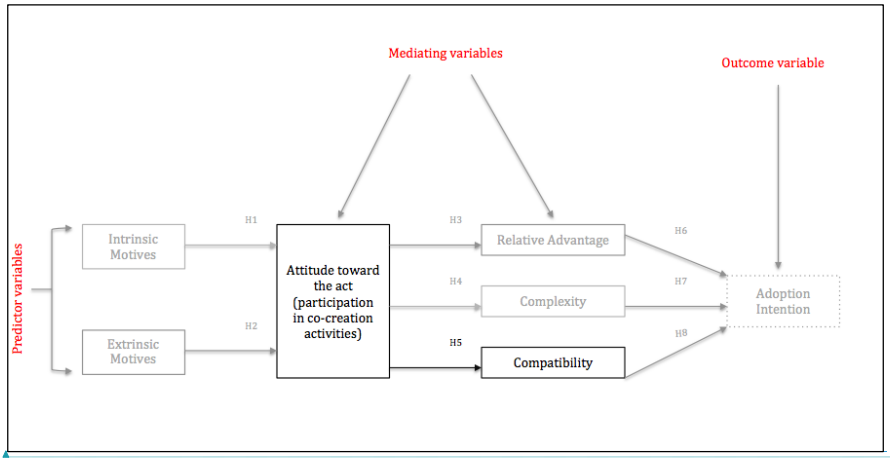
4.3.23.3 Attitude toward the Act and Perceived Compatibility (H45)

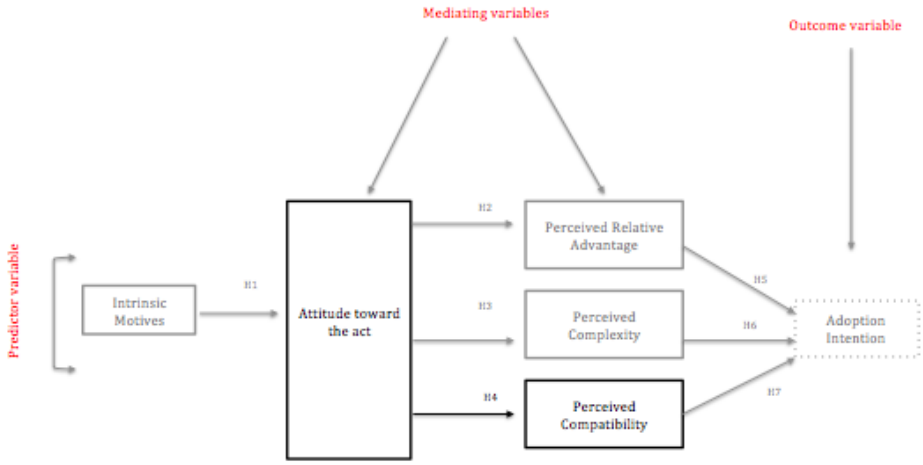
Derived from the literature above, it is evident that attitudes toward participation in co-creation activities impact a consumer's perceptions of the compatibility of a co-created innovation. Thus, the proposed study seeks to determine if a consumer has a positive attitude toward participating in co-creation activities, will he/she be likely to perceive the innovation being compatible with his/her lifestyle.

H45: *There is a positive ~~impact of attitudes toward participating in co-creation activities on compatibility~~ relationship between attitude toward the act and perceived compatibility.*

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Figure 4.56: Positive Relationship between Attitude toward the Act and Perceived Compatibility ~~Attitude toward the Act Positively Impacts Compatibility~~





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4.3.34 Perceived Characteristics of Innovation

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Rogers' (2003) model of innovation diffusion has been used to examine the rate of innovation adoption and the factors that influence adoption (Haggman, 2009). Of the five proposed variables that explore the rate of adoption this study focuses on one, the perceived characteristics/attributes of innovations, which consists of relative advantage, compatibility and complexity, among others. Both Sahin (2006) and Lee, Hsieh & Hsu (2011) defined the relative advantage of an innovation as the degree to which it is considered as being superior to the idea it has replaced. Whereas, complexity describes a consumer's perceived level of difficulty in understanding and using an innovation (Lee, et.al, 2011) (Lee, Hsieh, & Hsu, 2011). Lastly, compatibility is the degree to which an innovation is consistent with a consumer's existing values and needs (Ganiyu & Adeosun, 2013).

Rogers (2003) proposed the existence of a relationship between relative advantage, complexity and compatibility, respectively, and innovation adoption. Furthermore, Rogers (2003) found that innovations which consumer perceive as having a high relative advantage and compatibility as well as a being low in complexity will be adopted faster than other innovations. These findings have since been confirmed by researchers such as Sahin (2006), Haggman (2009), Lee, Hsieh & Hsu (2011) and Ganiyu & Adeosun (2013). ~~Specifically, Lee, Hsieh & Hsu (2011) conducted a study which developed a hybrid Technology Adoption Model by combining TAM with the Innovation Diffusion Theory to explore the impact of innovation characteristics on the behavioural intentions of individuals to use a specific innovation. The results of the study were consistent with previous studies (e.g. Lee, 2007, Wu & Wang 2005) that found that compatibility and relative advantage had significant positive effects on behavioural intentions while complexity had a negative impact on the adoption intentions of consumers.~~ Thus, in the context of the present study, if a consumer believes co-created innovations provide him/her with an advantage while fitting in with his or her value systems, the consumer is likely to have intentions to adopt the innovation. Furthermore, if the consumer perceives the innovations being offered by their bank to be complex, he or she is likely to reject the innovation.

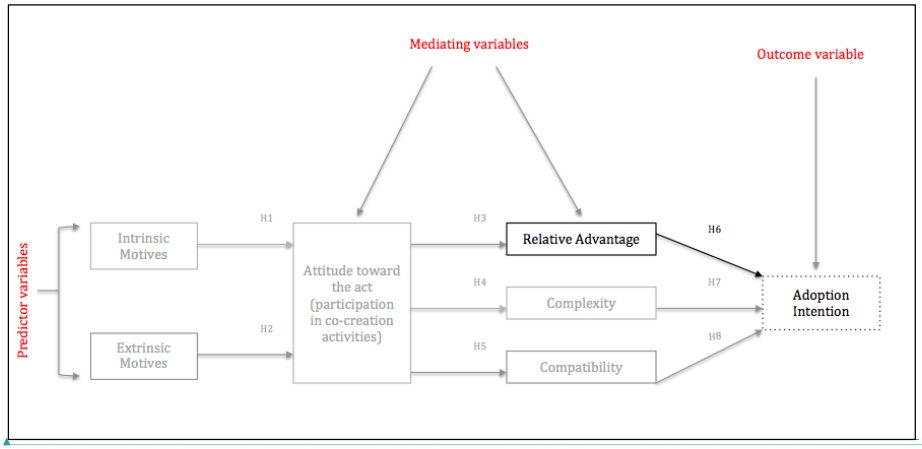
4.3.34.1 Perceived Relative Advantage and Adoption Intention (H56)

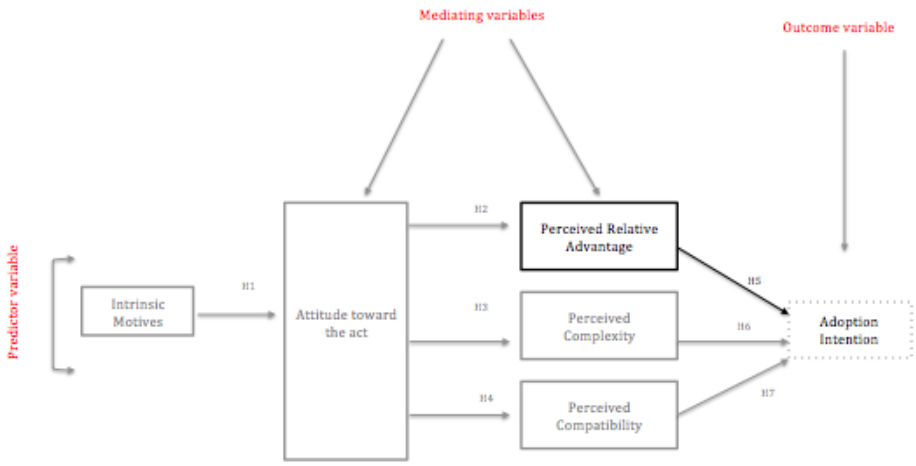
This relationship has been studied extensively by various researchers, in many differing contexts. For instance, Ndubisi & Sinti (2006) suggest that relative advantage is an important factor in determining the adoption of new innovations as the construct is positively related to its rate of adoption. Similarly, Lee (2007), Keesee & Shepard (2011) and Lee, Hsieh & Hsu (2011) confirmed these findings and concluded that relative advantage is the best predictor in adoption intentions because it is the most relevant attribute/characteristic in influencing adoption. Specifically, a study conducted by Lin (2011) developed a research model to examine the effect of innovation attributes such as relative advantage on consumer attitudes and behavioural intentions of consumers to adopt mobile banking. The results of the study found that relative advantage does indeed have a positive impact on intentions to adopt or continue to use mobile banking.

Based on the preceding research, it is evident that relative advantage has a relationship with adoption intentions. Thus, the proposed study seeks to determine if a consumer perceives a co-created innovation to possess a relative advantage, will he/she be likely to have intentions to adopt the innovation.

H56: *There is a positive relationship between perceived relative advantage and adoption intention.*

Figure 4.67: Positive Relationship between Perceived Relative Advantage and Adoption Intention





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4.3.34.2 Perceived Complexity and Adoption Intention (H67)

~~Cheung, Chang & Lai (2000)~~

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found that complexity negatively influences the adoption of an innovation. For this reason, complexity is described as the opposite of ease of use, which has been found to directly impact the adoption of the internet-based technologies (Ndubisi & Sinti, 2006). ~~,~~ This finding is

confirmed by in other studies (e.g. Lee, 2007). Thus, it is suggested that the less complex something is to understand and use, the more likely a consumer will adopt it (Lee, et.al, 2011). (Lee, Hsieh, & Hsu, 2011). For instance, a study conducted by (Reynolds & De Maya, 2013) considered the inherent complexity of new technology. The study aimed to determine the impact of complexity and perceived difficulty on a consumer's intention to use and continue to use a new technology. The study found that both complexity and perceived difficulty had a negative impact on the consumer's behavioural intention.

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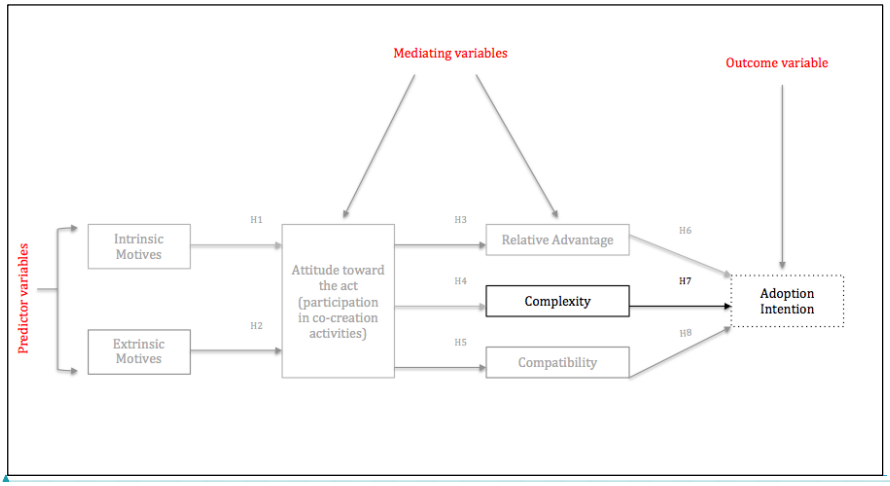
Based on the aforementioned studies, it is evident that complexity has a relationship with adoption intentions. Thus, the proposed study seeks to determine if a consumer perceives a co-created innovation to be complex, will he/she be less likely to have intentions to adopt the innovation.

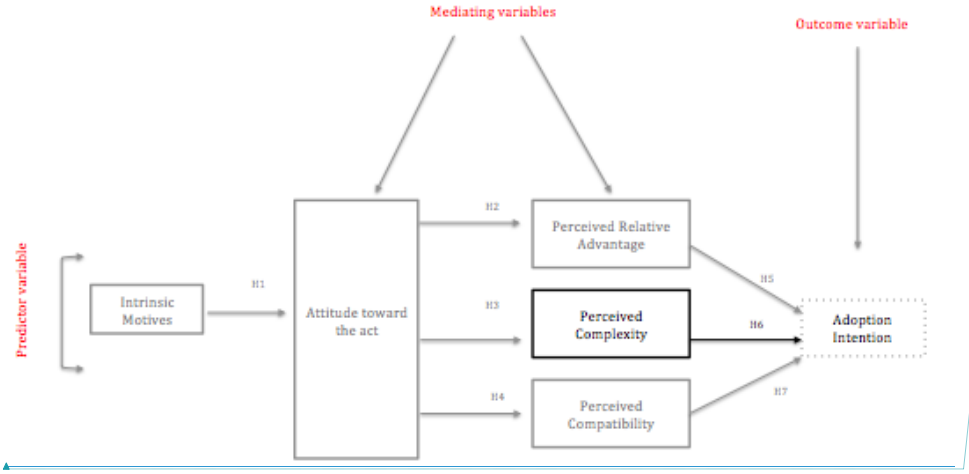
H67: *There is a negative relationship between perceived complexity and adoption intention.*

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Figure 4.78: Negative Relationship between Perceived Complexity and Adoption Intention





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4.3.34.3 Perceived Compatibility and Adoption Intention (H78)

Researchers found that an innovation is more likely to be adopted when it is compatible with an individual's current value system (Ndubisi & Sinti, 2006) suggesting that compatibility may be the most relevant attributes influencing the potential adoption of an innovation (Keesee & Shepard, 2011). The findings of Wu & Wang (2005) confirmed that the compatibility of an

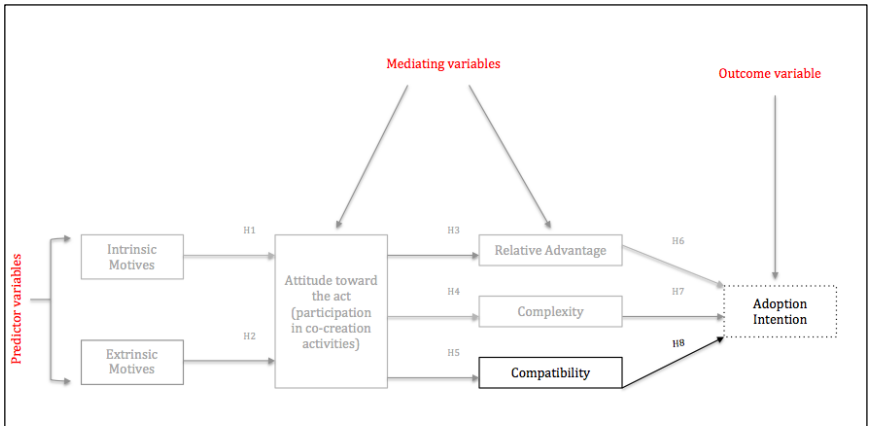
innovation with a consumer's value system has a significant positive and direct effect on the consumer's intentions. Thus, it can be said that a lack of compatibility of an innovation with a consumer's lifestyle, needs and experiences may negatively affect his/her use of the innovation (Sahin, Detailed Review of Rogers' Diffusion of Innovation Theory and Educational Technology-Related Studies, 2006). More recent research was conducted by Duan, He, Feng, Li & Fu (2010) in which the intentions of taking up e-learning were examined. The findings of the study revealed that only compatibitly had a significant influence on the e-learning adoption intention when compared to other relavant innovation attributes.

