UNIVERSITY OF LUSAKA

SCHOOL OF POSTGRADUATE STUDIES

FACTORS INFLUENCING THE ADOPTION OF INTELLECTUAL PROPERTY AS COLLATERAL IN COMMERCIAL LENDING: EVIDENCE FROM ZIMBABWE

BY

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Thesis submitted to the School of Post Graduate Studies in fulfilment for the award of the Degree of Doctor of Philosophy in Intellectual Property Law

2020

DECLARATION

This thesis is purely my own work and that it has not been submitted to this University and any other University for similar purposes. The information borrowed from other sources have been duly acknowledged and cited in the position in which they appear.

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SUPERVISOR'S RECOMMENDATION

I, Professor Mpazi Sinjela read and checked the thesis written by Onesimo Kadare and do hereby confirm that it meets the University of Lusaka set minimum standards. I, therefore, recommend that the document be submitted for verification and examination for the purpose of the award of **Doctor of Philosophy in Intellectual Property Law**

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DEDICATION

I dedicate this thesis firstly to God almighty. Secondly to my mother and my wife Roseline. Thirdly to my Children, Chiedza, Farisai and Farai. Fourthly to Zimbabweans at large.

ACKNOWLEDGEMENTS

I am first and foremost grateful to God for all the blessings of life.

Secondly, I would like to give my special and heartfelt gratitude to my two supervisors, Professor Mpazi Sinjela and Dr Bruce Mwiya for guiding me through this research. Without their assistance and encouragement, I would not have gone through this research. May the good lord bless them always.

I also thank the University of Lusaka for allowing me to embark on this research. I also give my special thanks to Prof Kasanda, Prof Nsenduluka, Prof Kazonga and Dr. Simwnga for their initial guidance.

To my wife, for the patience and understandings during the time I have been away when she needed me, I am grateful for her understanding and patience.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBRIVIATIONS

- AIPLA American Intellectual Property Law Association
- APEC Asia-Pacific Economic Cooperation
- ARIPO African Regional Intellectual Property Organisation.
- C & D Connect & Develop
- CAGR Compound Annual Growth Rate
- DBS Development Bank Singapore
- DCF Discounted Cash Flows
- FDI Foreign Direct Investment
- GDP Gross Domestic Product
- IP Intellectual Property
- IPOS Intellectual Property of Singapore
- IPR Intellectual Property Rights
- MUOB Malaysian United Overseas Bank
- PPSA Personal Property Security Act
- R & D Research and Development
- SADC Southern African Development Community
- SIRDC Scientific and Industrial Research and Development Centre
- SME Small to Medium Enterprises
- SPVs Special Purpose Vehicle
- STEM Science, Technology, Engineering and Mathematics
- TCS India's Largest IT Service Provider
- TRIPS Trade-Related Aspects of Intellectual Property Rights
- UN United Nations
- UNISA University of South Africa
- USA United States of America
- WIPO World Intellectual Property Organisation

LIST OF KEY DEFINITIONS

KNOWLEDGE ECONOMY: It is the use of knowledge to create goods and services. It is characterised by innovation, information and knowledge **emanating** from the **creation** and **use** of Intellectual property (IP). Knowledge which resides in employee's heads replaces labour and capital as the key factors of production

COLLATERILISATION: It is the use of a valuable asset to secure a loan. If the borrower defaults on the loan, the lender may seize the asset and sell it to offset the loss.

INTELLECTUAL PROPERTY (IP): The underlying assets in a knowledge Economy are IP (intangible assets); that is they do not exist in physical form as compared to tangible assets such as- Buildings, Plant & Machinery. Intangible assets exist in the form of rights. IP comes into existence through the mental activity of a person but which once created have an independent existence separate from and outside of the person who created them.

PATENTS; A patent is a type of IP which grants **property** rights on an **invention,** (a legally enforceable right) allowing the patent holder to **exclude** others from **making, selling, or using** the invention described and claimed in the document. An invention may be a machine or a solution to a specific technological problem, which may be a product or a process.
For an invention to be patented it has to fulfil three main requirements; it has to be: new, not obvious and industrial applicability.

TRADEMARK: A trademark is a type of IP which is a recognisable sign, design or expression which **distinguishes** products or services of a particular trader from similar products or services of other traders.

COPYRIGHT: It is a type of IP which Copyright **arises upon** creation and **protects** the expression **of ideas**, but not the ideas themselves. Copyright protects works such as
Books, pictorial, graphic and sculptural works, music, photographs, movies and computer programs.

FOLKLORE: The WIPO, Traditional Knowledge Documentation Toolkit, (TKDT), states that Traditional Knowledge is some form of IP, generally known as Folklore. **Folklore is a living body of knowledge that is developed, sustained and passed on from generation to generation within a community, often forming part of its culture or spiritual identity.**

ARBITRATION: It is an adjudicative process whereby the disputants voluntarily and jointly appoint as a third party, the arbitrator, to hear both sides of the dispute and thereafter, to make an award which the disputants undertake in advance to accept as final and binding.

MEDIATION: It is a facilitative process through which a third party, the facilitator, is asked to facilitate communication between the parties and help them to consider a variety of solutions to all or part of the issues in dispute.

ABSTRACT

The study investigated the challenges associated with the use of intellectual property (IP) as collateral in financial transactions in Zimbabwe. The aim was to assess the level of knowledge of IP as an asset particularly amongst stakeholders in loan transactions and to explore factors influencing the acceptance or non-acceptance of IP as collateral in loan transactions in Zimbabwe.

A threefold triangulation methodological approach was used to interrogate factors that influence the use of IP as collateral in financial transactions, and to develop and test a conceptual framework for the adoption of IP as collateral in loan transactions. The first approach examined the effect of individual and institutional factors on IP and its uses. The second, explored the relationship between these factors and those identified in extant literature. The third was a proposal and validation of a multiple and mixed model of factors influencing the intention to use IP as collateral in financial transactions.

The research findings revealed that though Zimbabwe had launched its IP strategy and policy in 2018, with related laws to govern registration and protection of IP enacted, there was no legislation to support the use of IP as collateral for loan transactions. The study therefore established the institutional and individual factors in conjunction with other antecedent independent factors that influence the use of IP as collateral in financial transactions. Furthermore, the study argues for the need to make stakeholders, decision-makers in Government and financial institutions to become aware of the use of IP for wealth creation as a strategy to increase the value of businesses thereby promoting economic growth. A key output of the study is a model which was developed for promotion of IP knowledge, creativity, and innovation for industrial and national development.

Key Words: Knowledge Economy, Intellectual Property, Collateral Financial Transactions and Securitisation

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The creation of wealth in most world economies is now being driven by the knowledge economy which is characterised by information and knowledge emanating from the use of Intellectual property (Powell and Snellman, 2004). The knowledge economy represents an intangible economic configuration whereby knowledge is valued as a key factor in production. Economic growth in leading world economies is increasingly based on knowledge, in addition to tangible assets such as capital and labour. Knowledge comprises creation, and can, therefore, be operationalized by innovation for experiential analysis (Yeo, 2010).

Knowledge has become an essential resource for organizations. Knowledge-based economy refers to trends in developed economies regarding a heavy dependence on skills level, information, and knowledge including the growing necessity for easy access to the skills by the private and public sectors (Azevedo et al., 2019). Amazon and Google, are among the fastest-growing companies in the world that have embraced this phenomenon and as such are leading in the creation, provision and also promotion of access to information and knowledge (Fortune Magazine, 2017).

According to Volkov and Garanina (2007), the main characteristics of knowledge-based economy or intangible economy are:

i. Knowledge replaces labour and capital as essential resources in production and intangible assets create a considerable part of the value-added of companies;
ii. The knowledge content of the products and services is growing rapidly;
iii. The notion of ownership of resources has changed: knowledge resides in the head of employees; and,
iv. The establishments have changed and the management of intangible resources is different from tangible or financial resources.

This, in summary, translates to the fact that the use of or the results obtained from traditional factors such as labour, land, and capital are increasingly dependent on effective usage of knowledge and this necessitates a programme of effective knowledge management.

According to World Intellectual Property Organisation, 2008, Intellectual property (IP) is defined as the creation of the mind, such as inventions; artistic and literary works; designs, symbols, names and images used in commerce. To enable creators of IP to earn recognition and financial benefit, such IP has to be protected by law. IP protection aims to strike the right balance between the interests of innovators and the wider public interest. This will enable IP systems to foster an environment in which creativity and innovation can flourish. The IP system aims to promote an environment in which innovation and creativity may flourish.

The importance of IP is summed up in the following quotation;
"The knowledge in today's economy becomes a locomotive that defines the development of contemporary companies. The successful companies are, those that constantly introduce innovations based on new technologies as well as on knowledge, experience and attainments of their employees. It is arguable that the value of companies is now mostly generated by Intangible Assets, and not by "traditional" assets having the tangible form." (APEC, 2018,p,5).

Some scholar also stated that the only thing you really own is what you create; and the only thing you can create without needing someone else to give you raw materials first, is intellectual property (Menell et al., 2017)

IP is a creation of the mind, which does not require someone providing you with raw materials and thus it is the only thing that one really owns.

IP is divided into two categories:

i. Industrial Property, which includes patents for inventions, trademarks, and industrial designs.
ii. Copyrights, which include literary works (such as novels, poems and plays), films, music, artistic works e.g., drawings, paintings photographs and sculpture) as well as architectural design WIPO Publication 450 (2).

The WIPO, Traditional Knowledge Documentation Toolkit, (TKDT), states that Traditional Knowledge is some form of IP, generally known as Folklore. Folklore is a living body of knowledge that is developed, sustained and passed on from generation to generation within a community, often forming part of its culture or spiritual identity (Karlsberg, 2015; Thompson, 2013),

Intellectual Property as incorporeal or intangible objects which come into existence through the mental activity of a person but which once created have an independent existence, separate from and outside of a person who created them. Such creations become valuable assets similar to the physical assets of an organisation (UNISA MRL 4801Study Guide, 2016).

Assets of an enterprise are generally classified into two divisions or categories. The first category comprises physical assets (tangible), which include, buildings, machinery, financial assets and infrastructure. The second category is that of intangible assets – which range from human capital and know-how to ideas. Intangible assets also include brands, designs and other intangible fruits of a company's creative and innovative capacity. This second division is widely known as Intellectual Property (Gray, 2018; Surbhi, 2016).

Both tangible and intangible assets are referred to as operational assets of a business. The difference between tangible and intangible assets is that tangible assets have physical substance and intangibles have no physical substance but have special rights attached to them (Erdenechimeg, 2016; Surbhi, 2016 ;Nechikandan, 2015).

Physical assets have always been considered to be the primary value of a company and largely responsible for determining the competitiveness of an enterprise in the market place. However, this position is fast-changing as a result of the information technologies revolution and the growth of the service economy. Companies are realising that intangible assets are becoming more and more valuable than physical assets (Nanayakkara, 2010; Loumioti, 2011; Park, 2019).

In the past, only tangible or physical assets such as buildings and machinery have been used as collateral for business funding in developed countries. In recent years companies that have little or no tangible assets are now able to obtain significant funding through the use of IP as collateral for loans (Brandl et al., 2019; Leone et al., 2017).

Although the use of IP assets in commercial transactions has been known since the 1950s, there appears nothing was written about them over the years until 2000, when developed countries begun to embrace the knowledge economy concept, (Roberts, 2009); (Powell and Snellman, 2004) and (Adrian, 2009).

Since the advent of the knowledge economy IP assets since become more valuable than tangible assets and thus if valued correctly may enhance the market value of a company. This may also help companies attain more creditworthiness when applying for funding from financial institutions, WIPO; (Roberts, 2009) and; (Powell and Snellman, 2004).

Most companies, particularly in the developed economies, are realising that most often their intangible assets are becoming more valuable than physical assets. Innovative ideas and software are increasingly replacing tangible assets such as large warehouses and factories as the main source of income for a large and growing proportion of enterprises worldwide, (Breitwieser, 2012; Roberts, 2009; Powell and Snellman, 2004; Conley, and Orozco, 2005) and European IPR Helpdesk; Fact Sheet; IP Valuation, (2015).

Innovative ideas are developed and converted into innovative products or services which are then commercialised enabling enterprises to receive the benefits of these innovations. Enterprises may also use patents to earn royalty revenue by licensing such patented inventions to other firms that have the capacity to commercialise them and in the process earning a stream of income from its invention, (WIPO, 2009) R&D, Innovation and Patents; (Burrus, 2017) and (Scull, 2016; Fink et al., 2016).

The registration of IP rights for IP assets is the prerequisite for ownership. The procedure for acquiring IP rights is governed by laws such as patent law, copyright law, the law of trademarks and competition law. In order to benefit from IP assets, an enterprise should protect them through registration of the rights embedded in those assets. If IP assets are not legally protected they may be used by others without any limitation. Protected IP rights may acquire real value for an enterprise since they cannot be commercialised or used without its authorisation. (WIPO, 2008); (WIPO Publication No. 450(E); WIPO pub 453); (Bhattacharya,2011; Farah et al, 2014; Shaw, 2016).

IP rights are used as collateral in loan transactions in the same way as tangible assets (WIPO Magazine, 5/2008). Collateralisation is defined in the context of Intellectual Property as a borrower's pledge of property, such as future Cash Flows emanating from the use of Intellectual

property assets, or rights to the underlying Intellectual property itself, to provide security for the lender in the event of loan default. Historically, the practice of obtaining financing secured by one form or another of Intellectual property, while relatively rare, was not unheard of. One well-known instance of using Intellectual Property as collateral to obtain a loan occurred when Thomas Edson used his patent on the incandescent electric light bulb as collateral to secure financing to start his company, the General Electric Company, (Burton et al., 2014) and (Sharma and Nerurkar,2016).

Using intellectual property is a developing business option that may offer a financing opportunity for companies with valuable intellectual property assets seeking alternative sources of capital where traditional financing options are not available or too expensive to pursue. (Burton et al., 2014) and (Sharma and Nerurkar, 2016). The use of Intellectual property assets to gain access to credit is gaining increasing attention in intellectual property circles. Multinational corporations, as well as small and medium-sized enterprises, are leveraging their intellectual property assets in exchange for finance, and lending institutions around the world are increasingly extending their business to provide loans based on intellectual property. For example, a UN institution has been working with WIPO member states to modernise secured financing practices, to making it easier for intellectual property owners to gain access to affordable credit. (WIPO magazine of 2008); (Burton et al., 2014) and (Sharma and Nerurkar, 2016).

One common way of using Intellectual Property as collateral is by way of Asset securitisation. Asset Securitisation is defined as the practice of converting an asset or stream of cash flows into marketable securities. IP-backed securitisation consists of transfer of IP rights by an owner for securitisation and receipts of capital from investors in the form of lump-sum payments. Royalty streams from IP serve as capital for investors. IP securitisation differs from the securitisation of other kinds of assets like mortgages, which are loan-based and which pay a fixed amount, while IP-backed securitisation pay-out variable royalties due to fluctuation in sales. (Burton et al., 2014; Kumar et al., 2006).

The first example of securitisation of intellectual property assets took place in 1997 when future royalty receipts from David Bowie record sales were changed into securities and traded in a private bond offering 55 million dollars, (Odasso and Caledarin, 2009). Edwards, (2001), cited in (Odasso and Caledarin, 2009), stated that ‘there was likely to be a diffusion of a new class

of asset-backed securities with intellectual property as the underlying asset, in the form of patents, brands and copyrights. As a result, the market for intellectual property would greatly develop as a consequence of increased awareness of intellectual property value'.

Data recently released show that industries based on intellectual property rights contribute a gigantic 5.8 trillion dollars to the GDP of the United States, constituting 38% of the country's total GDP. According to this observation, it appears that the relative segment of developed countries' GDPs occupied by intangible property continues to grow over that of tangible property, it is therefore not surprising that the motivation to capitalize on intellectual property rights as a method for financing is also growing, (Dove et al., 2015; Kim, 2016),

The potential of intellectual property rights as a source of financing commercial activities is fast becoming a reality in developed countries. These, however, still face some challenges, particularly in protecting and enforcing IP rights, (WIPO Magazine, 2016). The Magazine published on 21 September 2016, quoted Baroness Neville-Rolfe saying; "*The problem we are all always facing is working out how to ensure that these valuable IP rights are usable, and how to ensure that their value is preserved in the face of relentless infringement on an enormous scale".* These sentiments were also echoed by (Gurry, 2017). Such challenges are even more pronounced in developing countries such as Zimbabwe, to the extent that the hidden potential is yet to be investigated and a solution found.

This study which was focused around the intersection between law and finance aims to investigate the reasons that limit the use of Intellectual property as collateral in commercial lending transactions in Zimbabwe. More analytically, this study will analyse what is the potential for securitisation schemes in the context of financial and economic variables to determine the practicability of intellectual property securitisation functioning.

As stated above, intellectual property needs to be protected through registration leading to the granting of exclusive rights to the owner. The various IP rights are usually protected as follows;

1.1.1 Patents

A patent is an exclusive right granted to an inventor which prevents all others from, making, using or selling the invention. The right is granted by a sovereign authority and usually last

for a period of 20 years, (Kenton, 2019). The invention may be a product or a process that generally provides new ways of doing things or offer a new technical solution to a problem. In particular, the invention has to be new, not obvious and should be industrially applicable, (Dilanchian, 2008) and (Kenton, 2019). A patent can be ceded, sold and when the right expires, the ultimate beneficiary is the public large (Runge, Joe Esq, 2017; Miller, 2013).

1.1.2 Copyright

Copyright is an exclusive right granted to an owner of a copyright that prevents all others from the production of copyrighted work without authority. Copyright protects works such as books, pictorial, graphic and sculptural works, music, photographs, movies and computer programs, (Rich, 2019). According to (De Franco, 2016), copyright is often described as an assortment of rights, which include the right: (1) to reproduce the copyrighted work; (2) to make derivative works (such as a movie from a novel); (3) to distribute copyright works to the public; (4) to perform publicly, certain works (such as music); (5) to display, publicly, certain works (such as paintings). Copyright arises upon creation and under current Zimbabwean laws, they last for a period of 50 years after the life of the author (Midzi., 2019; Ward, 2018; Kenton, 2018).

1.1.3 Trademarks

A trademark is defined as a recognisable sign, design or expression which distinguishes products or services of a particular trader from similar products or services of other traders, (WIPO, 2007). Trademark law seeks to protect such indications of the commercial source of products or services. Registering a trademark is the safest way to exclusive rights to one's sign. The duration of trademark protection varies from county to country, but generally, it is valid for ten (10) years and can be extended by 10 (ten) years at a time (WIPO, 2007; **W**ery**,** 2017).

1.1.4. Traditional Knowledge and Folklore

The ways to protect traditional knowledge and folklore against misuse and misappropriation are still under discussion at the World Intellectual Property Organization. Member states are trying to find consensus on draft articles of a potential treaty, with a focus on core subjects, such as the scope of protection, and definition (Saez, 2018; WIPO, 2018; Andersen, 2010).

(WIPO, 2018), (Brody, (2010), and (Maina, 2011) report that in 2000, WIPO members established an Intergovernmental Committee on IP Genetic Resources, Traditional Knowledge and Folklore (IGC). The committee agreed in 2009 to develop an international instrument (or instruments) that would give traditional knowledge, genetic resources and traditional cultural expressions (Folklore) effective protection. This was to be done by way of recommendations by WIPO member countries. Consequently, two types of protection recommended are:

i. **Defensive protection,** which aims to stop people outside the community from acquiring IP rights over traditional knowledge;
ii. **Positive protection**, which is the granting of rights that allow communities to promote their traditional knowledge, control its uses and benefits from its commercial exploitation.

1.2. STATEMENT OF THE PROBLEM

Historically, only physical assets such as land and other movable property, were the principal assets which were accepted by lenders of capital as collateral. However, the world is gradually moving away from an asset-based economy to a knowledge-based economy in which intellectual property play a crucial role in business performance and economic growth, (Powell and Snellman, 2004; Schilirò et al., 2012; Kagan, 2018).

. **The Problem is:**

i. While the developed countries are now using IP as collateral for loans, Zimbabwe is far from embracing this new trend.
ii. There is little or no research on IP in Zimbabwe and there is also little known documented literature in Zimbabwe concerning IP as an asset and more particularly its use as collateral for loans.
iii. There is no legislation in Zimbabwe allowing the use of IP as collateral in financial transactions.
iv. While extant literature has identified factors influencing the use of IP as collateral in financial transactions, but lacks studies that examine the effect of Individual and institutional factors and a research proposing and validating a multiple and mixed model on the intention to use IP as collateral in financial transactions.

An empirical 2016 WIPO publication detailed the methodology for developing of national IP strategies demonstrating how government IP policies should influence Institutions which in turn impart knowledge to individuals. These strategies were adopted by countries such as Malaysia and Singapore. Zimbabwe should take a cue from such countries.

1.3 OBJECTIVES OF THE STUDY

Based on the literature review, with IP as the underlying subject, the overall objective of this study is to a) examine the challenges militating against the use of IP as collateral for loans in Zimbabwe. b) Explore the reasons for lack of research, innovation and creativity based on IP in Zimbabwe. Specifically, the current research's objectives are:

i. To assess the level of knowledge of IP as an asset among Stakeholders in loan transactions in Zimbabwe;
ii. To explore factors influencing acceptance and non-acceptance of use of IP as collateral in loan transactions in Zimbabwe;
iii. To develop a conceptual framework for adoption of IP as collateral in loan transactions in Zimbabwe; and,
iv. To test a conceptual model for adoption of IP as collateral in loan transactions in Zimbabwe.

1.4 RESEARCH QUESTIONS

i. What is the level of knowledge of IP as an asset by stakeholders in loan transactions?

ii. What are the factors influencing the acceptance of the use of IP as Collateral in loan transactions?

iii. What is the conceptual framework that should be adopted for IP as Collateral in loan transactions?

iv. What tests should be conducted on the conceptual framework for adopting IP as collateral in loan transactions?

1.5 RATIONALE FOR THE STUDY

Research needs to fill a knowledge gap in the literature, (Dudovskiy, 2018; Shugert, 1983; Shugert, 1979). There is little known literature on IP in Africa and more so in Zimbabwe. This

study aimed at adding to the little literature available and to bring to the fore the importance of intellectual property not only as a wealth creator but also its uses in commercial transactions in Zimbabwe. The practice of extending loans secured solely by intellectual property is not common in Zimbabwe. Yet, if businesses seek to use intellectual property to obtain financing, their IP assets may stand a greater chance of being accepted as collateral if businesses can prove their liquidity and that they can be valued separately from the business' tangible assets (WIPO, 2016; Schmitt, 2016; Mateos-Garcia, 2014). There is thus, a need to value all the intellectual property assets and to seek protection by registering property rights in them. There is thus above all, the need for businesses to be aware that intellectual property is an asset which contributes towards the going concern of an entity. If an asset is created and attains its own independent identity from that of its creator and is used in the production of other goods and services such an asset though intangible, has a value similar to that of tangible assets. It can, therefore, contribute to the growth of that entity and the growth of an economy. Such, an asset needs to be recognized and utilized for collateral purposes (Chadha et al., 2013).

With the rapid pace of technological development and the advent of the information age, intellectual property know-how is now often much more valuable and relevant than assets in the form of machinery. For most companies, intellectual property is the most important corporate asset more than its tangible assets, (WIPO, 2016; Juetton, 2014; Vodak, 2011). The importance of intellectual property has increased dramatically for corporations over the last 40 years and further that, in 1992 the hard assets of industrial companies accounted for 62% of the companies' market value, and by 2000, tangible assets made up 38% and intangible assets 62% of their value. In 2004, intangible assets value jumped to 70% of the companies' market value (Bader, 2006; Vodak, 2011).

Although ARIPO has been promoting research on IP in Africa including Zimbabwe, nothing or very little studies have been conducted with regards to the importance of intellectual property and its usefulness as collateral in commercial lending transactions.

While the literature reviewed has identified some factors influencing the adoption of IP as collateral in financial transactions, these have been examined in isolation and not as a combined force. This study aimed at investigating the factors and analysing them as a combined force in addition to determining whether individual and institutional factors are closely associated with the intention to use IP as collateral in commercial transactions.

The rationale of this study was, therefore, to sensitise the Zimbabwean populace about the advent of the new phenomenon of the knowledge economy with IP as the underlying asset. Further that IP is now the engine for growth and economic development. If this is embraced in Zimbabwe and indeed Africa as a whole, it should lead to economic growth and prosperity.

1.6. ASSUMPTIONS

The potential of intellectual property as a business asset has been overshadowed by the common law intangible asset known as Goodwill. Goodwill arises when a buyer acquires an existing business and represent assets that are not separately identifiable. There is a tendency among businesses in Zimbabwe to believe that goodwill comprises all intangible assets of a business and when valued it is eventually written off against profit over a given number of years and thus rendered useless.

By employing the survey method of data gathering, it is assumed that participants will answer the questions truthfully and candidly without any other motives. By employing a mixed-method, it is assumed that the integration of the quantitative and qualitative traditions can be seen as complementary to each other, (Simon, 2011). Further, the interview participants are drawn mainly from those involved in a one-man type of business operating on the roadside and other less organised spaces. Such participants were assumed to be more creative than those in most SMEs who are mainly involved in the retailing business.

It is also assumed that the hidden potential of intellectual property as collateral may also be as a result of the problems associated with the legal structures, regulations and valuations surrounding intellectual property in Zimbabwe. Further, although intellectual property rights may provide incentives for innovations there is limited local technological capacity to react to the incentives (Leger, 2007),

1.7. DELIMITATIONS OF THE STUDY

The objectives of the study chosen limit the study to answering the specific questions and to examine the main factors influencing the use of IP as collateral based on the literature reviewed and to apply the same to the Zimbabwean agenda. Further, the main emphasis was to propose and to validate a conceptual model incorporating both the influence of factors based on extant literature as well as based on exogenous factors such as individual and institutional factors.

Although the study adopted to a large extent the general to specific approach, the research analysed data and statistics mainly from Zimbabwe. The primary data gathering methods used were questionnaires and interviews. The size of the population of the study was limited to the participants who were willing to respond to the questionnaire and to those who were willing to participate in the interviews. The interview participants are mainly those involved in a one-man type of business operating on the roadside and other less organised spaces. Such participants were considered to be more creative than those in most SMEs who are mainly involved in the retailing business. Some quotations from the participants were included as a justification for the interprevistic nature of the findings. Targeted questionnaire participants would not all respond without permission from their respective organisations. Such organisations required proof from the University of the Researcher's Studentship. However, after such proof was availed some organisation could not still respond positively citing lack of authority from the higher levels. There have been challenges in obtaining relevant literature since the subject of the knowledge economy with intellectual property as the underlying asset is a recent phenomenon. The research was only conducted in Harare, the capital city of Zimbabwe due to financial resource constraints and the limited time for the completion of the study. Besides, Harare is home to most business and financial institutions' head offices as well as various organisations and SMEs that are capable of IP innovations.

1.8. Summary of Thesis Contents

This thesis is made up of eight chapters including the introduction. A general summary of the content of each of these chapters is provided here.

Chapter 1 - discusses Zimbabwe's history, culture and economy in the context of this study. Specifically, it discusses the structure of the Zimbabwean culture and economy and its challenges.

Chapter 2 - Reviews literature on how the developed countries and some Asian countries have adopted the use of IP as a source of revenue thereby increasing economic growth. It discusses the role of IP in the enterprise's financing structure and shows the evolution of the IP models. It highlights the growing global pressures for more recognition of IP as collateral for loan transactions. It highlights IP in Africa and particularly Zimbabwe.

Chapter 3 - Discusses how IP can be valued, protected including the legal issue that may be encountered. It also discusses how disputes on IP may be resolved.

Chapter 4 - Discusses the conceptual model and Hypothesis development including the underpinning theories.

Chapter 5 - Discusses the methodology, justification and implementation of the adopted research design. The chapter also discusses the population, sampling and data collection procedures; analyses validity and reliability of qualitative and quantitative research measures;

Chapter 6 - Discusses the Qualitative research findings based on the interviews and knowledge emanating from existing literature. The implications of the evidence on the conceptual model are explained.

Chapter 7– Quantitative research findings based on the questionnaire are discussed using SPSS 21 statistics analysis.

Chapter 8 - Discusses the results and their implications on policy and practice, Contributions to knowledge Future direction, limitations, recommendations and conclusions.

CHAPTER 2

INTELLECTUAL PROPERTY AND ITS USES IN COMMERCE

2.1 Introduction

This chapter is the first of the two chapters discussing literature review regarding IP and its uses in commerce, particularly as collateral for loans. It discusses what is known firstly in the developed world, US, EU and other developing nations in Asia. Secondly, it will discuss what is not known regarding IP in Africa and Zimbabwe, and lastly, what needs to be done. The chapter comprises; The knowledge Economy (2.1), Patents (2.2), Copyrights (2.3), Trademarks (2.4) Traditional Knowledge and Folklore (2.5), Advantages & Disadvantages of using IP as collateral for loans (2.6), Common uses of IP in Loan transactions (2.7), Growing use of IP as collateral for loans (2.8), Securitisation (2.9), Knowledge Economy & use of IP in Africa (2.10), Innovation & Creativity in Zimbabwe (2.11), and Conclusion (2.12).

In this study, the general to specific approach entailed literature review of how the problem was identified, including how previous researchers attempted to solve the problem in the USA, Europe and Asia. The focus thereafter shifted to Africa, SADC and finally Zimbabwe.

2.2 Knowledge-Economy

The leading edge of the economy in developed countries is being driven by technologies based on knowledge and information production and its dissemination. These technologies, which emerged in the late 1950s, expanded with the proliferation of personal computers, and surged dramatically with the widespread use of emails and the internet, which have marked the advent of knowledge-based economy, (Olukunmi, 2016; Chen and Dahlman, 2006; Powell & Snellman,2004).

(Yeo, 2010) defined Knowledge economy as products and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance including equally rapid obsolescence. The key components of a knowledge economy include a greater reliance on intellectual capabilities than on physical inputs or natural resources, combined with efforts to integrate improvements in every stage of the production process,

which includes R&D laboratory, the factory floor and to the interface with customers. (Leydesorff, 2007; Powell and Snellman, 2004),

In this new era of the information age, knowledge has become the critical factor in achieving success, (Dang, and Umemoto, 2009). Knowledge is the invisible asset which will produce the innovative products which will be considered as IP which in turn are utilised to produce new products that will satisfy customers. Countries need to strengthen and modernise their IP system as a response to the fundamental need to improve participation in a knowledge economy, (Blakeney and Mengiste, 2011).

Companies should give priority to developing and managing the knowledge of their employees to create value. This would also mean that the traditional accounting which served companies well in the Industrial age should now take into account intellectual assets by including them in their financial statements (Atrill, and McLaney, 2012). International Accounting Standards 38 as amended (2014) requires that IP assets be recorded at cost in the Balance Sheet of companies.

However, notwithstanding that technology based on knowledge and information emerged in the 1950s, Thomas Edison, in late 1800s, used his patented incandescent electric light bulb as collateral to finance his new Co – the General Electric Co. This was an indication that IP had been used as collateral long back, (Burton et al., 2014); (Sharma and Nerurkar, 2016). The use of IP as collateral slowed due to the first global recession in the 21st century and it was wondered whether the recovery at the beginning of 2010, would see whether the use of IP as collateral to secure loans could ever bounce back. (Baker, 2017; Jacobs, 2011).

As the US grew further away from a manufacturing-based economy and closer to a technically (knowledge) based economy, the use of IP as collateral security became prevalent. Examples of the majors and acquisition activities of the 1980s showing this economic shift whereby transactions included the sale of the song for both JIMI HENDRIX & BEATLES CATALOG by Michael Jackson for $47, 5 million and the popular speculation of the future of the catalogue after the death of Michael Jackson, (Askew and Jacobs, 2000).

The knowledge and development of IP in the US and other developed countries sprung due to the research and literature on IP. The Study deemed it feet to review some of the works/literature that led to the knowledge and development of IP firstly in the US and EU

countries followed by IP development in Asian countries and lastly in other African countries and then Zimbabwe.

Early writers such as (Askew and Jacobs, 2000), and (Idris, 2003), confirmed the attempts that had been made in the past in using intellectual property as collateral. Subsequent writers such as (Segoviano et al, 2013) continued to reflect on the slow growth in the securitisation of IP. Although some authors identified impediments for the use of intellectual property as collateral for loans and suggested possible solutions to those impediments, there was still no widespread use of IP as collateral. The slow progress was linked to the little information available regarding the new phenomenon.

Despite this lack of information, the 21st century writers continued to address the question of whether or not IP could be used as collateral in accessing funding. They carried an analysis of the potential of patent securitisation in the Pharmaceutical Industry. They found out that pharmaceutical companies had a wide range of assets which increased their credit rating and could obtain funding at a relatively low cost so that recourse to patent securitisation was not a priority. The writers, however, concluded that patent securitisation could be more suitable for small and medium companies which had consistent IP portfolio but that did not have easy access to capital markets. The authors also observed that funding condition advantages using IP were not so obvious - as firms which were technologically-rich but with little cash could not cover costs of raising finance and servicing debt, while big firms had access to a wide range of financial solutions and could not greatly benefit from leveraging IP.

Notwithstanding these teething problems IP securitisation was considered to be a good alternative to traditional funding and that the world was slowly recognising the importance of IP and also that the use of IP as collateral in commercial lending transactions would further enhance economic growth, by increasing the type of assets required for security, (Solomon and Bitton, 2015; Odasso and Caladerini, 2009)

It was pointed out that the slow realisation of the potential of IP-backed securitisation was because of reasons that included the following:

i. Many in the securitisation field were relatively unfamiliar with IP rights;
ii. Fear of the unknown;
iii. Problems with valuation;

iv. Jurisdictional differences;
v. Extreme due diligence;
vi. High Administration costs;
vii. Unpredictable Cash Flows, and obsolescence;
viii. Fashion, and Link to originator and IP litigation risks.