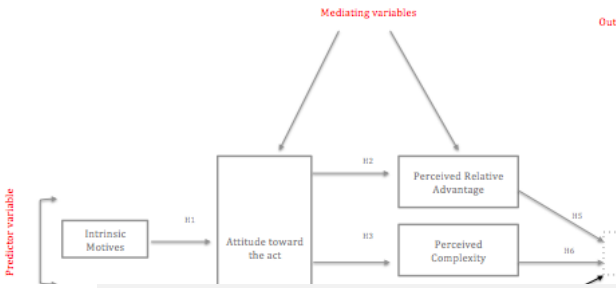
Accordingly, it is evident that compatibility has a relationship with adoption intentions. Thus, the proposed study seeks to determine if a consumer perceives a co-created innovation to be compatible with his/her lifestyle and needs, will he/she be likely to have intentions to adopt the innovation.

H7~~8~~: *There is a positive relationship between perceived compatibility and adoption intention*

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Figure 4.8~~9~~: Positive Relationship between Perceived Compatibility and Adoption Intention





4.3.45 Adoption Intention

The final variable, adoption intention, acts as the outcome variable for the present study. In the study of psychology, 'intention' is the perceived likelihood of a person performing certain behaviours (Ko 2012). Additionally, Ko (2012) stated that an individual's intention is an indication of his/her willingness to perform a given behaviour. This suggests that a consumer's adoption intention is an antecedent to their behaviour to adopt an innovation.

Researchers have found that intrinsic motives (Gefen & Straub, 2000; Yoo, Han, & Huang, 2010; Watchravesringkan, Hodges & Kim, 2012 and Adbuljalil & Zainuddin, 2015), ~~extrinsic motives (Watchravesringkan, Hodges & Kim, 2012),~~ consumer attitudes (Lutz, 1981; Percy & Rossiter, 1992; Ahmed, 2001; Ajzen & Fishbein, 2005; de Matos, Ituassu & Rossi, 2007; Budiman, 2012; Ishida & Taylor, 2012 and Jaafar, Lalp & Naba, 2012) and the perceived characteristics of innovations (Cheung, ~~Chang & Lai~~et.al, 2000; Rogers, 2003; Wu & Wang, 2005; , Ndubisi & Sinti, 2006; Sahin, 2006; Lee, 2007; Haggman, 2009; Duan, He, Feng, Li & Fu, 2010; Keesee & Shepard, 2011; Lee, Hsieh & Hsu, 2011; Lin, 2011; Ganiyu & Adeosun, 2013 and Reynolds & De Maya, 2013) can be found to be antecedents of adoption intention. However, it appears that a study that combines the above constructs in the context of co-creation in the digital banking industry has not been undertaken. Therefore, a consumer's intention to adoption innovations appears to be the most important outcome variable for banks looking to engage consumers through co-creation activities.

4.4 Conclusion

This chapter provided an in-depth discussion of the proposed conceptual model and the hypothesis development. A discussion on how variables were selected to create the proposed conceptual model was presented. Following this, the hypotheses were developed by reviewing each individual variable and its relationship with other variables in the proposed conceptual model. In conclusion, seven hypotheses are proposed. The next chapter details the research design and methodology.

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CHAPTER 5: RESEARCH DESIGN AND METHODOLOGY

5.1. Introduction

This chapter presents the research design and methodology that was used in support of the proposed conceptual model. The discussion will begin with the research strategy employed and will be followed by discussions regarding the sample design; the procedure for data collection; statistical modelling techniques used and the ethical considerations of the study.

5.2. Research Strategy

In this section, the research philosophy and the research design is discussed, additionally a justification of the research approach is provided.

5.2.1. Research Philosophy

A research philosophy represents the researcher's perception on how knowledge is built (Saunders, Lewis, & Thornhill, 2007). Furthermore, each philosophy or paradigm consists of the following components: ontology, epistemology and methodology (Scotland, 2012). Ontology refers to how the study of defines reality (Scotland, 2012); epistemology refers to the study of the nature of knowledge (Jakobsen, 2013) and the methodology of the chosen paradigm can be understood as the choice of analytic strategy and research design which underpins the research (Jakobsen, 2013). Based on these components, four research paradigms exist: positivism, post-positivism, critical theory and constructivism (see Table 5.1 below).

Positivism is the view that only authentic knowledge is scientific knowledge. This means that knowledge can only come from the positive affirmation of theories based on observable, empirical and measurable evidence (Mastin, 2008). On the other hand, post-positivism research principles emphasize meaning and the creation of new knowledge (Ryan, 2001).

Table 5.1: Research Philosophy Paradigms

	Ontology (Nature of Reality)	Epistemology (What can be known; relationship of knower & known)	Methodology (How knowledge is gained)
Positivist	Reality is out there to be studied, captured and understood.	How the world is really ordered; Knower is distinct from known.	Experiments, quasi-experiments, surveys, correlational studies.
Post-positivist	Reality exists but is never fully apprehended, only approximated.	Approximations of reality; researcher is data collection instruments.	Rigorously defined qualitative methods, frequency counts, and low-level statistics.
Constructivist	The apprehended world makes a material difference in terms of race, gender and class.	Knowledge as a human construction; researcher and participant co-construct understandings.	Naturalistic qualitative methods.
Critical Theory	Order is created within individual minds to ascribe meaning to a meaningless universe.	Knowledge as subjective and political; researchers' values frame inquiry.	Transformative inquiry.

Source: Suny Press (2003)

Furthermore, the researcher assumes a learning role rather than a testing one (Ryan, 2001). Critical theory focuses on challenging the status quo where reality is shaped by social, political, ethnic and gender values (Asghar, 2013). Lastly, constructive research focuses on exploration by developing knowledge from reality. It does not adopt pre-determined methods; instead the research decides the course of action according to the needs of the situation (Asghar, 2013).

5.2.2. Inductive Research and Deductive Research

Inductive research and deductive research are two broad methods of reasoning (Burney & Mahmood, 2006). Based on deductive research, conclusions follow logically from the available facts (Burney & Mahmood, 2006). Additionally, deductive reasoning begins with the 'general' and ends with the 'specific' (Soiferman, 2010). More precisely, deductive reasoning starts with theory, followed by hypothesis development leading to observation and ending with confirmation (Burney & Mahmood, 2006). Deductive reasoning is described as following a "top-down" approach, while inductive reasoning works in a "bottom-up" approach where conclusions

are based on premises (Burney & Mahmood, 2006). When following a deductive approach, the researcher moves from specific observations to broader generalizations (Burney & Mahmood, 2006).

Inductive and deductive approaches are generally associated with qualitative and quantitative analysis strategies, respectively (Soiferman, 2010). A deductive approach to research is aimed at testing theories while an inductive approach is concerned with the generation of new theories emerging from the data (Gabriel, 2013). There is some disagreement as to which is the best method when conducting research and gathering data, each method has its benefits and limitations, but both often address the same question using different data collection methods.

5.2.3. Qualitative and Quantitative Research

Social research provides for two types of research methods: qualitative and quantitative. Qualitative research is a form of scientific research which aims to answer a question by systematically using a predefined set of procedures to answer the question and produce findings that were not determined in advance (Creswell, 2012). This approach is used for explaining and understanding the meaning behind problems. Data is usually collected in the participant's setting and the researcher interprets the meaning of the data collected (Creswell, 2012). Whereas, quantitative research is a formal systematic approach that seeks to confirm the hypothesis of a topic. This type of research uses a rigid approach of extracting and categorising responses to questions by making use of structured methods and instruments such as questionnaires, surveys and structured observation (Creswell, 2012). This type of research method attempts to explain phenomena using numerical data and then analyses it using mathematical methods (Creswell, 2012). This suggests that quantitative research is analytical in nature.

The major difference between qualitative and quantitative research methods is based on the method views the nature of reality. Those who favour quantitative research believe that reality is measured reliably and validly using scientific methods; while qualitative theorists believe in

multiple realities that come from different meanings for different individuals (Soiferman, 2010). However, similarities exist; both methodologies are based on one goal: both methods aim to answer a research question and contribute to a greater knowledge base (Soiferman, 2010).

5.2.4. Research Approach Adopted for this Study

This study followeds ~~are~~ positivism research paradigm. The research practiceds the following key features of the positivism philosophy: the researcher ~~is~~ was independent; explanations demonstrated causality; the research progresseds through hypotheses and deductions and generalization ~~occur~~occurreds through statistical probability (Ramanathan, 2008). Additionally, the research vieweds scientific knowledge as authentic knowledge which can only come from the confirmation of theories based on observable, empirical and measurable evidence. Additionally, the research adopteds a deductive reasoning approach. The study began ~~with starts~~ with theory, followed by hypothesis, data ~~is~~ was collected and analysed, the study concluded ~~s~~ with confirmation. Thus, the study followed ~~s~~ a quantitative research approach, as the study attempteds to explain phenomena using numerical data and then analysing it using mathematical and statistical methods.

5.3. Sampling Design

A sample design is road map that assists researchers to selection a survey sample from the population of interest (Shapiro, 2008). Additionally, the steps followed in this road map are to ensure the researcher avoids bias in the selection procedure and achieves the maximum precision for a limited amount of resources (FAO, 2000).

The sampling design is discussed under the following headings: an overview of the population of interest, followed by the sampling selection and sample size rationale.

5.3.1. Population of Interest

The target population or population of interest is the group of individuals to whom the survey applies (Kitchenham & Pfleeger, 2002). This means the target population consists of the individuals who can answer the questions in the survey and whose responses are required to fulfil the objectives of the research.

In this study the target population consisteds of male and female consumers, between the ages of 18 – 64 years, who have active bank accounts with South African retail banks. This age range has was been selected based on the statistics that 55% of the population is between the ages of 20 and 64 years old (Stats SA, 2014). Additionally, both men and woman are were included in the study, despite research (Global Findex, 2014) showing that women are disproportionately excluded from formal financial services. The reason that females are were included in this study is because women present 51% of the South African population (Stats SA, 2014). The population of interest is usually too large or scattered geographically to study directly (Yount, 2006), a sample must be selected. The process of sampling involves selecting a group of the population in such a way that the participants represent the population (Yount, 2006). With regards to the present study 75% of South African adults had bank accounts in 2014 (Villasenor, West , & Lewis , 2015), it would not be feasible to invite all these individuals to participate in the study.

5.3.2. Sample Selection

A sample is a representative subset of the target population (Kitchenham & Pfleeger, 2002). It is imperative that the sample is representative for the results to be generalised to the entire population (Kitchenham & Pfleeger, 2002). However, it would be impossible to reach all banking consumers in South Africa, so a sample is selected that represents the target population. Therefore, requirement that samples be representative of the population from which they are drawn must be offset against time and other resources (FAO, 2000).

Samples can be categorized into two classes based on how the sample is selected. There are two broad methods of selecting a sample: non-probability sampling methods and probability sampling methods. Probability sampling gives each member in the target population an equal chance of selection (FAO, 2000). On the other hand, non-probability sampling is technique where the sample is gathered in a process that does not give all the individuals in the population equal chance of being selected (Warren, 2011). Examples of probability sampling methods include simple random sampling, systematic sampling, stratified random sampling and multistage sampling. Conversely, convenience sampling, quota sampling and quota sampling are non-probability sampling techniques.

For the purposes of this study, the research madekes use of convenience sampling. A convenience sample is simply one in which the researcher uses any subjects that are available to participate in the research study (Yang, Wang & Su, 2006). The results are sometimes difficult to generalize from data collected; nevertheless convenience sampling is still a good tool to use and is common in marketing research (Warren, 2011). Relying on any available subjects, however, is extremely risky Yang, Wang and Su (2006) cautions. To mitigate the risks of this sampling technique, the researcher has put measures in place, such as a screening question, to ensure that only the target population responds to the survey.