The key to overcoming many of these issues was to ensure diversity of the portfolios that may be transferred to Special Purpose Vehicles (SVPs), (Jones et al., 2006); Solomom and Bitton, 2015).

However, it was acknowledged that IP was a powerful tool for economic development and wealth creation that was not yet being used to optimal level even in the developed countries, (Idris, 2003). IP is now one of the most valuable, assets in commercial lending transactions and thus these need to be protected like any other assets. The development of the market for intellectual property and the ongoing innovation of financial solutions had driven the firm's interest in intellectual property as a valuable asset to use for finding opportunities, (Henry, and Stiglitz, 2010; Liberti, 2010).

Intellectual property should be protected through registration. Among the compelling reasons why IP was promoted and protected were (i) the progress and well-being of humanity rested on its capacity to create and invent new works in the areas of technology and culture; (ii) the legal protection of new creations encouraged the commitment of additional resources for further innovation; (iii) the promotion and protection of intellectual property spurred economic growth, created new jobs and industries and enhanced the quality and enjoyment of life. These views and the fact that the information age was fast-growing such that high technology products protected by patents, copyrights and trademarks were fast becoming important resources in the modern economy was an indication that the uses of intellectual property should be thoroughly investigated. (Mania, 2017; (Munari et al., 2011; Erdenechimeg, 2016).

It was, however, evident that the use of IP as collateral was a recent phenomenon and even the developed countries were still facing challenges. However, in recent years most companies in developed countries that had little or no tangible assets were now able to obtain significant funding by collateralising intellectual property, (Kim, 2016; Mateos-Garcia, 2014); (WIPO, 2016) and (Jacob,2011). While developed countries had endorsed this new phenomenon, and it

was now a growing practise, especially in the music businesses on internet-based and in high technology sectors, this was yet to come to the fore in developing countries, particularly in Africa.

The endorsement of this new phenomenon, by the developed countries established that IP assets were now core and important to the growth of the economy. Small and large, companies could create, acquire and hold IP as corporate assets. To realise the value of intellectual property assets, companies turned these assets into collateral for secured financing, (Nguyen, 2008; Hargreaves, 2011). Companies could then value these IP assets and record them in their financial statements and use them as collateral in commercial transactions alongside tangible assets. Thus, companies that had no or little tangible assets could now rely solely on their IP to obtain financing to fund other projects including R&D projects, (Rutter and Milanga, 2018; Jarrett, 2017).

The value of US conglomerates such as Apple, Microsoft and Facebook increased tremendously such that they had become overnight sensations and economic powerhouses. (Webster, 2017; Pharm, 2018). All this was attributable to the recognition and respect of the IP embedded in them. Some of the growth trends are shown in table one on pages 48 – 49, by (Kim, 2016). Revenues from licensing of patent rights increased in the last ten years, from $15 billion in 1990 to more than $110 billion today. Further that, companies were slowly realising that intellectual property could be among their most valuable and flexible assets and that the licensing market was still in its infancy, revenues could top half-trillion dollars annually in ten years (Simmons,2017; Rivette and Kine, 2000).

A report issued by the US Department of Commerce entitled IP & the US Economies, identified 81 industries that were considered IP intensive or whose revenues were driven by IP value. It argued that these 81 industries were collectively responsible for some $6.6 trillion in value-added in 2014, representing 38% of total US GDP. It was also argued that close to four in every ten dollars generated in the US economy related to IP intensive industries. Furthermore, these industries created 28 million jobs, directly and indirectly, provided work for 17 million more which translated to almost one-third of US employment. This was evidence that IP intensive industries significantly outperformed non-intensive industries proportionately in both job creation and wealth creation (Webster, 2017; Pharm, 2018). These conglomerates were an epitome to the fact that no country could develop without innovation and creativity. In

Africa, production and export of raw materials and dependence on imports would not help the continent to develop. Innovation and creativity based on IP were the key drivers for development, (Breitwieser and Foster, 2012) and (Anderson, et al, 2014). Africa therefore, needs to be made aware of this so that it could embrace IP and to invest in research and innovation.

IP needs to be protected to prevent others from making or using it without the authority of the owner. Patents, trademarks and copyrights are the three ways in which intellectual property is protected. In other words, the ownership of an idea or concept is either patented if it is an innovation or copyrighted if it is, for example, literary work such as music.

2.3 Patents

A patent is the grant of exclusive rights by the state for an invention. For example, Thomas Edson found that an electric current passed through a tungsten filament in a vacuum produces light and he used that finding to develop a light bulb. This invention entitled him to the grant of a patent, (Sachs, 2013). The requirements for patentability are:

i. Novelty; that is being new and with characteristics which are not known in the body of existing knowledge in that technical field.
ii. Inventive Step; or non-obviousness. This standard requires that the claimed invention be non-obvious to a person with ordinary skills in a given technical field.
iii. Industrial Applicability; the new invention is capable of industrial application (or useful).

The European Patent Convention (Article.52) excludes discoveries, scientific theories (laws of nature) and mathematical methods from the definition of invention. Anyone who invents or discovers any novel and useful process and machine may obtain a patent. It was noted that the first known English patented invention was granted by King Henry VI to John of Utynam in 1449. The patent was given a 20-year monopoly for a process of making stained glass used for the windows of Eton College, something new in England.

In **Free World Trust v Electro Sante INC 2000 SCC 66 (Canada),** it was held that patent protection rests on the concept of a bargain between the inventor and the public. In return for

disclosure of the invention to the public, the inventor acquires for a limited time the exclusive right to exploit it (at least for a period of 20 years).

In **Panduit Corp v Stahlin Bros 575 F2d 1152 [USA]** it was held that patents must by law be given "the attributes of personal property". The right to exclude others is the essence of the human right called property.

In Zimbabwe, a patent is an official document conferring a sole right/privilege or license to an inventor for a limited period, (20 years). The official document is specifically called Letters Patent. It is different from the invention itself. A Patent confers to the patentee's full power, sole privileges and authority to make, and use, vend the invention for their economic benefit. Patents need renewal after every year from the 3rd anniversary up to 20 years. Generally, the rights of a patent owner are that he or she decides who may or may not exploit the protected invention; permits/licenses others to use the invention on mutually agreed terms; the inventor can sell the invention outright. These rights expire when the invention enters the public domain that is the public can now exploit the invention without authorization. Despite this protection, there is not much of patent activity in Zimbabwe. The main reason is the lack of knowledge of its importance. This is what this study aimed to investigate and thereby contributing to knowledge.

2.4 Copyrights

Copyright is an intellectual property right which prevents others from the production of a copyrighted work without authority. Copyright is a right which entitles the author in his relationship to his work to secure remuneration for the use of the work. In particular, copyright is a right to property. Copyright is essentially a negative right (a right not to be subjected to an action of another person). It is the right to prevent anyone from exercising rights which are exclusive to the author (Gordon, 2013)

According to the Berne Convention which dates back to 1886, the works that are entitled to copyright include:

i. Books, pamphlets and other writings;
ii. Lectures, addresses, sermons and other works of the same nature;
iii. Dramatic or dramatico-musical works;
iv. Musical compositions with or without words;

v. Cinematographic works to which are assimilated works expressed by a process analogous to cinematography;
vi. Works of drawing, painting, architecture, sculpture, emerging and lithography;
vii. Photographic works to which are assimilated works expressed by a process analogous to photography;
viii. Works of applied art;
ix. Illustrations, maps, plans, sketches; and
x. Three-dimensional works relative to geography, topography, architecture or science.

The Trade-Related Aspects of Intellectual Property Rights (TRIPS), entrenches the principle that copyright only protects expressions and not ideas, procedures, methods of operation etc.

In **Designer's Guild v Russel Williams Textiles Ltd (2000) 1 WLR 2416 (HL) [UK**], it was held that *"copyright subsists not in ideas but in the form in which the ideas are expressed"*.

An idea not expressed and is merely in the head, cannot be copyrightable as a literary, dramatic, musical or artistic work. The court in Designer's Guilds, supra, held that "*the expression of ideas is protected, both as a cumulative whole and also to the extent to which they form a 'substantial part' of the work"*.

In **Ladbroke (Football) Ltd v William Hill (Football) Ltd [1964] 1 WLR 273,** it was held that *"substantiality depends upon quality rather than quantity. Further, that substance can be a feature or combination of features of the work, abstracted from it rather than forming a discrete part"*.

The Berne Convention established as a general principle, that the subsistence of copyright is registrable other than for purposes of proof and for enforcement only,

2.5 Trademarks

Trademarks are distinctive signs which identify certain products or services as those manufactured or provided by a specific person, or enterprises allowing the customer to differentiate them from goods or services of others. (WIPO, 2012; Flikkema et al., 2014; Grodman, (2019; Kenton, 2018). Trademarks protect visually perceptible signs including

colours, images, letters and product shapes that distinguish the goods or services of different undertakings. A trademark protects the owner of the mark by ensuring the exclusive right to use it to identify goods or services or authorise another to use it in return of payment. In terms of section 10 of the Trademarks Act [Chapter 26:04] of Zimbabwe, and indeed in terms of other legislation, the period of protection is 10 years.

The European Court of Human Rights Grand Chamber 2006, held that *"an application for registration of a trademark created proprietary rights and that such applications may give rise to a variety of legal transactions, such as a sale or license agreement for consideration, and possess or are capable of possessing a substantial value"*(Kenton, 2018).

Mattel INC v 3894207 Canada INC 2006 SCC 22 [Canada] held that *"unlike the patent owner or the copyright owner, the owner of a trademark is not required to provide the public with some novel benefit in exchange for the monopoly"*(Kenton, 2018)

2.6 Traditional Knowledge and Folklore

Under the current WIPO draft guidelines, expressions of folklore are defined as: any forms, whether tangible or intangible, in which traditional culture and knowledge are expressed, appear or are manifested . . . which are: (i) the products of creative intellectual activity, including individual and communal creativity; (ii) characteristic of a community's cultural and social identity and cultural heritage; and (iii) maintained, used or developed by such community, or by individuals having the right or responsibility to do so in accordance with the customary law and practices of that community, (Clark, 2018; Love, 2011; Andersen, 2010).

The terms **traditional knowledge**, **indigenous knowledge** and local **knowledge** generally refer to **knowledge** systems embedded in the cultural traditions of regional, **indigenous**, or local communities. ... Some forms of **traditional knowledge** find expression in stories, legends, **folklore**, rituals, songs, and laws (WIPO handbook, 2008).

It was mentioned in introductory remarks that an Intergovernmental Committee on IP Genetic Resources, Traditional Knowledge and Folklore (IGC) established by WIPO members recommended two types of folklore protection as:

i. Defensive protection, which aims to stop people outside the community from acquiring IP rights over traditional knowledge.

ii. Positive protection, which is the granting of rights that empower communities to promote their traditional knowledge, control its uses and benefits from its commercial exploitation. (Brody, 2010; Maina, 2011).

2.7 Advantages and disadvantages of using Intellectual Property as collateral for loans:

The advantages of using IP as collateral ranges from greater protection to greater returns for the owner of IP. Firstly, using intellectual property as collateral secures loans when money was needed without depending on the income from licensing. Further, that, if the financing was nonrecourse, then the risk of licensing and not receiving royalties was transferred to the investors. This included the risk of infringement and obsolescence, (Jacobs, 2011; Mann, 2014). Secondly, using intellectual property as collateral increased the owner's return through increased leveraging by way of royalty streams which could be collected in one lump sum rather than over time and could then be invested in future or current projects that had a higher return than the cost of financing. The third advantage was an investment in intellectual property that was licensed and receiving royalties could be more secured than other forms of collateral. Royalties were the ultimate source of cash that repaid the loan. (Reader, 2017); (Business Valuation Resources [BVR], 2018) and (Erdenechimeg, 2016).

The main disadvantages of using IP were risks, associated with market acceptance, obsolescence, maintenance and legal issues. Intellectual property lacked exactness in the assessment of value as compared to tangible assets. For this reason, potential investors and creditors were less willing to invest because they knew less of how the market would react to the property in the future. Obsolescence occurred when new offerings entered the market and this caused the value of the existing intellectual property to decline. (Reader, 2017; Askew and Jacobs, 2000).

Intellectual property needs to be maintained through protection from infringement of trade names and patents etc. Further legal risks that affected intellectual property, included ownership, infringement and the expiration of contracts or rights. These could be minimised through proper registration and complaints, (Reader, 2017; Askew and Jacobs, 2000). Lastly, although risks existed with using intellectual property as collateral to secure financing, these risks could be minimised and that once the risks were minimised, intellectual property could

be just as safe as using the real or tangible property as collateral, (Business Valuation Resources [BVR], 2018); (Askew and Jacobs, 2000).

There are many reasons to use intellectual property as collateral with three primary reasons being:

i. Intellectual property is an untapped source of collateral;
ii. Intellectual property securitisation offers a quick return on research and development; and
iii. Intellectual property securitisation captures additional value.

As regards intellectual property as an untapped source of collateral, it was observed that intangible assets as a percentage of the market capitalisation of US companies increased from 20% in 1978 to 73% in 1998, demonstrating that the ratio of the value of intangible assets to the value of tangible assets of US companies had steadily increased over the period. (Kramer et al., 2006), and Burrone, WIPO consultant. *Fortune* 500 magazine quoted Xerox CEO, Richard Thoman in 2000 declaring that he believed that one of the strategic keys to Xerox's future was something so intangible. This was an apparent reference to IP. Richard Thoman was convinced that the management of intellectual property was how value addition was going to be created at Xerox. Richard Thoman would see "Rembrandts in the attic" waiting to be exploited for profit and competitive advantage where other CEOs saw mere legal instruments in intellectual property (Rivette et al., 2000).

Although intangible assets were considered too difficult to value, several US banks wanted to tap the value of the intellectual property holdings of their borrowers as a way of trimming their capital requirements. To reduce risks associated with IP Banks sought deals in which an insurer agreed to buy a borrower's intellectual property – anything from a mobile phone patent to a logo or recipe- for a fixed price in case of default. This structure was given a boost by the Nortel bankruptcy in 2011, where the sale of the group's wireless patents generated more than $4.5 billion (Brassell and King, 2013).

Some advantages and disadvantages to consider when looking into the financing options using IP include:

i. The provision of diverse avenues for monetising IP assets thereby increasing the pool of available credit to a borrower.

ii. A lump-sum payment may be received by an owner, who could invest in projects that were expected to have a higher return than the cost of financing. IP provided less expensive funding which did not dilute existing equity.
iii. The provision of some choice for business to evade risks. With securitisation, for instance, risks, if any of IPs performance was shifted from the owner and the assets, were protected from insolvency proceedings. (Burton et al., 2014; Munari, et al., 2010; Loumioti, 2011).

The disadvantages included the follows:

i. If the IP was the company's main asset and given as collateral, the IP would be lost upon default on the loan repayments and the company terminated.
ii. Collateral, based on the tangible property was generally more stable than IP assets and often provided readily available market information on assessment of property values (APEC, 2018).
iii. IP-based collateralisation was still considered a rather emerging market and could be an expensive alternative.

(Burton et al., 2014); as corroborated by (Lom, 2008) and (Martin, 2014) suggested eight ways of how companies could make their IP more attractive to lenders as follows:

i. Lenders should conduct thorough due diligence.
ii. Intellectual property assets should be of high-quality with no liens and unencumbered.
iii. Avoid patents that were close to obsolesce.
iv. Obtaining insurance for infringement enforcement.
v. An objective valuation of the IP.
vi. The most valuable IP includes assets that could be utilised across several industries or business models.
vii. Offer evidence of the IP assets' possible liquidity.
viii. Debtors to consider offering possible recovery values for the IP in the event of a liquidation.

2.8 Common Uses of Intellectual Property in Loan Transactions

Using intellectual property as collateral was a new business option that would provide funding opportunities to companies with valuable IP assets. The more common uses of IP as security

were IP-backed loans, IP collateral enhancement, IP royalty securitisation, and IP sale and license-back transactions. (Burton, et al., 2014); (Comino and Manenti, 2015).

2.8.1 Intellectual Property-Backed Loans

In IP Backed loans, a company could borrow a percentage of the value of certain of its IP assets pledging these intangible assets as security. The first step is to value IP since the value determined how much a lender could lend against this asset class. Considerable understanding of the legal, technical, and economic issues surrounding the inventions is required in the valuation of patents and trade secrets, (Burton et al., 2014; Munari et al., (2010); (Boyle and Jenkins, 2016; Mania, 2017). IP- backed loans permitted an enterprise to raise cash without diluting present equity investors' ownership by bringing in new investors. However, IP baked loans are often relatively costly and are not an option to early-stage technology companies. A good example of IP baked loans is Kodak which used its patent portfolio, as security to secure a $965 million line of credit that helped its survival during its bankruptcy proceedings (Burton et al., 2014; Mania, 2017).

2.8.2 Intellectual Property Collateral Enhancement

IP enhancement includes insurance or guarantees on its value for a defined period. This helps reduce credit and foreclosure risks and also improves the overall credit profile, increasing leverage available to the debtor, and potentially lowering interest rates required by the creditor. A firm such as M.CAM Global Holdings LLC that are experts in collateral enhancement helps to regulate banks and traditional asset-based creditors who might not have all the tools, skills, and experience necessary to positively evaluate IP as collateral (Mann, 2014; Mania, 2012; Munari, et al., 2010).

2.8.3 Intellectual Property Royalty Securitisation

Asset securitisation is the practice of converting an asset or stream of cash flows into marketable securities. (Burton, et al., 2014; Mania, 2012). IP royalty securitisation requires the IP owner pooling and selling future IP-related cash flows streams in exchange for present lump-sum payment. This is usually achieved by the IP holder transferring the IP assets to a special purpose vehicle (SPV). All future incomes generated from the IP assets flow to the SPV and are then dispersed to investors. The original IP asset holder ceases to be the legal owner of the IP assets and the assets are protected from the creditors in the case of the original IP owner's

insolvency. (Mann, 2014); (Mateos-Garcia, 2014); (Solomon and Bitton, 2015) and (Munari et al., (2010).

The difference between IP Royalty Securitisation and IP-backed loan is that instead of borrowing money the IP owner by securitising its assets is rather selling a stream of anticipated future Cash Flows that would be expected to accrue to the owner of the IP assets. With securitisation, the burden of payment is removed from the inventor to the designated pool of assets. The inventor would thus be shielded from the operating performance of the securitised assets. (Burton, et al., 2014); (Mateos-Garcia, 2014) and (Solomon and Bitton, 2015).

The first securitization of IP took place in 1997 by David Bowie, as mentioned in chapter one. The case of patent securitisation deal took place in 2000 by Royalty Pharma AG, an investment company that specialised in the pharmaceutical industry. This securitisation was as a result of royalty payments for Yale University's patent on HIV drug Zerit, licensed to Bristol Myers Squibb. $115 million in debt and equity securities were issued through the SPV, and the inventor received an up-front payment of $100 million, Odasso et al, (2009). The third successful patent securitisation was by Royalty Pharma which leveraged on royalty stream stemming from a pool of thirteen drugs. The deal raised $225 million of variable funding notes. These transactions were believed to represent a landmark for patent securitisation history. These financial solutions based on patents were believed to be, in many ways, an effective alternative to tangible asset-based financing. The liquidity which patent securitisation provided upfront was considered more useful to a company's needs than future royalty streams or delayed sales revenues. (Odasso and Calderini, 2009) and (Solomon and Bitton, 2015)

2.8.4 Intellectual Property Sale and License- Back Arrangements

IP sale and license-back financing arrangements are similar to the sale lease-back model of real estate and take place when the IP assets are bought and allocated to a licensing company. Simultaneously, the licensing company licenses the same asset to its previous owner for specified royalty payments during a given period (Burton et al 2014; Munari et al., 2010).

2.9 Growing use of Intellectual Property as Collateral for Loans

The use of IP assets to access credit, is gaining increasing attention in the developed world. Multinational corporations as well as small and medium sized enterprise, are leveraging their IP assets in exchange for finance, and lending institutions around the world are increasingly extending their business to provide loans on the basis of IP, (WIPO Magazine, 2008).

2.9.1 Intellectual Property in the USA

Despite the growing practice of using intellectual property assets as collateral in secured financing, very little scholarship has been devoted to understanding the collateralization of intellectual property. The majority of the scholarship in the past twenty years has focused only on perfecting a security interest in intellectual property. Neither courts nor scholars have addressed the fundamental question of collateralization, (Nguyen, 2008). Because of the increasing use of IP, intellectual property rights are no longer ephemeral rights; they are corporate assets transcending geographical boundaries, (Van Caenegem, 2009); (Himma, 2008) and (Buccafusco and Masur, 2017).

The World Intellectual Property Organisation (WIPO) estimated that intellectual property would account for six trillion dollars in global trade by 2020. These estimates were based on corporates which were spending significant resources exploiting intellectual property by directly manufacturing and selling products based on intellectual property rights or licensing others to use the rights in exchange for royalties. (Nguyen, 2008), gave the example of IBM which gained$2 billion dollars annually from licensing its technology to others. In many start-up companies, particularly in the technology-related industries, intellectual property assets were often the single most valuable assets. (Dansky, 2018).

(Nguyen, 2008), argued that the dominant presence of intellectual property begged the question of the use of intellectual property assets in financing. He stated that it was no longer a secret that valuable intellectual property assets were now being used in different forms of financing, including securitisation, non-recourse debt financing, and secured financing. This was so despite hesitation among lawmakers to directly mention intellectual property by name such as patents, copyrights and trademarks in the statutes. This was evidenced by such omissions in the Union Commercial Code-9 (UCC-9) of the United States. These views were corroborated by (WIPO 2008) and (Dansky, 2018).

Despite such hesitations by the United States lawmakers, the recognition of intellectual property as collateral security for loans was spreading all over the world. This was evidence by the number of patents pledged as collateral that grew from less than 10,000 in 1995 to nearly 50,000 in 2013, (Nguyen, 2008; (WIPO 2008; Dansky, 2018). It was thus clear that more intellectual property assets were now being used in asset-based lending.

As the US had been transitioning from a manufacturing economy to a knowledge-based economy in which wealth creation emanates from technological innovations that gave intellectual property rights, the use of tangible assets such as plant and equipment had been dwindling in importance compared to intellectual property rights. The table below shows how the proportion of tangible assets declined from 83% (1975) to 16% (2015), (Kim, 2016; Rajani, 2016).

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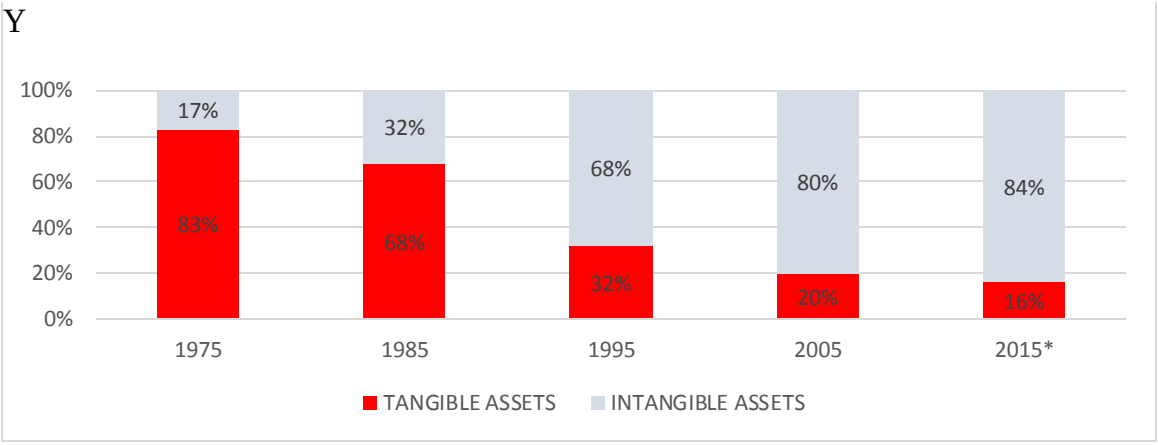

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Figure 2.1: Proportion Decline in Tangible Assets from 1975 to 2015 X

Source: Ocean Tomo LLC; (abf Journal 2016; Kim, 2016)

The increasing trend in the importance of intellectual property assets was boosted by contract manufacturing overseas with lower labour costs and this allowed many US technology companies to intensely focus on research and development with the intention to reduce their physical assets. There was also an increasing trend of revenue from intellectual property royalties and licensing fees for US companies. Licensing income grew from $60 billion in 1996 to over $154 billion in 2015. Notwithstanding a dip in 2008 consequent to the financial crisis, royalty revenue reached $185 billion by 2012. The figure below as adopted shows the rising trend of royalty revenues. (Kim, (2016).

Growing of IP Royalties and Licencing Fees (Amounts are in Billions USD)

Figure 2.2: Source: Ocean Tomo LLC; (abf Journal, 2016)

The rising liquidity of patents was another reason why lenders were now regarding patents as potential collateral. Some of the largest transactions indicating that patents retain salvage in liquidation are shown in Table 2.1.

Table 2.1; Largest Market Transaction for Patents (Amounts in Billions)

DATE	BUYER	SELLER	TECH SECTOR	PURCHASE PRICE	PATENT COUNT
2/2013	Consortium	Kodak	Digital Imaging	$525	1 100
11/2012	Consortium	MIPS Tech	Chip Arch	$350	498
6/2012	Intel	InterDigital	Wireless	$375	1700
4/2012	Facebook	Microsoft	Various	$550	650
4/2012	Microsoft	AOL	Internet	$1 050	1100 (1)
10/2011	Sterling	MOSAID	Tech Semiconductors	$594	2822 (2)
8/2011	Google	Motorola	Wireless	$5 500	24 500 (3)
6/2011	Consortium	Nortel	Wireless	$4 500	6 000+

Source: Ocean Tomo LLC; abf Journal, 2016

Patents that qualified as collateral, were those that either generated royalty revenue or had the potential of doing so in the near future (Kim, 2016; Doss et al., 2014). Technology start-up firms which had merchantable patents could even access loans offered by non-bank lenders, (Kim, 2016; Hagiu and Yoffie, 2013). In such cases, lenders would take a security interest in the patents, which could be held and sold in the event of default. Alternative, the moneylender would take possession of the patents in a sales-leaseback deal and the debtor would retake ownership upon payment of the loan, (Kim, 2016; Mills, 2008; Nwogugu, 2020). In all these cases, patent obsolescence would always be considered. Patents such as in software would fast become obsolescent as new forms of products were released within a few years apart, (Kim, 2016).

Another rising trend was the use of brands and trademarks as collateral. Ford automobile, for example, pledged its global brand portfolio between 2006 and 2012, and this was hailed as instrumental to the company's economic recovery, (Matthes, 2012). However, financers were interested in brands that could easily be monetised as they served as collateral and could be sold if the brand owner (as the debtor) failed to meet its obligations. The assessment required comparison between corporate brand (i.e., trademarks that consist of company name only) to a product brand (i.e., trademarks that differ from a company name and instead consist of words used in the market for a certain product. As an example, Procter & Gamble is a corporate brand, whereas Pampers is a product brand. For a brand to be collateralised it should be portable and thus Pampers was portable (i.e., is capable of being transferred to another market). Any manufacturer of nappies would be happy to take over the Pampers portfolio without reference to Procter & Gamble, (Matthes, (2012).

(Burton et al., 2014), gave an example, of high-profile brand securitisation which took place in 2007 in which Sears created $1.8 billion worth of bonds based on the brand names Kenmore, Craftsman, and DieHard. Sears transferred ownership of the brands to an SPV named KCD IP (for Kenmore Craftsman DieHard IP) which charged it royalty fees to license brands and used the royalties to pay the principal and interest on the bonds. Trademark registration was either national or regional in nature, but rights to it could be extended to places in which it was not registered at all, (Matthes, 2012; Phillips, 2007).

Overall lenders considered risks associated with IP and would seek deals in which an insurer would agree to buy a borrower's intellectual property for a fixed price in case of default. That price could then be matched against the expected losses, in the same way, the expected proceeds

from a credit default swap could be used today. A good example of such a structure, of fungible and transferable assets, was by Nortel bankruptcy, where the sale of the group's wireless patents generated more than $4.5billion, five times the price originally offered by Google, (Dove and Miriam, 2015)

All this was an indication that in today's information age, high technology products protected by copyrights, patents, and trademarks had become an important resource in the modern economy. Industries based on IPR were now a driving force for economic growth – Data released then showed that such industries had contributed a gigantic $5.8 trillion to GDP of the US constituting 38 percent of the GDP, (Dove and Miriam, 2015).

2.9.2 Intellectual Property in the UK

United Kingdom Intellectual Property Office's "Banking on IP Report" estimated that intangible assets were now representing 70-80 percent of the value of UK companies. Despite this position, commercial lending practices were still more favourable to those businesses rich in tangible assets to use as security. The reason for this was that valuation of IP was complex and subjective and that the value of IP could be subject to more dramatic changes in the wake of a fluid (limited) market for the disposal of IP, (Wessing, 2016).

The "Banking on IP" report identified the need to educate businesses, leaders and financial professionals to increase awareness of the value of IP assets. This required improving on ensuring more accurate valuations and addressing the risk of a potential drop in the value of the IP. This required strategies to "de-risk" IP assets as collateral through insurance and for the government to share the financial risks, (Wessing, 2016; Erdenechimeg, 2016).

Notwithstanding this apparently dim position, the report by the British Business Bank PLC (2018) pointed to the most recent data which showed a trend over the medium-term of intangible investment growing faster than tangible investment - in absolute terms: 3.5% CAGR and 2.9% respectively. Investment in intangible assets was higher than in tangible assets across the period 2001 to 2014, although the growth of intangible investment has slowed somewhat since 2009. This position is shown in Figure 2.3 below.

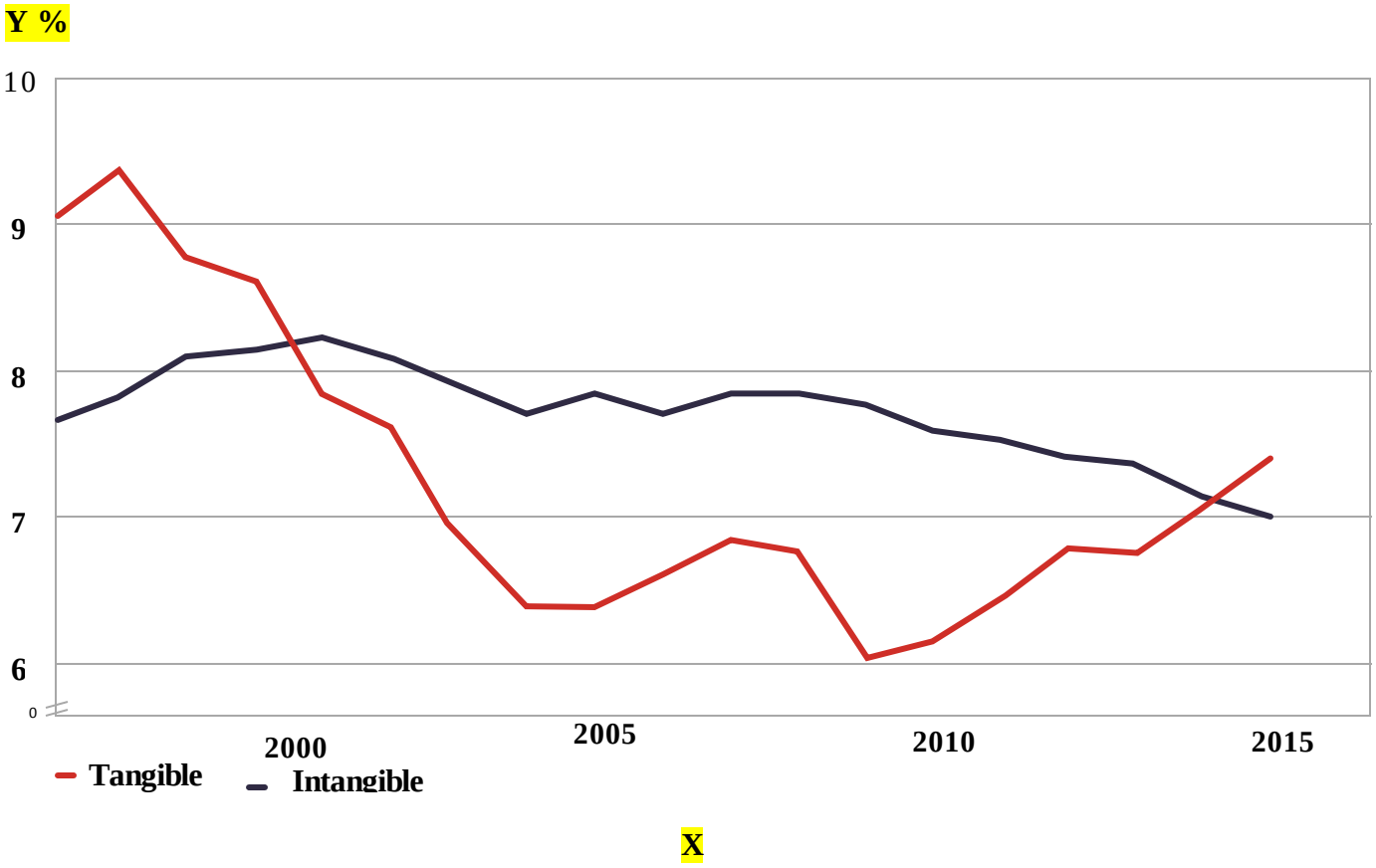

Figure 2.3: Investment in Tangible and Intangible Assets in the UK 1997-2015, £ Billions (Current market prices)

Source: (Using IP to Access Growth Funding 2018)

2.9.3 Intellectual Property in Singapore

In April 2014, the Intellectual Property Office of Singapore (IPOS) announced an intellectual property scheme aimed to catalyse innovation among the local companies. This was part of the government of Singapore's initiatives to develop Singapore as a hub for intellectual property transactions and management. This initiative was also meant to encourage more financial institutions to organise intellectual property as an asset and offer a new way for Singapore-based companies to finance their businesses by using their granted patents as collateral to obtain bank loans,(Collopy and Kua Han Chun, 2014) and (Montanari, 2017).