5.3.3. Sample Size

The correct selection of the sample size influences how accurate the results from the data analysis will be (Yang, Wang & Su, 2006). It is generally accepted that the larger the sample, the better is represents the population (Yount, 2006). However, sample size selection is dependent on other factors including accuracy required,required degree of variation within population, budget available and level of subgroup analysis (Yount, 2006). Considering the aforementioned, the sample size will consisted of 350 to 400 subjects for the purposes of this study. The researcher selected this sample size based on a rule of thumb which suggests that for each variable that is included in the model, 50 responses are required.

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5.4. Data Collection Method

Surveys have been traditionally referred to as paper-and-pencil measurements instruments, but this view is changing as researchers are more frequently making use of available internet technologies (Van Selm & Jankowski, 2006). This study used a combination of data collection techniques: personal direct distribution (paper-and-pencil surveys) as well as an online survey. When a researcher makes use of personal direct distribution he/she hands out the survey personally to all respondents. On other hand, an online survey refers to a measurement instrument where participants respond to a survey on the internet. The key strengths associated with personal surveys include personal interaction, clear instructions and the capability to control the survey environment (Malhorta, 2004). However, the major drawback is interviewer bias, limited sample size and respondent time pressures (Alreck & Settle, 2004). When it comes to online surveys, the advantage is that data can be directly into a database suggesting that the time and steps between data collection and analysis can be shortened (Van Selm & Jankowski, 2006). Additionally, online surveys have economic benefits when compared to paper-and-pencil surveys (Van Selm & Jankowski, 2006) and have a wide reach which refers to the ease by which potential respondents can be approached (Evans & Mathur, 2005). Online surveys are not without shortcomings, online surveys administered via email are perceived to be as junk mail which may result in low response rates (Van Selm & Jankowski, 2006).

Despite the disadvantages associated with both methods of data collection, the combined strengths outweigh the disadvantages. The online questionnaire was designed using Google Docs and was distributed via email. Additionally, a link to the online questionnaire was shared using online social media applications such as Instagram, Facebook, LinkedIn and Twitter. Questionnaires were also distributed randomly to students on the University of Witwatersrand campus by the researcher. The researcher had an estimated sample size of at least 300 participants. To decrease the possibility of sampling errors while still remaining within budgetary and time constraints, a sample of 450 participants were surveyed. A convenience sampling method was used to select participants, who first had to agree to participate in the study. Furthermore, a screening question was put in place to ensure that only the target population responded to the survey.

5.4.1. Measurement Instrument

The measurement instrument selected for the study is based on survey research, which entails the usage of questionnaires for data collection with the intent of generalizing the results from the sample to a population (Creswell, 2012). The questionnaire was designed by drawing from existing literature related to the constructs in the conceptual model. Existing scales were adapted from previous research for the purposed of this study. Thereafter, the online survey was distributed via email and social media and the paper-and-pencil was distributed to participants.

5.4.2. Questionnaire Design

The study made use of a questionnaire consisting of six sections within the two parts. Part I consisted of Section A and Section B. Section A required respondents to fill in their demographic information while in Section B respondents were required to complete information regarding their banking habits. Part II, consisted of Section C through to GH. Section C, D, E and , F ~~and G~~ respectively tested the variables that form part of the conceptual model; intrinsic motivation, ~~extrinsic motivation~~, attitude toward the act, perceived characteristics of innovation and adoption intention. Lastly, Section GH consisted of an open-ended question. The questionnaire used in the study can be found in Appendix I.

5.4.3. Measurement Scales

The constructs in the conceptual model were measured using measurement scales sourced and adapted from previous research with minor modifications made to fit the current study's context. All scale items were anchored on a 7-point Likert scale what was anchored by 1 = strongly disagree to 7 = strongly agree to represent the respondent's feelings.

5.4.3.1. Independent Variable~~s~~

An iIndependent variable~~s~~ or 'predictor~~s~~' is a~~are~~ variable~~s~~ whose effects are measured and compared (Malhotra, 2010). Thi~~ses~~ type~~s~~ of variable~~s~~ are controlled or selected to determine the

relationship to an observed phenomenon (i.e. the dependent variable) (Samaranayake, 2009). This section provides an overview of the ~~two~~ independent variable~~s~~ that ~~are~~ is used in the present study: intrinsic motives~~. and extrinsic motives.~~

Intrinsic Motives

Intrinsic Motives was measured using Zheng, Li & Hou's (2011) scale items. The dimensions were adapted to suit the context of the study, and the items were anchored to a 7-point Likert scale. Respondents were asked to rate their level of agreement on the 7-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = neutral; 5 = slightly agree; 6 = agree and 7 = strongly agree). The following items were used to measure intrinsic motives:

Table 5.2: Intrinsic Motives Scale

I would find participating in co-creation activities with my bank stimulating.
I would participate in co-creation activities with my bank because it would give me an opportunity to help other consumers.
I would participate in co-creation activities with my bank to direct trends in digital banking.
I would participate in co-creation activities with my bank to see what new digital banking products are available.

~~**Extrinsic Motives**~~

~~Extrinsic motivation was measured using Zhao & Zhu's (2014) scale items. The dimensions were adapted to suit the context of the study, and the items were anchored to a 7-point Likert scale. Respondents were asked to rate their level of agreement on the 7-point Likert scale (1 = strongly disagree; 2 = disagree; 3 =slightly disagree; 4 = neutral; 5 = slightly agree; 6 = agree and 7 = strongly agree). The following items were used to measure extrinsic motives:~~

Table 5.3: Extrinsic Motives Scale

I would participate in co-creation activities with my bank if there were financial rewards.
I would participate in co-creation activities with my bank if there were a possibility of a job offer.
I would be motivated to participate in co-creation activities by the recognition I can earn from my bank.
The reason I would participate in co-creation activities with my bank is because of what it stands for, i.e. my bank's values.

5.4.3.2. Mediating Variables

Mediation occurs when the relationship between the independent variable and the dependent variable is explained by a third variable: the mediator (Malhotra, 2010). Furthermore, a mediator accounts for the extent of the relationship between the two other variables (Baron & Kenny, 1986) and allows the researcher to uncover casual pathways between predictor and outcome variables that are often overlooked in non-linear models (Pearl, 2011). This section provides an overview of the mediating variables that are used in the present study, namely; attitude toward the act, perceived relative advantage, perceived complexity and perceived compatibility.

Attitude toward the Act

Attitude toward the act was measured using Allen, Machlet & Kleine's (1992), Ahluwalia, Unnava & Burnkrant's (2001) and Bansal, Taylor & St. James' (2005) scale items. The dimensions were adapted to suit the context of the study, and the items were anchored to a 7-point Likert scale. Respondents were asked to rate their level of agreement on the 7-point Likert scale (1 = strongly disagree; 2 = disagree; 3 =slightly disagree; 4 = neutral; 5 = slightly agree; 6 = agree and 7 = strongly agree). The following items were used to measure attitude toward the act:

Table 5.34: Attitude toward the Act Scale

I believe participating in innovative co-creation activities with my bank would be a good idea.
I believe participating in innovative co-creation activities with my bank would be beneficial.
I believe participating in innovative co-creation activities with my bank would be rewarding.
I believe participating in innovative co-creation activities with my bank would be a bad idea.
I believe participating in innovative co-creation activities with my bank would be useful.
I believe participating in innovative co-creation activities with my bank would be worth trying.

Perceived Characteristics of Innovation

Relative advantage, complexity and compatibility were measured using Ewe, Yap & Lee's (2015) scale items. The dimensions were adapted to suit the context of the study, and the items were anchored to a 7-point Likert scale. Respondents were asked to rate their level of agreement on the 7-point Likert scale (1 = strongly disagree; 2 = disagree; 3 –=slightly disagree; 4 = neutral; 5 = slightly agree; 6 = agree and 7 = strongly agree). The following items were used to measure the perceived characteristics of innovation:

Table 5.45: Perceived Characteristics of Innovation Scale

An innovative digital banking service developed through co-creation would allow me to bank more quickly (perceived relative advantage).
An innovative digital banking service developed through co-creation would give me more control over my bank accounts (perceived relative advantage).~~.~~
Using an innovative digital banking service developed through co-creation would be complicated to use (perceived complexity).~~.~~
Using an innovative digital banking service developed through co-creation would require a lot of mental effort (perceived complexity).~~.~~

Using an innovative digital banking service developed through co-creation would fit well into my knowledge base (perceived compatibility).
I feel that using an innovative digital banking service developed through co-creation would be easy for me to adjust to (perceived compatibility).

5.4.3.3. Dependent Variable

The dependent or 'outcome' variable is referred as to the presumed effect of a study or the variable under investigation (Malhotra, 2010). Additionally, the dependent variable represents the outcome of a treatment (Leroy, 2011). For the purposed of the present study, adoption intention acts as the dependent variable.

Adoption Intention

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Lopez-Nicolas, Molina-Castillo & Bouwman's (2008) and Barber, Kuo, Bishop & Goodman Jr's (2012) intention) intention scales were used and adapted to suit the context of this study. Additionally, items were anchored to a 7-point Likert scale. Respondents were asked to rate their level of agreement on the 7-point Likert scale (1 = strongly disagree; 2 = disagree; 3 –=slightly disagree; 4 = neutral; 5 = slightly agree; 6 = agree and 7 = strongly agree). The following items were used to measure adoption intention:

Table 5.56: Adoption Intention Scale

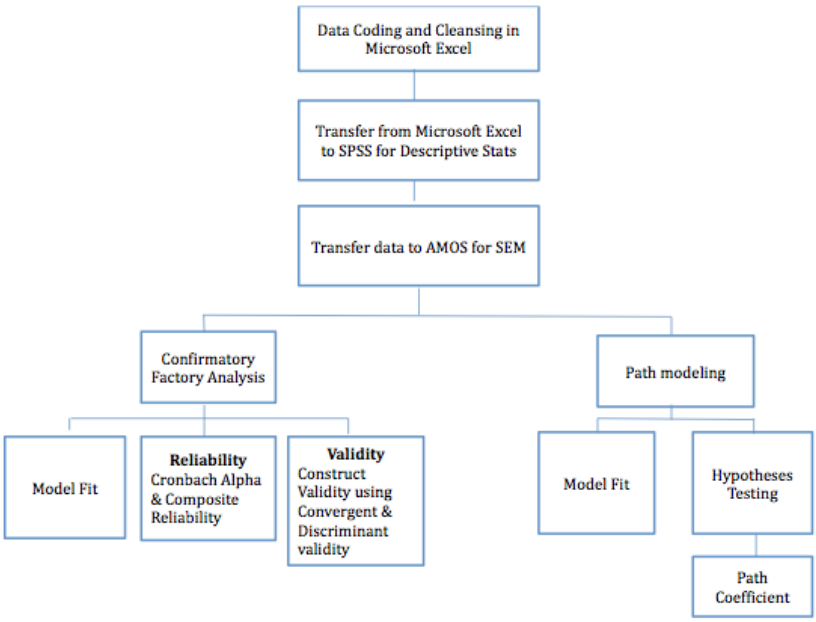
Do you expect you would use a digital banking offering knowing it was developed through co-creation?
I am interested in using a digital banking offering that has been developed through co-creation.
I intend on trying a digital banking offering that has been developed through co-creation activities.

To my knowledge, I have adopted a digital banking offering that was developed through co-creation.

5.5. Data Analysis

The following section provides a comprehensive discussion of the data analysis approach (see Figure 5.1 below) that is applied to the present study. Once the data was been collected, it was coded and cleansed in Microsoft Excel. To analyse the profile data and to obtain descriptive statistics, the Statistical Package for Social Sciences (SPSS) was used. The next step in analysing the data was to perform Structural Equation Modelling (SEM) using the Analysis of Moment Structures (AMOS) statistical software. SEM with AMOS has two stages: (1) Confirmatory Factor Analysis and (2) Path Modelling which are statistical techniques used to assess model fit, check reliability and validity of the instruments and to test the proposed hypotheses.

Figure 5.1: Overview of Data Analysis Approach



5.5.1. Descriptive Statistics

Descriptive statistics allow the researcher to explain what is happening in the data by describing the data presented (Lehmann, 2012). In the study a summary of the demographic profile of the sample will be presented which includes: age, gender, education, primary bank, type of bank account and various non-traditional bank offerings used. Of particular interest is the mean and standard deviation of the data, which will provide insight into evidence of possible outliers.

5.5.2. Structural Equation Modelling

Structural Equation Modelling (SEM) is a general approach to multivariate data analysis (Wothke, 2010) based on a linear model (Ullman & Bentler, 2003) and describes a family of statistical methods (Kaplan, 2009). Thus, SEM is said to be an integration of traditional statistical models such as analysis of variance (ANOVA), multiple regression analysis and principal factor analysis (Hoyle, 2012). The purpose of SEM is to test a proposed conceptual

model (Kaplan, 2009), study the relationships among latent variables (Savalei & Bentler, 2010) and estimate causal effects between variables (Hoyle, 2012).

For the purposes of this study, two methods of SEM were used: Confirmatory Factor Analysis (CFA) and Path Modelling, the results of which will indicate model fit, validity, reliability and test the hypotheses.

5.5.3. Confirmatory Factor Analysis and Path Modelling

Applications of SEM that focus exclusively on the relations between latent variable and their indicators are referred to as Confirmatory Factor Analysis (Hoyle, 2012). Additionally, this statistical technique is used to determine the reliability and validity of the measurement instrument (Suhr, 2006). On the other hand, path modelling or analysis, is a special case of SEM, where single indicators are assigned to each variable in the causal model (Wuensch, 2012). In other words, path modelling provides estimates of the magnitude and significance of the hypothesized connections between the variables. To demonstrate the associations, path analysis makes use of path diagrams, which are pictorial representations of association (Wuensch, 2012). The results of conducting a CFA and a path analysis indicate the reliability and validity of the measurement instrument; the model fit and test the hypotheses.