Presently some big financial institutions such as DBS Bank, Oversea-Chinese Banking Corp and United Overseas Bank are participating in the scheme. The financing scheme was aimed to benefit Singapore-based companies such that they could leverage their intellectual property assets and raise capital to expand their businesses, increase their markets, or create new and innovative products through additional research and development. (Collopy and Kua Han Chun, 2014) and (Montanari, 2017).

The Intellectual Property Office of Singapore, (IPOS) in a press release in 2016 advised that Singapore approved its first loan application using intellectual property as collateral. Masai Group International was the first company to have successfully obtained intellectual property financing to unlock the value of its intellectual property. The Masai Group currently continues investing and strengthening their global intellectual property portfolios and brand marketing as well as with their research and development efforts in new technologies and product development. (Collopy and Kua Han Chun, 2014) and (Montanari, 2017).

Consequently, the Small and Medium Enterprise of the participating bank, The Development Bank of Singapore (DBS) indicated that with this successful case of an intellectually backed loan, the bank would continue to build a sustainable platform that could help SMEs unlock the hidden wealth in their intangible assets thereby converting them into cash for their business growth. IPOS pointed out that effective 1 July 2016, intellectual property owners could look forward to monetising other intellectual asset classes such as registered trademarks and copyrights through the financing scheme and that this was aimed at spurring an intellectual property and innovation-driven economy in Singapore (Gill et al, 2014).

2.9.4 Intellectual Property in Malaysia

The Head of the Malaysian United Overseas Bank (UOB) acknowledged that intellectual property would increasingly form a significant part of an enterprise's values as businesses evolve with the changing times.

The Malaysia Debt Venture Berhad (MVB) is a financial institution that participates in the "Intellectual Property Financing Scheme introduced by the government in 2013, to further inculcate innovation and increase productivity. The scheme with an initiative of RM200 million in financing enables companies with intellectual property rights to use their rights as an additional source of collateral to obtain funding and spur more investments for companies with technological capabilities, in turn encouraging innovation. The scheme would also help alleviate the difficulties that several technology-focused companies face when attempting to seek funding from financial institutions (Bernama, 2020).

2.9.5 Intellectual Property in Thailand

Thailand's new Business Security Act of 2016, allowed borrowers to use their IP assets as collateral in securing loans while retaining the right to possess and to use such collateral for commercial purposes during the secured period. This was meant to facilitate increased access

to funds for business. In order to use an IP asset as collateral, after the borrower (IP owner) would execute a written agreement with their creditor (financial institution), who would take steps to register the security agreement with the Department of Business Development. The borrower could retain the right to possess the collateral (IP asset) and to put it to commercial (Kim, 2016)use unless both parties agreed otherwise. If a borrower defaults, the creditor could take title to the collateral or sell it at a public auction, (Taweepon and Julagasigorn, 2017).

The growing trend of using IP in the developed countries and some Asian countries was an indication of how fast the world was embracing creativity and innovation underlined by IP. IP was now considered as the engine for economic growth worldwide and this was shown by the increasing registration of IP, in particular patents. While the commercialisation of IP was now common in the developed countries including most Asian countries, there was little registration and commercialisation of IP in Africa including Zimbabwe.

Figure 2.4 shows the growing registration of patents in developed countries as compared to African countries including Zimbabwe. However, registration of patents in African countries including Zimbabwe were growing at a slow pace thus running the risk of lagging behind in economic growth since IP was now regarded as the engine for economic growth world over.

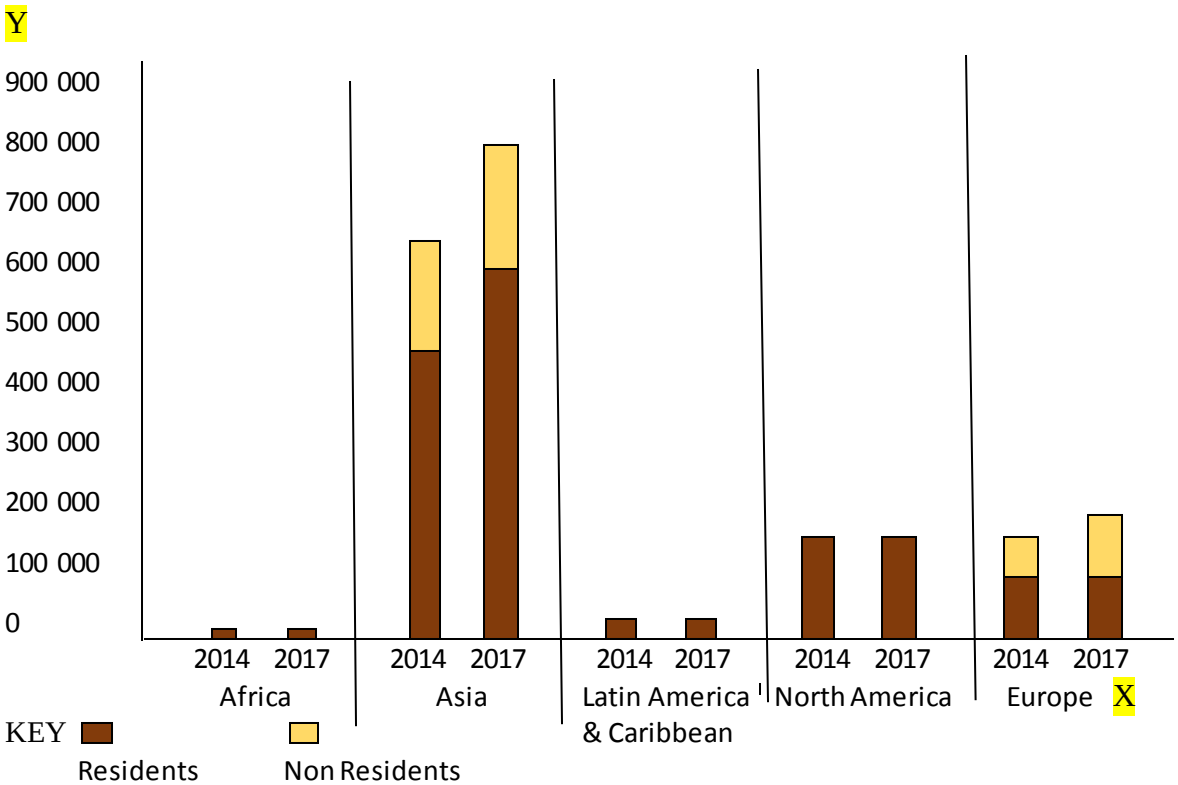

Figure 2.4; Registration of Patents

Source: (2018 IP Statistics; ARIPR; Africa growth institute of economics).

Patents are important tools for encouraging and protecting domestic innovation. As such an important indicator of innovation was the number of patent registrations filed in a country. Notably, unlike other regions of the world, patent registration by non-residents in Africa was higher than that by residents and is growing at a fast rate (ARIPR, 2018).

2.10 Knowledge Economy and Use of Intellectual Property in Africa

Given the development of innovation and creativity based on IP in developed countries and some Asian countries, Africa must realise that no country can develop without innovation and creativity. Africa needs to embrace IP and invest in research and innovation. In order for Africa to produce economic powerhouses such as the US giants mentioned above, she should start encouraging initiatives through Universities, (Moghalu, 2014). (SCITECH Africa, 2018) states that University-led innovation hubs have been a norm globally, except in Africa. In the United States, there is Silicon Valley which is developed around the Massachusetts Institute of Technology (MIT) and Stanford universities, while key European knowledge regions developed at the Sophia Antipolis high-tech park in Côte d'Azur, France, and the Leuven region in Belgium. This closeness and collaboration between innovation hubs and institution of research and learning have been a major driver of recent technological development in developed countries and the world at large.

In Africa, such proximity and collaboration between innovation centres and universities are not common. What is common are universities that teach students the basic theoretical aspects of entrepreneurship and basic skills like dressmaking, shoe and bag making, photography, soap making, etc., and at the other end, groups of individuals setting up business hubs and incubators for start-ups and entrepreneurs away from universities in commercial cities like Lagos, Harare and Cairo, (SCITECH Africa, 2018); Ugwu, 2017; Nwokocha, 2009).

The curriculum and activities of these entrepreneurship centres do not usually provide the teaching of innovation processes or the development of "new idea, device or method". Collaboration between these centres and research labs in the universities for idea development, process and product designs, are insignificant and neither do they engage in such in-house. Some of these centres are not even entrepreneurial. They are mostly nothing more than skill acquisition units or academic departments that teaches student about entrepreneurship. (SCITECH Africa, 2018; Moghalu, 2014).

However, some entrepreneurship centres in African universities are products of recent education policies in many countries in the continent aimed at equipping students to become job creators in response to the high rate of unemployment in the continents, especially among young people. Of Africa's nearly 420 million young people aged between 15 and 35, one-third are unemployed and discouraged, another third are vulnerably employed and only one in six are on wage employment. (SCITECH Africa (2018; Ugwu, 2017; Nwokocha, 2009).

There are, however, a few hubs in the continent dedicated mainly to provide subject-matter expertise on technology trends, knowledge and strategic innovation management, and industry-specific insights. Business hubs and incubators that help new and start-up companies to develop by providing office space and services such as mentoring and management training are the most common. The most popular of such hubs are the tech and agribusiness hubs, (SCITECH Africa, 2018).

It was noted that although some of these hubs have managed to develop innovative solutions and start-ups, they were not focused on innovation. While a typical innovation hub in Europe or America where industry entrepreneurs and academic researchers work in partnership to deliberately and systematically instigate breakthrough, hubs in Africa were usually simply communities of entrepreneurs engaging in trial-and-error approach to innovation. Such hubs were usually not research-driven neither could they collaborate with the academic researchers. (SCITECH Africa 2018; Gurry, 2015).

The role of the university should evolve from performing conventional research and education functions to serving as an innovation-promoting knowledge hub. African universities should upgrade from running simple skills acquisition centres to running research-driven innovation hubs. While delivering skills and expertise, they should as well as create enabling environments for problem-solving, solution development, product and process design, as well as incubation of entrepreneurs and businesses. (SCITECH Africa 2018; Gurry. 2015; Moghalu, 2014) and (WIPO, 2016).

However, some universities on the African continent are working towards setting themselves up as catalysts of innovation and entrepreneurship and have made some progress. According to Forbes article on University-led innovation hubs in Africa, (2018), the University of Nairobi and the American University in Cairo were mentioned as good examples, while South African universities like Stellenbosch University, the University of Cape Town (UCT) and University

of the Witwatersrand (Wits) are leading the charge. For instance, Stellenbosch University runs its own incubator – Launch Lab – and also invests in some student-run tech start-ups. African governments through funding of innovation hubs in universities can drastically drive national development and create jobs. Also, a university can generate revenue, attract funds and commercialize university technology through innovative hubs. A good example of a University generating revenue through commercialisation of its technology is the Bertha Centre – a dedicated entrepreneurial unit within the Graduate School of Business at the University of Cape Town. Bakang Moetse the Impact Investing Project Manager, said that *"working in the social finance space, we are finding innovative ways to incorporate a social impact lens into finance and investment decisions. Impact investing is about making business models that are more inclusive of everyone, communities and SME's, not just high net-worth individuals or wealthy capital owners. We also test and implement new financial instruments which are geared towards catalysing the investment into social impact sectors and increasing access to finance for early stage enterprises"*.

There is a competitive advantage to be gained in becoming leaders within this field of research for universities interested in taking on a more active role in this regard, and this can further bolster their credentials as centres of innovation. (SCITECH Africa 2018); (Forbes article on University-led innovation hubs in Africa, 2018) and (Hassan et al., 2010).

Some Asian countries which became independent in the same period as most African countries are now flourishing through the power of IP. As stated above, Asian Countries such as Malaysia, Singapore and Thailand have introduced IP finance schemes. These countries are now leaders in IP strategies and are prospering while the economies of African countries are still heavily dependent on mining, agriculture etc., while the overwhelming percentage of finished goods are imported. Therefore, once Africa, including Zimbabwe, accepts and learns how to use IP as a tool for development, the issue of acceptance of IP as collateral will fall in place without much resistance.

However, African leaders are slowly recognising and embracing the knowledge-based economy concept. At the Next Einstein Forum (NEF) held in Kigali, Rwanda from 26 to 28 March 2018, which focussed on highlighting the contribution of Africa's scientists and innovators to the global scientific community, the Rwandan President, emphasised that a knowledge-based economy is the foundation of creativity and innovation which feeds into wealth creation and prosperity for all. The President of Senegal observed that Africa should

base its economies on science and technology to have knowledge-based economies. Mmamolodo Kubayi-Ngubane of South Africa stressed that Africa needs to understand the role science and technology have played in shaping the future and prosperity of developed economies. She further stated that for Africa to reach a certain level of excellence, it requires a solid quality base of the education system that will propel it into the knowledge-based economy (Binagwahoo, 2018).

This is an indication that African leaders are slowly embracing a knowledge base economy underlined by IP after realising that Africa has fallen behind in terms of development in comparison with developed countries and some Asian countries, which have embraced the concept and are now highly technologically developed. However, there is yet no study that has investigated the relevance of the knowledge economy in African countries, (Tchamyou, 2015). However, some jurisdictions such as South Africa have in place IP acts that allow pledge and hypothecation of IP. Hypothecation is the practice where a borrower pledges collateral to secure a debt. There is, however, no evidence of IP being used as collateral for loans, (Naumann, 2019; Oberholster, 2011). The commercial laws in Kenya have provided room for the use of Copyright as a form of collateral by not restricting the types of collateral that can be utilized by the lenders in Kenya. Therefore copyright can be used as a mortgage in Kenya. However Kenyan lenders have not recognized the use of copyright as collateral because they consider it high-risk collateral (Mbuimwe, 2016).

A majority of sub-Saharan African countries has not exploited the benefits that intellectual property rights offer to its users, despite considerable improvements to existing knowledge and options for protecting knowledge which was made possible by the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. TRIPS drafted an agreement for all member countries to address the provision and applicability of adequate intellectual property rights, the provision of effective enforcement measures for those rights, multilateral dispute settlement, and transitional arrangements (Adegoke, 2011; Joseph, 2008)

2.11Knowledge Economy and Use of Intellectual Property in Zimbabwe

Zimbabwe is a landlocked country of 390580 square kilometres between the Zambezi River to the north and the Limpopo River to the south. Zimbabwe's neighbours are Mozambique, South Africa, Botswana, Namibia and Zambia. Zimbabwe is named after Great Zimbabwe, a stone-built capital of the Rozvi Shona dynasty, popularly known as dzimba dza mabwe (great stone

houses). The similarities in culture and religious traditions among the Shona, Ndebele and smaller tribes of Tonga and Venda regarding marriage practices and the belief in supernatural ancestors. European culture and values indelibly shaped the urban landscapes, particularly in terms of the use of space, and the structure of government, (Culture of Zimbabwe- history, people, tradition, women, beliefs (Tichagwa, and Maramba, 1998) (Beyond Inequalities: (Women in Zimbabwe, 1998) and (Nugent, 1997).

2.11.1 Zimbabwe's national economy structure

The structural framework of the Zimbabwean national economy (the state, private sector, social services and informal sector) has come to be both a political and ideological issue. Zimbabwe from the decade of structural adjustment in the 1990s has become a liberal (free-market) economy. The free market economy has, however, been punctuated by intervention programmes by the government, such as the Land Reform Programme (FTLP), the national indigenization policy and the Zimbabwe Agenda for Economic and Social Sustainability (ZIM ASSET). The national indigenization policy targeting of foreign majority-owned private corporations to cede at least 51% of their shares, was a convenient carry over from the land reform programme. ZIM ASSET's primary aim was the reforming of state enterprises and creating state public-private partnerships; value addition; social services and poverty reduction; infrastructure and utilities and finally value addition and beneficiation.

The new dispensation, while maintaining the FTLP, and the idea of a free economy, is making some positive changes to the national indigenization policy and the Zimbabwe Agenda for Economic and Social Sustainability (ZIM ASSET), (*Issued by the Subcommittee on the National Economy and Social Welfare).*

The Gross Domestic Product (GDP) in Zimbabwe expanded 4 per cent in 2018 from the previous year. GDP Annual Growth Rate in Zimbabwe averaged 2.87 per cent from 1961 until 2018, reaching an all-time high of 22.57 per cent in 1970 and a record low of -17.20 per cent in 2003.

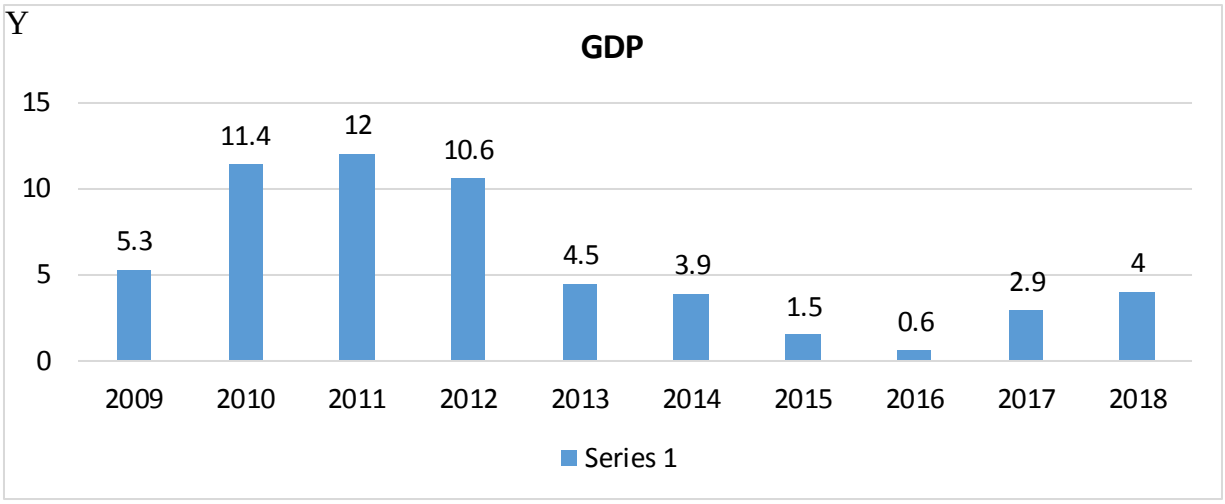

Figure 2.5: Zimbabwe's GDP; Source: (Trading Economics Zimstat, 2018)

Zimbabwe GDP	Last	Previous	Highest	Lowest	Unit
GDP Annual Growth rate	4.00	2.90	22.57	-17.20	Per cent
GDP	17.85	16.62	17.85	1.05	USD Billion
GDP per capita	927.40	917.60	1348.00	593.10	USD
GDP Per Capita Ppp	1899.80	1879.60	2761.30	1215.00	USD

In the 1980s and before the land reform programme, Zimbabwe's economy was one of the strongest in Africa, but now has one of the lowest GDP per capita in the world. Years of sanctions coupled with corruption and unstable economic policies have contributed to Zimbabwe's decrease in GDP. Zimbabwe experienced ten consecutive years of contraction and had one of the worst cases of hyperinflation of all time which resulted in the suspension of the national currency. The main reason for sanctions imposed by the USA and its European allies was the land reform programme undertaken by the government of Zimbabwe. The programme is largely meant to redistribute land to take care of those (largely blacks) who were previously marginalised. The decline in the economy was worsened by the impact of several droughts and structural adjustment policies that had a disproportionate impact on the poor. (Gaidzanwa, 1994; Nugent, 1997). Agriculture is the mainstay of the economy, although manufacturing accounts for about 25% of the gross national product (GDP) and is the most important microeconomic sector. The main sources of government revenues are exports of nickel, platinum, diamond and tobacco. Exports are mainly to neighbouring South Africa. South Africa is by far the largest source of imports of machinery and manufactured goods. The new

dispensation is however committed to economic policy changes aimed at revitalising the economy. These reforms are expected to result in some reasonable economic growth over the next five years, from 2019 to 2023. The progress is however sluggish in light of unexplained price increases, reliance on imports of basic goods, slow action against corruption, limited capital resource and deficient infrastructure.

2.11.2 Unemployment Rate

Unemployment Rate in Zimbabwe decreased from 5.18 to 5.16 per cent in 2017 in 2016. Unemployment Rate in Zimbabwe averaged 5.74 per cent from 1982 until 2017, reaching an all-time high of 10.80 per cent in 1982 and a record low of 4.17 per cent in 2004.

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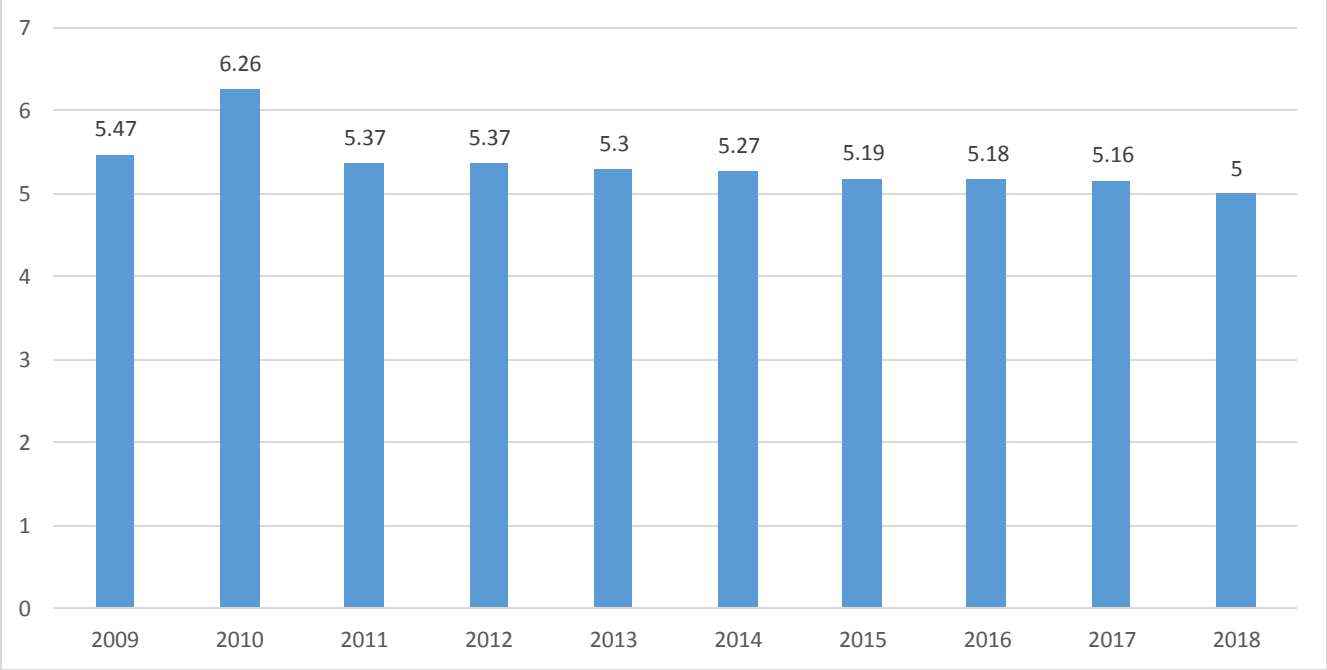

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Figure 2.6 Unemployment Rate in Zimbabwe; Source: (Trading Economics Zimstat, 2018)

Zimbabwe Labour	Last	Previous	Highest	Lowest	Unit
Unemployment Rate	5.16	5.18	10.80	4.17	per cent
Population	16.30	16.15	16.30	3.75	million
Living Wage Family	575.00	575.00	575.00	575.00	USD/Month
Living Wage Individual	305.00	305.00	305.00	305.00	USD/Month
Wages High Skilled	951.00	870.00	1030.00	870.00	USD/Month
Wages Low Skilled	231.00	341.00	341.00	231.00	USD/Month

In the formal economy, jobs are assigned based on education, skill, and experience; advertising and interviewing precede hiring. Due to the decline in the formal economy, many people began working in the informal economy. Today the informal sector is the largest employer apart from the public service. Most people engaged in the informal sector do not own many physical assets and as a result, are unable to borrow to support their business. Financial institutions do not accept any other form of assets such as movable property and intellectual property as collateral for lending, (Siebeck, 1990; O'keefe, 1996). This is so despite the existence of the Movable Security Interest Act (Chapter 14:35 of 2017) which provide for the registration of movable property as security for loans.

A growing informal sector was meant to act as an important shock absorber, especially for an economy where there is sluggish growth or a decline in formal sector jobs like the Zimbabwean one. The economic crisis (2000-2008) lead to closures of many companies and as a result, most graduates from the education system who were desperate for jobs found themselves being engaged in low income and insecure informal sector jobs. However, this has led to the growth of small and medium enterprises (Hawkins, 2015)

Zim Asset blueprint, identified the micro, small and medium enterprises (MSMEs) and co-operative as drivers of sustainable economic empowerment, economic growth and employment creation. Government also saw the informal economy as an option to formal sector business based on the assumption that it was natural that people joined the informal economy to survive, Njaya, (2015). (The Medium Term Plan, 2011-2015) estimated that the MSME sector accounted for 60 per cent of the gross domestic and 50 per cent of employment (Hawkins, 2015).

A Finscope (MSME) Survey established that there were 3.5 million (MSME) with an estimated turnover of US$7.4 billion (or 63.5 per cent of the domestic product) and employed 5.7 million (owners and employees). Of the 3.5 million businesses, 71 per cent were individual entrepreneurs with no employees; 20 per cent had 1-5 employee (micro-enterprises); 4 per cent had 6-40 employees (small enterprises) and 1 per cent had 30-75 employees (medium enterprises) (Njaya, 2015).

Limited access to funds is one of the major challenges confronting the informal sector. The SMEs and most of the informal sector businesses have no means of raising enough capital to

finance their business activities. The main reason is that they lack the requisite collateral required by the financial institutions for the provision of loans (Njaya, 2015). This is where the subject of IP comes in. It is high time that the government embraced the knowledge economy with IP as the underlying asset. There is a need to think outside the box or to be creative to adopt alternative assets that can be used as collateral. One such creation is IP. Many SMEs create a lot of IP but are not aware of such creation of the mind (Aleck, 2018). In fact, a lot of businesses in Zimbabwe are not aware of their IP. This is because there is an information gap as to what IP is and its uses. The low level of awareness on issues of intellectual property, coupled with the little usage of the intellectual property rights system by most corporations and SMEs and research and development institutions in Zimbabwe has given rise to a widening gap between R&D institutions and enterprises including SMEs in Zimbabwe. It is also unfortunate that financial institutions and investors in Zimbabwe still prefer to use immovable, tangible property as collateral and there is no experience for using IP as collateral.

Zimbabwean business people are losing millions of dollars due to their ignorance of intellectual property (IP) rights, with most of them not securing their industrial designs, trademarks and formulations. This had made it easier for foreign manufacturers to plagiarise and claim ownership of Zimbabwean works without facing any legal consequences. Despite that there are organisations that deal with intellectual property such as the African Regional Intellectual Property Organisation (ARIPO) and the Intellectual Property Department in the Ministry of Justice, awareness of intellectual property is ridiculously low (Mpofu, 2013).

In Zimbabwe, IP is protected in law. There is in place, the Patents Act, Copyright Act and Trademarks Act which enable people to earn recognition or financial benefit from what they invent or create. By striking the right balance between the interests of innovators and the wider public interest, the IP system aims to foster an environment in which creativity and innovation can flourish. However, most Zimbabweans are losing out as they do not appreciate the concept of IP and this has resulted in valuable precious works being plagiarised. Despite the availability of protection laws and the efforts by government to spread knowledge and information on the importance of IP, Zimbabweans were just reluctant to take up IP protection (Chimombe, 2017).

To embrace the knowledge economy, the government first introduced a standalone ministry responsible for psychomotor to promote science and technology education in schools. This led

to the introduction of STEM, programs in schools. It is a curriculum based on the idea of educating students in four specific disciplines of, science, technology, engineering and mathematics in an interdisciplinary and applied approach. It is a blended learning environment which teaches students how scientific methods can be applied to everyday life. It teaches students computational thinking and focusses on real-world applications of problem-solving (Chitate, 2016).

The government also introduced, the Scientific and Industrial Research and Development Centre (SIRDC). The centre aimed to provide Zimbabwe and the region with technological solutions for sustainable development. The centre involves research in biotechnology, electronics and communications, geo- info and remote sensing among others.

Recently, the Ministry of Higher and Tertiary Education has embarked on a drive to encourage universities to be incubation hubs for innovations and creativity. It was hoped that these initiatives would help in the establishment of strong IP institutions and systems which would assist IP to flourish and to become easily identifiable with wealth creation. It would be even easy, for example, for lending institutions to provide grants or loans to innovators whose innovations are still in process when it is perceived that IP institutions are strong. In this regard, Zimbabwe's state universities' traditional tripartite mission of teaching, research and community service has been revised to align to the urgent national ambition to attain middle-income status by the year 2030. It is now demanded of the nation's higher and tertiary education sector to not only: (1) teach, (2) research and (3) community serve but (4) innovate and (5) industrialise Zimbabwe. Under Education 5.0, Zimbabwe's state universities must launch into outcomes-focussed national development activities towards a competitive, modern and industrialized Zimbabwe. It is now all about problem-solving for value-creation (Murwira, 2019).

Further, recently, Zimbabwe launched its first national **Intellectual Property Policy and Implementation Strategy [2018-2022]** ("the Policy"). The specific objectives which the Policy seeks to effectively pursue include:

i. Raising and consolidating IP awareness amongst the general public;
ii. Informing stakeholders about the economic benefits of IP;
iii. Enhancing IP knowledge and professional skills capacities;
iv. Encouraging the mobilisation of IP through acquisitions and own creations;

v. Protecting IP;
vi. Inspiring the commercialisation of IP; and
vii. Enhancing IP trading mediation capacities.

Core sectors which the Policy focuses on are Agriculture; industry; health; education, training and professional skills development; environment; culture; trade; tourism and small and medium-sized enterprises (SMEs). These sectors have been prioritised as they contribute to the growth of the economy. This, coupled with the drive to build innovation hubs in all state universities is an indication that the government of Zimbabwe is on the way to embracing the knowledge economy by building strong IP institutions.

Strong IP institutions can be perceived to be viable and will allow the innovators to reap the fruits of their labour and attain huge reward there from. This link would thus make collateral lending more easily realisable when there is a correlation with the normal wealth creation from IP related activities than with piracy and counterfeiter. Such a scenario will not give heart to a financial institution to lend money to the creative industries using IP as collateral (Ross, and Msimang. 2018; O' Reilly, 2013).

In this new era of the information age, knowledge has become a critical factor in achieving success. Knowledge using IP systems is the invisible asset which will produce the innovative products which in turn are utilised to produce new products that will satisfy customers - thus companies must, therefore, give priority to developing and managing the knowledge of its employees to create value. This will also mean that the traditional accounting which served companies well in the Industrial age should now take into account intellectual assets and thus include them in the balance sheets of companies (Atrill et al., 2018).

While there is some e progress towards embracing IP in Africa including Zimbabwe, there is little documented literature on the subject (Tchamyou, 2015). This study, therefore, aimed to contribute to the information on IP including its uses in commerce and in particular, its use as collateral for loans. It aimed to help stakeholders in a loan transaction to identify challenges inhibiting the use of IP as collateral for loans or why many in the financial and the manufacturing fields in Zimbabwe, are relatively unfamiliar with IP rights and their usefulness as collateral in commercial transactions. The study noted that despite the little progress towards embracing IP in Zimbabwe and Africa as a whole, there is no evidence of the use of IP as collateral in these countries.

2.12 Chapter Summary

This chapter has shown that although IP was a recent phenomenon, the tracks of its use as collateral for loans, manifested in the late 1800s, and the 1950s. However, there was nothing tangible that was said or written about them until 2000. Literature chronicled the slow development in the use of IP in developed countries up to 2010. Literature has revealed the eventual flooding of the knowledge economy leading to growth in value of US conglomerates followed by some countries in Europe and Asia. It has been further shown that embracing knowledge economy underlined by IP led to innovation and creativity. This explained why some economies grew faster than others or why some countries were rich and others were poor. Literature also indicated that there was general lack of information on IP in Africa including Zimbabwe, leading to the ignorance on the importance of IP as an asset and which could be used in commercial transactions, in particular as collateral for loans. Literature has shown that IP had become the engine for innovation and creativity leading to economic growth and thus should be recognised as an asset worthwhile for inclusion in corporate financial statements. In most US conglomerates such as Apple, Microsoft, and Facebook, and in some corporates in Asian countries such as Malaysia, Singapore and Thailand, IP was the main assets in their financial statement. Africa, including Zimbabwe, therefore, needed to embrace the knowledge economy.

Although there were signs towards this direction, more information and education was required for Africans including Zimbabweans to progressively appreciate that no country could grow without innovation and creativity. Africa needs to invest in innovative projects which should lead to the development of IP. It was only in this way that Africa including Zimbabwe could appreciate the value of IP and its uses in commerce, in particular as collateral for loans.

CHAPTER 3

IDENTIFYING, EVALUATION AND PROTECTION OF INTELLECTUAL PROPERTY (LITERATURE REVIEW)

3.1. INTRODUCTION

While Chapter two has dealt with the track history of IP and its uses as collateral for loans and shown that while the developed countries have embraced the knowledge economy as the drive to innovations and creativity, African countries, including Zimbabwe have been lagging behind largely due to lack of information regarding IP. This chapter continues with literature review concentrating on the practical aspects of maintenance, protection, valuation and dispute resolution of IP. In particular, the chapter concentrates on information regarding not only the importance of IP but also how the business could identify their IP, how they could evaluate their IP and how they could protect their IP from being used by others without their authority. This was justified given that the subject of IP was generally new more so in commercial transactions. There is thus very little data and documented literature regarding IP especially in the field of innovations and creative works based on IP and their use as assets with commercial value in Zimbabwe and Africa as a whole.

3.1.1 How does Intellectual Property enhance the market value of an enterprise?

The value of IP was often not adequately appreciated and its potential for providing opportunities for future profits was widely underestimated by many enterprises. IP assets, primarily patents and software, have been the driving force behind high tech companies, but that often, investors failed to understand their unique value as strategic business assets (Kasznik, 2017). The absence of intangible assets in corporate balance sheets undervalued the enterprise's value of the market substantially (Donegan, 2016).

IP serves as one of the key drivers of business success in today's Knowledge Economy. Revenues are often heavily dependent upon intellectual property – margins and market share are buttressed by brands, trademarks and patents – but that this fact was largely unreported by the media. IP, while comprising up to 80% of the market value of public companies today, is rarely reflected on corporate balance sheets. For this reason, some people call IP "the secret sauce of corporate value creation." (Kaszgnik, 2017; Brasell and Maguire, (2017).

Having IP legally protected and with demand for the IP- protected products and/or services in the market, IP could become a treasured business asset in that:

(i) IP could generate revenues for the enterprise through the licensing, sale or commercialisation of the IP-protected products or services that may considerably improve an enterprise's market share or raise its profit margins.

(ii) IP rights can enhance the value or worth of the enterprise in the eyes of investors and financing institutions.

(iii) In the event of a sale, merger or acquisition, IP assets may considerably raise the value of an enterprise and at times may be the main or only true assets of value, (WIPO, 2008); (IPOPNG Journal, 2016); (Barsell, and Maguire, 2017) and (APEC, 2018)

(WIPO, 2008) suggested that IP rights may be acquired for the following categories of intangible assets:

i. Innovative products and processes (through patents and utility models)
ii. Cultural, artistic and literary works including, in most countries, also for computer software and compilation of data (through copyright and related rights protection);
iii. Creative designs, including textile designs (through industrial design rights);
iv. Distinctive signs (mostly through the protection of trademarks including collective and certification marks, but in some cases through geographical indications);
v. Microchips (through the protection of layout-designs or topographies of integrated circuits);
vi. Denominations for goods of a given quality or reputation attributable to the geographical origin (through the protection of geographical indication; and

Trade secrets (through the protection of undisclosed information of commercial value).

The IP Australia, (Australian Government agency which administers IP rights), stated that IP as an asset could enhance an enterprise's value. Further, traditionally, physical assets had been responsible for the bulk of the value of a company and were considered to be largely responsible for determining the competitiveness of an enterprise in the market place. As a result of the information technology revolution and the growth of the service economy, companies are increasingly realising that intangible assets had become more valuable than their physical assets. (WIPO, 2008); (IPOPNG Journal, 2016) and (Russell, 2017).

Worldwide, large warehouses and factories were progressively being substituted by powerful software and innovative ideas as the main source of revenue for many growing enterprises. In sectors where old production techniques continue to be dominant, unremitting innovation and endless creativity were becoming the solutions to greater competitiveness in fiercely competitive markets be it domestic or international. For this reason, intangible assets had taken centre stage and that companies should seek ways to make the best use of their intangible assets, (WIPO; 2008; Karius, 2016).

IP Australia further states that, in addition to being used as an asset IP may also enhance the value of an enterprise by being used as an investment. Acquisition of IP could strongly enhance an enterprise's financial position by expanding its IP base and increasing future productivity. The agency pointed out to several examples of enterprises that had seen their market value increased overnight as a result of their acquisition of important patents in key technologies. Further that a trademark with a good reputation among consumers would also enhance an enterprise's goodwill and even decisively contribute to making its products and services more attractive to consumers. Also that investment in developing a good IP portfolio would be much more than a defensive act against potential competitors. IT would be a way of increasing an enterprise's market value and improving future profitability (Heinrich, 2011; WIPO, 2011).

Conducting an audit was a way an enterprise could acquire a better position to exploit the possible benefits of its IP assets and extract their full value. This involved identifying, monitoring, valuing an enterprise's IP assets so as to ensure that it obtains maximum benefit out of it. In doing so, the enterprise was able to make knowledgeable decisions when it came to the following:

i. Acquisition of IP assets
ii. Mergers and acquisitions;
iii. Licensing – to a third party and earn revenue;
iv. Collateral for loans;
v. Enforcement;
vi. Cost reduction- through the identification of obsolete IP.

An enterprise could increase its revenue, have an edge over its competitors and position itself well in the market leading to an increased value of an enterprise if it established a culture of identifying and cultivating IP assets and strategically using them (DiGiacomo, 2017).

3.1.2 How inventions and creativities based on Intellectual Property could be turned into profit-making assets of companies?

Having realised that IP was the engine for wealth creation, the decision-makers in the financial institutions and governments should now be aware how IP could be used to create wealth and increase the value of the business and thus capable of being used as collateral in lending transactions. IP patents, in particular, could be critical for turning around the fortunes of the business (Spulber, 2015).

Indian firms, for example, converted IP into intellectual profit. This was achieved by;

i. Filing patents for all IP they have generated. (Indian patent filing prowess provides evidence that the country was becoming a world-class innovator).
ii. Monetise the Intellectual Property they generate.
iii. Intellectual partnering.

To Indian firms, it was an indicator of how inventive a company was, not how innovative it was. It was not the number of patents but their ability to rapidly transform their patented inventions into profit-**making assets in the market place in the form of new products, services or processes.** An example was Tata Motor's innovation metrics which not only included many patents, but also "time-to-volume" and "time-to-value" for new inventions. More open-minded Indian firms redefined IP as intellectual partnering as opposed to Western firms which equated IP with 'intellectual paranoia' and 'intellectual pride'. Through intellectual partnering, rather than re-inventing the technology wheel in house, Indian firms relied on external providers to address most of their innovation needs through IP licensing agreements. A good example was TCS, India's largest IT service provider, which operated the oldest and largest software R & D lab in Asia and replacing its abandoned R & D approach with a networked C & D (Connect & Develop) model as part of its intellectual partnering strategy. The company now sources more IP from an external innovation network made up of academic labs, start-ups and large software vendors (Prankrisna, 2008; DeNapoli, 2017).

This approach was contrasted with the Intellectual pride and paranoia of the US and European companies that tended to hoard indiscriminately all their patented inventions, even those that turned out to be commercial flops. This paranoia combined with intellectual pride prevented western firms from sourcing IP from external partners, thereby lengthening their time-to-market and increasing their innovation cost (Prankrisna, 2008; DeNapoli., 2017).

3.1.3 How could a company acquire, maintain and protect its Intellectual Property

Intellectual Property laws were meant to allow creators to benefit from their work. If a business came up with an attractive marketing logo, then no other business should be allowed to use that logo to promote their own product without permission. If artists create paintings after months of labour, then they would deserve credit for painting them and the income from selling or exhibiting them. Protecting IP was central as a method of promoting creativity. If no one was allowed to copy another person's work without permission then creativity was encouraged for everybody, (Gurry, 2015; APEC, 2018).

Overly, Intellectual Property maintenance and protection encompasses IP security policy, registration, valuation and strategic management.

3.1.3.1. Security Policy

To start with, Enterprises should have a security policy (the rules and regulations set) reflecting the organisation's beliefs, procedure outlines which people must follow in the protection and maintenance of IP. For example, an organisation that depends on computers should have a computing policy which is the acceptable usage policy that lists the dos and don'ts of computer and network usage (Raman, 2004).

(Raman, 2004), gave the following examples of security policy among others;

(i) Yale University's copyright policy provision: "Users must observe IP rights including laws as they apply to software and electronic forms of information";

(ii) The California State University at Chico's policy covers both plagiarism and file-sharing: "Academic Honesty. Users must respect the IP of others and adhere to University standards of academic honesty".

3.1.3.2. Intellectual Property Registration

After putting a security policy in place, enterprises should look at registering their creative works. Registration procedures usually differ from country to country, but commonly take place at the relevant national IP offices. WIPO outlines the procedure as follows:

3.1.3.2.1. Patents

According to (WIPO 2005), some common features of procedures for the grant and maintenance of patents are:

i. In some countries, patents are granted after the main criteria for patentability (novelty, inventive step and industrial applicability) have been considered satisfied.
ii. Generally, examination and annual maintenance fees are paid. The examination is usually that of formalities that an enterprise is required to comply with before an application for filing of the patent.
iii. (Fitzsimmons, 2012), recommended that enterprises should file for registration as fast as possible since an application for example, for patents could take more than five years to issue in the US.

3.1.3.2.2. Utility Models

In some counties, inventions may also be protected by utility models, which are also known as 'petty patents' or utility innovations'. They are an important alternative in countries where they are available for the domestic market, and may be a key catalyst to economic growth because they encourage less advanced but locally useful innovations. The conditions for registration for utility models are ordinarily less rigorous and the procedure for registration is faster and the fees for acquisition and maintenance are usually lower than those for patents. Designed primarily to respond to the needs of local innovators, requirements and procedures for obtaining protection and the duration of protection vary from one country to another, (WIPO, 2012; Suthersanen, 2006).

3.1.3.2.3. Trademarks

(WIPO, 2012), stated that some common features of trademark registration procedures are:

i. Acquisition through registration or use.

ii. In other countries, most trademarks should be registered. This enables an enterprise to obtain better or stronger protection.

iii. An application is filed with the national or regional trademark office accompanied by the relevant fees.

(WIPO, 2012), points out that in practice, applications are most frequently rejected because:

i. there was a possibility that customers would confuse an entity's mark with a mark already registered or used for an unregistered well-known mark;
ii. an enterprises' mark only defined a product or service or a feature of the product or service;
iii. an enterprises' mark comprised of a geographical term which was misleading or should not be monopolized by a single enterprise;
iv. a mark which violated public order or morality; or,
v. a mark which contained without authority element which was undistinguishable with or imitation of a protected official sign, armorial bearing, flag or other emblem, or hallmark of a state or intergovernmental organisation.

In some countries, the trademark laws provide for opposition, where interested persons are provided with an opportunity to object to the registration of the mark if they considered their rights likely to be affected by the registration. (WIPO, 2012; Saha and Bhattacharya, 2011; Schlipp, 2019).

In most countries, Well- Known Marks, are usually protected regardless of whether they are registered or not in respect of goods and services which are indistinguishable with, or similar to those for which they have grown their reputation. The Paris Convention for the Protection of Industrial Property and the Agreement on Trade-Related Aspects of IP Rights (the TRIPS Agreement) enables some countries to protect unregistered well-known marks in accordance with their international obligations (WIPO 2005; Saha and Bhattacharya, 2011; Schlipp, 2019).

3.1.3.2.4 Industrial Designs

Industrial designs are compositions of lines or colours or any three-dimensional forms which give a special appearance to a product or handicraft. They protect the ornamental or aesthetic

aspect of a useful article, which usually appeals to the sense of sight or touch and can be reproduced in significant quantities. (WIPO, 2012).

Industrial design is a process of design applied to products that are to be manufactured through techniques of mass production. Its key characteristic is that design is separated from manufacture: the creative act of determining and defining a product's form and features takes place in advance of the physical act of making a product, which consists purely of repeated, often automated, replication. This distinguishes industrial design from craft-based design, where the form of the product is determined by the product's creator at the time of its creation, (Andreucci, 2016).

Industrial designs are obtained by registration provided they are new or original. The duration for protection may last for 15 years. However, unlike marks, protection of industrial designs, once granted, is not subject to cancellation if they are not actively used, (WIPO 2012)

3.1.3.2.5 Copyright

According to (WIPO, 2012; Kenton, 2018), copyright protection protects original creations in the literary (including software), musical and artistic domain, whatever the mode or form of expression. The protection of copyright is often automatic once the work is fixed in some material form. There would, however, be some cases, in which registration of copyright might be necessary. This is where IP maintenance and protection is further achieved through valuation and strategic management of IP.

3.1.3.3 Valuation

New business models are being developed where IP has become a central element in establishing value and potential growth, (Schmitt, 2016). In addition to these changes, the international accounting practices, IAS 38, placed pressure on firms to recognise and value all identifiable intangible assets of a firm as part of a transaction (for example, in a merger or acquisition). As a result of these trends, proper valuation of IP followed by measures to protect the value had become a key element of the success and viability of a modern firm (APEC, 2018) and (Global IFRS, 2008).

(Karius, 2016), stated that there were three methods of valuing IP:

i. **Cost-based valuation;** takes into consideration both how much it cost to create the asset historically and how much it would cost to recreate it given current rates.

ii. **Market-based valuation;** looks at comparable market transactions, whether sale or purchase, of similar assets to arrive at conclusions, (Laya, 2017).

iii. **Income-based valuation;** looks at the stream of income attributable to the IP based on the historical earnings and expected future earnings, (Ishii, 2017).

It was further suggested that these methods could be applied concurrently in a combined approach to arrive at a final valuation. Further, issues of impairment testing should be considered following a triggering event. (A triggering event is an event or change in circumstance indicating that the carrying amount of an asset may not be recoverable- occurs) (Laya, 2017).

Valuation was basically, a combination of the economic concept of the value and the legal concept of property. The elements of Valuation included owner value, market value, fair value and tax value. These together with the quasi-concepts of value impact upon each of these main areas, namely, investment value, liquidation value, and going concern value, (WIPO, 2017) and (Roxas-Divinagracice, (2017).

However, the **discounted cash flow (DCF) analysis** sat across all the methodologies and was probably the most comprehensive of appraisal techniques, (Roxas-Divinagracice, 2017). Association of Certified Chartered Accountancy Financial Management manual (2016), defined **DCI analysis** as an analysis that took account of the time value of money by bringing future cash flows back to what they were worth at start (their present value) This was done by applying a discount rate (usually the bank ruling rate) on the cash flows. **Time value of money** was the preference for receiving the same sum of money sooner rather than later or paying the same sum of money later rather than sooner.

3.1.3.4. Intellectual Property strategy management:

(WIPO, 2008) pointed out that managing an enterprise's IP assets went beyond acquiring the formal IP rights through the national IP office. Further that the value IP rights was not recognised unless the rights were sufficiently exploited. This required satisfactory steps to develop an IP strategy for an enterprise and to seek to assimilate it within its overall business strategy. Thus IP strategy should include at least the following:

i. IP Acquisition Policy-Enterprise may acquire and maintain IPP by registering IP rights;
ii. A Policy on IP Exploitation by way of commercialisation of IP-protected products and services;
iii. A Policy on IP Monitoring;
iv. A Policy on IP Enforcement;

(Carson, 2008; Koller, 2018).

3.1.4. How do companies identify their own intellectual property assets

There are very few business owners who may provide a comprehensive list of their intangible property. Most IP assets that individuals or business developed may not be patentable, but businesses needed to be able to identify their own created IP. According to (Karius, 2016) and (APEC, 2018), businesses should ask and address the following questions to enable them to identify their IP:

i. Whether they owned a website, used print advertising, or whether they developed proprietary software - If so, then they owned valuable assets that were protectable under copyright law.
ii. Whether they used a logo, slogan, business name, domain name, product design or colour or sound-or even helped customers recognise their products or services - Trademark law could help them profit from and protect those intellectual assets.
iii. Whether they had products in development or perhaps formulas, secret ingredients, customer or supplier lists, business or marketing plans, or manufacturing processes that they wanted to keep away from competitors - if so, then they own trade secrets that need to be catalogued and protected.

The success of big international companies, such as Google or Apple, lies in their capacity of identifying intangible assets that were generated within their own business, (Karius, (2016) and (APEC, 2018),

(Hauber, 2013) an attorney, advised that Business would avoid costly legal lapse if they would be aware of the following while identifying and protecting their IP.

i. What did the trademarks cover;
ii. How did a copyright work?

iii. What could be patented;
iv. What were the pros and cons of trade secrets;
v. Who could help companies protect their IP?

3.1.5. What should a company do to resolve disputes related to intellectual property

Disputes would usually arise where enterprises infringe on the rights of others over their intellectual property. (WIPO, Magazine, 2006 and 2016) suggests that enterprises should include in their plans ways and means of dealing with such disputes expeditiously but methodically. Businesses should consider the following before instituting dispute resolution.

i. The time that may be taken to obtain such a decision.
ii. The fees that the enterprise would have to pay to the courts and their attorneys.
iii. The direct and indirect costs of alternatives that may be explored and followed in the event of a negative decision.
iv. Assess the chances of winning their case and the ensuing benefits.

In dealing with these kinds of situations, enterprises would require to carefully weigh the pros and cons of different alternatives. In many occasions, litigation in a court of law would be more expensive particularly, where IP rights of an enterprise had been violated by more than one competitor in the same or different jurisdictions. For this reason, enterprises would make use of other dispute resolution mechanisms such as "arbitration" or "mediation" – which would be less costly and less time-consuming (WIPO, 2016; Mc Gregor, 2015).

3.1.5.1. Arbitration

Arbitration is usually a less formal procedure than court proceedings and arbitral awards are more easily enforceable (WIPO, 2006/2016). Arbitration is defined as an adjudicative process whereby the disputants voluntarily and jointly ask a third party, the arbitrator, to hear both sides of the dispute and thereafter, to make an award which the disputants undertake in advance to accept as final and binding. It is less formal than litigation (McGregor, 2015).

3.1.5.2. Mediation

Mediation, unlike arbitration, is not an adjudicative process; it is facilitative in nature. Through a third party, the facilitator, the parties would seek business solutions acceptable to both sides through negotiation, compromise and creative problem-solving. There was no limit on the amount of creativity that could be used in crafting potential solutions, just the parties' willingness to consider them, The advantage of mediation is that the parties are usually in control of the dispute resolution process and as such, this would help to maintain good business relations with other enterprises with which an enterprise may like to co-operate with in the future (Allison, 2018).

3.1.5.3. Litigation

Litigation is more formal, prone to delay, and could be costly. It focusses on rights rather than the personal interests of litigants. However, as a method of dispute resolution, litigation has the advantage of establishing legal certainty based on rights through a binding decision that is enforced through the sanction of the state (Shestowsky, 2017; Samaras, 2011).

3.1.6. Protection laws for Intellectual Property in Zimbabwe

IP laws in Zimbabwe allow for the protection of IP through registration. Further, the laws also allow the owners of IP to exploit them through licensing and assignments.

The effect of registering a trademark and other IP rights in Zimbabwe is to preclude everyone else from exploiting one's innovation. Thus the rights of IP owner are only enforceable against third parties upon registration of the IP. Protection of intellectual property in Zimbabwe is provided for under Trade Marks Act of 2001, the Patent Act (Chapter 26:03), the Trademark Act (Chapter 26:04), the Industrial Designs Act and the Copyright and Neighbouring Rights Act (Chapter 26:05) - WIPO and Zimbabwe Copyright Act (Chapter 26:01. All these Acts constitute the infrastructure of intellectual property (Muza, 2009).

The Intellectual Property Tribunal Act, (2001) (Chapter 26:08), created the Intellectual Property Tribunal (IPT) which has jurisdiction to hear appeals from the Registrars and other contentious matters under various intellectual property laws of Zimbabwe. IPT does not have

jurisdiction to try any criminal cases and such matters remain in the hands of the High Court and the Magistrates' Courts. Appeals from the IPT lie directly to the Supreme Court.

The Trademark Act defines a Trademark as a mark used or proposed to be used in services to indicate a connection in the course of trade between the goods services and some person having the right either as proprietor or registered user to use the mark whether with or without any indication of the identity of that person and distinguishing the goods or services to which the mark is used or proposed to be used from the same kind of goods or services connected in the course of trade with any other person. The Act further provides that, the proprietor of a mark used or to be proposed to be used may apply for registration and that marks are not registered if their use is likely to deceive or cause confusion or would be contrary to the law.

In terms of the Patent Act, an invention means any new and useful art whether producing a physical effect or not, process machine manufacture or composition of matter which is not obvious or any new improvement thereof which is not obviously capable of being used or applied in trade or industry and includes all alleged inventions. The Act further provides that, an application for a patent may be made by the person claiming to be the inventor or the assignee of the inventor. This basically allows for the registration of the patent.

Intellectual property can be exploited in two ways in Zimbabwe viz;

i. Licensing;
ii. Assignments;

3.2.1. Licensing

Licensing was provided for in all Acts that established the framework of IP. Thus the owner of either a patent, trademark or copyright may by license authorised another person to exercise any of his economic rights in the patent or trademark or work, for a certain period in return of some royalty payment. A license could be an exclusive license or a non-exclusive license. An exclusive license allows the licensee to the exclusion of others including the person granting the license, to exercise the economic right that was the subject of the license. A non-exclusive license was a license that did not preclude the person granting the license from granting a similar license to some other person. In terms of the Zimbabwean law, it was a requirement

that a license should be in writing and should be registered at the Zimbabwe Intellectual Property Office (Moyo, 2017).

3.2.2. Assignment

Assignment is another way of exploiting the value of intellectual property in Zimbabwe. An assignment just as a license, transfers the ownership of economic rights entrenched in intellectual property. It thus has to be in writing just like a license.

However, these laws are not adequate in so far as enabling IP to be fully utilised in commercial transactions. The existing financing laws are primarily focused on financing business tangible assets. A secured financing regime for IP needs to be crafted along the same lines with those of tangible assets but taking into account the differences and the exclusive rights providing opportunities for individual creators and inventors to have their works fully participate and contribute to the growth of the economy. The current secured financing regime ignores the personal properties of IP as collateral. Besides, the constitution of Zimbabwe does not even refer specifically to intellectual property rights. It merely generalises property rights. This is an indication that the legislature is either hesitant to mention or ignorant about IP rights (Moyo, 2017).

3.3 Chapter Summary

This chapter was aimed at conscientising business on what they must do to manage their hard-won IPRs after embracing the knowledge economy, as underlined by intellectual property. In the forefront is how business should be able to identify their intellectual property such as patents, utility models, copyrights, trademarks, industrial designs and trade secrets, etc.

Secondly, businesses should be aware that intellectual property needs to be registered and protected to prevent third parties from using their intellectual property without their authority. This position is further buttressed by the awareness of dispute resolution methods and procedures, should third parties encroach into the owners' rights or should there be a dispute as to who the creator and owner of the intellectual property is.

Last but not least is the valuation of intellectual property. It has been learnt that intellectual property can be sold, mortgaged, or disposed of like any ordinary property, therefore it ought

to have value. Since intellectual property is promoted, practised, protected and enforced this means that there is great value in the intangible asset.

With the increasing contribution of IP in businesses growth, it has now become imperative to measure and determine its value. Valuing and financing intellectual property creates a multiplier effect not just for the business sector but also for the government. For this reason, the government should require companies to properly determine the value of the intellectual property in its possession, (OPEC, 2018); (Ishii, 2017) and (Laya, 2017).

IP is also a tool for competitiveness and a critical component of a country's economic development. As such it must be promoted, and strategically manage.

It is therefore important for businesses not only to be aware of the existence and importance of IP in their organisations but also to appreciate that IP can enhance the market value of their enterprises and that, as an asset, it can be used as collateral for loan transactions. The next chapter will discuss the research methodology used in carrying out this research study.

CHAPTER 4

4.0 CONCEPTUAL MODEL AND HYPOTHESES DEVELOPMENT

The preceding chapter discussed the way enterprises may be aware of the existence of IP in their business portfolios and how such IP may be protected and valued. The chapter also includes how disputes regarding IP are resolved. This chapter discusses the conceptual model and hypotheses development. Section 4.1 discusses the theoretical background of the conceptual model. Perceived negative challenges militating against the use of IP as collateral in financial transactions are discussed under 4.2. Theories underpinning the study. 4.3 Institutional factors influencing the use of IP as collateral are discussed under 4.4 followed by individual factors under 4.5. Intervening role of IP education/knowledge on the intention to use IP as collateral.

4.1 Conceptual Model

Conceptual Framework was the starting point for much quantitative research (such as questionnaire surveys). Further, it was a relationship between concepts. It linked abstract concepts as a first stage in designing the research, (Burns & Burns 2008). (Shields, 2013; Schulte, 2016)and (Rangarajan, 2013) defined a conceptual framework as the way ideas were organised to achieve a research project's purpose while (Miles and Huberman, 1994) defined a conceptual framework as a written or visual presentation that explained either graphically, or in narrative form, the main things to be studied – the key factors, concepts or variables, and the presumed relationship among them. It was suitable for studies in which existing theory was inapplicable or insufficient. Further, it was based on specific concepts or propositions derived from empirical observations and intuition from which theories could be deduced, Gabriel, (2013). Once a literature survey was done, frameworks could then be developed enabling the study to make sense of the relationship and identify the relevant variables, (Burns and Burns, 2008).

Although the literature reviewed indicates that IP and its uses as collateral had been known since the 1950s but very little had been done or written about it up to 2010, (Askew and Jacobs, 2000). Consequently, there was no integrated conceptual model/s for examining the antecedents of IP and its uses, in particular as collateral for loans. Hence there has not been any theories other than the generalisation that IP could be patented and/or copyrighted. However

such generalisation came to fruition, as had been stated above when from the late 1800s, Thomas Edison used his patented incandescent electric light bulb as collateral to finance his start-up company, the General Electric. This recognition went to sleep until the 1950s, (Burton et al 2014); (Sharma and Nerurkar, 2016). The advent of the knowledge economy was a building block which has now seen patents, copyrights, and trademarks and to some extent, folklore grow in use. A successful **knowledge economy** was characterized by close links between science and technology, greater importance placed on innovation for **economic** growth and competitiveness, the increased significance of education, and lifelong learning and greater investment in intangibles such as R&D, software, and education (Unger, 2016).

Scholars have shown that while in general, it was important to understand the influence of separate factors on something, it was more important to examine the impact of individual and institutional factors on such separate elements, (Acemoglu and Robinson, 2008) and (Dragos, 2013). The individual strand held that individual personality traits, background and demographic factors were closely associated with creativity and innovation or lack of it. Institutional strand held that institutions were the rules of the game in society and thus provided conducive environments (Bruton et al., 2010) and (Acemoglu and Robinson, 2008).

Although the influence of country institutional profiles had been developed and validated in the US and Europe, these had not been applied in earlier studies of IP and its commercial importance. It was thus vital in this study to explore how individual and institutional factors impacted on the use of IP as collateral in financial transactions and how these could be adopted in developing countries such as Zimbabwe.

Extant literature has shown that the major challenges that the developed counties came across in converting a creative idea into a financial asset were IP valuation, protection and legal issues, (Nethayanda, 2012). There was, however, little or nothing known or understood about the challenges inhibiting the use of IP as collateral for loans in Africa and Zimbabwe and any attempt to start with hypotheses or theory would be conjecture at best, (Austin and Sutton, 2014). In this context, the study adopted the Deductive approach which usually begins with a hypothesis and to proposes a conceptual model and suggests a hypothesis in relation to IP and its use as collateral for loans, (Gabriel, 2013; Mwiya, (2014).

Although an attempt was made in extant literature to explain antecedents by way of these factors separately there was still a lack of an integrated conceptual model. It was thus important to find whether the impact of these and other factors combined could affect the use or lack of IP as collateral in financial transactions. A conceptual model explaining the combined effect of these and other factors in influencing the use of IP as collateral for loans is shown in figure 4.4.

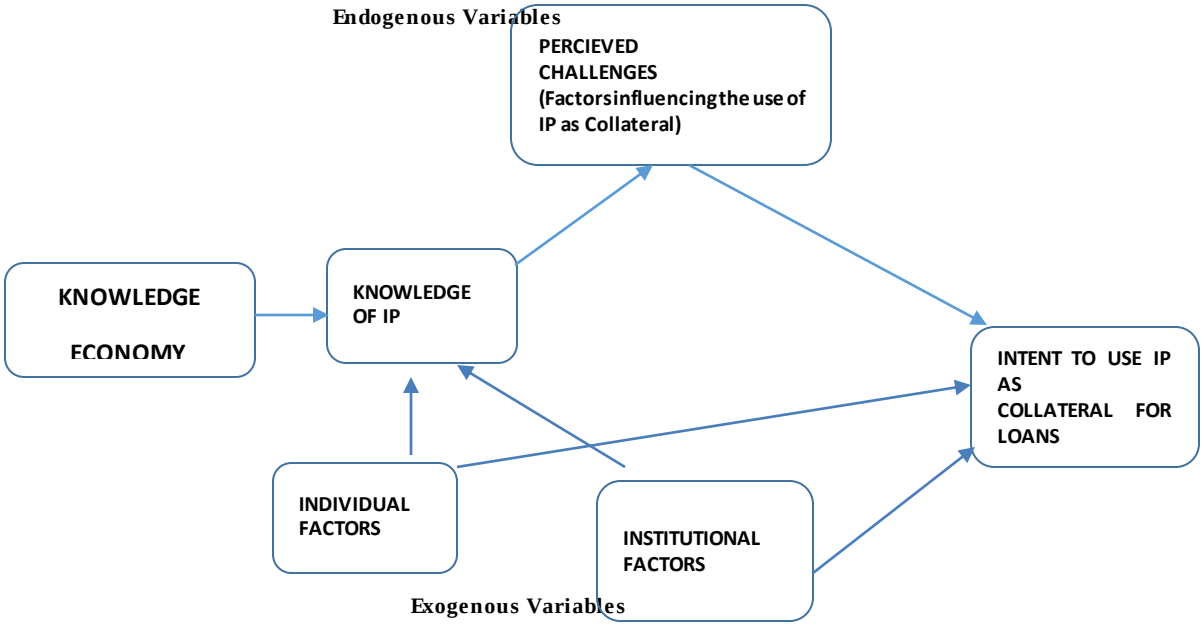


Figure 4.1 Conceptual Framework

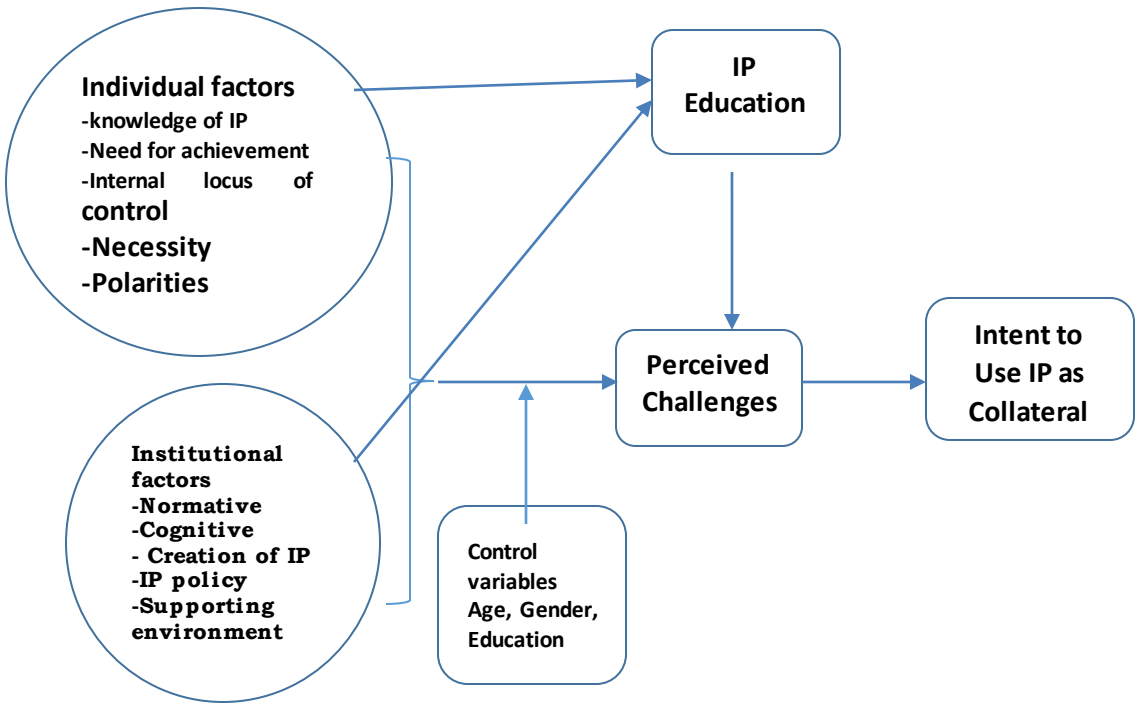


Figure 4.2 Hypothesised Model

4.1.2. Operationalizing of the Conceptual framework

The conceptual framework shown in figure 5.4, indicates that the first concept is the underlying IP asset. IP refers to the creation of the mind; inventions, literary and artistic work, symbols, names and images used in commerce. IP is divided into two categories, viz, industrial property which includes patents for inventions, trademarks; copyrights, industrial designs and geographical indications, (Lakhan and Khurana, 2007); (WIPO Publication No 450E); (IP Flair Journal, 2017) and (ARIPO Magazine, 2018).

The second concept is the knowledge of IP and its uses in commerce. While there was now a lot of information, emanating from literature, regarding IP and its uses particularly as collateral for loans in the developed world there was very little literature informing Africa including Zimbabwe regarding IP, (Sikoyo, et al, 2017). This was the first gap which this study aimed to fill.

The third and fourth concepts seek an understanding of the attitude of individuals and institutions after being educated on IP. These factors are paraphrased in the hypothesised model by indicating the specific factors under each heading.

The fifth concept would seek to identify the challenges that militate against the use of IP as collateral in loan transactions in Africa and Zimbabwe. This should lead to solutions and implementation of using IP as collateral for loans.