5.5.3.1. Cronbach Alpha Coefficient

The reliability of a measurement instrument can be determined using the Cronbach Alpha Coefficient. Reliability refers to the extent to which a measurement instrument (i.e. the survey/questionnaire) is repeatable (Drost, 2013) and consistent (Tavakol & Dennick, 2011). The Cronbach Alpha Coefficient is the most widely used objective measure of reliability as it requires only one test administration (Tavakol & Dennick, 2011). Furthermore, for a measurement instrument to be considered reliable, the value of the Cronbach Alpha Coefficient should be greater than 0.7 (Drost, 2013).

5.5.3.2. Composite Reliability

Although the Cronbach Alpha Coefficient is widely used, it has been criticized. A popular alternative is Composite Reliability (CR), which is calculated in conjunction with Structural Equation Modelling (SEM) (Peterson & Yeolib, 2013). The internal reliability of the measurement instrument is determined using the Composite Reliability (CR) index, where internal consistency (reliability) is concerned with the reliability of the test components (Drost, 2013). For Composite Reliability to accepted, the index should be greater than 0.7 (Drost, 2013).

5.5.3.3. Convergent Validity and Discriminant Validity

Validity is concerned with the meaningfulness of research components (Drost, 2013). This suggests that validity is used to determine if the research components are measuring what they are intended to measure. Convergent validity is concerned with determining whether measures that should be related to each other are in fact related (Drost, 2013). Item-to-Total values will be used to determine convergent validity, which should be greater than 0.5 to indicate acceptable validity (Drost, 2013). On the other hand, discriminant validity assumes that items should correlate higher among themselves than they correlate with the items from other constructs that they are theoretically supposed not to correlate (Zait & Bertea, 2011). Furthermore, an inter-construct correlation matrix is used to determine the presence of discriminant validity, where the value of each scale item should be less than 0.8 (Zait & Bertea, 2011).

5.5.3.4. Average Value Extracted (AVE)

In order to establish discriminant validity (to be discussed) the researcher made use of the Average Value (Variance) Extracted (AVE).The AVE is a statistic that states how much variance captured by the latent variable in a structural equation model is shared among other variables (Baumgartner, 2010). Furthermore Baumgartner (2010) stated that the AVE represents the proportion of the total variance in all indicators of a construct accounted for by the construct (Baumgartner, 2010). It is ideal that the value of the AVE for each construct be at least 0.50 for the construct to be considered reliable (Zait & Bertea, 2011).

5.5.3.5. Chi-square

The Chi-Square (χ^2) value is a type of absolute fit index. Absolute fit indices are used to determine how well an *a priori* model fits the sample data (Hooper, Coughlan, & Mullen, 2008). χ^2 is used to evaluate over model fit and to assess the extent of discrepancies between the sample and the fitted covariances (Hooper, Coughlan, & Mullen, 2008). The χ^2 value has a number of limitations (Hooper, Coughlan, & Mullen, 2008)- to address these limitations the study made use of the Chi-Square Degrees of Freedom Ratio (χ^2/df). This ratio should be between 2.0 and 5.0 for the model fit to be acceptable (Hooper, Coughlan, & Mullen, 2008).

5.5.3.6. Comparative Fit Index (CFI)

The Comparative Fit Index is an incremental fit index- these do not use the χ^2 in its original form but compare the value to a baseline model (Hooper, Coughlan, & Mullen, 2008). This suggests the CFI assess model fit by comparing they χ^2 value of the model to the χ^2 of a null model. The CFI is advantageous because it is not affected by sample size (Hooper, Coughlan, & Mullen, 2008). The closer the value of the CFI is to one, the better the model is.

5.5.3.7. Goodness of Fit Index (GFI)

The Goodness-of-Fit (GFI) statistic is an alternative to the Chi-Square test, which calculates the proportion of variance that is accounted for by the estimated population co-variance (Hooper, Coughlan, & Mullen, 2008). Comparing the variance and co-variance of the model shows how closely the model comes to replicating the observed co-variance matrix (Hooper, Coughlan, & Mullen, 2008). The drawback of this index, however, is its sensitivity to sample size and it is recommended that it is used in conjunction with other indices that estimate model fit (Hooper, Coughlan, & Mullen, 2008).

5.5.3.8. Tucker-Lewis Index (TLI)

The Tucker-Lewis Index (also known as the Non-Normed Fit Index) compares the model to a baseline model by adjusting for the degrees of freedom (Hooper, Coughlan, & Mullen, 2008).

The value of the TLI should be greater than 0.8 for there to be acceptable model fit (Hooper, Coughlan, & Mullen, 2008).

5.5.3.9. Root Mean Square Error of Approximation

The Root Mean Square Error Approximation (RMSEA) is another example for an absolute fit index (Hooper, Coughlan, & Mullen, 2008). This value indicates how well the model fits the population's covariance matrix and should be in the 0 – 0.5 range to indicate a fair fit (Hooper, Coughlan, & Mullen, 2008).

5.6. Ethical Considerations

It was required that the individuals who participate in the study grant the researcher permission to do so. The participants were informed that all information would be kept strictly confidential. No harm was inflicted on the respondents and the personal information of the respondents was processed fairly and lawfully. The data collected will be sold to a third party and is used for academic purposes only. The study followed the ethical principles of honesty, objectivity, integrity and carefulness. Furthermore, before the researcher proceeded with the data collection, the Ethical Committee at the University of the Witwatersrand approved the ethical clearance for the study to be conducted. The Ethical Clearance Certificate can be found in Appendix II.

5.7. Conclusion

This chapter presented the methodology used in the study. Firstly, an explanation of the research strategy was discussed. This was followed by a discussion of the sampling design, data collection method, statistical modelling techniques and ethical considerations. The next chapter presents the data analysis and findings from the study.

CHAPTER 6: DATA ANALYSIS

6.1 Introduction

This chapter provides the statistical analysis and results obtained from the data collected on how motives influence consumer attitudes toward participation in co-creation activities in the digital banking industry in South Africa. An overview is given of the descriptive statistics; an analysis of the reliability, validity and model fit is provided and a path modelling analysis is provided.

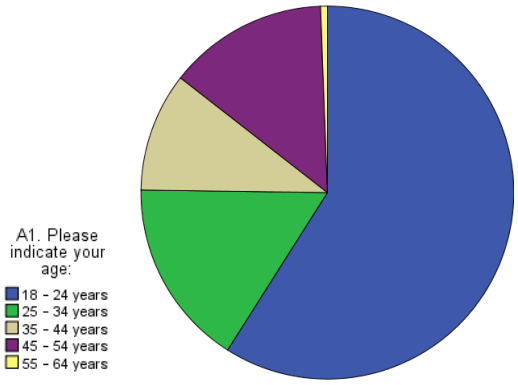
6.2 Descriptive Statistics

This section provides an overview of the demographic profile of the respondents. Firstly, a discussion on their age, gender, education and geographic location are presented, followed by an overview of various banking habits such as the type of bank account the respondent has and whether he or she believes their bank could offer more innovative digital banking services.

6.2.1 Demographic Profile of Respondents

Age

Figure 6.1: Age Profile



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Three hundred and thirty participants responded to the questionnaire. Figure 6.1 represents the age groups among the sample of respondents, followed by a discussion thereof. The results of the study indicate that 59% of the respondents are between the ages of 18 and 24. Respondents between the ages of 25 – 24 years constitute about 16% of the sample, while the age groups of 35 – 44 years and 45 – 54 years present 10% and 14% of the sample. Lastly, 55 – 64 year olds represent less than 1% of the sample.

Gender

Table 6.1 represents the gender spilt of the sample of respondents, followed by a discussion thereof.

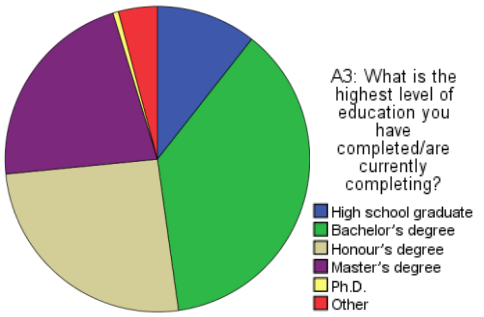
Table 6.1: Gender Profile

		Frequency	**Percent**
Valid	Female	201	59.3
	Male	138	40.7
	Total	339	100.0

Fifty-nine of the respondents are female. The remaining 41% of respondents are male.

Education

Figure 6.2: Education Profile



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Majority of the respondents in the sample are qualified with a Bachelor's degree. Twenty six percent of the sample is qualified with an Honours degree while Master's graduates and high school graduates constitute 22% and 11%, respectively, of the sample. Lastly, less than 1% of the sample is qualified with a Ph.D. and 4% have other qualifications such as diplomas and certificates. The figure above (Figure 6.2) illustrates the education profile of the respondents.

Geographic Location

Seventy seven percent of the respondents reside in Gauteng, followed by Kwa-Zulu Natal in which 15% of the respondents reside. Three percent resides in the Western Cape, followed by 2% in Limpopo and the North West respectively, with less than 1% of respondents residing in the Eastern Cape.

6.2.2 Banking Habits of Respondents

Primary Bank

Table 6.2: Primary Bank

		Frequency	Percent
Valid	FNB	99	29.2
	ABSA	65	19.2
	Nedbank	51	15.0
	Standard Bank	99	29.2

	Capitec	15	4.4
	Other	5	1.5
	Combination of Two Banks	5	1.5
	Total	339	100.0

Twenty nine percent of the respondents primarily bank with Standard Bank, while another 29% bank with FNB. ABSA bank users represent 19% of the sample followed by Nedbank, which represents 15% of the sample. Lastly, 4% of respondents bank with Capitec while 3% of bank users bank with other banks such as Investec. Table 6.2 (above) illustrates these results.

Life of Account

Forty nine percent of the respondents have had their accounts for 1 – 5 years, 21% for 6 – 10 years and 20% of respondents have had their accounts for more than 16 years. Of the remaining respondents 6% have accounts, which are 11 – 15 years old, and 4% have had their accounts open for less than a year.

Type of Account

Table 6.3: Type of Account

		Frequency	**Percent**
Valid	Cheque account	122	36.0
	Transactional banking account	29	8.6
	Premier or private banking account	49	14.5
	Youth or student account	91	26.8
	Accounts for senior citizens	2	.6
	Other	10	2.9
	Youth & cheque account	25	7.4
	Cheque & transactional account	5	1.5

	Cheque & premier/private banking account	6	1.8
	Total	339	100.0

The most popular type of account is cheque account (see Table 6.3 above) making up 36% of the sample. Twenty seven percent of respondents have youth or student accounts and 15% are premier or private banking consumers. Transactional accounts and senior citizen accounts account for 9% and less than 1% of the sample. Three percent of the respondents have other accounts such as savings accounts, while the remainder of the sample, 11%, have a combination of two accounts with their banks.

Telephone Banking

Of the 339 respondents, 89% are aware that their bank offers telephone-banking services, of which 36% make use of the telephone-banking services their bank offers, while the remaining 64% do not. Ten percent of the sample believes their banks do not offer telephone-banking services and less than 1% does not know whether their bank offers telephone-banking services.

Cell-phone Banking

Ninety eight percent of respondents believe their bank offers cell-phone-banking services, of which 67% make use of this service, while the remaining 33% do not use the service. Two percent of the sample believes their banks do not offer cell-phone-banking services.

Mobile Application

eighty nine percent of bank users can conduct transactions through a mobile application, but only 53% make use of the application. Ten percent of respondents believe their bank does not offer a mobile application while less than 2% do not know whether their bank has such an offering. These results are indicated in the table below (Table 6.4).

Table 6.4: Mobile Application

		Frequency	Percent
Valid	Yes	303	89.4

	No	34	10.0
	I do not know	2	.6
	Total	339	100.0

More Innovative Offerings

Seventy one percent of respondents believe their bank could offer more innovative digital banking services. These respondents made the following suggestions:

- *"I would like to be able to do more transactions through the app, such as get access to certified bank statements."*
- *"A fully adjustable App that is totally comprehensive, showing credit and debit accounts as well as personal savings of the account holder, tied in with up to the minute updates. All free of charge, as they do in other parts of the world, given South Africa has the highest bank charges on earth."*
- *"Breakdown of customized expenses categories. E.g. food, DIY items, school fees, investments etc."*
- *"Instant payment using facial recognition or fingerprint."*
- *"Talkback app perhaps for elderly and blind people to be able to transact with just a command function on their phones."*

6.2.3 Questionnaire Results

Respondents were asked to indicate which bank they primarily bank with and answer various questions with regards to intrinsic ~~and extrinsic motivation~~, attitudes and their perceived attributes of innovation. Below is a summary the results.

6.2.3.1 Intrinsic Motivation

The results in Table 6.5 show that most of the respondents in the sample would participate in co-creation activities because it would be stimulating; provide an opportunity to help other

consumers while directing digital banking trends. Additionally, 80% of the sample would participate in co-creation activities to see what new products are available.

Table 6.5: Intrinsic Motivation in the Context of Digital Banking

Measurement Instrument	Consumer Response		
	Agree	Neutral	Disagree
I would find participating in co-creation activities with my bank stimulating.	70%	16%	14%
I would participate in co-creation activities with my bank because it would give me an opportunity to help other consumers.	64%	16%	20%
I would participate in co-creation activities with my bank to direct trends in digital banking.	71%	10%	19%
I would participate in co-creation activities with my bank to see what new digital banking products are available.	80%	5%	15%

~~*6.2.3.2 Extrinsic Motivation*~~

~~of the sample is motivated to participate in co-creation activities for potential financial rewards. Most of the respondents in the sample would participate for other extrinsic motivations such as possibility of a job offer; recognition or because they believe in their bank's values. Table 6.6 shows this.~~

~~**Table 6.6: Extrinsic Motivation in the Context of Digital Banking**~~

~~Measurement Instrument~~	~~Consumer Response~~		
	~~Agree~~	~~Neutral~~	~~Disagree~~
~~I would participate in co-creation activities with my~~	~~79%~~	~~13%~~	~~8%~~

~~bank if there were financial rewards.~~			
~~I would participate in co-creation activities with my bank if there were a possibility of a job offer.~~	~~61%~~	~~20%~~	~~19%~~
~~I would be motivated to participate in co-creation activities by the recognition I can earn from my bank.~~	~~72%~~	~~10%~~	~~18%~~
~~The reason I would participate in co-creation activities with my bank is because of what the bank stands for, i.e. my bank's values.~~	~~55%~~	~~27%~~	~~18%~~

6.2.3.~~2~~3 Attitudes

Majority of the respondents have positive attitudes toward participating in co-creation activities (see Table 6.~~6~~7). For instance, the respondents believe that co-creation is a good idea, beneficial, rewarding, useful and worth trying. Hence, 76% of the respondents believe participating in co-creation activities is not a bad idea.