4.1.3. Operationalizing of the Hypothesised Model

Figure 4.2 represents the **hypothesised** model which needs to be backed by evidence for the whole research to be credible. It represents what the researcher thinks will happen or expect to see. The goal of the research was to determine whether this guess was right or wrong, (Hungi, 2019). The individual and institutional factors influence IP education. IP education was then manipulated to influence other latent variables which in turn influenced the intention to use IP as collateral in financial transactions. Literature had shown that the area of IP education was robust in the US. The US government relied on the private sector quite heavily in its approach to IP education, (Lakhan and Khurana, 2007). Education about IP implied learning that

specifically sought to create an awareness of IP, its associated commercial uses, rights and the various IP laws, (Reichman, 2011;Withers, 2006).

Literature had shown that, while there was a lot of education on IP in developed countries, the question of IP and its education was a murky one in developing countries particularly Zimbabwe, (Sikoyo et al, 2006) and Hassan et al, 2010). Such education was lagging in Zimbabwe and most other African countries. This study sought to provide a source of IP education, its impotence as an asset which in turn could be utilised as collateral for loans in the same way as tangible assets.

IP education should trigger responses from individuals and institutions or corporate bodies. Once the corporate bodies became knowledgeable they would start formulating and implementing policies in favour of IP and its commercial uses. This would firstly, include IP education for individual employees whose perceptions are discerned from specific attributes which are knowledge of IP, need for achievement, internal locus of control, necessity and polarities. Secondly, institutional specific attributes which include normative and cognitive factors. These individual and institutional factors would influence the latent variables (perceived challenges) leading to the intent to use IP as collateral for loans. This would be so because the corporate or private sector stood to benefit a great deal from the products of IP; (Lakhan and Khurana, 2007).

Once information on IP had been obtained and grasped, the perceived challenges would begin to emerge. These challenges would manifest in the advantages and disadvantages deciphered from IP education. The challenges should enable solutions to be found leading to the acceptance of using IP as collateral for loans.

In this study, it was realised that it would be difficult to identify variables and decided to rely on a Resource-based approach and conceptual framework to formulate theories that would then be used as the anchor to attack the unknown. Supporters of the Resource-based view argued that organisations should look inside the company to find the sources of competitive advantage instead of looking at the competitive environment for it, (Jurevicius, 2013); (Pankaz and Madhani, 2010) and (Clulow, 2007). This study made use of the scanty literature available to

create further resources to help formulate theories and thus applying the inductive approach to the research.

4.2 Theories underpinning the models adopted

Underpinning theory is any theoretical or background work that has been done in the field that will support research or thesis. It is intended to explain "how" and "why" things happen in the way they do, (Gregor, 2006; Iyamu, 2013)

4.2.1 Institutional theory

Institutional theory explains how organisational behaviour was shaped by surrounding formal and informal institutional forces or rules, (Mwiya, 2014). According to (Greve and Argote, 2015) and (Tolbert et al, 2011) Institutional theory was a theory on the deeper and more resilient aspects of social structure. It considers the process by which structures, including schemes, rules, norms and routines become established as authoritative guidelines for social behaviour.

Institutional theory had been applied in scientific developments where it sought to explain why nations were committed to scientific institutions as well as what forms these take. (Hassan, 2013) and (Greve and Argote, 2015). The central theme was that organisational structures developed in industrialised countries were viewed by policymakers, donors, and other states as signals of progress towards modern institutional development and hence worthy of financial support, (Hassan, 2013).

4.2.2. Institutional Factors included in the Model

The normative and cognitive factors in the model were adopted from institutional theory. These factors shaped the bases of how institutional factors influenced the individual through deeper social structures, rules and regulations. Scholars such as (Greve and Argote, 2015) believe that individual, cultural/social, organisational and institutional/regulatory factors were all formed by, and helped to form, each other. Individual attitudes both influenced and were influenced by the social and organisational environment within which the individual operates.

Scholars such as (Scott, 2008; Hassan, 2013; Dragos, 2013) opined that institutions constituted regulative, normative and cultural cognitive elements which collectively with associated activities and resources provided stability and meaning to social life. Normative influences of institutions were in a strict sense a moral phenomenon which implied that its primary motive on the individual on whom it exercised authority was to instil moral values (Hassan, 2013). Individual behaviour could not be explained when it was stripped of the societal context that it occurred in (Hassan, 2013).

4.2.3 Theory of Planned Behaviour

The theory of planned behaviour was one of the theories underpinning the conceptual model of this study and was perceived through the lens of institutional theory, (Morris, et al, 2012). The Theory of Planned Behaviour (TPB) started as the Theory of Reasoned Action in 1980 to predict an individual's intention to engage in a behaviour at a specific time and place. The theory was intended to explain all behaviours over which people can exert self-control. The key component to this model was behavioural intent; behavioural intentions were influenced by the attitude about the likelihood that the behaviour would have the expected outcome and the subjective evaluation of the risks and benefits of that outcome (Hagger, (2015; (Danili, 2006).

In this study, the conceptual model adopted assumed that the behaviours over which people could exert self-control over their intentions to use IP as collateral for loans were primarily driven by IP education/knowledge. IP education, in turn, influenced individual intentions. This influence cascaded to institutions in which the individuals were engaged. The individual and institutional attitudes, in turn, influenced the desire to understand or to investigate the challenges militating against the intentions to use IP as collateral for financial transactions.

4.2.4 Technology Adoption Theory

It was a theory that modelled how users came to accept and use technology. When a new technology was presented users or individuals were influenced by a number of factors to adopt the new technology (Abbas et al, 2015). The notable factors included the perceived usefulness of the technology, the perceived ease of use and user acceptance. Consumers or users acceptance of new technology was largely influenced by these factors and after experiencing several stages of development characterised by understanding, persuasion implementation and confirmation (Lai, 2017). This theory coupled with institutional theory

and planned behaviour was the building block of why and how certain practices were adopted by individuals and then cascaded to the rest of the community.

4.2.5 Lending Theory

The lending theory greatly supports the above theories. The Lending Theory was greatly influenced by rapid technological changes which could cause financial institutions to refocus their activities and requirements (Bolton et al., 2016).

The lending theory supports this conceptual model in that the behaviour in lending patterns, according to the extant literature was influenced by the advent of the knowledge economy in which IP was the underlying asset as opposed to tangible assets. Extant literature indicated that the growth and use of IP since 2010 had outpaced the tangible assets. The lending behaviour was now leaning towards using IP as collateral as compared to tangible assets.

4.3 Institutional Factors influencing the intention to use Intellectual Property as Collateral

The institutional theory helped explain institutional decision and activities. The theory described how both deliberate and accidental choices led institutions to mirror the norms, values and ideologies of the organisational field, (Toma et al, 2005) and (Scott, 2008). The study's view emanating from this theory was that of the organisation culture, (how we do things here). Once every member of the organisation was cultured, their behaviour was shaped by the norms, values and ideologies of the organisation. Applying this approach to the conceptual model, the intention to use IP as collateral for financial transaction was greatly influenced by the institutional factors. This influence was tested in regression analysis where the p-value was found to be significant at $p< 0.01$

According to (Kshetri, 2010), citing (Scott, 1995, 2001), there are three institutional pillars and these are regulative, normative and cognitive, which relate to legally sanctioned morally governed and recognisable taken for granted behaviours respectively.

4.3.1 Regulatory Factors

This consists of explicit regulative process; rule setting, monitoring and sanctioning. Once the institution sets out a strategy it regulates how the strategy would be implemented. All

individuals were then motivated to work according to the set regulations. This was aimed to achieve the one institutionally set goal. This approach in this study implied that the institution sets the rules toward achieving the intention of using IP as collateral for loans (Kashetri, 2010; Scott, 2001).

4.3.2 Normative Factors

These are norms and values that structure choices, emphasizing how things should be done and defining legitimate means to accomplish them. This approach emphasizes how institutions shape actors and not how actors shape institutions, (Friel, 2016). In this study, it was the institution that shaped individual actors towards achieving the goal of the intention to use IP as collateral for loans.

4.3.3 Cognitive Factors

The mechanism through which norms influence individual and firm behaviour. They refer to characteristics of the person that affect performance and learning. These **factors** serve to modulate performance such that it may improve or decline. These **factors** involve **cognitive** functions like attention, memory, and reasoning. (Danili and Reid, 2006) and (Kashetri, 2010), suggested that "cognitive elements constituted the nature of reality and the frames through which meaning was made". Although all components of institutions were intertwined with culture cognitive institutions were arguably most closely associated with culture (Davison and Neale, 1994).

Cognitive legitimacy concerns were based on subconsciously accepted rules and customs as well as some taken-for-granted cultural account of technology use although carried by individual members, cognitive programs were elements of the social environment and were thus social in nature. Compliance in the case of cognitive legitimacy concerns was due to habits; for example, some people would not even be aware that they were complying (Grewal and Dharwadkar, 2002).

Thus as cultural cognitive Institutions referred to generally shared knowledge and information in a community regarding, in this case, IP creation and its commercial uses. It increased people's understanding of IP, how IP was created and how IP was beneficial especially in creating the necessary funding for future initiatives. Almost all participants shared the view that if knowledge and information regarding IP were shared in their community, there would

be more people believing that they could be creative and innovative. Prior research indicated that culture was transmitted and shared from one generation to the other (Zimmerman, 2017; Cole, 2018).

The abilities of an individual would enhance the desire to want to achieve something upon being influenced by institutional norms. In the hypothesised model the institutional drive to recognise IP as the new source of corporate revenue leading to economic growth was inculcated in the individual. The individual, in turn, uses his or her cognitive abilities to convert ideas into financial assets. The influence of the individual factors is further explained in (4.3) below.

4.4 Individual Factors influencing the intention to use Intellectual Property as Collateral

Alfred Adler held that the main motives of human thought and behaviour were individual man's strive for superiority and power, partly in compensation for his feelings of inferiority. Every individual, in this view, was unique, and this found expression in his style of life, this life-style being the product of his own creativity. Nevertheless, the individual could not be considered apart from society; all important problems, including problems of general human relations, occupation, and love, were social in nature (Curtis, 2012).

The attributes that manifest in individuals own creativity are, the need for achievement, internal locus of control, necessity and polarity management.

4.4.1 Need for achievement

Need for achievement (N-Ach) refers to an individual's desire for significant accomplishment, mastering of skills, control, or high standards. These include: "intense, prolonged and repeated efforts to accomplish something difficult. To work with singleness of purpose towards a high and distant goal. To have the determination to win", (Murray, 1938). The concept of N-Ach was subsequently popularised by the psychologist (Jha, 2010;Jex, 2008; Moriarty, 2014).

According to (Jex, 2008) and (Murray, 1938). Need achievement theory was the theory of motivation that explains the difference between high achievers and everybody else. The need-for-achievement psychology of high achievers demands that they seek out challenges that were right at the edge of their abilities. This personality trait was characterized by an

enduring and consistent concern with setting and meeting high standards of achievement. This need was influenced by an internal drive for action (intrinsic motivation), and the pressure exerted by the expectations of others (extrinsic motivation). Measured with the Thematic Apperception Test (TAT), need for achievement motivated an individual to succeed in competition, and to excel in activities important to him or her (Jex and Britt, 2008) and (Ramsay and Pang, 2013)

Prior research, indicates that individuals with a higher need for achievement were more likely to be more creative and innovative than those without, (Moriarity, 2014; McClelland, 2014). The need for achievement, therefore, influences individuals to be more creative and innovative. In this study, the need for achievement is the driving force behind innovation and creativity resulting in the conversion of new ideas into financial assets.

4.4.2 Internal locus of control

Locus of control refers to what one ascribed responsibility to, or blame for what was happening to him or her or occurred in his or her life. Factors within one's self, or a person's control, such as abilities, skills and efforts, were referred to as internal locus of control. Factors outside one's control such as coincidence, chance, luck and influence of others were referred to external locus of control, (Hennessy, 2011; Coetsee, 1999). It is the degree to which people believe that they have **control** over the outcome of events in their lives, as opposed to external forces beyond their **control, (Rotter,** 1966; Kurt et al., 2012). This coupled with the need to achieve and necessity are the major forces influencing the desire for creativity. New ideas come out through self-belief, drive and need to survive. The underlining code of such new ideas is IP, which is the underlining asset in this era of the knowledge economy in which the use of knowledge is the bases for the creation of goods and services.

4.4.3 Necessity

Necessity is the need to survive. When the need for something becomes essential, one is forced to find ways of getting or achieving it. A person cannot live without food. The need to survive will drive people to look for food. If they do not find food they become creative to get food. They become creative in order not only to survive but to enhance the quality of life. Thus as for this era of the knowledge economy, people start using knowledge as the bases for the creation of goods and services. In the hypothesised model necessity leads to the creation

of new ideas which are then converted into financial assets and thus using IP as the new way of financing business activities.

4.4.4 Polarity management

Polarity is a relationship between two opposite characteristics or tendencies, like the *polarity* of two sides of a debate, or the superhero and villain in a comic book. *Polarity* can refer to a positive or negative electric charge. Less literally, it indicates something with two opposing but related qualities. What would the light of day be without the dark of night? Good without evil? (Schulte, 2016; Johnson, 1996). Polarity is not a problem to be solved but a dilemma one need to manage. Creating and discovering the content of all the sides is essential for maximum effectiveness in managing a dilemma (Johnson, 2018).

Polarity management is the ability to identify and manage unsolvable problems. Polarities are ongoing, chronic issues that are unavoidable and unsolvable. Attempting to address them with traditional problem-solving skills only makes things worse. Polarity Management presents a unique model and set of principles that will challenge people to look at situations in new ways (Johnson, 1998).

In the hypothesised model, it was assumed that problems would always arise. The principles of polarity management dictate that there was always the need to consider all sides of an issue. Put simply, one cannot talk of the individual without considering the institution and vice versa. However, from the study's view, what is critical was that polarities would challenge people to come up with new ways of dealing with situations. Such new ways dovetailed well with creativity and innovation.

The individual attitudes in the conceptual model are viewed from the views expressed in these attributes. The individual skills and attitudes are the driving forces behind innovation and creativity. Innovation and creativity is the process of converting creative ideas into financial assets. This is the basic premise of financing IP, (Mateos-Garcia, 2014); (Brassell and King, 2013) and (Amable et al., 2010).

4.5 Intervening role of IP education on the use of IP as Collateral

"The importance of IP in today's world cannot be overstated and, indeed, it is receiving a great deal of attention worldwide. To advance the cause of the rights and wrongs of the laws that

promote and protect intellectual property at the national and international levels, education in IP is required and must be advocated. We must make individuals, industries, and governments aware of the concept of IP, and only then can they take positions on the issue to effect change". Source: (Lakhan and Khurana, 2007).*

Education on IP is important in that it shapes the attitudes, behaviour and mind-set associated with IP. These can be developed and enhanced through training and practice. Economic scholars argue that knowledge of IP leads to more economic growth via innovations, (Dinopoulosand Segerstom, 2010) and (Eicher & Garcia-Penalsa, 2008). Therefore knowledge of IP and its uses help conscientise individuals and institutions on the challenges militating against the use of IP as collateral for loans and thus able to overcome such challenges.

In the conceptual model, education/knowledge of IP is the first concept. Individuals must be educated to have knowledge of IP. Individual knowledge of IP will cascade into the institutions in which they are employed. The institution must then promote this education further leading to investigation of factors militating against the use of IP in financial transactions. This will then influence the intention to use IP as collateral in financial transactions.

4.6 Chapter Summary

The advent of the knowledge economy, with IP as the underlying asset, is a very recent phenomenon. The literature reviewed indicates that there is no pre-existing theory of the study. It is, however, apparent that the developed counties and some Asian countries have embraced IP as the new source of business revenue leading to overall economic growth. The developing countries have not yet fully embraced this concept for various reasons, some suspected and some unknown. In regards to this knowledge gap, this chapter suggests a conceptual model and develops a hypothesis to direct investigation into whether IP education has an intervening role on the relationship between Individual and Institutional factors among others with the intention to use IP as collateral in financial transactions. Specifically, the chapter hypothesises on how much pressure is exerted by individual and institutional factors on perceived challenges militating against the use of IP as collateral in financial transactions. Both qualitative and quantitative research is used to test the model and develop a comprehensive understanding of the phenomena.

The next chapter discusses research strategy, the research method, the research approach, the method of data collection, the selection of the sample, the research process, and the type of data analysis, the ethical considerations and the research limitations.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 Introduction

The purpose of this study was to i). Examine the challenges militating against the use of IP as collateral for loans. ii). explore the reasons for lack of research, innovation and creativity based on IP. This chapter aimed to explain the research tools used including the data collected in conducting the research. The chapter outlines the research strategy (5.2), population of the study (5.3), the research method, the research approach, the method of data collection and tolls (5.4), construct validity Analysis: quantitative (5.6), Reliability Analysis: quantitative Study (5.7), Research Design Matrix (5.8) and conclusion (5.9).

5.2 Research Design

A research design is a framework created to find answers to research questions. It is the set methods and procedures used in collecting and analysing measures of the variables specified in the problem of the study. It comprises of philosophies, approaches data collection methods strategies and the relevant methods of enquiry, (Creswell, 2014; Mohammad, 2013). The research design is guided by the research onion tool developed by (Saunders et al., 2012). (Saunders et al., 2012) and shown in figure 6.1. It illustrates the stages that must be progressively covered when developing a research strategy. When viewed from the outside, each layer of the onion describes a more detailed stage of the research process.

Literature reviewed indicated that there was no pre-existing theory on the subject of knowledge economy with IP as the underlying asset. This position was further exacerbated by little documented literature and little data available in Zimbabwe regarding intellectual property. Also as evidenced by the literature review, there was no clearly established determination towards the use of IP as collateral even in some of the developed countries. As a result, the research utilised a mixed-method (a combination of positive research which addresses ‘what’ issues and interpretivistic research which address the ‘Why’ and ‘How’ issues). A combination of the two research methods allows for model testing and a thorough understanding of research problems, (Edirisingha, 2012; Rowlands, 2005). Further, a combination of positive and interpretivistic implied the use of both quantitative and qualitative research methods.

Quantitative approaches are often assumed to draw on positivist ontologies whereas qualitative approaches are more associated with interpretive and critical paradigms (Hughes, 2013; Mukherji, 2014).

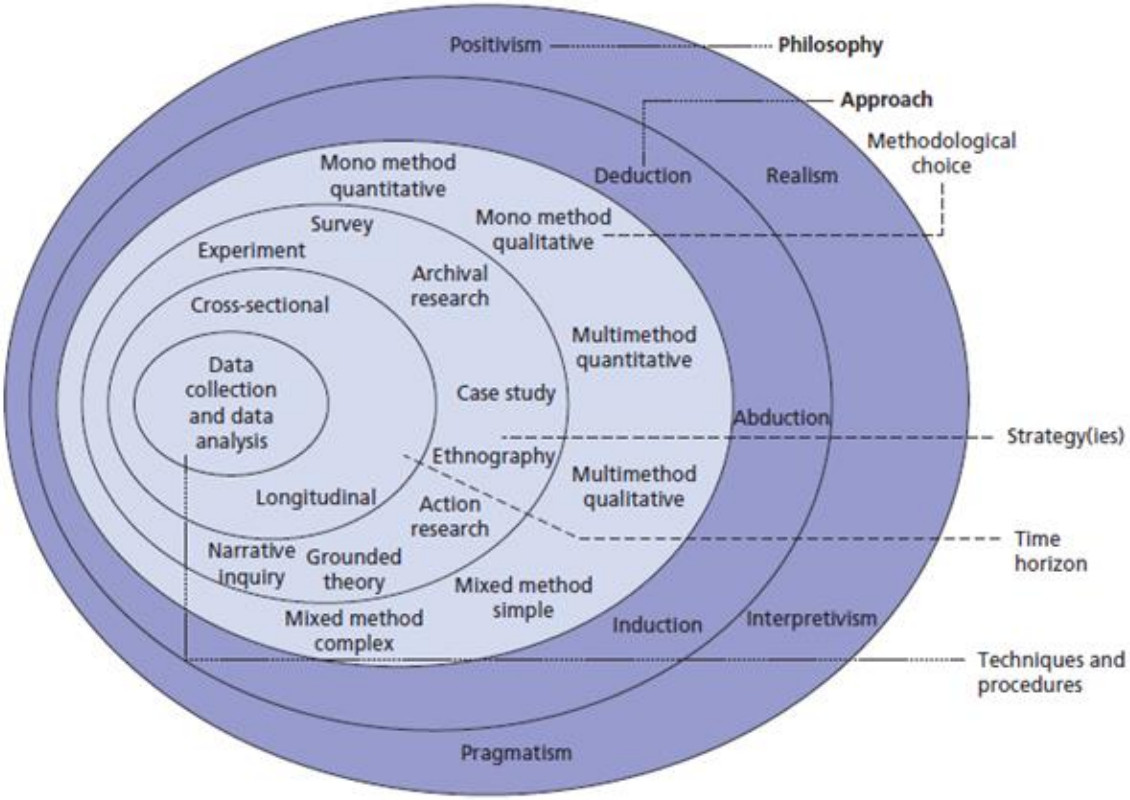


Figure 5.1: The Onion Research Tool: Source: (Saunders et al., 2012)

This diagram shows a systematic categorisation of research according to dimensions such as:

- Philosophy: positivism, interpretivism, Realism and Pragmatism.
- Approach: deductive vs. inductive
- Research strategies
- Cross-sectional and longitudinal base study
- Choice of Data analyses: quantitative vs. qualitative (Mixed method)
- Research Strategies
- Method of data collection.

5.2.1 Research Philosophy

Research philosophy refers to the set of beliefs concerning the nature of the reality being investigated, (Bryman, 2012). It is the underlying definition of the nature of knowledge. It is the all-embracing term that refers to how new knowledge is developed in a particular field and how the nature of that knowledge is (Saunders et al, 2009). The research philosophy places strict rules and principles on how research is conducted, (Burns and Burns, 2008).

Research philosophy is based on two important assumptions regarding the study's views of the world, particularly the ontological and epistemological aspects (Bahari, 2012). The qualitative approach, like any other approach, makes these two philosophical assumptions (Creswell, 2012). Both ontology and epistemology, describe beliefs, assumptions and the nature of reality and truth. They can influence how the research is undertaken. The ontological view describes the nature of reality and its characteristics such as what is it that exists, what it looks like, what units make it up and how these units interact with each other (Flowers, 2009),

The term epistemology describes: what is known to be true as opposed to **doxology** (what is believed to be true). It is the theory of knowledge; what is knowledge and what are the sources and limits of knowledge (Dudovskiy, 2015). Epistemology is a branch of philosophy that studies the nature of knowledge which constitutes acceptable knowledge in any particular discipline (Saunders et al., 2012). There are three key philosophical paradigms, namely; **Positivism**, **Interpretivism and realism.**

5.2.2 Positivism

Positivism is derived from that of natural science and is characterised by the testing of hypothesis developed from existing theory (hence deductive) through measurement of observable social realities. Positivism, presumes the social world that exists objectively and externally, (reality exists independently), that knowledge is valid only if it is based on observations of this external reality. Positivism focuses on facts, (Flowers, 2009) and (Saunders et al., 2012). Positivism is assumed to be associated with quantitative research (Hughes, 2013). Positivism is based on a realist ontology which assumes that observation is theory-neutral and that the role of scientific research is to identify law-like generalisations that account for what was observed, and that observations should be repeatable (Leitch et al., 2010).

5.2.4 Interpretivism.

The second paradigm is **Interpretivism** which is described as anti-positivist and post-positivist since it is contended that there is a fundamental difference between the subject matter of natural and social sciences. In the social world, it is argued that individuals and groups make sense of situations based upon their individual experience, memories and expectations. The meaning, therefore, is constructed and (over time) constantly re-constructed through experience resulting in many differing interpretations, (Flowers, 2009). The interpretivism approach is based on the naturalistic approach of data collection such as interviews and observations, which dovetails with the use of qualitative research methods, (Dudovskiy, 2015; Leitch et al., 2010).

The adoption of an interpretive approach to knowledge creation is predicated on the argument that there can be no understanding of the social world without interpretation. In other words, it is a move away from the causal relationships between variables approach, rather, it is concerned with the understanding of human behaviour which entails, capturing the actual meanings and interpretations that actors subjectively ascribe to phenomena to describe and explain their behaviour", (Labuschagne, 2016; Johnson et al., 2006; Creswell, 2008). However, Interpretivism may be highly subjective and thus may give room for bias. Primary data generated in interpretive studies may not be generalised since data is heavily impacted by personal viewpoint and values and as a result, reliability and representativeness of data may be undermined to a certain extent (Dudovskiy, 2015).

5.2.5 Realism

Pessu, (2019), state that, born from a frustration that **positivism is** over-deterministic (that there is little room for choice due to the causal nature of universal laws) and that constructionism is so relative (and hence highly contextual), **realism** takes aspects from both positivist and interpretivism positions. Realism holds that real structures exist independent of human consciousness, but that knowledge is socially created and that knowledge of reality is a result of social conditioning (Saunders et al., 2012); Pessu, 2019).

5.2.6 Pragmatism

Pragmatism is an emerging paradigm that allows the use of both inductive and deductive reasoning through various combinations of qualitative and quantitative data (Creswell, 2008).

Although it is not shown in the research onion, pragmatism, views reality as provisional rather than absolute and fixed (Morgan, 2014). In pragmatism focus is placed on application; 'what works', rather than methods, allowing the study to use all approaches from a pluralistic view to understanding the problem at hand (Creswell, 2013).

In pragmatic research, the truth about the subject under study is what works at the time. The truth is completely independent of the mind as in positivist tradition nor is it constructed by the mind as in the interpretivism tradition. Hence, pragmatic investigations can use both quantitative and qualitative data to provide the best understanding of the research problem (Najmaei, (2016; Creswell, 2013).

5.2.7 Justification for the Philosophical choice

As a result of the nature of the research problem, pragmatism was chosen as the research model supporting this study. IP is a very recent and complex subject. Although early literature attributed the current understanding of IP as security for loans, from the late 1800s this recognition went to sleep until 1950s, (Burton et al, and 2014); (Sharma and Nerurkar, 2016). Literature has indicated that although IP was being used as security for loans, there were still problems of recognising IP as an asset, particularly among loan stakeholders. This problem was compounded in the developing countries where there was little documented literature explaining the dynamics of IP as an asset, its protection and valuation. This pointed out to the complexities involved in firstly making people understand what IP was and secondly for people to know its uses as an asset, particularly as collateral in commercial transactions.

There is very little or no known research on IP and in particular examining the challenges militating its use as collateral for loans in Africa including Zimbabwe. However, IP is a reality. Positivists assume that reality was independent of the interpretations of the researcher, (Creswell, 2008). Consequently, it offered standard quantitative methods mostly based on deductive reasoning in which inferential, descriptive, experimental and simulative techniques were used to examine and test causal and other forms of relationships among a limited number of variables, (Najmaei, 2016).

IP was also understood from the social world as it was argued that individuals and groups made sense of situations based upon their individual experience, memories and expectations. Meaning, therefore, it was constructed and (over time) constantly re-constructed through

experience resulting in many differing interpretations, (Interpretivism approach), (Pessu, 2019).

In light of the above, this study used the mixed-method approach, thereby endorsing the pragmatic paradigm in which both quantitative research and qualitative research were required. Positivistic paradigm (quantitative) was used to test the conceptual model, whether it could be considered and generalised to the applicable population. Interpretivistic paradigm (Qualitative) was required for a thorough understanding of the research problem from the Zimbabwean context (Mwiya, 2014), quoting, (Bliundel, 2007) and (Leitch et al, 2010). The overall objective was to increase confidence in the findings through the confirmation of a proposition using two independent measures. The combination of findings from two or more rigorous approaches provided a more comprehensive picture of the results than either approach could do alone (Almaiki, 2016).

5.2.8 Research Approaches and Theory

Research approach is a plan and procedure that consists of the steps of broad assumptions to detailed method of data collection, analysis and interpretation. It is, based on the nature of the research problem being addressed, (Bryman and Bell, 2015) and (Saunders et al, 2012). Research approach is essentially divided into two categories and as shown in figure 5.2:

1. Approach of data collection and
2. Approach of data analysis or reasoning.

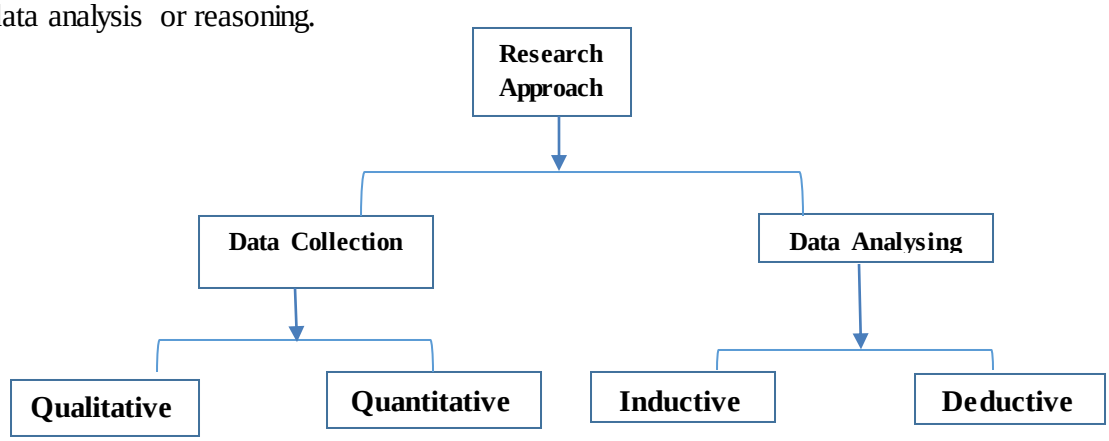


Figure 5.2 Research Approach: Source (Chetty, 2016)

There are generally two Research approaches, which are deductive and inductive. The relevance of hypotheses to the study is the main distinctive point between deductive and inductive approaches. The deductive approach is used to test the validity of assumptions (or

theories/hypotheses) in hand, whereas inductive approach contributes to the emergence of new theories and generalizations. The two alternatives are not mutually exclusive; they can complement each other in various other issues, (Bryman and Bell, 2015) and (Saunders et al., 2012). The difference between Induction and Deduction are explained below.

5.2.9 Deductive Approach

According to (Wilson, 2010), a deductive approach is concerned with developing a hypothesis (or hypotheses) based on existing theory and then designing a research strategy to test the hypothesis. If a causal relationship or link seems to be implied by a particular theory or case example, it might be true in many cases. A deductive design might test to see if this relationship or link did obtain on more general circumstances", (Gulati, 2009;Gabriel, 2013; Babbie, 2010). Deductive research approach explores a known theory or phenomenon and tests if that theory is valid in given circumstances. It has been noted that "the deductive approach follows the path of logic most closely. The reasoning starts with a theory and leads to a new hypothesis. This hypothesis is put to the test by confronting it with observations that either lead to a confirmation or a rejection of the hypothesis", (Snieder and Larner, 2009) and (Gabriel, 2013). Moreover, deductive reasoning can be explained as "**reasoning from the general to the particular**", whereas inductive reasoning is the opposite. Diagrammatically, deductive assumes the following approach:

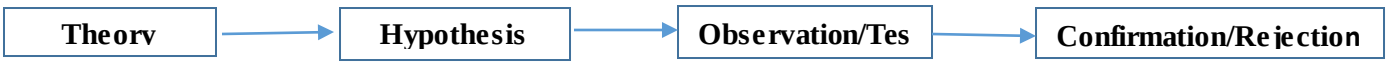


Figure 5.3: Deductive Approach

5.2.9.1 Advantages of Deductive Approach

The deductive approach offers the following advantages:

i. Possibility to explain causal relationships between concepts and variables
ii. Possibility to measure concepts quantitatively
iii. Possibility to generalize research findings to a certain extent
iv. Dissertations with deductive approach follow the following path:

The weakness, however, is that deductive approach may fall short of providing an in-depth rationale for human behaviour i.e., it may not be able to sufficiently respond to the how and why questions of social phenomena, (Bryman and Bell, 2015).

5.2.10 Inductive Approach

In the alternative, the inductive approach starts with research questions, aims and objectives that need to be achieved during the research process. In other words, an inductive approach is concerned with the generation of new theory emerging from the data. The aim is usually focused on exploring new phenomena or looking at previously researched phenomena from a different perspective, (Wilson, 2010; Gabriel, 2013).

Inductive studies follow the route below:

Figure 5.4: Inductive Approach

Inductive process in research approach

An inductive approach is generally associated with qualitative research, whilst a deductive approach is more commonly associated with quantitative research. However, there are no set rules and some qualitative studies may have a deductive orientation, (Chetty, 2016; Gabriel, 2013). It has been argued that inductive, means reasoning from the specific to the general. One specific inductive approach that is frequently referred to in research literature is grounded theory, pioneered by (Glaser and Strauss, 1967), (Gulati, 2009) and (Gabriel, 2013). This approach requires the study, to begin with, a completely open mind without any preconceived ideas of what will be found. The aim is to generate a new theory based on the data. Once the data analysis has been completed the study must examine existing theories to position their new theory within the discipline, (Gulati, 2009;Gabriel, 2013). Grounded theory requires extensive and repeated sifting through the data and analysing and re-analysing multiple times to identify new theory. It is an approach best suited to research projects where the phenomena to be investigated has not been previously explored (Gabriel, 2013).

Inductive inference involves drawing general conclusions based on a limited number of observations. The assumption usually that what is valid for the observed cases may also be valid for the whole population in that context, (Bryman and Bell, 2015). The weakness of

induction is that it is difficult to establish the extent the findings which can be generalised can go due to limitations in sample size. It is also difficult to establish an in-depth rationale for human behaviour i.e., it may not be able to sufficiently answer the how and why questions of social phenomena.

Inductive approaches are generally associated with qualitative research, (interpretivism), whilst deductive approaches are more commonly associated with quantitative research (positivism). However, there are no set rules and some qualitative studies may have a deductive orientation, (Gabriel, 2013; Chetty, (016).

Pragmatism allows the use of both inductive and deductive reasoning through various combinations of qualitative and quantitative data (Creswell, (008). According to (Mwiya, 2014), citing, (Burns and Burns, 2008) and Creswell, 2014), stated that (page139) *"this approach makes it possible for a research cycle to emerge where conclusions of an inductive approach (theory building) can be further evaluated to confirm the findings using the deductive approach (theory testing). Conversely, it is also possible that a deductive study may unearth some unexpected and hard to explain result which could then be explored by using an inductive approach"*.

(Creswell, 2014) suggested standards that determine whether a study ought to be undertaken inductively or deductively or both. Firstly, a topic with more literature from which one could make reference to theoretical framework and hypotheses could be tackled deductively. For new topics and on which there was little literature, inductive approach could be more suitable for producing data, examining it, and reflecting on the theoretical themes that the data suggests. Secondly, where time available could be an issue, deductive approach could be quicker while inductive research could be more protracted. Lastly, the needs, interests, preferences and practicalities for stakeholders should be another guide for the decisions"

In this study the proposed model based on extant literature required a deductive quantitative approach for model testing and, since no research of this nature has been undertaken in Zimbabwe it was important at the same time to have a detailed understanding of the research issues hence the use of the inductive approach.

5.2.11 Research Strategies

(Datt, 2016), defined research method as "*the theory of methods*", or the way through which a researcher makes sense of the object of inquiry. Research strategy is the "*general plan of how the study will go about answering the research questions*", (Saunders *et al*, 2009) and (Dinnen, 2014). Research strategy is of seven types, shown in the research onion as follows:

i. Survey Research
ii. Action Research;
iii. Ethnographic Research;
iv. Grounded Theory;
v. Experimental Research;
vi. Case Study.

5.2.11.1 Survey Research

Survey Research is a specific type of research which includes two specific techniques, which are, questionnaires and interviews. Thus survey research involves collecting information about a topic using either questionnaires or interviews and then analysing the information to draw a conclusion, (Datt, 2016) and (Saunders *et al*, 2009). Survey research allows for a variety of methods to recruit participants, collect data, and utilize various methods of instrumentation. Survey research can use quantitative research strategies (e.g., using questionnaires with numerically rated items), qualitative research strategies (e.g., using open-ended questions), or both strategies (i.e., mixed methods). As it is often used to describe and explore human behaviour, surveys are therefore frequently used in social and psychological research, (Ponto, 2015).

5.2.11.2 Action Research

Action research is either initiated to solve an immediate problem or a reflective process of progressive problem solving led by individuals working with others in a team as part of a community. It is aimed at assisting the actor, (Sagor, 2005; Datt, 2016).

5.2.11.3 Ethnographic Research

Ethnographic research is a systematic study of people and cultures. It is designed to explore cultural phenomena where the study observes society from the point of view of the subject of

the study. It is a qualitative research method where researchers observe and/or interact with a study's participants in their real-life environment. It involves trying to understand how people live in their lives, (Anderson, 2009; Datt, 2016).

5.2.11.4 Grounded Theory

According to (Glaser& Staruss, 1967), the theory is grounded in the data. Construction of theory is done through the methodical gathering of data. It is a research methodology which operates inductively. As researchers review the data collected, repeated ideas, concepts or elements become apparent and are tagged with codes which have been extracted from the data. As more data is collected and re-reviewed codes can be grouped into concepts and then into categories. These categories may become the basis for a new theory.

Grounded theory is the best example of a mixed approach where the emphasis is on theory building. This strategy is adopted to predict and explain behaviour. In this strategy, the research initiates with the development of a theoretical framework. New theories are developed on the basis of the theoretical framework, (Datt, 2016).

5.2.11.5 Experimental Research

Experimental research uses manipulation of variables in a controlled testing environment to gain an understanding of the causal processes associated with the subject matter. In many cases, experimental research uses randomly assigned test subjects assigned to either an experimental group or a control group. Researchers manipulate specific variables involved with the testing to determine if changing these variables has any effect on the experiment's outcome. Usually, but not always, researchers restrict changes to one variable at a time. Randomization is preferred as it is thought to reduce bias so that test subjects cannot knowingly influence the outcome of the experiment.

Determining the effects of various variables on a test subject represents the final goal of experimental research. This allows researchers to see if changing one thing about an experiment can change its outcome. In this way, researchers can eliminate the effect of outside factors on a subject and draw conclusions about the relationships between the many variables involved in an experiment. By using randomization, the research can eliminate as much bias as possible which might have an effect of an experiment's outcome. A major downside to this type of

experimentation is a large amount of time it takes and the higher costs associated with it, (Mitchel, 2015)

5.2.11.6 Case Study

Case study is a method of study useful for trying to test theoretical models by using them in real-world situations. It is basically, an in-depth study of a particular situation rather than a sweeping statistical survey. It is a method used to narrow down a very broad field of research into one easily researchable topic. Whilst it will not answer a question completely, it will give some indications and allow further elaboration and hypothesis creation on a subject, (Yazen, 2015).

The case study research design is also useful for testing whether scientific theories and models work in the real world. One may come out with a great computer model for describing how the ecosystem of a rock pool works but it is only by trying it out on a real-life pool that you can see if it is a realistic simulation, (Turner, 2010; Yazan, 2015). .

5.2.12 Justification for Research Strategy

Since survey research allows for a variety of methods to recruit participants, collect data, and utilize various methods of instrumentation, it is the appropriate strategy chosen for this research. Surveys are relatively inexpensive and are useful in describing the characteristics of a large population. Surveys can be administered in many modes, including online surveys, email surveys, social media surveys, paper surveys, mobile surveys, telephone surveys, and face-to-face interview surveys. The anonymity of surveys allows respondents to answer with more candid and valid answers, (Defranzo, 2012).

Grounded theory (GT) was developed in California, USA, by Glaser and Strauss during their study—'Awareness of Dying'. It is a research method concerned with the generation of theory, which is 'grounded' in data that has been systematically collected and analysed. It is used to uncover such things as social relationships and behaviours of groups, known as social processes, (McCallin, 2015; Noble and Michel, 2016).

This research utilised both Survey research and Grounded theory. Survey research in which responses to questionnaires were numerically rated (quantitative) and responses to open-ended

questions analysed (qualitative). Grounded theory was employed in this study to generate theory from data which was obtained through both deductive and inductive approaches.

5.2.14 Choices of Data collection methods:

It has been mentioned above that inductive approaches are generally associated with qualitative research, (interpretivism), whilst deductive approaches are more commonly associated with quantitative research (positivism). This presupposes the use of triangulation method and thus both qualitative and quantitative data collection methods are utilised in this study.

5.2.14.1 Qualitative research

Qualitative Research is primarily exploratory research. It is a research method that is used to gain an understanding of underlying reasons, opinions, and motivations of a phenomenon. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research, (Mcleod, 2017; Defranzo, 2011). Qualitative Research is also used to reveal trends in thought and opinions, and dive deeper into the problem. Qualitative data collection methods use various unstructured or semi-structured techniques. These techniques include focus groups (group discussions), individual interviews, and participation/observations. The sample size is typically small, and respondents are selected to fulfil a given quota (Defranzo, 2011; Bryman and Bell, 2011).

In Qualitative research, researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them, (Mcleod, 2017). Qualitative research **attempts** to provide answers to questions about why and how people behave in the way that they do. It provides in-depth information about human behaviour, (Aliaga and Gunderson, 2005).

5.2.14.2 Quantitative Research

Quantitative Research is used to express the problem through numbers which are used to generate numerical data or data that can be transformed into usable statistics. Attitudes, opinions, behaviours, and other defined variables are quantified – and results are then generalized from a larger sample population. Quantitative Research uses data that is measured to formulate facts and uncover patterns in research. Quantitative data collection methods are pre-determined categorically or are much more structured than Qualitative data collection

methods. Quantitative data collection methods also include various forms of surveys – online surveys, questionnaires, mobile surveys and kiosk surveys, face-to-face interviews, telephone interviews, longitudinal studies, website interceptors, online polls, and systematic observations. (Defranzo, 2011; Bryman and Bell, 2011).

Qualitative and quantitative methods are viewed as complementary rather than rival in that the qualitative research methodology focuses on stories, exploration, contextualizing, introspection and theory construction. While qualitative use small sample sizes for an in-depth study of single occurrences, quantitative research focuses on large groups, trends and patterns. Researchers can find trends and inconsistencies through quantitative research, then use qualitative methods to dig into those issues, find out why they occur and learn the thoughts of the individuals involved(Lobe, 2008; Creswell, 2008).

This leads to the preference for mixed methods, given the strengths and weaknesses inherent in every single method (Mwiya, 2014). Mixed methods presuppose the use of triangulation. Triangulation is about using more than one method to collect data on the same topic (Wisdom, et al., 2011). It is a technique that facilitates the validation of data through cross verification from two or more sources. (Altrichter et al., 2008), contends that triangulation gives a more detailed and balanced picture of the situation.

The most widely used type of triangulation is the Methodological triangulation. Researchers who use triangulation may include two or more sets of data collection using the same methodology, such as from qualitative data sources. Alternatively, researchers may use two different data collection methods using qualitative and quantitative which can allow the limitations from each method to be transcended by comparing findings from different perspectives (Wisdom et al, 2011).

Despite being regarded as a means to add richness and depth to a research inquiry, there are several criticisms of the use of triangulation in research. Triangulation presupposes that the data from two distinct research methods are comparable and may or may not be of equal weight in the research inquiry. Also, when two or more data sets have convergent findings, there must be caution in interpretation since it may simply mean that each of the data sets is flawed. Others question whether the term triangulation has any meaning when it is so broadly defined, *mixed methods* is preferred. Despite these criticisms, triangulation is generally considered to promote

a more comprehensive understanding of the phenomenon under study and to enhance the rigour of a research study.

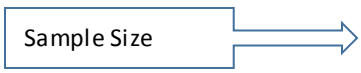
To implement the mixed methods, this study, shall use Methodological triangulation and seek to gather data using both qualitative and quantitative data simultaneously and then comparing the outcomes to determine if there is any difference. This comparison serves as a confirmation, disconfirmation, cross-validation, or corroboration (Creswell, 2014). The whole purpose is to offer inclusive analyses of the research problem by comparing combined information during the interpretation of the overall results.

In this study, qualitative research was required to offer an exhaustive understanding of the research issues from the under-researched African and then ultimately the Zimbabwean context (Creswell, 2014). Qualitative research, insights were facilitated through interviews sought from the knowledge and experiences of relevant stakeholder groups. The interviews were facilitated by a semi-structured questionnaire and by observation.

5.3 Summary of the Target Population; Sample Frame and Sample Size.

315

List of Units in the Population	**Number of Personnel**
• Financial Institutions	100
• Bank Managers/CEOs	10
• Regional IP Institutions (ARIPO)	5
• SMEs	50
• University Students	100
• Employees in Technological Firms	50
Total	**315**



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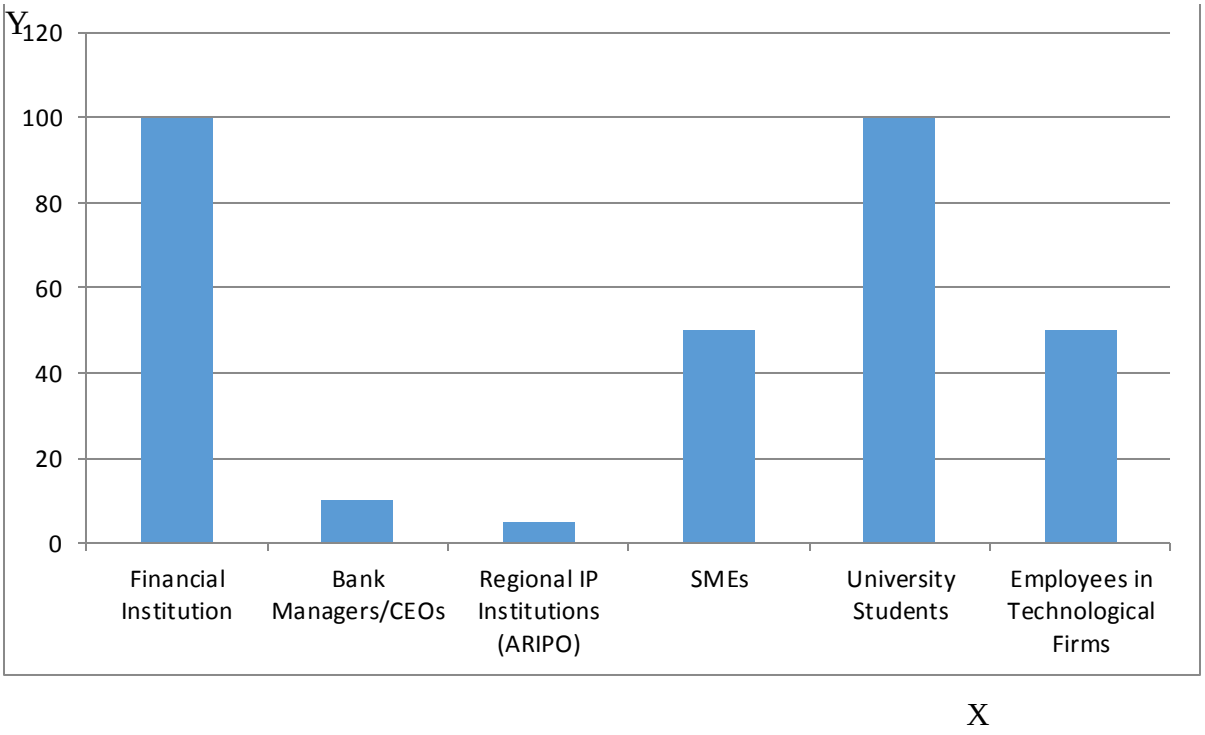

Figure 5.5: Framework of the Research Methodology

5.3.1 Population of the Study

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The target population is the entire population that the study was interested in recording and analysing. The target population (315) was derived from the sample frame which comprised of 6 units from which the number of personnel was drawn. It is the accessible personnel that the study drew its sample from. A total of 10 financial Institutions were targeted and were expected to provide 10 participants with each giving a total of 100 individual participants. The 10 Managers/CEOs were drawn from each bank. The University was expected to provide 100 participants mainly from the University of Zimbabwe and the Higher Institute of technology. Technological firms and SMEs were expected to provide 50 participants each.

5.3.2 Sample selection method

For quantitative methods, on one hand, 255 questionnaires were emailed to individuals as per the sample frame. These were individuals who were assumed to have characteristics and knowledge relevant to the study and would be generalised to a wider population within this context, participants were drawn from the top and middle management of various financial

institutions and manufacturing companies, universities and ARIPO. The sample size was determined by the number of actual responses received.

On the other hand and for qualitative method, sampling was base in terms of characteristics and relevance to a wider SMEs population. Firstly purposive sampling was employed. Individual participants chosen had characteristics relevant to the study and were believed to be most informative. Individuals involved mainly in engineering one-man-band type of business were thought and believed to bore characteristics relevant to the study in that they were more receptive inclined to innovation and creativity than those in a retail type of business. These were the people who are usually able to produce prototype products but would be unable to advance them mainly due to ignorance of how useful such creations could be in the future. Further convenience sampling was also utilised to reach those individuals who were either most accessible or willing to take part.

It has been argued that external validity is not suitable for qualitative research due to the small samples involved. It is apparent that in this study, a sample of 20 participants presents an external validity problem. This problem, should, however, be resolved by the quantitative study which had a large sample of 255. As a result, this study achieves internal validity through qualitative research and external validity through quantitative research, (McLeod, 2013; Pavlov, 2013).

5.4.3 Research Process

The researcher wrote to participants asking them to participate in the research after explaining to them the nature and scope of the study. The questionnaires were then emailed, directly to the individual participants. The study conducted interviews of participants mainly in the SMEs industry.

5.4.4 Data Analysis

Content analysis was used to analyse the data which was gathered from questionnaires. Content analysis is a research tool used to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyse the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer (s), the audience, and even the culture and time of which these are a part, (Devi, 2009)

and (Krippendorff and & Bock, 2008). One of the main advantages of content analysis is that it is unobtrusive and it does not require contact with people and yet one can learn much about any situation. However, human error is highly involved in content analysis, since there is a risk for researchers to misinterpret the data gathered, thereby generating false and unreliable conclusions (Krippendorff and Bock, 2008).

There are two general categories of content analysis: a conceptual analysis and relational analysis. Conceptual analysis can be thought of as establishing the existence and frequency of concepts– most often represented by words or phrases. In contrast, the relational analysis goes one step further by examining the relationships among concepts in a text. (Devi, 2009) and (Elo et al, 2014). Since the research is about answering the research questions by identifying concepts and establishing the relationships of such concepts to arrive at a logical conclusion, then both conceptual analysis and relational analysis shall be utilised in this study.

As for the quantitative process, IBM SPSS Statistics 21 program was used for data analysis. Also, SPSS Amos was used for structural equation modelling. The findings were discussed according to the sections of the questionnaire. The descriptive statistical analysis adopted was used to identify frequencies and percentages to answer all the questions in the questionnaire. Not all respondents answered all of the questions and thus percentages reported corresponded to the total number of respondents answering the individual questions.

A total of 255 questionnaires were sent to the targeted participants and 150 were completed and returned, giving a response rate of 75%. **90**% of the questions were close-ended and 10% were open-ended questions. 81% answered all the question and 19% did not attempt the open-ended questions. Although neither the reasons for refusal to participate nor the reaction of non-respondents was known, the low rate of 75% to the questionnaire may be a partial explanation of the lack of knowledge and or understanding of IP by the targeted respondents.

After the questionnaires were drafted, they were subjected to content validity to ensure that they addressed the objectives of the research. Questionnaires were emailed to 200 selected participant who formed the sample. This approach facilitated low-cost and fast data collection from the target population.

5.4.7 Ethical Considerations

Ethical issues considered in this study were to assure participants that their participation was voluntary and that they were free to withdraw at any point and for any reason. However, participants were assured that the information and any response would be kept confidential and that the research was designed for academic use only.

5.8 Research Design Matrix

In summary, the study, in developing a research design, has made use of the research design matrix developed by (Creswell (2014). This involves the use of a 5 column table to determine the sampling method, the data collection tool and the data analysis tool to be used, (table 5.1). The design matrix indicates that for each research question there is an objective. The objectives should mirror the statement of the problem. One should also be able to draw the statement of the problem from the research questions. The research objectives determine the type of population sampling required and what data collection tool should be used. This will, in turn, determine the method of data analysis tool that should be used to achieve the desired result.

The what and how questions are qualitative in nature and they require explorative and descriptive approach. This will enable the study to inquire into or discuss a subject in detail and to be able to describe a process.

TABLE 5.1: Research Design Mix **Source: (Creswell, 2014).**

Research Questions	**Research Objectives**	**Population Sampling Method**	**Data Collection Tool**	**Analysis**
1. What is the level of understanding of IP as an asset in Loan transactions?	To assess the level of understanding of IP as an asset among Stakeholders in loan Transactions	Non-Probability and probability	Questionnaire and interviews	Qualitative (Descriptive) and Quantitative

Research Questions	Research Objectives	Population Sampling Method	Data Collection Tool	Analysis
2. What are the factors influencing acceptance of the use of IP as Collateral in loan Transactions	To explore factors influencing acceptance or non-acceptance of use of IP as collateral in loan transactions	Non-probability and probability	Questionnaire and interviews	Qualitative (Explorative) and Quantitative
3. What is the conceptual framework that should be adopted for IP as collateral in loan transactions	To propose a conceptual framework for adoption of IP as collateral in loan transactions	Non-probability and probability	Questionnaire and interviews	Qualitative (Descriptive) and Quantitative
4. What tests should be Conducted on the Conceptual framework to adopt it as collateral in loan transactions	To test a conceptual model for adoption of IP as collateral in loan transactions	Non-probability and probability	Questionnaire and interviews	Qualitative (Explorative) and Quantitative
5. What are the advantages and disadvantages of using IP as collateral for loans	To assess knowledge of advantages/disadvantages of using IP as collateral in loan transactions	Non-probability and probability	Questionnaire and interviews	Qualitative (Descriptive) and Quantitative

Furthermore, in this study, to achieve the objectives, the questionnaire and interviews are used as the data collection tools. The objectives determine that both qualitative and quantitative data analysis methods, coupled with the explorative and descriptive processes are used to achieve the desired objectives.

5.9 Chapter Summary

This chapter has discussed the research onion as the guiding conceptual framework. It has also discussed the philosophical bases which are aligned to the research strategies and the data collection techniques and procedures adopted in this study.

The research uses a triangulation strategy to avoid bias through the use of one particular methodology. The strategy was intended for model testing and comprehensive understanding of the research problems from the Zimbabwean context. The qualitative research was utilised interviews and the quantitative research was based on a survey. It was assumed that the triangulation research strategy would determine whether there is merging or difference in the findings on the phenomenon. (Mwiya, 2014),

The chapter discusses the population sampling procedures, data collection methods and tools, ethical and research limitations. The chapter also highlights the demographic profiles including normality tests, construct validity and reliability tests for quantitative study. Lastly, the chapter discusses the research design matrix showing the relationship between the research questions, research objectives population sampling method, data collection and the analysis method. The next chapter (chapter 6) presents and discusses the data analysis and the research findings.

CHAPTER 6

QUALITATIVE RESEARCH FINDINGS

6.1 Introduction

This chapter discusses the Qualitative research findings which relate to the research interviews carried on participant individuals involved in SMEs. The interviews were carried out mainly in Harare. Only 20 individuals participated in the interviews as the majority were suspicious and could not trust the study with their information despite assurances that their responses would be kept confidential and that the information would be used for academic purposes only. Also the interviews, a structured interview questionnaire was sent to 10 local banks senior management and only 5 responded. In light of the research questions and the fact that knowledge economy underlined by IP was a most recent phenomenon, data analysis mainly utilised the inductive approach.

6.2 Demographic Profiles and Structured Interview Questions and Responses

Qualitative data were mainly obtained by way of;

i. Structured interview questionnaires containing substantial open comments and substantial responses were obtained. (Denoted as X in Table 6.2)
ii. Observations were recorded in notes form. (Denoted as Y in Table 6.2).

6.2.1 The demographic profiles of the interviewed participants.

Table 6.1: Age, Gender, Education Profile- Interview

No	Age	Gender	Education	Type of SME
1	25	Male	O level	Furniture Making
2	27	Male	Unknown	Furniture Making
3	35	Male	O level	General Engineering
4	37	Male	O level	General Engineering
5	38	Female	Unknown	Grocery vending
6	40	Male	Apprentice-Electrix	Refrigeration Repairs
7	32	Female	Unknown	Crocheting
8	45	Male	University Graduate	General Engineering

No	Age	Gender	Education	Type of SME
9	30	Female	O level	General vending
10	33	Female	Unknown	Crocheting
11	46	Male	Electrician	Electrical Repairs
12	47	Male	Motor Mechanic	Motor Mechanics
13	50	Male	Carpenter	Furniture Making
14	55	Male	Carpenter	Furniture Making
15	57	Male	Unknown	Granites
16	45	Male	University Graduate	General Engineering
17	30	Male	O level	Electrician
18	35	Male	O level	General Engineering
19	35	Male	O level	General Engineering
20	40	Male	O level	General Engineering

6.2.2 Data Presentation and Analysis

6.2.2.1 Data concerning interviews is presented in the following table

Table 6.2: Questions and Feedback

Data source	Stakeholder/ Respondents	Question	Qualitative data/ feedback
		What drove you to start this new job/business?	Have been employed in the formal sector & after retrenchment we could not find employment so we had to start on something to survive
X	ALL	Do you understand what IP is?	The majority did not understand what IP was
X	ALL	From my explanation do you now understand what IP is and whether you are aware that you are creating IP in your business?	I now understand what it is after your explanation. I am now aware that a lot of us are creating new things altogether.
X	ALL	Besides your skills, what else do you need for your business to prosper	We need finance and a good place to operate from and where we can sell our products

Data source	Stakeholder/ Respondents	Question	Qualitative data/ feedback
X	General Engineering	Do you think you can use your IP to raise money that you can use for your business to grow?	Yes we can raise money through selling our products but we do not have much market and only depend on passing through clients
X	General Engineering	Have you applied for a loan from a bank or other sources? And Why?	I have tried but most banks require collateral which I don't have. Some do not even have bank accounts as they leave from hand to mouth
X & Y	ALL	Do you think you require government support to raise funds and for other purposes? If so what sort of support?	Yes, we require government support. We expect the government to provide us with seed money, markets and a proper environment to operate from. We need training in running businesses.
X	ALL	What motivates you to be creative and innovative?	Necessity and need for achievement
X	General Engineering	How do you rate yourself as regards self-motivation	Self-pushing and need to achieve and self-actualisation
X	General Engineering	What specific products or innovations are you currently working on?	Yes, we have. However, some products are designed to attract customers and others specific to order.
X & Y	ALL	How do you see yourself now in comparison to when you were employed in the formal sector?	One would do so much to remain on the job. Self-employment encourages independence and self-push. Need to do so much to survive.
X & Y	ALL	How do you handle or solve day to day challenges you come across in your work?	One needs to exercise a balancing act on challenges bearing in mind that most issues cannot be ignored.
X & Y	ALL	Do you think you need the support of other people working close to you or those in your working environment?	As co-workers and as a community we encourage each other to work hard. More times one gets inspired by what others are achieving.

6.2.2.2 Data concerning Senior Bank Managers

The study was not able to secure appointments for personal interviews with the senior bank managers and as a result, a standard structured questionnaire was sent out. It was assumed that this category had a fair knowledge of IP and also that they were not expected to find time for a long questionnaire. **They were therefore asked to share their thoughts on the use of IP as collateral for loans and why it was difficult to have such facilities in Zimbabwe's banks, given that many in business, particularly those in the SMEs lack collateral to secure loans as required by banks. A letter accompanying t**he questionnaire is included as Appendix C.

Table 6.3 Question and Feedback (Senior Bank Managers)

SENIOR MANAGER	BANK	QUALITATIVEDATA/ RESPONSE
CEO	BancABC	While there is in place IP strategy & policy in Zimbabwe, There is no legislation in place allowing IP to be used as collateral. There is also no demonstrable commitment by government and other IP stakeholders in promoting IP knowledge and its uses. Above all IP valuation and preservation of value are problematic. Further, the level of economic development is not conducive for IP to be used as collateral
Retail Banking MD	BancABC	IP is not widely known in Zimbabwe.
Senior Retail Manager	Eco bank	It will take a while before IP can be used in Zimbabwe as collateral. The challenge that we presently have is that the registration and the protection of the IP are not yet well enforced in Zimbabwe. There is also a lack of awareness of the registration process.
Senior Group Internal Audit	FB	IP is not known in Zimbabwe. There are also problems with IP valuation. Valuation of IP requires expertise and I doubt if we have such in Zimbabwe. In my opinion, intangibles that could have value are those that are valued internationally franchises for brands such as VW, Benz, Land Rover, Coca Cola etc. Some assets like mineral rights are tricky especially on transferability. Computer software can be obsolete before going onto the market
Senior Branch Manager	Stanbic	Awareness of IP is very low in Zimbabwe. There is also no experience in the valuation of IP.

6.3 Research findings and Discussion

Over and above the responses shown in the table there were other specific responses or comments made by individuals which the study thought worth mentioning which are associated with certain factors and or/traits. These together with observations by the study are discussed in this section.

6.3.1 General Observations

Interviews revealed that many people in the SMEs were churning out new product designs but either they or the relevant market were aware of the value of such designs. To most of these participants, once they felt that something could earn them some money, they would just make it and offer it for a quick sale. This was done not knowing that some products could be improved for them to become more valuable. However, some would start improving on certain products when customers placed orders. The study observed that some products were creative works which would qualify as IP. If participants would be aware that they were creating IP, they would seek to register them as patents which can be used as collateral for loans.

Majority of the participants complained of lack of funding to grow their businesses stating that they lacked collateral which was required by money lenders for them to secure loans. As a result, they desired government intervention believing that the government could help them not only to access funding but also find markets for their products. The researcher was however of the view that even the government would need to be convinced that some valuable creative works were being produced or at least they would be produced. Further, the government would insist on training participants on how to run a business including financial management. Even if the government were to create a fund through which SMEs could access funding, loan repayments would still be required. Notwithstanding all the above, the bottom line would be that all the stakeholders, including the government, money lenders and SMEs should have knowledge of and embrace IP for creativity and use as collateral for loans. Many people in the informal sector were creating IP but were not aware that they were and are doing so. This study, therefore, sought to appraise the stakeholders in the loan transaction of the importance of IP and its commercial value.

When asked how they start an innovation, the most vocal Respondent No 4 aged 37 said *"I once worked in an electrical engineering company. And sometimes I just start thinking of some*

of the items we were making those days. I then start by making a similar thing and once it's done I start imagining what sort of improvements can make on the item. Ideas then start flowing as I gather some scrap metal here and there and through testing and adjustments something useful comes out.

Respondent No 3, responding to the question, whether he understood what an IP is; said that *when he was attending college at HIT, he developed a fuel tanker trailing system but left school before the system was tested and implemented. He has been working on a similar system on his own from his roadside base not knowing that his idea he created while at college had been worked and improved on. This is now the system that has been adopted by the government in its bid to control and monitor fuel movement in the country.* After the interviews, he realised that he had created a useful idea that could generate income. So he said *is this what we call IP?*

Some participants complained about markets where they could sell their products. The majority said *that they create so many art facts but they do not know their values because they do not have access to markets where various art facts are sold. All they know is when by chance tourist pass by their roadside venues show a lot of interest in their artefacts and many a time sale them at give-away prices. They wished the government would intervene by creating markets for their wares.* Others were keen to create linkages with corporate entities and established businesses to widen their market share.

The majority of the participants talked about financial assistance to grow their businesses and to enable them to be more competitive. Respondent No 16, said "We *are still small businesses but for us to grow, we need more financial assistance to improve our operations so that our products can attract foreign markets. We intend to improve the designs and quality, but that requires more finances which we do not have*"

The general sentiments by the banks' senior managers indicated that while an IP strategy and policy was recently launched in Zimbabwe, there were still teething challenges in that:

i. IP was not widely known in Zimbabwe.
ii. There was no legislation in place allowing the use of IP in financial transactions.
iii. No demonstrable commitment by the government in promoting IP knowledge.
iv. No valuation experts for IP in Zimbabwe.
v. The low level of economic development in Zimbabwe was not conducive for the use of IP in financial transactions.

vi. Registration and protection of IP were not widely enforced.

vii. There was no demonstrable market for IP in Zimbabwe.

These sentiments indicate that government is the key factor in the promotion of knowledge and use of IP in commercial transactions and as such should demonstrate serious commitment towards this goal. Interviews also indicated that all the 20 participants wished the government could help with the infrastructure in which they operated. This Institutional intervention was required to influence the creative and innovative aptitudes in individuals. Interviews indicated that individual factors were influencing individual creativity and innovation.

6.3.2 Individual factors

The research revealed that personality traits influence the generation of ideas more strongly while the context in which they were developed had a greater influence on the application. The 20 participants interviewed revealed some vital individual and background factors associated with creativity and innovation. These factors were explained under chapter 5, include prior knowledge, necessity, the need for achievement, internal locus of control and ability to manage polarities.

6.3.2.1 Knowledge of IP

Prior knowledge was vital for creativity and innovation. The desire for knowledge is a personal attribute, (Simonton, 2012). Initially, interviews indicated that most if not all participants did not understand what IP was. However, as the interviews progressed the majority started appreciating what IP was as they were discovering that they were, in reality, creating a lot of IP in their work and innovations. As a result, they began to show a positive attitude towards IP. Respondent No 8 said that "*really, so we are creating new ideas or improving on old ideas and these can be converted into some funding which can help us to grow our businesses. All we know is designing this and just make a sale.*

6.3.2.2 Necessity

The proverb that necessity is the mother of invention, came to the fore during the interviews. When the need for something becomes essential, one is forced to find ways of getting or achieving it, (Rogers et al, 2012). It was the primary driving force for most new inventions. Difficult situations inspired ingenious solutions. Interviews indicated that most participants

were driven by the necessity to survive and began creative works. The challenges of lack of job opportunities in the formal sector coupled with sanctions imposed on Zimbabwe as a result of the land reform program led many, including reasonably educated people, to start small businesses from nothing. Respondent No 16 remarked that necessity is the mother of invention and that *he believes that God has created everything that human beings desire and that it is now up to the human beings to discover what God has created for them*.

Necessity was, therefore, a factor influencing creativity and innovation leading to the use of such innovations (IP) as collateral for loans. Creativity in this sector is driven by necessity or desire to make a living.

6.3.2.3 Need for achievement

Interviews indicated that in addition to necessity, individual participants were motivated by the need to achieve. Individuals with a higher need for achievement were more likely to be more creative and innovative than those without. Respondent No 11 remarked, "*I have been working for an electrical company for 10 years, and have been doing the same odd job under an inflexible management style. Although the company was seemingly going under, I did not like the monotony and I quit*". *Thereafter I felt the drive to achieve on my own and started my own business. Today I feel the need for achievement to be the main diver for whatever I should be doing*. The same individual is designing and making some electrical gadgets that he now intends to patent as IP.