Table 6.~~6~~7: Attitudes toward Co-creation in the Context of Digital Banking

Measurement Instrument	**Consumer Response**		
	Agree	**Neutral**	**Disagree**
I believe participating in innovative co-creation activities with my bank would be a good idea.	79%	12%	9%
I believe participating in innovative co-creation activities with my bank would be beneficial.	87%	7%	6%
I believe participating in innovative co-creation activities with my bank	73%	19%	8%

would be rewarding.			
I believe participating in innovative co-creation activities with my bank would be a bad idea.	11%	13%	76%
I believe participating in innovative co-creation activities with my bank would be useful.	79%	18%	3%
I believe participating in innovative co-creation activities with my bank would be worth trying.	88%	9%	3%

6.2.3.34 Characteristics of Innovation

The results shown in Table 6.78 indicate that most consumers believe an innovation developed through co-creation would allow them to bank quicker and give them more control over their accounts. Thus, the innovation has a relative advantage. Furthermore, an innovation developed through co-creation would not be complex to use, for the majority of the sample. This is because the majority of the respondents do not believe the innovation would be complicated to use or require a lot of mental effort. Lastly, because majority of respondents believe the innovation would fit into their current knowledge base and would be easy to adjust to, it suggests that an innovation developed through co-creation would be compatible with their current values and lifestyle.

Table 6.78: Perceived Characteristics of Innovations in the Context of Digital Banking

Measurement Instrument	**Consumer Response**		
	Agree	**Neutral**	**Disagree**
Relative Advantage: **An innovative digital banking service developed through co-creation would allow me to bank more quickly.**	77%	15%	8%
Relative Advantage: **An innovative digital**	75%	18%	7%

banking service developed through co-creation would give me more control over my bank accounts.			
Complexity: **Using an innovative digital banking service developed through co-creation would be complicated to use.**	19%	17%	64%
Complexity: **Using an innovative digital banking service developed through co-creation would require a lot of mental effort.**	18%	27%	55%
Compatibility: **Using an innovative digital banking service developed through co-creation would fit well into my knowledge base.**	73%	14%	13%
Compatibility: **I feel that using an innovative digital banking service developed through co-creation would be easy for me to adjust to.**	80%	14%	6%

6.2.3.45 Innovation Adoption

The results in Table 6.89 show that most consumers expect to use a digital banking offering knowing it is developed through co-creation; are considering it and intend to try a co-created digital banking offering. Additionally, 26% of respondents are aware that they have adopted a digital banking offering that was developed through co-creation activities.

Table 6.89: Innovation Adoption in the Context of Digital Banking

Measurement Instrument	**Consumer Response**		
	Agree	**Neutral**	**Disagree**

Do you expect you would use a digital banking offering knowing it was developed through co-creation?	83%	12%	5%
I am interested in using a digital banking offering that has been developed through co-creation.	81%	16%	3%
I intend on trying a digital banking offering that has been developed through co-creation activities.	79%	15%	6%
To my knowledge, I have adopted a digital banking offering that was developed through co-creation.	26%	51%	23%

6.3 Measurement Instrument Assessment

The constructs which make up the conceptual model of this study, namely intrinsic motives, extrinsic motives, attitudes toward participating in co-creation activities, relative advantage, complexity, compatibility and adoption intention, were measured. In this section, the results of the reliability and validity of the measurement instrument is analysed and discussed. The results are presented in Table 6.~~10~~9.

Table 6.910: Accuracy Analysis Statistics

Research Construct		Descriptive Statistics				Cronbach's Test		C.R. Value	AVE Value	Highest Shared Variance	Factor Loading
		Mean Value*		Standard Deviation		Item-total	α value				
IM	IM1	5.139	5.072	1.458	1.547	0.742	0.89	0.898	0.689	0.489	0.854
	IM2	4.861		1.608		0.799					0.844
	IM3	4.973		1.652		0.828					0.918
	IM4	5.313		1.470		0.683					0.687
AT	AT1	5.386	5.417	1.246	1.146	0.689	0.88	0.926	0.560	0.489	0.912
	AT2	5.540		1.204		0.758					0.723
	AT3	5.156		1.281		0.788					0.733
	AT5	5.451		1.080		0.689					0.687
	AT6	5.552		0.920		0.689					0.661
RA	RA1	5.537	5.535	1.290	1.348	0.721	0.84	0.836	0.718	0.349	0.866
	RA2	5.534		1.406		0.721					0.828
CX	CX1	3.201	3.260	1.415	1.447	0.672	0.80	0.796	0.662	0.202	0.812
	CX2	3.319		1.479		0.672					0.815
CP	CP1	5.206	5.342	1.358	1.240	0.547	0.70	0.730	0.575	0.292	0.803
	CP2	5.478		1.121		0.547					0.711
AI	AI1	5.475	5.411	1.205	1.121	0.533	0.81	0.825	0.619	0.249	0.577
	AI2	5.416		1.058		0.736					0.853
	AI3	5.342		1.102		0.745					0.892

Note. IM, intrinsic motives; AT, attitudes toward the act; RA, relative advantage; CX, complexity; CP, compatibility; AI, adoption intention; C.R., composite reliability; AVE, average variance extracted.
*Scores: 1= strongly disagree; 2= disagree; 3= slightly disagree; 4= neutral; 5=slightly agree; 6= agree; 7= strongly agree.

6.3.1 Testing for Reliability

To test for the reliability of the measurement instrument, the researcher examines the Cronbach Alpha coefficient, the composite reliability (CR) and the average variance extracted (AVE).

6.3.1.1 Cronbach's Alpha Coefficient

Based on the results shown in Table 6.10, the values of the Cronbach Alpha ranged from 0.70-0.89. This indicates that all the Cronbach Alpha values meet or exceed the recommended threshold of 0.7 (Drost, 2013). Thus, it can be confirmed that the measures used in this study are reliable.

6.3.1.2 Composite Reliability

The Composite Reliability (CR) index used to evaluate internal reliability of the measurement instrument. According to Drost (2013), for CR to be accepted the index should be grated than 0.7. Additionally, CR is calculated using the following formula:

(CR): $CR\eta=(\Sigma\lambda yi)^2 / [(\Sigma\lambda yi)^2+(\Sigma\varepsilon i)]$

Composite Reliability = (square of the summation of the factor loadings) / {(square of the summation of the factor loadings) + (summation of error variances)}

Table 6.101: Composite Reliability Estimates

				Composite reliability (CR)			
					Summation of error terms		CRη=(Σλyi)2/[(Σλyi)2+(Σεi)]
				$(\sum\lambda Yi)^2$	**εi**	**$\sum\varepsilon i$**	**CR**
IM	<---	IM1	0.854	10.910	0.271	1.244	0.898
	<---	IM2	0.844		0.288		
	<---	IM3	0.918		0.157		
	<---	IM4	0.687		0.528		
AT	<---	AT1	0.912	13.809	0.168	1.108	0.926
	<---	AT2	0.723		0.477		
	<---	AT3	0.733		0.463		
	<---	AT5	0.687		0.528		
	<---	AT6	0.661		0.563		
RA	<---	RA1	0.828	2.870	0.314	0.564	0.836
	<---	RA2	0.866		0.250		
CX	<---	CX1	0.812	2.6471	0.341	0.676	0.796
	<---	CX2	0.815		0.336		
CP	<---	CP1	0.803	2.2922	0.355	0.850	0.730

	<---	CP2	0.711		0.494		
AI	<---	AI1	0.577	5.3917	0.667	1.144	0.825
	<---	AI2	0.853		0.272		
	<---	AI3	0.892		0.204		

According to Table 6.10~~1~~, the CR indexes are between 0.73 and 0.926, thus exceeding the estimate criteria used in literature (Drost, 2013). Using the results of the construct intrinsic motivation (IM) and the CR formula, a manual calculation for estimating the CR is demonstrated below:

Step 1: $(\Sigma\lambda yi)^2 = (0.854 + 0.844 + 0.918 + 0.687)^2$

$= 10.901$

Step 2: $\Sigma\varepsilon i = (1 - 0.854)^2 + (1 - 0.844)^2 + (1 - 0.918)^2 + (1 - 0.687)^2$

$= 1.244$

Step 3: $CR\eta = 10.901 / (10.901 + 1.244)$

$= 0.898$

6.3.1.3 Average Variance Extracted

The Average Value (Variance) Extracted (AVE) states how much variance captured by the latent variable in the model is shared among other variables. For a construct to be considered reliable, the value for AVE should be at least 0.5 (Baumgartner, 2010). To calculate AVE, the following formula is used:

(AVE): $V\eta = \Sigma\lambda yi^2 / (\Sigma\lambda yi^2 + \Sigma\varepsilon i)$

AVE = (summation of the square of factor loadings)/{(summation of the square of factor loadings) + (summation of error variances)}

Table 6.112: Average Variance Extracted Estimates

			Estimate	λyi^2	$\sum\lambda yi^2$	$\dot{\varepsilon}i$	$\sum\dot{\varepsilon}i$	$\sum\lambda yi^2 / (\sum\lambda yi^2 + \sum\dot{\varepsilon}i)$
IM	<---	IM1	0.854	0.729	2.756	0.271	1.244	0.689
	<---	IM2	0.844	0.712		0.288		
	<---	IM3	0.918	0.843		0.157		
	<---	IM4	0.687	0.472		0.528		
AT	<---	AT1	0.912	0.832	2.801	0.168	2.199	0.560
	<---	AT2	0.723	0.523		0.477		
	<---	AT3	0.733	0.537		0.463		
	<---	AT5	0.687	0.472		0.528		
	<---	AT6	0.661	0.437		0.563		
RA	<---	RA1	0.866	0.750	1.436	0.250	0.564	0.718
	<---	RA2	0.828	0.686		0.314		
CX	<---	CX1	0.812	0.659	1.324	0.341	0.676	0.662
	<---	CX2	0.815	0.664		0.336		
CP	<---	CP1	0.803	0.645	1.150	0.355	0.850	0.575
	<---	CP2	0.711	0.506		0.494		
AI	<---	AI1	0.577	0.333	1.856	0.667	1.144	0.619
	<---	AI2	0.853	0.728		0.272		
	<---	AI3	0.892	0.796		0.204		

Based on the results in Table 6.11, the AVE of the constructs in the measurement instrument all exceed the 0.5 the estimate criteria found in prior literature (Baumgartner, 2010). This indicates acceptable levels of scale reliability. Using the results of the construct relative advantage (RA) and the AVE formula, a manual calculation for estimating the AVE is demonstrated below:

Step 1: $\Sigma\lambda yi^2 = (0.822^2 + 0.828^2)$

$= 1.436$

Step 2: $\Sigma\varepsilon i = (1-0.822)^2 + (1-0.828)^2$

$= 0.564$

Step 3: Vη = 1.436 / (1.436 + 0.564)

= 0.718

6.3.2 Testing for Validity

The validity of the measurement instrument is tested using the following measures: convergent validity and discriminate validity, upon which the correlation matrix and the relationship between AVE and the Shared Value (SV) are used to confirm the validity of the scales.

6.3.2.1 Convergent Validity

Convergent validity is concerned with determining whether measures that should be related to each other are in fact related (Drost, 2013). Factor Loading values are used to determine convergent validity, which should be greater than 0.5 to indicate acceptable validity (Drost, 2013). Table 6.123 presents the results of the factor loading estimates.

Table 6.123: Factor Loading Estimates

Research Construct		Factor Loading
IM	IM1	0.854
	IM2	0.844
	IM3	0.918
	IM4	0.687
AT	AT1	0.912
	AT2	0.723
	AT3	0.733
	AT5	0.687
	AT6	0.661
RA	RA1	0.866
	RA2	0.828
CX	CX1	0.812
	CX2	0.815
CP	CP1	0.803
	CP2	0.711
AI	AI1	0.577
	AI2	0.853

	AI3	0.892

From Table 6.123, it is evident that all the items have loadings that exceed the minimum threshold of 0.5. More specifically, the loadings range from 0.577 to 0.918, which indicates convergent validity of the scale items.

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6.3.2.2 Discriminate Validity

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Correlation Matrix

Discriminant validity assumes that items should correlate higher among themselves than they correlate with the items from other constructs (Zait & Bertea, 2011). Thus, the inter-construct correlation matrix is used to determine the presence of discriminant validity, where the value of each scale item should be less than 0.8 (Zait & Bertea, 2011). Additionally, a -1 coefficient represents a perfect negative relationship whilst +1 represents a perfect positive relationship (Grace, 2006). Table 6.134 presents the inter-construct correlation matrix.

Table 6.134: Inter- Construct Correlation Matrix

	IM	AT	RA	CX	CP	AI
IM	1					
AT	0.699	1				
RA	0.505	0.591	1			
CX	-.081	-0.229	-0.196	1		
CP	0.384	0.54	0.526	-0.449	1	
AI	0.499	0.461	0.401	-0.266	0.338	1

It is evident from Table 6.14 that all the inter-correlation values are less than the 0.8 threshold as the values range from – 0.081 to 0.699. Thus, providing evidence for discriminant validity. More specifically, the weakest linear relationship exists between perceived compatibility and perceived complexity (-0.449), and attitudes toward the act and perceived complexity (-0.229). This indicates that the constructs are very different from one another. Based on the results in Table 6.13, all of the correlations are significant.