6.3.2.4 Locus of control's Influence on Innovation

The interviews also indicated that people who believed that through their efforts they can achieve their goals. Such people were said to have an internal locus of control. Internal locus of control influences the amount of energy one puts into something. Respondent No 3 *said, "I know it's up to me, I have to learn how to become successful, I am responsible for my life."*

From the foregoing, it was apparent that individuals with a high internal locus of control had a high need to achieve and were more likely to be creative. This was so since creativity required a high degree of belief in one's abilities, skills and efforts to influence outcomes. Such individuals were also more likely to find creativity attractive since it provided a link between effort and the desired outcome.

6.3.2.5 Polarities

When asked about how they solved pressing challenges in their day to day work, a majority of them indicated that there was a need to balance the acts in such a way that some things were not done at the expense of other things. The balancing act relates to polarity management.

Respondent No 11 stated that, "We *are still small businesses but for us to grow, we need more financial assistance to improve our operations so that our products can attract foreign markets. However, the lack of finances should not make us lose focus.*". For this polarity to be managed one has to focus first on creativity and innovation and then raise funds through selling of the new design, or innovation.

Figure 6.1 summarises the influence on Individual Factors on innovation and the intention to monetise IP. The individual moulded by an internal locus of control desires to achieve and out of necessity becomes innovative and creates IP which could be monetised.

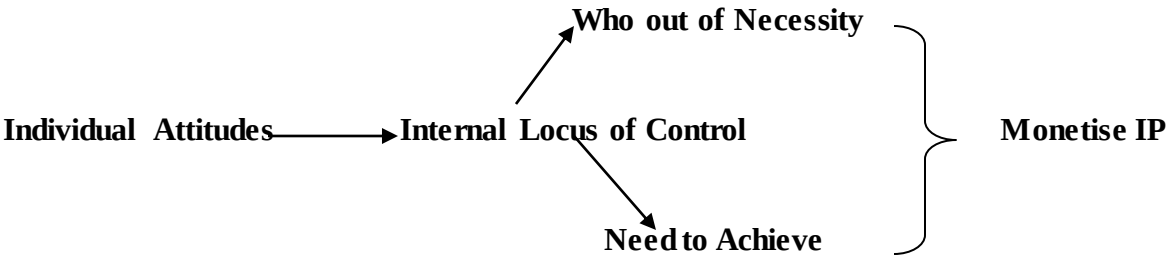

Figure 6.1: How Individual Factors influence IP Monetisation.

6.3.3 Institutional factors

Most participants indicated that they require government support to raise finance, to create markets and for the provision of space on which to carry out their business and necessary infrastructure. This creates an Institutional Factor that relates to structures in society. As explained in chapter 5, these include rules, norms and routines that guide behaviour. These processes can exist within an organization or community. Rules and laws influence how things should be done, (Dragos, 2013). School rules may influence how students react to situations, Nursekillam, (2013). In the context of this study, Institutional factors refer to laws, regulations, administrative and support tools from government and other organisations that facilitate the

growth of the business, particularly SMEs. According to (Kloviene, 2012), Institutional theory identifies internal and external environmental factors according to which the behaviour of an organisation could be disclosed and researched. Consequently, this study takes the view that normative and cognitive factors form the internal environment and government factor forms the external environment.

6.3.3.1 Effect of Normative Factors on Creativity and Innovation

Normative factors refer to social admiration of entrepreneurship, creativity and innovation. Normative components introduce "a prescriptive, evaluative, and mandatory aspect into social life" and help us understand how values and normative framework structures work. To be successful, practices should be consistent with and take into account the different assumptions and value systems of the national cultures, (Kashetri, 2010) and (Elango and Jones, 2011).
Interviews indicated that all participants would prefer some form of normative set up since such an environment encouraged some form of uniformity and a sense of belonging. It also increased the probability of support, both moral and material from other players in the community. In response to a question,
"What motivates you most?" Respondent aged No 8 said that "it is the community environment he operates from that motivates him most. It is how other fellow business community members conduct themselves that inspires me".

Some participants indicated that for them to start doing their projects they had seen some initiatives from others whom they had admired. Interviews indicate that some individuals were usually more than willing to help those following in their footsteps. All participants indicated that a majority of community members were always willing to help others in any way possible.

6.3.3.2 Cognitive Factors

Cognitive factors are associated with locus of control. According to cognitive factors, each individual's behaviour is a result of his or her assumptions, premises and expectations. As discussed in chapter 5 cognitive traits involve functions like attention, memory, and reasoning (Danili and Reid, 2006). Interviews indicated that although most participants enjoyed the working culture of the business community, their initiatives and reasoning remained paramount. Respondent No 3 *said, "I know it's up to me, I have to learn how to become successful, I have to focus if I want to be successful".*

Respondent No 11 when asked about the nature of the business community culture, responded that; "*while the working ethics of individuals in the community influence others, the influence rarely works if one was not being driven by his efforts and needs".*

Asked about what the government was doing to help the SMEs, the response from all participants was that the government was not doing anything to help them.

Asked whether they required government intervention and for what purpose; the response was overwhelmingly positive and that they required funding, proper infrastructure and marketing for their products. This indicates that government support would motivate them.

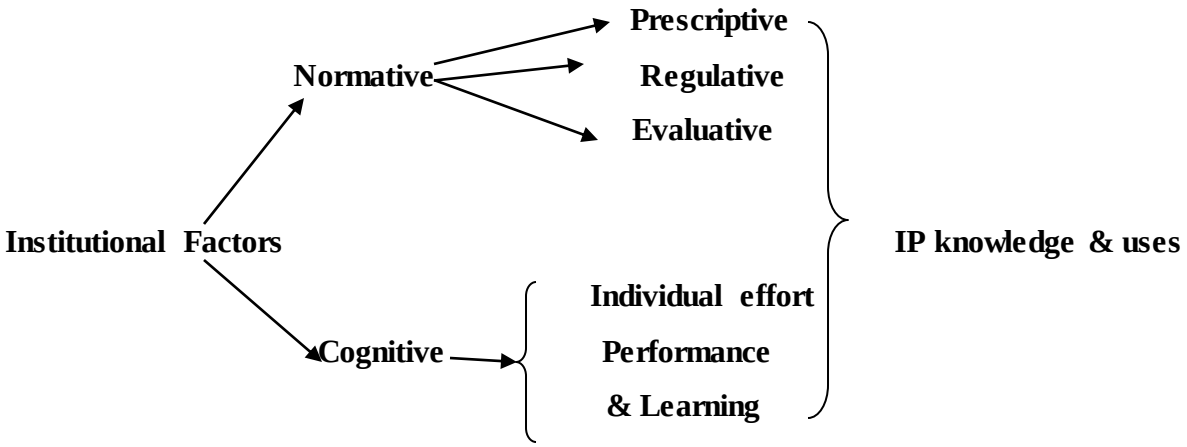

Figure 6.2 the influence of Institutional factors on innovation and monetisation of IP

6.4 Implications of Findings to the Conceptual Model

In this study, it became apparent from the interviews that individual small businesses SMEs desired to be organised in that they needed both internal and external intervention to augment their attributes. Sentiments by bank managers corroborated this view in that Government intervention and commitment was required in every national endeavour for an inclusive commitment by the society as a whole. Government intervention includes providing incentives, funding, and accessing markets, skills training and the provision of the infrastructure. Government does this through regulations, rules and laws that regulate the working environment (Fjose, 2010).

Government intervention implies institutional influence. Institutional influence, in turn, fuels individual attitudes towards development, creativity and innovation. Prior research on IP lacked a model that examined the impact of these factors on IP issues including their use in commercial

transactions. This study endeavoured to inteprivistically investigate the impact of these factors on IP issues.

The empirical evidence above indicated that the key factor as aided by the institutional environment in understanding what IP is was the individual who out of necessity and the need to achieve became creative. It was the individual attitude which out of need and the desire to make a living drives creativity and innovation. The individual attitudes were also moulded by the individual internal locus of control. The internal locus of control was largely considered as inborn and thus is within the individual (Schipor, and Schipor, 2014) and (Coetsee, 1999).

The Institutional factors could be viewed from two categories, the community category and government category. From the community point of view, it was the business community attitudes in which the participants belonged which influence the desire for individuals to be creative. How others in the business community were doing things should push or encourage others to follow suit. It was also from the community that individuals were exposed to what happens in the real world and thus learn to survive through their creativity. In the same vein, they experienced how to handle problems through polarities. On the other hand, the government category came in by way of creating a conducive environment for creativity and innovation. The government does this through the provision of infrastructure, skills training, seed money, markets and regulatory. Such interventions by the government were crucial in enhancing desire for creativeness, the awareness and/or knowledge of IP, and how IP is used to create funding (Owoeye, 2017) and (Karampekios et al., 2018).

Overall the research reveals that SMEs needed support and funding for their businesses to grow. The majority did not have the means with which to raise funds because they lacked the requisite collateral required by banks. This is where the subject of IP comes in. People should have knowledge of IP and its uses, particularly that IP could be monetised and provide the required funding to grow their businesses. The government should facilitate in every respect to enable individuals to grow their business through innovation and creative works leading to successful cases of intellectual backed loans. This would encourage, various financial institutions to build sustainable platforms so that they could help creative individuals unlock the hidden ideas and convert them into cash.

A good example of this development was the initiative of the Intellectual Property Office of Singapore (IPOS) which led local banks to participate in the building of IP portfolios so that

such may be used as collateral. Participating banks including the Development Bank of Singapore, need to help SMEs to unlock their hidden wealth in their IP and convert it into money.

6.4 Summary effect of individual and institutional factors on the intention to use IP as collateral

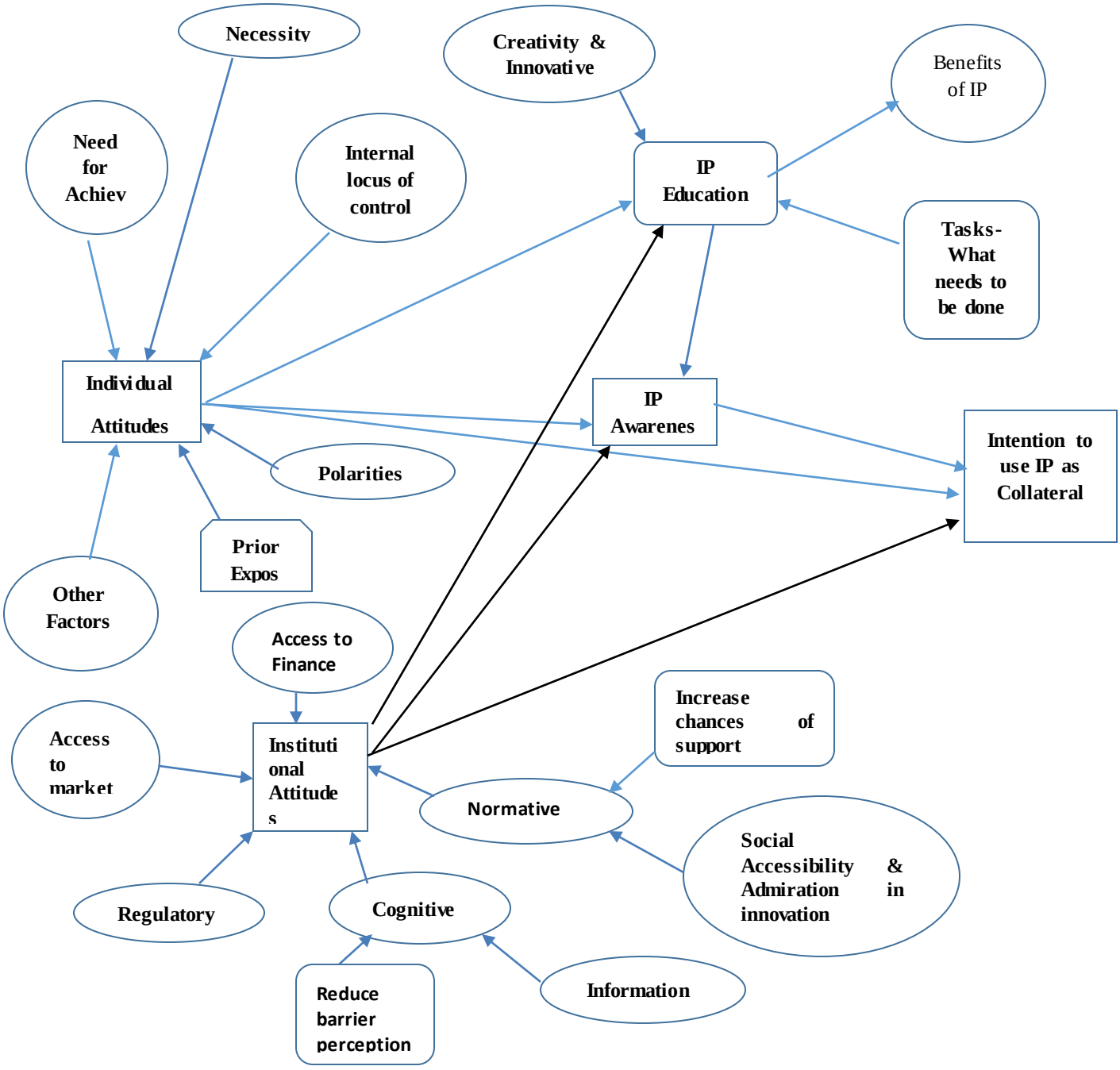

Figure 6.3: Mediation between Relationship of Intention to Use IP
Source: Developed from this research

This summary shows the influence on the intention to use IP as collateral by Individual factors with its constituent elements on one hand and Institutional factors and its constituent elements on the other hand.

6.5. Chapter Summary

This chapter has discussed the qualitative research results based on 20 interviews with participants drawn from small one-man-band business in Harare. Also discussed were sentiments by senior banks managers. The outcomes have been discussed in the background of the extant literature on challenges militating against the use of IP as collateral for loans. The conclusions are twofold:

Firstly, the majority of individuals had no appreciation of IP. Secondly, after further interviews and discussions, many participants started appreciating what IP was and its uses. They started realising that they were the creators of IP and that some of them were, in reality, creating IP. Having found out that they could use their IP for funding, they then called for government intervention. Government being an institutional factor would formally recognise their efforts as individuals and would help in identifying markets and establish rules and regulations for the protection, and registration of their products. This lead to the conclusion that Specific elements of the individual and institutional factors were key towards creativity and innovation.

Concerning individual factors, major individual traits such as thirst for knowledge of IP and its uses, need for achievement, locus of control and prior creativity and IP exposure, necessity and polarities would influence creativity and innovation. The government as an institution would play a supportive role and create a conducive environment. The major institutional factors would include the normative, cognitive and regulatory institutions. However, evidence suggests that individual traits and lack of employment opportunities in the formal sector are the major drivers than the institutional factors which may lead an individual to be innovative and creative. This means that although a lack of job opportunities in the formal sector may trigger necessity, other factors influenced an individual to be creative and innovative. The results would be the creation of new ideas which could be monetised.

CHAPTER 7

QUANTITATIVE RESEARCH FINDINGS

7.1 Introduction

The preceding chapter discussed the qualitative research findings. These were based on interviews carried on participants involved in small business. The findings were based on the influences of individual and institutional factors on the intentions of using IP as collateral for loans. This chapter discusses the quantitative research findings.

The objectives of the study were:

i. To assess the level of knowledge of IP as an asset among stakeholders in loan transactions in Zimbabwe.
ii. To explore factors influencing acceptance and non-acceptance of use of IP as collateral in loan transactions in Zimbabwe.
iii. To propose a conceptual framework for adoption of IP as collateral in loan transactions in Zimbabwe and.
iv. To test a conceptual model for adoption of IP as collateral in loan transactions in Zimbabwe.

Methods of data analysis and presentation of data were discussed under paragraph 8**.2.** Paragraph 8**.3**, discusses descriptive statistics aimed to satisfy the first three objectives above. The statistics aimed to achieve the last two objectives were discussed under 8**.4.** The questionnaires were emailed to participants for them to respond to the questions posed. They were assured that their responses would be kept confidential and that the information would be used for academic purposes only.

The questionnaire comprised of five sections from which the data analysis and the findings were based.

i. Section A, comprised of demographic data such as gender, age and level of education.
ii. Section B, comprised of an assessment of the knowledge of IP, its creation process, its contribution to the value of an enterprise, and how it is ranked with tangible assets of an enterprise.

iii. Section C comprised an assessment of the use of IP as collateral for loan transactions.
iv. Section D, comprised of an assessment of what factors influence the use or non-use of IP as collateral in loan transactions.
v. Section E comprised of an assessment of the knowledge or understanding of Securitisation.

7.2 Presentation and Analysis of Data

7.2.1. SECTION A: Demographic Profile:

Although demographic was not part of the purpose of this research, the data was, however, intended to describe demographic variables of the sample and to assess for any influence on the research findings, (Govender, 2006). The demographic data consisted of gender, age and level of education. This section consisted of close-ended questions and which were all answered by all the participants (150 responses or 100%).

Table 7.1. Demographic Profile

Item	**Frequency**	**Percentage**
Gender		
Male	88	58.7%
Female	62	41.3%
Total	150	100.0%
Age (Years)		
<20 years	16	10.7%
20 -<30 years	22	14.7%
30 to <40 years	46	30.7%
41 to <50 years	41	27.3%
50 to <60 years	21	14.0%
60+ years	4	2.7%
Total	**150**	**100.0%**
Level of education		
Less than O level	11	7.3%
O-level	14	9.3%

A-level	13	8.7%
Certificate	19	12.7%
Diploma	14	9.3%
Undergraduate	34	22.7%
Postgraduate	45	30.0%
Total	**150**	**100.0%**

Table 7.1, reports the demographic distribution of the respondents according to gender, age and highest educational qualifications attained. More males (58.7%) than female (41.3%) took part in the study. With regards to age, most respondents were youth and young adults. As indicated in Table 5.1 c, the majority of the respondents, 56.1% were under the age of 40 years. A significant number, 27.3% were between the age of 40 50 years. Only a few participants were above 60 years of age (2.7%). In terms of the level of education, the respondents had a sound educational background. Most respondents had a postgraduate qualification (30.0%) and a significant number (22.7%) had an undergraduate education.

Age, gender and education had a bearing on the research in that they, to a large extent, indicated experience and knowledge of intellectual property. Undergraduate and postgraduate participants were in employment and actively involved in organisations that to a large extent utilised or had an opportunity to create IP.

A chi-square test was used to further investigate whether there were any gender differences in terms of awareness, while One Way ANOVA examined the existence of such associations with regards the age of the participants and their highest educational level. Tables 7.2 and 7.3 illustrate the findings.

Table 7.2 Association between Gender of Participants and IP knowledge

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.901[a]	4	.042
Likelihood Ratio	9.973	4	.041
Linear-by-Linear Association	1.376	1	.241
N of Valid Cases	150		

Table 7.2 indicates that there is an association between gender and knowledge of IP ($X^2(4) = 9.901$, $P<0.05$). In 26.1% of the responses, the male knew to a greater extent than the female (19.4%). Also, more male (23.9%) knew what IP is to a moderate extent than the female (14.5%) (Appendix K).

Table 7.3 Association between Age and Educational Level, with Knowledge of IP

Item	Sum of Squares	df	F	Sig
Age	287.473	149	2.999	.013
Educational qualification	287.473	149	2.077	.059

Table 7.3 illustrates that knowledge of IP depends on the age of the participant $F(149) = 289.473$, $p<0.05$. Post Hoc analysis using Multiple Comparisons (LSD) revealed that those participants aged less than 20 years have less knowledge about IP than any other age category ($p<0.05$)and mean difference (I-J) is negative for each comparison.

Knowledge of IP was found to be independent of the educational level of the participant, $F(149) = 2.077$, $p>0.05$. Since $p=0.059$ is greater than 0.05 then the relationship is insignificant suggesting that all respondents knew what IP is irrespective of the level of education.

7.2.2 SECTION B: Understanding of Intellectual Property

7.2.2.1 B1. Knowledge of Intellectual Property

Participants were asked whether they had any knowledge of Intellectual Property. Table 7.4 show the results of IP knowledge

Table 7.4; Understanding of Intellectual Property.

Item					
IP property description	No knowledge at all	Know, to a less extent	Know, to a moderate extent	Know, to a great extent	Fully know
Knowledge of IP	**20(13.3%)**	**16(10.7%)**	**30(20.0%)**	**35(23.3%)**	**49(32.7%)**
Knowledge of patents	**22(14.7%)**	**22(14.7%)**	**27(18.0%)**	**33(22.0%)**	**46(30.7%)**
Knowledge of copyright	**22(14.7%)**	**30(20.0%)**	**28(18.7%)**	**36(24.0%)**	**34(22.7%)**
Knowledge of Trademark	**24(16.0%)**	**26(17.3%)**	**28(18.7%)**	**35(23.3%)**	**37(24.7%)**

The results in Table 7.4 are shown graphically below

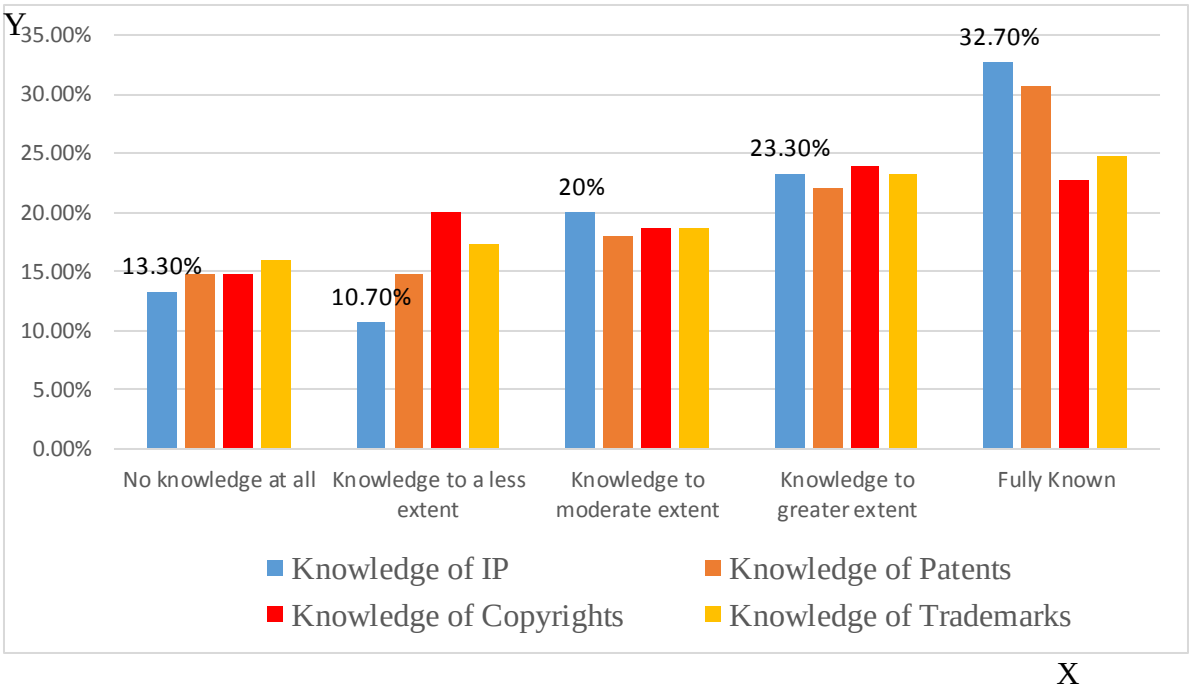

Figure7.1, Understanding of Intellectual Property.

The research was looking at the general knowledge of IP without any distinct characteristics from the sample population. This was important as it showed the baseline knowledge of IP

from the population that could later be further analyzed to see the areas that need more attention or adjustments in developing knowledge of IP.

Table 7.4 and Figure 7.1 shows the extent to which the participants first had any knowledge of intellectual property. Secondly to what extent the participants understood the three elements of IP namely patents, copyrights and trademarks. Generally, the group was allowed to rate their current knowledge of IP from a range of 1 (where the individual had no knowledge of IP) to a level of 5 (where the individual had full knowledge of IP). This statistic was used to evaluate the basic data where it looked at the different percentiles of each knowledge level and what it represented from the population. The results in table 7.5 were supported by figure7.1 and summarised that 57% of the population had significant knowledge of IP and 43% had a moderate to no knowledge of IP. The results indicated that generally, the population had adequate knowledge of IP with a minority population needing an update.

The results dovetailed with the level of education in table7.1 where 53% were undergraduate and postgraduate participants and were employed in organisations that had or were capable of creating IP. These were the levels that were more likely to have a great and or full knowledge of IP. Further that 53%, 47% and 48% of the population had significant knowledge of patents, copyrights and trademarks respectively (average of 49%), while 47%, 53.4% and 52% respectively had a moderate to no knowledge of patents, copyrights and trademarks (average of 51%). It was summarized that in general, the population had knowledge of all the three elements of IP with a slight majority of the population requiring an update. An R square goodness – of fit test indicated that there was no significant difference between the sample 49% and a population of 51% proportions.

7.2.2.3 B 3. Awareness of the process of creation of Intellectual Property.

Participants were asked whether they were aware of the process of creation of IP

Table7.5 Awareness of Process of creation of IP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all aware	25	16.7	16.7	16.7
	Aware, to a less extent	30	20.0	20.0	36.7
	Aware, to a moderate extent	39	26.0	26.0	62.7
	Aware, to a great extent	32	21.3	21.3	84.0
	Fully aware	24	16.0	16.0	100.0
	Total	150	100.0	100.0	

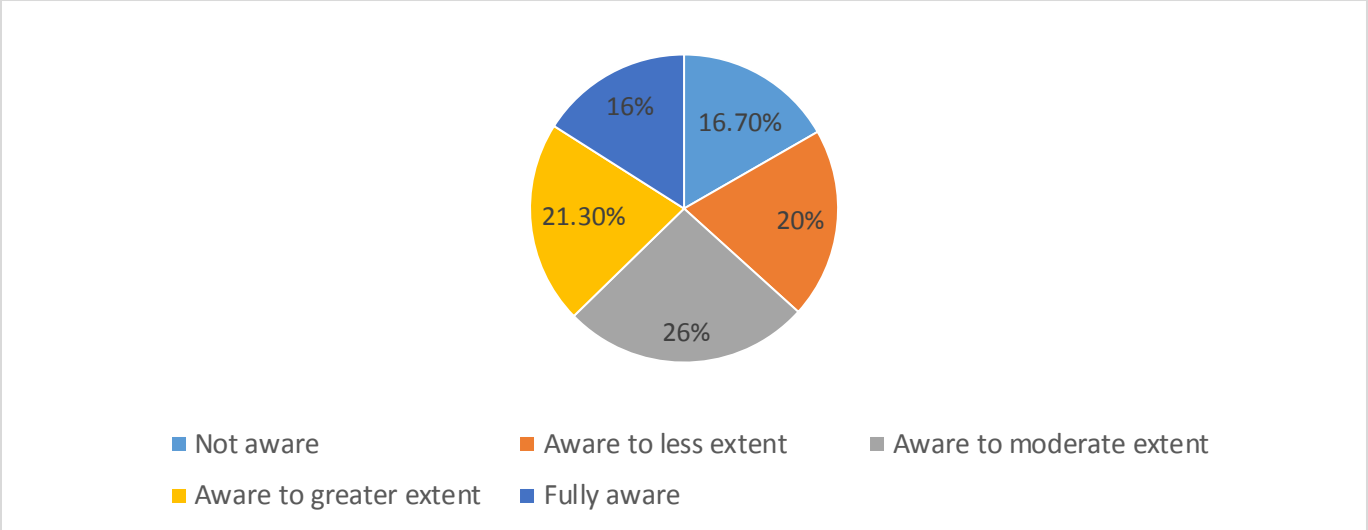

Figure7.2 Awareness of Process of creation of IP

Table 7.5 as supported by Figure 7.2 indicated that 37.3%, (aware to great and full extent) of the population had significant knowledge of how IP was created, and 63% had a moderate to no awareness as to how IP was created.

7.2.2.7 B 5. Association of IP elements with Industry

Participants were asked as to what extent the IP elements; (Patents; Copyrights and Trademarks) were associated with their Industry

Table 7.6 Association of IP elements with Industry

Item	The extent of association with our industry				
IP elements associated with industry description	Not at all linked	Linked, to a less extent	K Linked, to a moderate extent	Linked, to a greater extent	Fully linked
Linkage of industry with Patents	**37 (24.7%)**	**32 (21.3%)**	**35 (23.3%)**	**31 (20.7%)**	**15 (10.0%)**
Linkage of industry with Copyrights	**33 (22.0%)**	**23 (15.3%)**	**27 (18.0%)**	**35 (23.3%)**	**32 (21.3%)**
Linkage of industry with TM	**20 (13.3%)**	**25 (16.7%)**	**42 (28.0%)**	**25 (16.7%)**	**38 (25.3%)**

The results shown in Table 7.10, as complemented by the results in figure 7.7 indicated the extent to which the three-element of IP, namely patents, copyright and trademarks were associated with participants' organisations. The results indicated that 31%, of the individuals' organizations, were greatly and fully (20.7% + 10%) associated with patents while 69% were from a less extent to not at all associated with patents and that 44% (23.3% + 21.3%) of the individual's enterprises were greatly associated with copyrights while 55% were from a less extent to not at all associated with copyrights. Further, that 42% (25.3% + 16.7%) of the individual's enterprises were greatly associated with trademarks and 58% were from to a less extent to not at all associated with trademarks.

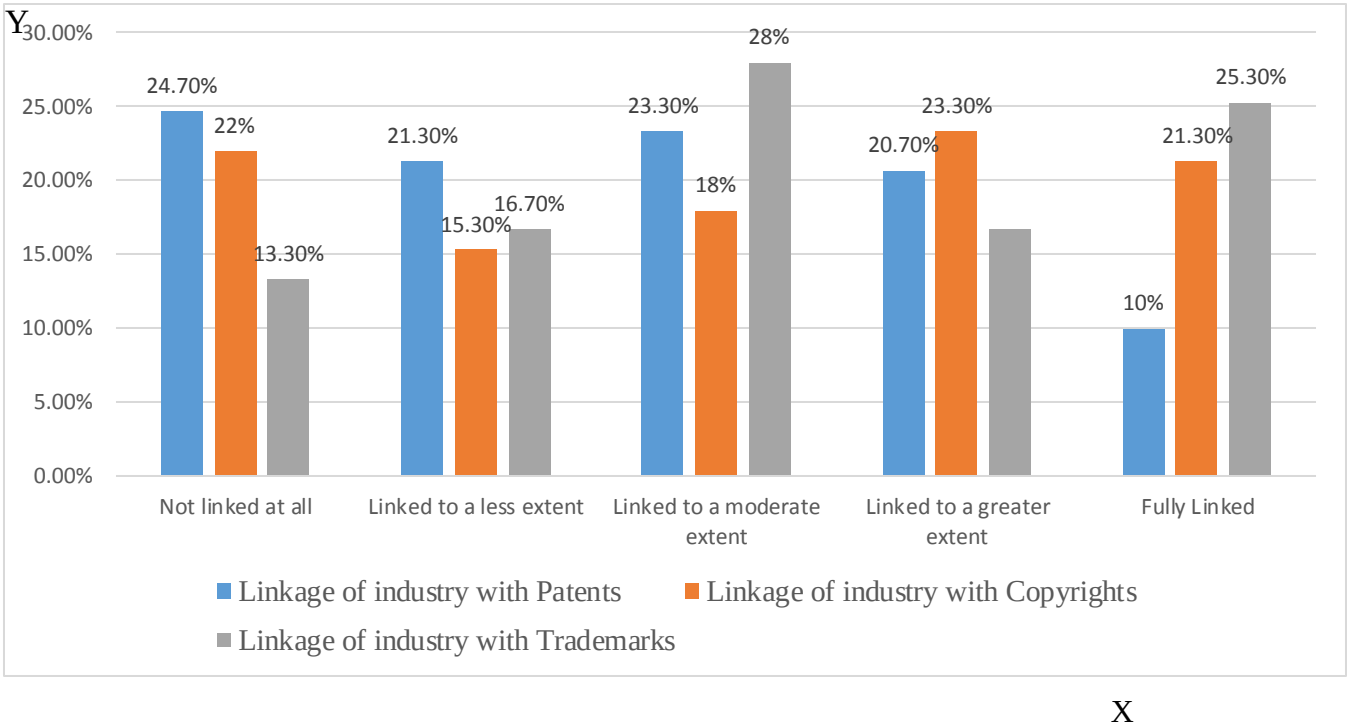

Figure 7.3 Linkage of Industry with IP elements

It was concluded that an average of 39% of the population had their organizations strongly associated with all the three elements of IP and an average of 61% had their enterprises from to a less extent to not at all associated with the tree elements of IP.

7.2.2.8 B6. Ranking of IP with Tangible Assets:

Participants were asked whether they think that Intellectual Property could be ranked at par with tangible business assets such as Warehouses, Plant & Equipment and Motor Vehicles.

Table 7.7 Ranking of IP with TA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	25	16.7	16.7	16.7
	To a less extent	27	18.0	18.0	34.7
	To a moderate extent	36	24.0	24.0	58.7
	To a great extent	34	22.7	22.7	81.3
	Fully extent	28	18.7	18.7	100.0
	Total	150	100.0	100.0	

Table 7.7 indicated that 19% and 23% of the participants believed that IP could be fully and to a great extent ranked with tangible assets while 42% of the participants thought that IP could be ranked with IP to a less and moderate extent while 17% thought that IP should not be ranked at par with tangible assets at all. It was concluded that 44% of the participants believed that IP should be ranked at par with tangible assets.

Participants, in the 42% category, however, pointed out that a lot depended on what drove the enterprise most. If an enterprise was both IP and tangible asset driven, then the two should be ranked at par. Those in the information technology point out that IP was the greatest asset in their organisations and that innovation came with a greater value of IP. Others pointed out that protection mechanism and systems were not yet developed in Zimbabwe for IP to be compared to tangible assets.