Average Variance Extracted and Shared Value

Using the results from the inter-construct correlation matrix, discriminant validity is further examined by comparing the values of AVE and the highest shared variance (SV). For the construct to be considered valid, the value of AVE should be greater than the value of SV (Chinomona, Lin, Wang, & Cheng, 2010). The table below (Table 6.145) presents the AVE and the highest SV values.

Table 6.145: Average Variance Extracted and Highest Shared Variance

Research Construct		AVE Value	Highest Shared Variance
IM	IM1 IM2 IM3 IM4	0.689	0.489
AT	AT1 AT2 AT3 AT5 AT6	0.560	0.489
RA	RA1 RA2	0.718	0.349
CX	CX1 CX2	0.662	0.202
CP	CP1 CP2	0.575	0.292
AI	AI1 AI2 AI3	0.619	0.249

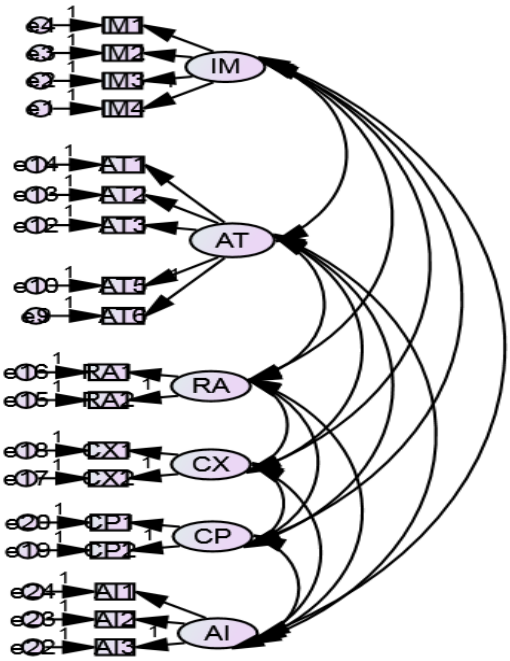
Table 6.145 indicates for all the constructs the values of AVE are all greater than the values of the highest shared variance. For instance, the AVE of AT is 0.560 which is greater than the square of the shared variance of AT and RA which $[(0.591)^2] = 0.349$. This, therefore, proves the existence of discriminate validity. Likewise, the AVE for IM (0.689), RA (0.718), CX (0.662), CP (0.575), and AI (0.619) are larger than the value of the highest shared variance. Thus proving the existence of discriminate validity.

6.4 Structural Equation Modelling

Structural Equation Modelling (SEM) is a general approach to multivariate data analysis (Wothke, 2010) based on a linear model (Ullman & Bentler, 2003) and describes a family of statistical methods (Kaplan, 2009). The purpose of SEM is to test a proposed conceptual model (Kaplan, 2009), study the relationships among latent variables (Savalei & Bentler, 2010) and estimate causal effects between variables (Hoyle, 2012).

In this section, model fit is tested to determine whether or not the model fits the data appropriately. Figure 6.3 presents the CFA model, followed by a discussion of the model fit indices.

Figure 6.3: CFA Model



6.4.1 Model Fit Indices

To assess model fit the researcher makes use of indices which indicate whether or not the model is acceptable. The following indices are examined: Chi-square (CMIN), base line comparison index and root mean square error of approximation. Due to low standardized regression weights the following items were removed: ~~EM1, EM2, EM3, EM4,~~ AT4 and AI4. Thereafter, the model fit improved. Furthermore, errors were uncorrelated to further improve the model.

6.4.1.1 Chi-Square Index

Table 6.1~~5~~6 presents the findings of the Chi-square (CMIN/DF). A discussion of the findings follows below.

Table 6.1~~5~~6: Chi-square Index

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	100	169.898	71	0	2.393
Saturated model	171	0	0		
Independence model	18	4416.927	153	0	28.869

The findings in Table 6.15 indicate that the value is 2.393. According to Hooper, Coughlan & Mullen (2008), this ratio should be between 2.0 and 5.0 for the model fit to be acceptable. Thus, it is apparent that the Chi-square of the present study indicates a good model fit.

6.4.1.2 Baseline Comparison Index

Table 6.1~~6~~7 presents the findings of the baseline comparison index that includes the following indices: normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Tucker-Lewis index (TLI) and confirmatory fit index (CFI).

Table 6.1~~6~~7: Baseline Comparison Index

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	0.962	0.917	0.977	0.95	0.977
Saturated model	1		1		1
Independence	0	0	0	0	0

model

The findings in Table 6.16 confirm a good model fit across all the indices. The values of NFI (0.962), RFI (0.917), IFI (0.977), TLI (0.95) and CFI (0.977) are well within the suggested range of being greater than 0.8 (Hooper, Coughlan, & Mullen, 2008). Therefore, there is a good model fit.

6.4.1.3 Root Mean Square Error of Approximation

Table 6.178 indicates the findings for the root mean square error of approximation (RMSEA).

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Table 6.178: RMSEA Index

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.064	0.052	0.077	0.03
Independence model	0.287	0.28	0.294	0

According to Hooper, Coughlan & Mullen (2008), the value indicates how well the model fits the population's covariance matrix and should be in the 0 – 0.5 range to indicate a good fit. Based on the results found in Table 6.17, it can be confirmed that there is a good model fit because the value of the RMSEA is 0.064.

In conclusion, based on the Chi-square value, the baseline comparison indices and the RMSEA, it is confirmed that model shows acceptable fit.

6.5 Path Modelling and Hypotheses Testing

The following section presents the results of the hypotheses and the correlating path coefficients (Table 6.189). The path co-efficient reflects the strength between the two variables. To determine whether the hypotheses are supported or not, p-values are analysed. Furthermore, at the 95% level of significance, the supported hypotheses are indicated with three asterisks (***).

Table 6.189: Hypotheses Results and Path Coefficients

Proposed Hypothesis Relationship	Hypothesis	Path Coefficient	p-value	Result
Intrinsic motives → Attitude toward the act	H1	0.77	***	Supported and Significant
Attitude toward the act → Perceived Relative advantage	H23	0.81	***	Supported and Significant
Attitude toward the act → Perceived Complexity	H34	-0.32	***	Supported and Significant
Attitude toward the act → Perceived Compatibility	H45	0.54	***	Supported and Significant
Perceived Relative advantage → Adoption intention	H56	0.27	***	Supported and Significant
Perceived Complexity → Adoption intention	H67	-0.17	0.002	Supported and Significant
Perceived Compatibility → Adoption intention	H78	0.34	0.001	Supported and Significant

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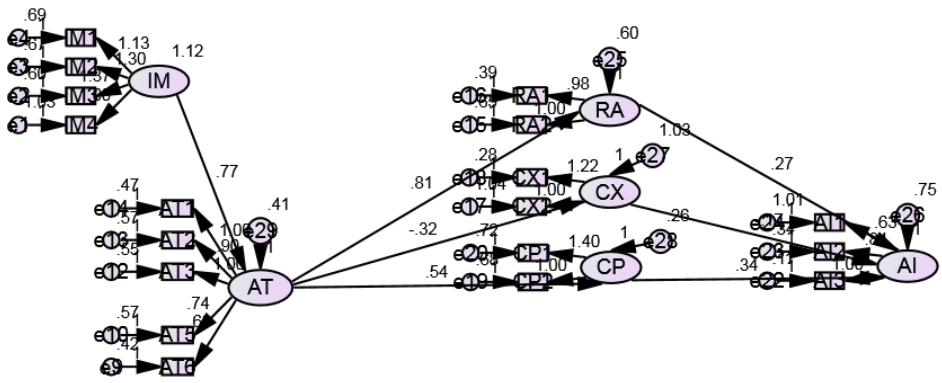
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*** Significant at a 0.05 significance level

Based on the results in the table above (Table 6.189), it is found that all the hypotheses are significant and supported. The strongest relationship is hypothesis 2, which tests the relationship between attitude toward the act and perceived relative advantage. This is indicated by a path coefficient of 0.81. The weakest relationship exists between complexity and adoption intention (H67), which is shown by a path coefficient of 0.17 in Table 6.18. A more comprehensive discussion on the hypotheses results is discussed in section 6.6. Derived from the findings presented above, Figure 6.4 presents the tested conceptual model.

Figure 6.4: Tested Conceptual Model



6.6 Summary of Hypotheses Results

H1: *Intrinsic motives* have a positive influence on *attitude* toward the act

~~**H1: Intrinsic motives have a positive influence on attitudes toward participating in co-creation activities.**~~

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Based on the findings of the data analysis, it is evident that H1 is supported. This indicates that a positive relationship exists between the two variables. Thus, intrinsic motives have a positive influence on attitudes. This means when a consumer is motivated by intrinsic factors, he/she is more likely to have favourable attitudes toward participating in co-creation activities. Lastly, the path coefficient of 0.77 indicates a positive and very strong relationship between the variables.

H2: There is a positive relationship between *attitude* toward the act and *perceived relative advantage.*

~~**H3: There is a positive relationship between attitudes toward participating in co-creation activities and relative advantage**~~

Based on the findings of the data analysis, it is evident that H2~~3~~ is supported. This indicates that a positive relationship exists between the two variables. Thus, attitudes have a positive impact on relative advantage. This means when a consumer has favourable attitudes toward participating in co-creation, he/she is more likely to believe that the co-created innovation has a relative advantage. Lastly, the path coefficient of 0.81 indicates a positive and very strong relationship between the variables.

H3: There is a negative relationship between *attitude* toward the act and *perceived complexity*.

~~**H4: There is a negative relationship between attitudes toward participating in co-creation activities and complexity.**~~

Based on the findings of the data analysis, it is evident that H3~~4~~ is supported. This indicates that a negative relationship exists between the two variables. Thus, attitudes have a negative impact on complexity. This means when a consumer has favourable attitudes toward participating in co-creation, he/she is less likely to believe that the co-created innovation is complex. Lastly, the path coefficient of -0.32 indicates a negative and weak relationship between the variables.

H4: There is a positive relationship between *attitude* toward the act and *perceived compatibility.*

~~**H5: There is a positive relationship between attitudes toward participating in co-creation activities and compatibility**~~

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Commented [GC24]: Due to low standardized regression weights the following items were removed: EM1, EM2, EM3, EM4.

Should I adjust my thesis from the beginning and not mention extrinsic motives at all. Or should I mention that the items were removed every time I have to discuss H2?

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Based on the findings of the data analysis, it is evident that H4~~5~~ is supported. This indicates that a positive relationship exists between the two variables. Thus, attitudes have a positive impact on compatibility. This means when a consumer has favourable attitudes toward participating in co-creation, he/she is more likely to believe that the co-created innovation is compatible with their existing knowledge. Lastly, the path coefficient of 0.54 indicates a positive and moderately strong relationship between the variables.

H5: There is a positive relationship between *perceived relative advantage* and *adoption intention.*

~~**H6: There is a positive relationship between relative advantage and adoption intention**~~

Based on the findings of the data analysis, it is evident that H5~~6~~ is supported. This indicates that a positive relationship exists between the two variables. Thus, relative advantage has a positive influence on adoption intention. This means when a consumer believes a co-created innovation has a relative advantage, he/she is more likely to have intentions to adopt the co-created innovation. Lastly, the path coefficient of 0.27 indicates a positive and weak relationship between the variables.

H6: There is a negative relationship between *perceived complexity* and *adoption intention.*

~~**H7: There is a negative relationship between complexity and adoption intention**~~

Based on the findings of the data analysis, it is evident that H6~~7~~ is supported. This indicates that a negative relationship exists between the two variables. Thus, complexity has a negative influence on adoption intention. This means when a consumer believes a co-created innovation is complex, he/she is less likely to have intentions to adopt the co-created innovation. Lastly, the path coefficient of -0.17 indicates a negative and very weak relationship between the variables.

H7: There is a positive relationship between *perceived compatibility* and *adoption intention.*

~~**H8: There is a positive relationship between compatibility and adoption intention**~~

Based on the findings of the data analysis, it is evident that H7~~8~~ is supported. This indicates that a positive relationship exists between the two variables. Thus, compatibility has a positive influence on adoption intention. This means when a consumer believes a co-created innovation is

compatible with their existing knowledge, he/she is more likely to have intentions to adopt the co-created innovation. Lastly, the path coefficient of 0.34 indicates a positive and weak relationship between the variables.

6.7 Conclusion

To conclude, this chapter provided the statistical analysis and results obtained from the data collected on how motives influence consumer attitudes toward participation in co-creation activities in the digital banking industry in South Africa. An overview was given of the descriptive statistics; an analysis of the reliability, validity and model fit is provided and a path modelling analysis was provided.

CHAPTER 7: DISCUSSION OF FINDINGS

7.1 Introduction

This chapter presents a discussion on the research findings with reference to the reviewed literature. Firstly, the results of each hypothesis are presented, followed by a comparison of the results to previous literature and lastly, a discussion on the practical applications of the results.

7.2 Main Findings

This section discusses the findings of the influence of motivations on a consumer's attitudes toward participating in co-creation activities in the context of digital banking. Table 7.1 presents a summary of the results from the hypotheses.

Table 7.1: Results of Research Hypotheses

	Hypothesis	Results
H1:	Intrinsic motives have a positive influence on attitudes toward participating in co-creation activities.	Supported
H2~~3~~:	There is a positive relationship between *attitude* toward the act and *perceived relative advantage.*~~There is a positive impact of attitudes toward participating in co-creation activities on relative advantage.~~	Supported
H3~~4~~:	There is a negative relationship between *attitude* toward the act and *perceived complexity*. ~~There is a negative impact of attitudes toward participating in co-creation activities on complexity.~~	Supported
H4~~5~~:	There is a positive relationship between *attitude* toward the act and *perceived compatibility.* ~~There is a positive impact of attitudes toward participating in co-creation activities on compatibility.~~	Supported
H5~~6~~:	There is a positive relationship between *perceived relative advantage* and *adoption intention.* ~~There is a positive relationship between relative advantage and adoption intention.~~	Supported
H6~~7~~:	There is a negative relationship between *perceived complexity* and *adoption intention.* ~~There is a negative relationship between complexity and adoption intention.~~	Supported
H7~~8~~:	There is a positive relationship between *perceived compatibility* and *adoption intention.* ~~There is a positive relationship between compatibility and adoption intention.~~	Supported

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7.2.1 Intrinsic Motives and Attitude Toward the Act

H1: Intrinsic motives have a positive influence on attitudes toward participating in co-creation activities.

The findings of Hypothesis 1 indicated that intrinsic motives have a positive influence on attitudes toward participating in co-creation activities. By providing consumers with an opportunity to co-create that speaks to their intrinsic motivations such as interest, pleasure and enjoyment, banking firms can influence the attitudes consumers have toward co-creation. In other words, if a consumer has the opportunity to engage in a co-creation activity because it is fun or inherently interesting, he or she is likely to develop favourable attitudes toward participating in the activity. Upon closer examination of the strength of the relationship between intrinsic motives and attitude toward the act, the findings indicated a strong relationship (path coefficient = 0.77). In other words, intrinsic motives have a strong influence on attitudes toward participating in co-creation activities.

This supports previous studies such as those conducted by Budiman (2012) and Watchravesringkan, Hodges, & Kim (2012) which explore the relationship between intrinsic motives and attitudes. In other words, if a consumer has the opportunity to engage in a co-creation activity because it is fun or inherently interesting, he or she is likely to develop favourable attitudes toward participating in the activity. Budiman (2012) found that intrinsic motives had a positive influence on consumer attitudes. In addition, the results of that study suggested that a favourable attitude would further strengthen the behavioural intentions of the consumers. Moreover, Watchravesringkan, Hodges, & Kim (2012) conducted a study which resulted in the following findings: intrinsic motivational dimensions contributed more strongly to a consumer's attitudes toward using an innovation, which in turn affects their adoption intention. As per the findings of Hypothesis 1, consumers who are compelled by intrinsic motives are more likely to develop favourable attitudes toward participating in co-creation activities. ~~Therefore, South Africa's banks should invest and implement co-creation strategies to benefit from the competitive advantages associated with co-creation. Furthermore, banks should design co-creation activities that connect to intrinsic factors, which drive consumer behaviour such as fun, enjoyment, interest or self-affirmation. For example, a bank could initiate a program that allows~~

In summary, intrinsic motives are a key driver in creating favourable attitudes toward co-creation activities in the context of digital banking. The above results show that there is a significant, strong and positive influence of intrinsic motives on attitudes toward the act. This means that when co-creation activities appeal to a consumer's intrinsic motives, the more likely the consumer will have favourable attitudes toward participating in co-creation activities.

7.2.2 Attitude Toward the Act and Perceived Relative Advantage

H23: There is a positive ~~impact of attitudes toward participating in co-creation activities on relative advantage.~~relationship between attitude toward the act and perceived relative advantage.

The findings of Hypothesis 23 indicated that attitudes toward participating in co-creation activities had a positive impact on relative advantage. A consumer's favourable attitude toward participating in co-creation activities has an impact on his or her perceived relative advantage of the co-created innovation. In other words, if a consumer has a favourable attitude toward participating in co-creation activities, he or she is likely to believe that a co-created digital banking innovation has a relative advantage over other innovations. Upon closer examination of the strength of the relationship between attitude toward the act and relative advantage, the findings indicated a strong relationship (path coefficient = 0.81). In other words, attitudes toward participating in co-creation activities have a very strong impact on relative advantage.

This supports previous studies such as those conducted by Budiman (2012), Ishida & Taylor (2012) and Jaafar, Lalp & Naba (2012) which explore the relationship between attitudes and a consumer's perceptions of the characteristics of an innovation, including its relative advantage. In other words, if a consumer has a favourable attitude toward participating in co-creation activities, he or she is likely to perceive the co-created innovation as possessing a relative advantage over other innovations. As per the findings of Hypothesis 23, consumers with favourable attitudes toward participating in co-creation activities are more likely to believe that a co-created innovation possesses a relative advantage over other innovations. ~~Therefore, South African banks focus on creating favourable attitudes associated with co-creation activities. For~~

In summary, attitudes toward participating in co-creation activities have an impact on relative advantage in the context of digital banking. The above results show that there is a significant, very strong and positive impact of attitudes on relative advantage. This means that consumers who have favourable attitudes toward participating in co-creation activities are more likely to perceive the co-created innovation as possessing a relative advantage over other innovations.

7.2.3 Attitude Toward the Act and Perceived Complexity

H34: There is a negative relationship between attitude toward the act and perceived complexity.~~There is a negative impact of attitudes toward participating in co-creation activities on complexity.~~

The findings of Hypothesis 34 indicated that attitudes toward participating in co-creation activities had a negative impact on ~~relative advantage~~complexity. A consumer's favourable attitude toward participating in co-creation activities has an impact on his or her perceived complexity of the co-created innovation. In other words, if a consumer has a favourable attitude toward participating in co-creation activities, he or she is likely to believe that a co-created digital banking innovation is not complex. Moreover, if the consumer has unfavourable attitudes toward participating in co-creation activities, he or she is likely to believe that a co-created digital banking innovation is complex. Upon closer examination of the strength of the relationship between attitude toward the act and complexity, the findings indicated a weak relationship (path coefficient = -0.32). In other words, attitudes toward participating in co-creation activities do have an impact complexity, however it is not particularly strong.

This supports previous studies such as those conducted by Budiman (2012), Ishida & Taylor (2012) and Jaafar, Lalp & Naba (2012) which explore the relationship between attitudes and a consumer's perceptions of the characteristics of an innovation, including its complexity. In other words, if a consumer has a favourable attitude toward participating in co-creation activities, he or she is less likely to perceive the co-created innovation as being complex to use. As per the findings of Hypothesis 34, consumers with favourable attitudes toward participating in co-creation activities are less likely to believe that a co-created innovation is complex. Or,

In summary, attitudes toward participating in co-creation activities have an impact on complexity in the context of digital banking. The above results show that there is a significant, very strong and negative impact of attitudes on complexity. This means that consumers who have favourable attitudes toward participating in co-creation activities are more likely to perceive the co-created innovation easy to use, rather than complex.

7.2.4 Attitude Toward the Act and Perceived Compatibility

H4: There is a positive relationship between attitude toward the act and perceived compatibility.~~5: There is a positive impact of attitudes toward participating in co-creation activities on compatibility.~~

The findings of Hypothesis ~~4~~5 indicated that attitudes toward participating in co-creation activities had a positive impact on compatibility. A consumer's favourable attitude toward participating in co-creation activities has an impact on his or her perceived compatibility of the co-created innovation. In other words, if a consumer has a favourable attitude toward participating in co-creation activities, he or she is likely to believe that a co-created digital banking innovation is compatible with his or her values and knowledge. Upon closer examination of the strength of the relationship between attitude toward the act and compatibility, the findings indicated a moderately strong relationship (path coefficient = 0.54). In other words, attitudes toward participating in co-creation activities have a moderately strong impact on compatibility.

This supports previous studies such as those conducted by Budiman (2012), Ishida & Taylor (2012) and Jaafar, Lalp & Naba (2012) which explore the relationship between attitudes and a consumer's perceptions of the characteristics of an innovation, including its compatibility. In other words, if a consumer has a favourable attitude toward participating in co-creation activities, he or she is likely to perceive the co-created innovation as being compatible with his or her values and knowledge. As per the findings of Hypothesis ~~4~~5, consumers with favourable attitudes toward participating in co-creation activities are more likely to believe that a co-created

In summary, attitudes toward participating in co-creation activities have an impact on compatibility in the context of digital banking. The above results show that there is a significant, moderately strong and positive impact of attitudes on compatibility. This means that consumers who have favourable attitudes toward participating in co-creation activities are more likely to perceive the co-created innovation as being compatible with their needs, values and knowledge.

7.2.5 Perceived Relative Advantage and Adoption Intention

H56: There is a positive relationship between perceived relative advantage and adoption intention.

The findings of Hypothesis 56 indicated that a positive relationship exists between relative advantage and adoption intention. A consumer's perception of relative advantage is positively related to his or her adoption intention. In other words, if a consumer believes a co-created digital banking innovation possesses a relative advantage, he or she is likely to have intentions to adopt and use the innovation. Upon closer examination of the strength of the relationship between relative advantage and adoption intention, the findings indicated a very weak relationship (path coefficient = 0.27). In other words, relative advantage does have a positive relationship with adoption intentions, however it is not particularly strong.

This supports previous studies such as one conducted by Ndubisi & Sinti (2006), who suggest that relative advantage is an important factor in determining the adoption of new innovations. Similarly, Lee (2007), Keesee & Shepard (2011) and Lee, Hsieh & Hsu (2011) confirmed these findings and concluded that relative advantage is the best predictor in adoption intentions because it is the most relevant attribute/characteristic in influencing adoption. In other words, innovations perceived to possess a relative advantage are likely to result in intentions to adopt. As per the findings of Hypothesis 56, consumers who perceive a co-created innovation to possess a relative advantage over other innovations are more likely to display intentions to adopt. ~~Therefore, a bank should communicate the relative advantage an innovation possesses to encourage consumers to adopt the innovation. It is important for banks to understand their~~

In summary, a positive relationship exists between relative advantage and adoption intention. The above results show that there is a significant and positive relationship, however it is not particularly strong. Despite the strength of the relationship, it is possible that consumers believe a co-created innovation displays a relative advantage are likely to have intentions to adopt the innovation.

7.2.6 Perceived Complexity and Adoption Intention

H67: There is a negative relationship between perceived complexity and adoption intention.

The findings of Hypothesis 67 indicated that a negative relationship exists between relative advantage and adoption intention. A consumer's perception of complexity is negatively related to his or her adoption intention. In other words, if a consumer believes a co-created digital banking innovation is complex to use, he or she is less likely to have intentions to adopt and use the innovation. However, if he or she believes the innovation is not complex to use, he or she is more likely to have intentions to adopt and use the innovation. Upon closer examination of the strength of the relationship between complexity and adoption intention, the findings indicated a very weak relationship (path coefficient = -0.17). In other words, complexity does have a negative relationship with adoption intentions, however it is not particularly strong.

This supports previous studies such as one conducted by Cheung, Chang & Lai (2000), who found that complexity negatively influences the adoption of an innovation. This finding is confirmed by in other studies (e.g. Lee, 2007). Thus, it is suggested that the less complex something is to understand and use, the more likely a consumer will have intentions to adopt it. For instance, a study conducted by Reynolds & De Maya (2013) found that both complexity and perceived difficulty had a negative impact on the consumer's behavioural intention. As per the findings of Hypothesis 67, consumers who perceive a co-created innovation as complex are less likely to display intentions to adopt. Therefore, a bank should communicate the ease of use an innovation to encourage consumers to adopt the innovation.

In summary, a negative relationship exists between complexity and adoption intention. The above results show that there is a significant, very weak negative relationship. Despite this, consumers who believe an innovation is simple and easy to use are more likely to display intentions to adopt the innovation.

7.2.7 Perceived Compatibility and Adoption Intention

H78: There is a positive relationship between perceived compatibility and adoption intention.

The findings of Hypothesis 78 indicated that a positive relationship exists between compatibility and adoption intention. A consumer's perception of compatibility is positively related to his or her adoption intention. In other words, if a consumer believes a co-created digital banking is compatible with their current values and knowledge, he or she is likely to have intentions to adopt and use the innovation. Upon closer examination of the strength of the relationship between compatibility and adoption intention, the findings indicated a weak relationship (path coefficient = 0.34). In other words, compatibility does have a positive relationship with adoption intentions, however it is not particularly strong.

This supports previous studies such as one conducted by Ndubisi & Sinti (2006), who suggest that compatibility is an important factor in determining the adoption of new innovations. Similarly, the findings of Wu & Wang (2005) confirmed that the compatibility of an innovation with a consumer's value system has a significant positive and direct effect on the consumer's intentions. Thus, it can be said that a lack of compatibility of an innovation with a consumer's lifestyle, needs and experiences may negatively affect his/her use of the innovation (Sahin, Detailed Review of Rogers' Diffusion of Innovation Theory and Educational Technology-Related Studies, 2006). In other words, innovations that are compatible with consumer's current lifestyle and knowledge are likely to result in intentions to adopt. As per the findings of Hypothesis 78, consumers who believe an innovation is compatible are more likely to display intentions to adopt. ~~Therefore, a bank should communicate the compatibility an innovation possesses with the consumer's life encourage consumers to adopt the innovation.~~

In summary, a positive relationship exists between compatibility and adoption intention. The above results show that there is a significant and positive relationship, however it is not particularly strong. Despite the strength of the relationship, it is possible that if consumers believe a co-created innovation displays compatibility, the more likely they are to have intentions to adopt the innovation.

7.3 Conclusion

This chapter presented a discussion on the research findings with reference to the reviewed literature. Firstly, the results of each hypothesis were presented, followed by a comparison of the results to previous literature and lastly, a discussion on the practical applications of the results was offered. In the following chapter the conclusion, contributions and limitations are discussed.

CHAPTER 8: CONCLUSION, CONTRIBUTION AND RECOMMENDATIONS

8.1 Introduction

The purpose of this study was to investigate how different types of motivations influence a consumer's attitude toward participating in co-creation activities in the context of digital banking. Additionally, the study sought to investigate the impact of these attitudes on a consumer's perceptions of an innovation and how perceptions of relative advantage, complexity and compatibility influence the adoption intentions of digital banking offerings.

This chapter presents an overview of the main findings of the study. Additionally, the managerial implications of the study, contributions and limitations are discussed. Lastly, areas recommended for future research are suggested.

8.2 Conclusion of Main Findings

The outcomes of the study were in line with the hypotheses presented (see Table 8.1).

Table 8.1: Hypotheses Outcome

Proposed Hypothesis Relationship	Hypothesis	Path Coefficient	p-value	Result
Intrinsic motives → Attitude toward the act	H1	0.77	***	Supported and Significant
Attitude toward the act → Perceived Relative advantage	H2~~3~~	0.81	***	Supported and Significant
Attitude toward the act → Perceived Complexity	H3~~4~~	-0.32	***	Supported and Significant

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Attitude toward the act → Perceived Compatibility	H45	0.54	***	Supported and Significant
Perceived Relative advantage → Adoption intention	H56	0.27	***	Supported and Significant
Perceived Complexity → Adoption intention	H67	-0.17	0.002	Supported and Significant
Perceived Compatibility → Adoption intention	H78	0.34	0.001	Supported and Significant

Based on the results in the table above, it is found that all the hypotheses are significant and supported. Therefore, intrinsic motives positively influence attitudes toward participating in co-creation activities. Furthermore, attitudes toward participating in co-creation activities have a positive influence on relative advantage and compatibility, respectively and a negative influence on complexity. Additionally, relative advantage and compatibility each have a positive impact on adoption intentions, while complexity has a negative impact on adoption intentions. However, the strength of each of the relationships differs significantly. The strongest relationship is hypothesis 21, which tests the relationship between intrinsic motives and attitude toward the act, and perceived relative advantage whereas, the weakest relationship exists between complexity and adoption intention (H67).

8.3 Managerial Implications

Based on the results of the present study, a number of practical managerial implications for banks exist. The study can act as a guide for banks to use when developing marketing and innovation strategies relating to co-creation and digital banking. Furthermore, the study proposes that the key to effective and beneficial co-creation initiatives is the consumer and his or her motives. The results of the study indicate that intrinsic motives have a positive influence on attitudes toward participating in co-creation activities. Therefore, South Africa's banks should invest and implement co-creation strategies to benefit from the competitive advantages associated with co-creation. Furthermore, banks should design co-creation activities that connect to intrinsic factors, which drive consumer behaviour such as fun, enjoyment, interest or self-

affirmation. For example, a bank could initiate a program that allows consumers to play 'games' that solve problems. Through this process consumer are able to play and solve problems that result in feelings of fun and self-affirmation. By doing so, banks are able to shape their consumers' attitudes in such a way that the consumer has favourable feelings toward participating in co-creation activities. Additionally, banks are able to change neutral and negative attitudes into positive ones by appealing to a consumer's intrinsic motives. Moreover, the banks will be able to benefit from the advantages associated with positive attitudes such as the formation of brand loyalty and advocacy.

~~;~~

~~therefore banks should initiate activities that speak to their consumers' sense of fun, interest and excitement.~~ Additionally, attitudes toward participating in co-creation activities have a positive impact on a consumer's perception of relative advantage and compatibility, however attitudes have a negative impact on perceived complexity. Therefore, South African banks focus on creating favourable attitudes associated with co-creation activities. For example, a bank could communicate through various channels (mass advertisements and social media) of the benefits of a new digital banking offering. Additionally, the information that consumers are receiving should focus on the fact that the offering was developed through the in-depth collaboration with consumers. By doing so, banks are able to create an environment where consumers perceive the co-created innovation to possess a relative advantage because consumers, just like them, developed it. Additionally, banks will be able to benefits from the advantages associated with an innovation, which is perceived to have a relative advantage such as faster adoption rates. Using the aforementioned example, included in the campaign, a bank could include information that the innovation is simple and easy to use, because consumers, just like them, developed the new digital offering. By doing so, banks are able to demonstrate that the innovation is not complex. Additionally, banks will be able to benefit from the advantages associated with an innovation that lacks complexity. Lastly, banks could communicate the benefits of the new digital banking offering, including information of its compatibility with their current knowledge. Furthermore, the campaign should communicate that the offering fits in seamlessly into their lives.

Moreover, banks should communicate the relative advantage an innovation possesses to encourage consumers to adopt the innovation. It is important for banks to understand their

consumers' intentions, as it is an indicator of future behaviour. Through the co-creation campaign, the bank can engage with its consumers to determine what would move him or her from intention to actual behaviour and make changes accordingly to further entice consumers to adopt the innovation. As well as communicate the ease of use of innovation and its compatibility to encourage consumers to adopt the innovation.

~~This suggests that firms that are able to create favourable attitudes toward co-creation are in a position where their consumers believe that co-created innovations are better than other innovations, fit into their lifestyles and are easy to use. Based on the results of the study, banks should focus on ensuring that consumers understand that the co-created innovation is compatible with their values and knowledge because compatibility has the strongest impact on consumers' intention to adopt.~~

It is clear that practitioners will benefit from the implications of this study. Thus South African banks are encouraged to invest in areas of co-creation with its consumers and do so to develop the bank of the future through digital banking. It is proposed that this study will help inform management during strategy formulation.

8.4 Contributions

Although significant research has been conducted on consumer motivation, attitudes toward co-creation activities, perceived characteristics of innovation and innovation adoption, respectively, little was known about the relationships between these constructs in the South African digital banking sector. By exploring the influence of motivation on adoption intention, this study adds to contextual knowledge of consumer motivation on adoption intention. Furthermore, the mediating constructs (attitudes toward the act, relative advantage, complexity and compatibility), had not previously been used as a holistic framework together with motivation and adoption intention. Furthermore, the study contributes to current knowledge by using relevant literature and empirical evidence regarding co-creation, motivation, attitudes and innovation in the South African banking industry. Additionally, the study provides guidance to managers on how to better manage their co-creation activities and investments, particularly in the financial services

industry, and how to effectively engage and collaborate with their consumers and turn these co-innovation interactions into tangible profits for the firm.

8.5 Limitations

Although this study has made great contributions to literature and practitioners, some limitations exist. Firstly, this study was conducted in the context of digital banking. This may limit the results to the banking industry only and may influence the generalizability of the results. Additionally, the study was conducted in South Africa and may not be applicable to other African countries or even in the global context. Lastly, the study was conducted using various channels including online and in person. The online channel may have posed a limitation, as respondents may have not been forthcoming when discussing banking habits online. Additionally, online surveys are sometimes rushed through or not fully understood as a researcher is present to monitor and assist respondents if need be.

8.6 Future Research

Having highlighted the importance of this study, future research could compliment this study. For example, researchers can determine the perceptions of co-creation within the organisation (employees and management). For co-creation to be successful management in the organisation must be willing to lead the firm into a new marketing logic (Service-Dominant Logic) and employees must buy into the transformed role of the firm which focuses on on-going mutually beneficial relationships (Roser, DeFillippi & Samson, 2013). Additionally, researchers can replicate the study, but instead apply it to different context instead of the banking industry. Ponsignon, Klaus & Muall (2015) suggest that co-creation strategies can exist in various contexts including in social innovation where citizens are involved to develop solutions in areas of healthcare and education (Ind & Coates, 2013). Lastly, researchers can consider a study that looks at the tangible results of co-creation, rather than consumers' intentions to adopt.

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APPENDIX I

Research Questionnaire

PART 1

*Please answer the following questions by marking the appropriate answer with an "**X**"*

SECTION A: General Information

A1. Please indicate your age:

2	18 – 24 years	
3	25 – 34 years	
4	35 – 44 years	
5	45 – 54 years	
6	55 – 64 years	
7	Age 65 or older	

A2. Please indicate your gender:

1	Female	
2	Male	

A3: What is the highest level of education you have completed/are currently completing?

1	Less than high school	
2	High school graduate	
3	Bachelor's degree	
4	Honour's degree	
5	Master's degree	
6	Ph.D.	

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7	Other		If other, please specify_____

A4: In which region of the country do you live in?

1	Eastern Cape	
2	Free State	
3	Gauteng	
4	Mpumalanga	
5	Limpopo	
6	Western Cape	
7	Northern Cape	
8	Kwa-Zulu Natal	
9	North West	
10	Other	If other, please specify_____

SECTION B: Banking Habits

PLEASE NOTE: The responses collected in this study will be for research purposes **only**.

B1. Which bank do you **primarily** bank with?

1	FNB	
2	ABSA	
3	Nedbank	
4	Standard Bank	
5	Capitec	
6	Other	If other, please specify_____

B2. How long have you had an account with your primary bank?

1	Less than 1 year	
2	1 – 5 years	
3	6 – 10 years	
4	10 – 15 years	
5	More than 16 years	

B3. What type of account do you have with your bank? (*You can select more than one option)*

1	Cheque account		
2	Transactional banking account		
3	Premier/ private banking account		
4	Youth or student account		
5	Accounts for senior citizens		
6	Accounts for graduates/ young professionals		
7	Other		If other, please specify_____

B4. Does your bank offer telephone-banking services?

1	Yes	
2	No	
3	I do not know	

B5. Do you make use of the telephone-banking services your bank offers?

1	Yes	
2	No	

B6. Does your bank offer cell phone banking services?

1	Yes	
2	No	
3	I do not know	

B7. Do you make use of the cell phone banking services your bank offers?

1	Yes	
2	No	

B8. Does your bank allow transactions to be conducted through an app?

1	Yes	
2	No	
3	I do not know	

B9. Do you make use of the app your bank offers?

1	Yes	
2	No	

B10. Do you believe your bank could offer more innovative digital banking services?

1	Yes	
2	No	

B11. If you answered yes to question **B10**, please suggest what digital services you would like to see on offer from your bank.

PART 2

Below are statements about intrinsic motivation, attitudes toward co-creation, characteristics of innovation and innovation adoption in the context of digital banking.

Answer each statement based on the bank you transact with (B1).

You can indicate the extent to which you agree or disagree with the statement by marking an "**X**" on the corresponding number in the 7-point scale below.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

PLEASE NOTE: The idea behind co-creation is about giving you (the consumer) creative control in the innovation creation process through collaboration with your bank. Co-creation is not about outsourcing certain activities to you nor is it based on the marginal customisation of services. Instead, it is a facilitated, learning process all about relationships that is initiated by your bank to enable innovation with, rather than for you.

Section C: Intrinsic Motivation

		1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Neutral	5 Slightly Agree	6 Agree	7 Strongly Agree
IM1	I would find participating in co-creation activities with my bank stimulating.							
IM2	I would participate in co-creation activities with my bank because it would give me an opportunity to help other consumers.							

IM3	I would participate in co-creation activities with my bank to direct trends in digital banking.							
IM4	I would participate in co-creation activities with my bank to see what new digital banking products are available.							

Section D: Attitudes Toward Participating in Co-creation Activities

		1	**2**	**3**	**4**	**5**	**6**	**7**
		Strongly Disagree	**Disagree**	**Slightly Disagree**	**Neutral**	**Slightly Agree**	**Agree**	**Strongly Agree**
AT1	I believe participating in innovative co-creation activities with my bank would be a good idea.							
AT2	I believe participating in innovative co-creation activities with my bank would be beneficial.							
AT3	I believe participating in innovative co-creation activities with my bank would be rewarding.							
AT4	I believe participating in innovative co-creation activities with my bank would be a bad idea.							
AT5	I believe participating in innovative co-creation activities with my bank would be useful.							
AT6	I believe participating in innovative co-creation activities with my bank would be worth trying.							

Section E: Perceived Characteristics of Innovation

PLEASE NOTE: Digital banking is about focusing on electronic data and online platforms as the core of the bank's operations, rather than the traditional view where banks are organised around money in branches. Digital banking is about more than just a mobile app with basic transaction capabilities.

		1	2	3	4	5	6	7
		Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
PCI1	An innovative digital banking service developed through co-creation would allow me to bank more quickly.							
PCI2	An innovative digital banking service developed through co-creation would give me more control over my bank accounts.							
PCI3	Using an innovative digital banking service developed through co-creation would be complicated to use.							
PCI4	Using an innovative digital banking service developed through co-creation would require a lot of mental effort.							
PCI5	Using an innovative digital banking service developed through co-creation would fit well into my knowledge base							
PCI6	I feel that using an innovative digital banking service developed through co-creation would be easy for me to adjust to							

Section F: Adoption Intention

		1	2	3	4	5	6	7
		Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
AI1	Do you expect you would use a digital banking offering knowing it was developed through co-creation?							
AI2	I am interested in using a digital banking							

	offering that has been developed through co-creation.							
A13	I intend on trying a digital banking offering that has been developed through co-creation activities.							
AI4	To my knowledge, I have adopted a digital banking offering that was developed through co-creation.							

Section G: Open-Ended Question

G1. Do you have any suggestions or comments regarding this questionnaire and the topics it covers?

Thank you for your participation! ☺

APPENDIX II

Ethical Clearance Certificate

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Chavarika

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H15/07/03**
PROJECT TITLE	The influence of intrinsic and extrinsic motives on consumer attitudes toward participating in creation activities: A study on digital banking in South Africa
INVESTIGATOR(S)	Ms G Chavarika
SCHOOL/DEPARTMENT	Economic and Business Science/
DATE CONSIDERED	24 July 2015
DECISION OF THE COMMITTEE	Approved unconditionally
EXPIRY DATE	01 November 2018

DATE 02 November 2015 **CHAIRPERSON** _____
(Professor J Knight)

cc: Supervisor : Ms M Venter

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

_____ _____/_____/_____
Signature **Date**

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

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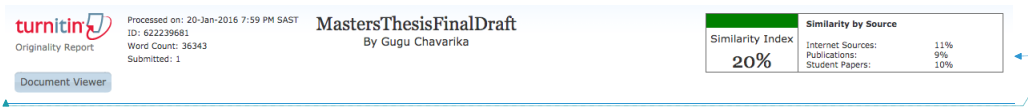
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APPENDIX III

Plagiarism Report Check



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