7.2.3. SECTION C: Awareness of use of IP as collateral:

7.2.3.1 Participants were asked whether they were aware that IP could be used as collateral for loans

Table 7.8 Awareness of use of IP as collateral:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all aware	39	26.0	26.0	26.0
	Aware, to a less extent	25	16.7	16.7	42.7
	Aware, to a moderate extent	28	18.7	18.7	61.3
	Aware, to a great extent	32	21.3	21.3	82.7
	Fully aware	26	17.3	17.3	100.0
	Total	150	100.0	100.0	

The results in Table 7.8 were complemented by the results shown in figure 7.4. The results indicated that 17.3% of the participants were fully aware of the use of IP as collateral and 21.3% were aware to a great extent while 16.7% were aware to a less extent and 26% were not aware at all of the use of IP as collateral.

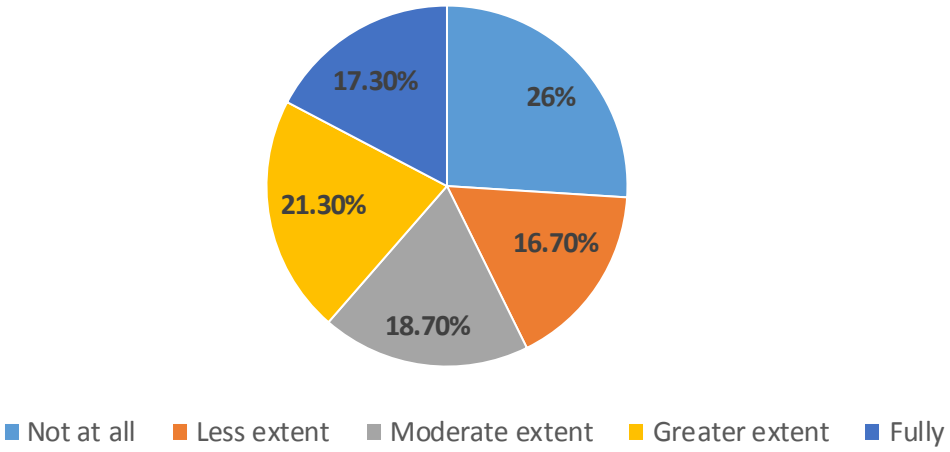

Figure7.4 Awareness of the use of IP as collateral

7.2.3.2 : Awareness that IP was being used as collateral in other countries

Participants were asked whether they were aware that IP was being used as collateral for loans in other countries

Table 7.9 Awareness that IP was being used as collateral in other countries

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all aware	39	26.0	26.0	26.0
	Aware, to a less extent	25	16.7	16.7	42.7
	Aware, to a moderate extent	28	18.7	18.7	61.3
	Aware, to a great extent	32	21.3	21.3	82.7
	Fully aware	26	17.3	17.3	100.0
	Total	150	100.0	100.0	

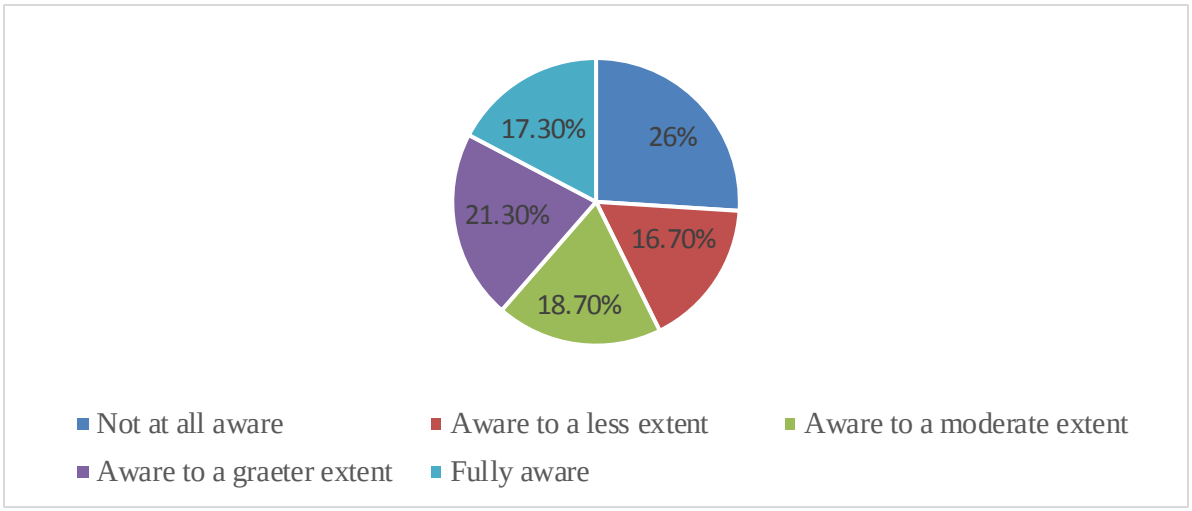

Figure7.5 Awareness that IP was being used as collateral in other countries

The results in Table 7.9 were complemented by the results shown in figure7.5. The results indicated that a combined 39% of the participants were significantly aware that IP was being used as collateral in other countries while a combined 35.3% were less to moderate extent aware and 26% were not aware at all.

7.2.3.3 C 2. Use of IP as Collateral for Loans

Participants were asked whether they agreed that IP could be used as collateral for loan transactions.

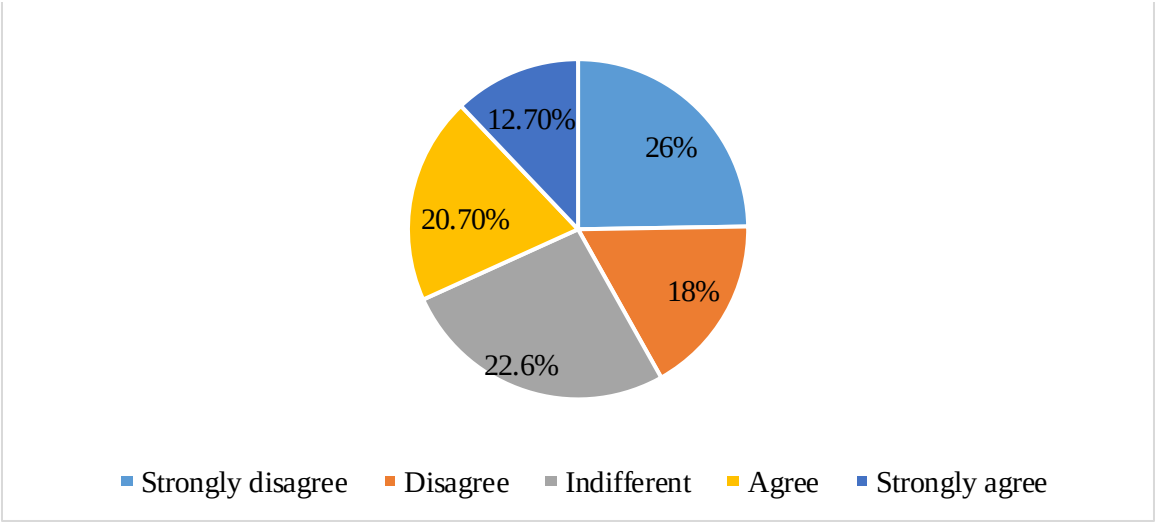

Figure 7.6 Use of IP as Collateral for Loans

Table 7.10 Use of IP as Collateral for Loans

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	39	26.0	26.0	26.0
	Disagree	27	18.0	18.0	44.0
	Indifferent	34	22.6	22.7	66.7
	Agree	31	20.7	20.7	87.3
	Strongly Agree	19	12.7	12.7	100.0
	Total	150	100.0	100.0	

The results in Table 7.10 and complemented by the results shown in figure 7.6 indicated that a combined 33%, (12.7% + 20.7%) of the participants, agreed that IP could be used as collateral for loans and 27.7% of the participants could not say whether they agreed or not while a combined 44% (18% + 26%) disagreed.

The conclusion was that only a minority of the participants agreed that IP could be used as collateral for loans and the majority disagreed.

7.2.4 SECTION D; FACTORS INFLUENCING THE USE OF IP AS COLLATERAL FOR LOANS

7.2.4.1 D1. Influence of IP elements

Participants were asked how they rated the three elements of IP (Protection; Valuation and Legal) as influential to the acceptance of IP as collateral in loan transactions. These results shown in figure 7.2 indicates that the majority of the participants, (33%) believe that the most influential factor to the acceptance of IP as collateral for loan transactions was the Protection factor followed by the Legal factor at 32.7% and the valuation factor at 30%. An average of 27% and 23% of the participants believed that all the three factors were influential to a less extent and an average of 18% did not believe that any of the three elements could influence the use of IP as collateral for loans.

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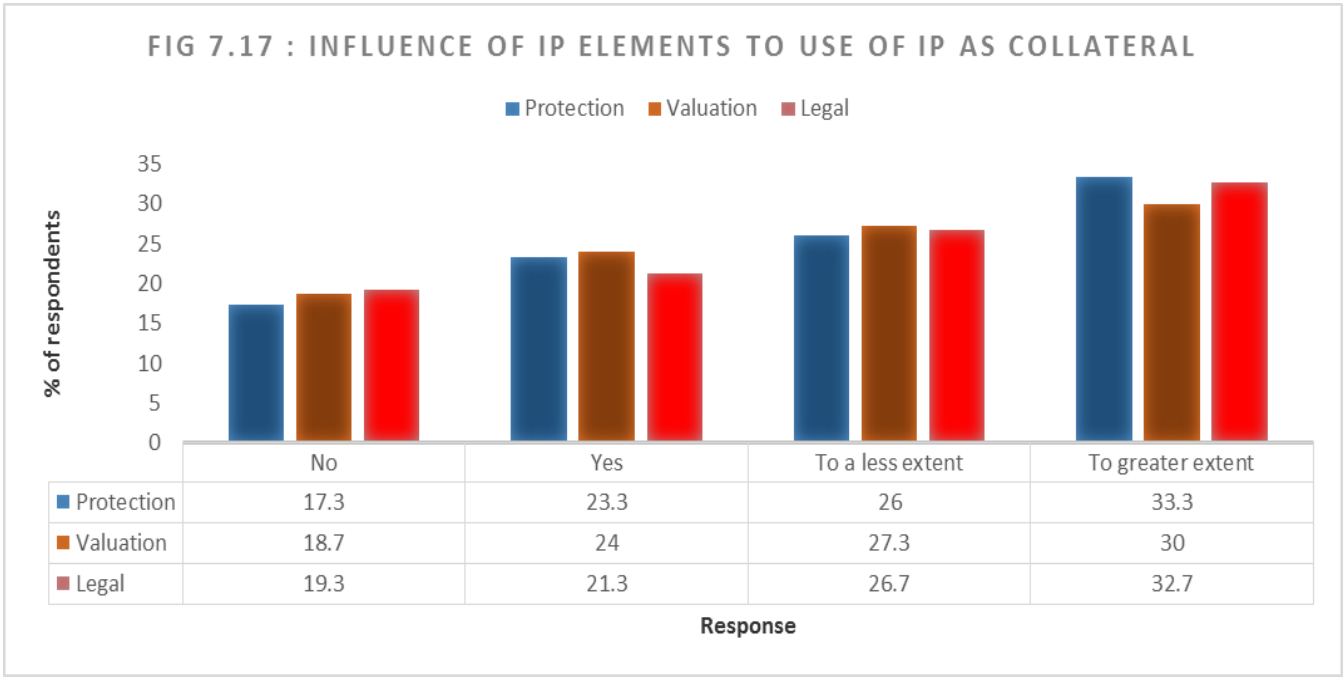

	No	Yes	To a less extent	To greater extent
Protection	17.3	23.3	26	33.3
Valuation	18.7	24	27.3	30
Legal	19.3	21.3	26.7	32.7

X

Figure 7.7 Response Rate (Influence of elements/factors: Protection; Valuation & Legal to acceptance of IP as collateral)

7.2.4.2. D 2. Other factors influencing IP as collateral in loan transactions

Participants were asked what other factors they think may influence the acceptance or non- acceptance of IP

The majority of the participants pointed out at other factors that may influence the acceptance or non-acc infringement of IP, proneness to impairment and lack of valuation models, objectivity of the valuations and

It is however generally believed that the acceptance of IP as an asset and its recognition as a storage of va educated to gain the necessary knowledge and skills about IP issues.

7.2.5 SECTION E: Securitisation

7.2.5.1 Participants were asked whether they had knowledge of securitisation

Table 7.11 Knowledge of securitisation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No knowledge at all	23	15.3	15.4	15.4
	Know, to a less extent	35	23.3	23.5	38.9
	Know, to a moderate extent	37	24.7	24.8	63.8
	Know, to a great extent	54	36.0	36.2	100.0
	Total	149	99.3	100.0	
Missing	System	1	.7		
Total		150	100.0		

The results in Table 7.11 showed to what extent participants had knowledge of Securitisation It was concluded that 36% of the population had significant knowledge of Securitization and 64% had a moderate to no knowledge of Securitization.

7.2.5.2 Use of IP as Securitisation in same way as Tangible Assets and enhancement of value

Participants were asked whether they agreed that IP assets could be used for securitisation in the same way as tangible assets and whether IP could enhance the value of an enterprise

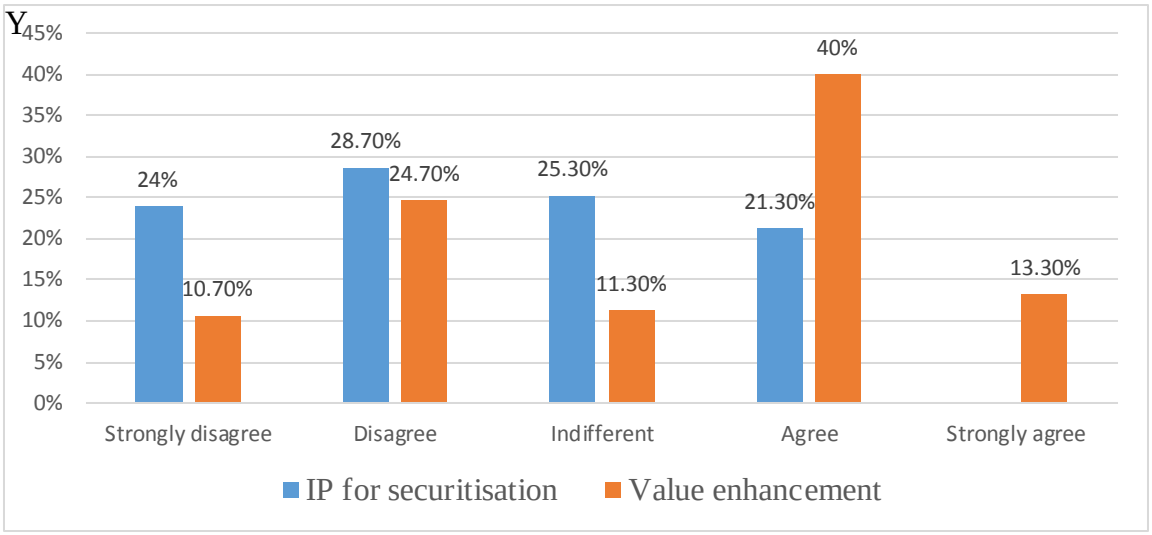

Figure 7.8 Whether IP can be used for securitisation and Value enhancement

Table 7.12 Whether IP can be used for securitisation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	36	24.0	24.2	24.2
	Disagree	43	28.7	28.9	53.0
	Indifferent	38	25.3	25.5	78.5
	Agree	32	21.3	21.5	100.0
	Total	149	99.3	100.0	
Missing	System	1	.7		
Total		150	100.0		

On one hand, the results in Figure 7.8 indicated that a combined 53.3% of the participants agreed that IP could enhance the value of an enterprise while 36 % disagreed and 11.3% were indifferent. On the other hand, the results Table 7.12 were complemented by the results shown in figure 7.8. These results indicated that 21.3% of the participants agreed that IP could be used for securitisation while 52% disagreed and 25.3% were indifferent. It was concluded that the majority of the participants did not agree that IP could be used for securitisation. They cited reasons such as subjective valuation of IP, IP not being bankable, difficult to liquidate in event of default and accounting standards favouring only tangible assets.

7.4 Testing the Conceptual Model adopted of IP as collateral for loan

The following statistics were aimed at testing the conceptual model adopted for the use of IP as collateral for loans. The conceptual framework is again shown below as figure 7.9 for clarity purpose.

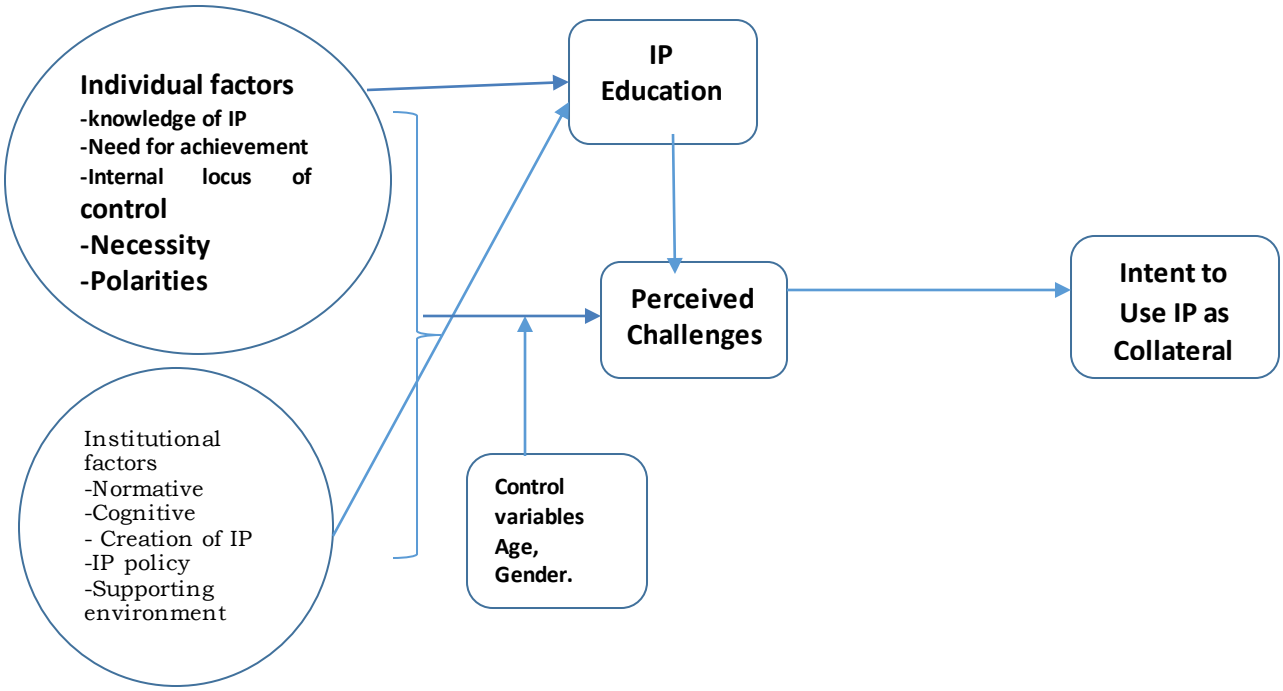

Figure 7.9 Hypothesised Model

The operationalization of the constructs of this hypothesised model was covered in chapter 4 section 4.1.2. However, it can be summarised that the model indicated that awareness or knowledge of IP was influenced by individual and institutional attitudes. These, in turn, influenced the desire for IP creation. The knowledge of IP covered knowledge of elements (Patents, Copyrights and Trademarks), that makeup IP. These elements were the factors that were perceived to be the main challenges that militated against the use of IP as collateral for loans. The hypothesis depicted the multiple antecedences that were perceived from a statistical perspective as a combination of multiple relevant independent variables that enhanced the influence on the dependent variable. The regression analysis helped in quantifying the effect each independent variable had on the dependent variable, Dolizal and Kurtz, (2010).

7.4.1 Rationale for Control Variables for the Current Study

A controlled variable is one which the study holds constant (controls) during an experiment. It is also known as a *constant variable* or simply as a "control", (Helmenstine, 2019). The control variable was not part of the experiment (not the independent nor the dependent) but it was important because it was perceived that it could affect the results, It was for this reason that these variables were taken into account in this study as control variables when the effects of the hypothesised individual and institutional factors on the use of IP as collateral for loans were evaluated.

7.4.2 Normality Analysis

Appendix D illustrates the comparison of the observed and expected distributions of awareness or knowledge, protection, valuation, legal, company attitudes, individual attitudes and the intention of use of IP as collateral.

7.4.2.1 Awareness/ Knowledge

Respondents were not aware of the concept of IP being used as collateral in loan transactions as indicated by the extent of awareness (mean=2.55, Std = 0.864) and slightly leptokurtic curve proved by the positive kurtosis value of 0.247. The skewness and kurtosis z-values used to test for awareness data normality were within the span of 1.96 and -1.96 suggesting that the values approximated normality. The implications were that the data was drawn from a nearly normally distributed population.

7.4.2.2 Protection Factor

With regards to the relationship between the observed and expected protection scores, results showed that most of the respondents were aware of the protection components listed in appendix D to a lesser extent as indicated by the low mean value closer 2 (to a lesser extent). The low and nearly 0 skewness values also indicated nearly perfect symmetry of the graph and the skewness and kurtosis z-values of the protection data were within the range of 1.96 and -1.96, implying that protection was normally distributed.

7.4.2.3 Valuation Factor

The results also highlighted the scores of the respondents' extent of appreciation of the valuation of IP assets concerning those expected in a normal distribution setup. The results indicated that the majority of the respondents had a low appreciation of valuation as evidenced by mean values between 2 (to a lesser extent) and 3 (to a moderate extent). All variables platikurtic except "The measurement and reporting of IP assets was standardized" which was leptokurtic as proved by the positive kurtosis value of 0.712. The skewness and kurtosis z-values indicated that evaluation data was from a normally distributed population as they are within 1.96 and -1.96 range.

7.4.2.4 Legal Factor

With regards to understanding the IP legalities concerning intellectual property concept. Results showed respondents had an understanding of the legal factor from moderate to great extent as indicated by negative kurtosis values of all components. Also, the negative skewness values and their closeness to zero suggested the curve was nearly symmetrical. The skewness and kurtosis z-values for this aspect were within the 1.96 and -1.96 range suggesting that the values approximated normality.

7.4.2.5 Company Attitude

The results indicated that most respondents understood to a lesser extent the association between company attitudes and the use of intellectual property as collateral. The negative kurtosis values that gave a platikurtic curve and the positive skewness for the first four components of company attitudes in the table were also an indication of the low appreciation about company attitudes towards the use intellectual property as collateral for loans. Only "Our Company was willing to accept/use IP assets as collateral", showed a positive kurtosis value of 0.127 and would give a leptokurtic curve. The skewness and kurtosis z-values used to test for data normality were within the 1.96 and -1.96 range suggesting that the values approximated normality.

7.4.2.6 Individual Attitudes

In terms of individual attitudes, respondents understanding was moderate. Items such as, "I am willing to recognize the value of IP assets, I am willing to recognize IP valuations in decision-making and I am willing to advocate for the acceptance/use of non-tangible assets as collateral," revealed negative kurtosis and platikurtic curve, the issue of "I am willing to advocate for the measurement and reporting of IP assets," component showed a perfect normal distribution with its kurtosis value of 0.00 and mesocratic. Lastly, the last component (I am willing to advocate for the acceptance/use of IP assets as collateral) was leptokurtic. All the skewness and kurtosis z values measuring the distribution of individual items ranged between 1.96 and -1.96 suggesting that the data was normally distributed.

7.4.2.7 Intention to use IP as collateral

With regards to the use/intention of use of IP as collateral results indicated that most respondents had an intention to use IP as collateral to a lesser extent. Only the first variable, "We already accept/intend to accept IP assets as lending collateral", had a positive kurtosis value while the rest of the variables had negative kurtosis values. All the skewness and kurtosis z-values used to test for use/intention of use of IP as collateral data were within the 1.96 and -1.96 range suggesting that the values approximated a normality distribution.

7.4.2.8 Summary of Normality Test

Skewness and kurtosis for the all the construct variables or latent variables; awareness, protection, valuation, legal, company attitudes, individual attitudes and use/intention of use of IP as collateral indicate that all the 35 value items might be categorized as having fair normality. As per Appendix D, the skewness and kurtosis z-values obtained for all the 35 value items ranged for skewness from -.704 to 0.693 and kurtosis from -0.889 to 0.712 which was within the 1.96 and -1.96 range (95% confidence interval) suggesting that the data was drawn from a nearly normally distributed sample. The implications were that it would not be problematic to use most statistical methods that depended on normality assumption like multiple regression, ANOVA and linear regression, which were also some tests associated with SEM. (Standard Error of the mean).

7.5 Construct Validity Analysis

Exploratory Factor Analysis in particular principal components analysis was conducted to evaluate construct and further assess its internal validity. Construct validity is the extent to which the same construct theme was measured by the items that made up the latent variables, (Saunders et al., 2009). Varimax factor rotation was used to extract the components. Before conducting all conditions for a sample and the suitability of data for Factor Analysis were examined, Correctional matrix suggested revealed relationships of greater than 0.3 and greater. Furthermore, Bartlett's Test of Sphericity was statistically significant ($p=0.000$) at a 95% confidence interval and KMO value ($p>0.5$). Such values suggested Exploratory Factor Analysis (FCA) could be conducted on the sample as values support sampling adequacy.

The commonality table (Appendix E) showed the amount of variance in the squared metric that indicated the amount of variance in the variable that was explained by a combination of the extracted factors. The variance ranged from 0.603 to 0.862 suggesting all items explained variance in terms of the extracted factors interacting with each other. No factor had a lower commonality value to warrant that the variance for the variable was not explained by the extracted factors. Values with low communalities, 0.3 or less were normally dropped in order to increase the explanation of total variance De Vans, (2002).

The total variance indicated the number of components extracted and considered as influential determinants of Intellectual Property Concept. PCA results indicated a 10 component solution with a commutative variance of 74.38%. Basing on Cattel's scree plot and Varimax rotated solution the 10-factor structure was found. Findings were contrary to prior research which found a 7 component solution, Cattell, 1966 and Rahn, 2008.PCA results indicated a 10 component solution with a commutative variance of 74.38%. Basing on Cattel's scree plot and Varimax rotated solution the 10-factor structure was found. Findings were contrary to prior research which found a 5 component solution. The Scree-plot also showed the 10 component factors.

The first factor which accounted for the most variance (12.38%) and loading factors ranging from -0.547 to 0.850 as shown on the Rotated component matrix (Appendix F) was Company attitudes. This was the most influential component and included such as willingness to measure and report their IP assets, recognize the value of IP assets and IP evaluations in their decisions and acceptance, and use of non-tangible assets as collateral

respectively. Other three items in factor 1 came from "legal". The issues of IP ownership/infringement legal disputes were fewer, the enforcement of IP court rulings and processing IP infringement legal were the legal issues, which had the greatest impact hierarchically. Items related to company issues had positive implications while legal issues had negative connotations. Results suggested that company attitudes factors and legal factors were related.

The second factor, which accounted for 11.98% of the total variability, was the individual attributes which included items like the willingness to advocate for the measurement and reporting of IP assets, recognition of the value of IP assets and IP valuations in decision making, and advocating for acceptance/use of non-tangible assets as collateral. Awareness of IP as collateral in loan transactions" was also highly loaded in component 2. Results indicated that some association existed between individual factors and awareness of IP as collateral in loan transactions.

The third factor included valuation factors. Advocating the measurement and reporting of IP assets, willingness to recognize the value of IP assets and IP valuation, advocating for acceptance/use of non-tangible assets as collateral and the acceptance/use of IP assets as collateral were variables were the valuation factors with loading factors of 0.787, 0.775, 0.726, 0.687 and 0.681 respectively.

The fourth factor was composed of mainly protection factors, fifth-factor awareness and sixth company attributes. The seventh component was composed of legal and company attributes, while the intention to use IP as collateral factors constituted component 8 and issues to do with the use of IP for securitization made up component 10. Principal Component Factor results suggested that some association existed between the various components of the constructs or latent variables which addressed Intellectual Property Concept.

7.6 Reliability Analysis:

Reliability test refers to the consistency of a measure, i.e., the different tests should produce roughly the same scores for the individual. It is the consistency of a set of measurements or measuring instrument often used to describe a test, (Ritter, 2010).

Table 7.13 Reliability Analysis:

Description of construct	Cronbach's Alpha Value	N
Awareness	0.818	5
Protection	0.832	5
Valuation	0.792	5
Legal	0.855	5
Company Attitudes	0.861	5
Individual Attitudes	0.763	5
Use of IP as collateral	0.792	5

Table 7.13 illustrated the results of the reliability analysis of the various sections of the instrument. The Corrected Item –Total Correlation and Cronbach's reliability coefficients suggested that the item's score were internally consistent with composite scores which constituted the remaining items. The Corrected item-total Correlations ranged from 0.397 for awareness to 0.815 for company attitudes which corresponded to the rule-of-thumb cut-of which should be at least 0.3 (de Vaus, 2002). The item on awareness of IP as collateral in loan transaction was removed as it had a weak correlation with composite scores of construct "use/intention of use of IP as collateral" (Item-Total Statistics) showed the effect of removing awareness of IP as collateral in loan transactions on the reliability. The reliability coefficient rose from0.532 to 0.792 after its removal. Reliability coefficients for Intellectual Property Concept Constructs all exceeded the threshold of 0.7, (Pallant, 2013).

7.7 Correlations Analysis

This section examined the relationship between the various factors that influenced the intention to adopt or use IP. Table 7.15 are the results of the computation.

Table 7.14 Correlations Analysis

	Intention	Awareness	company	Individual	Legal	evaluation	Protection
Intention	1						
awareness	-.201*	1					
Company	.168*	-.090	1				
Individual	.285**	.063	.172*	1			
Legal	.229**	-.072	-.059	.017	1		
evaluation	.214**	-.012	.206*	.089	.030	1	
protection	.324**	.042	.181*	.210**	-.030	.342**	1

Table 7.14 illustrated the relationships that existed between the latent variables and intention to use IP as collateral in financial transactions. Protection (r=0.324, p<0.01), valuation (r=0.214, p<0.01) individual attitudes (r-0.285, p<0.01) and legal (r=229, p<0.01) were positively correlated to intention to use IP as collateral were found to have a moderate positive

and significant relationship with one's intention to use IP as collateral. Awareness ($r=-0.201$, $p<0.01$) was negatively correlated with intention to use IP as collateral. A weak significant relationship was established between company attitudes with the intention to use IP as collateral ($p<0.05$).

With regards to protection, findings suggested that availability of IP protection services, easy application and licensing procedures to include obtaining IP insurance cover and provision of conducive operating environment by the Government increases one's probability of using IP as collateral. In terms of evaluation results indicated that if companies that were capable of assessing the value of IP assets and protocols to measure and report IP assets were more likely to use IP as collateral.

In terms of personal attitudes, results suggested that individuals who were willing to advocate for the measurement and reporting of IP assets, recognized the value of IP assets, recognised IP valuations in decision-making and the acceptance/use of non-tangible assets as collateral had a greater likelihood of embracing the use of IP as collateral.

The relationship between legal and intention to use IP as collateral was positive implying that if the existing IP legal framework was conducive, practising IP attorneys were available, the processing of IP infringement legal cases was done efficiently, the enforcement of IP court rulings was expeditious and IP ownership/infringement legal disputes were fewer then probability of one's intention to use IP as collateral increased In short, a conducive legal framework promoted the intention to use IP as collateral.

Implications of the findings in terms of awareness may be that if an individual knowledge of intellectual protection, patents, copyrights, trademarks and IP as collateral in loan transactions increased, then one would be less likely use IP as collateral. However, in path analysis below, indications were that if awareness was mediated by individual and company attitudes it would have had a positive effect on the intention to use IP as collateral.

7.8 The Concept of Mediation

A **mediation** model in statistics seeks to identify and explain the mechanism or process that underlies an observed relationship between an independent variable and a dependent variable via the inclusion of a third hypothetical variable, known as a **mediator variable** (also a **mediating variable**, **intermediary variable**, or **intervening variable**), Hayes, (2013); Jose, (2013). A mediation model proposes that the independent variable influences the (non-

observable) mediator variable, which in turn influences the dependent variable. There is thus no direct causal relationship between the independent variable and the dependent variable. The mediator variable serves to clarify the nature of the relationship between the independent and dependent variables. Mediation analysis facilitates a better understanding of the relationship between the independent and dependent variables when the variables appear to not have a definite connection. These are studied through operational definitions and have no existence apart, (Frazier and Barron, 2015).

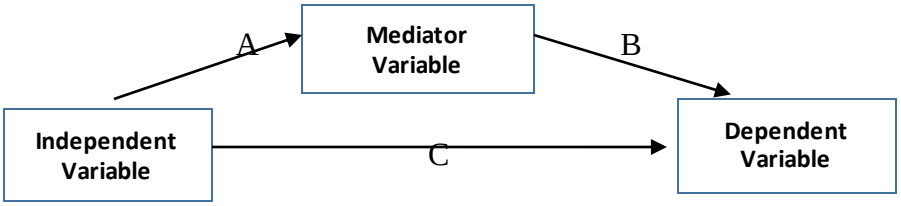

Figure 7.10: The Concept of Mediation

The result of empirical research is more helpful to stakeholders' appreciation of the research problem if it finds, as shown in figure 7.10, whether A affects B and also that how and when that relationship holds Statistical mediation analysis aids researchers understanding of the different paths through which an independent variable effects the dependent variable, (Baron and Kenny, 1986).

7.9 Path analysis

Path analysis is a form of multiple regression statistical *analysis* that is used to evaluate correlational models by examining the relationships between a dependent variable and two or more independent variables. By using this method, one can estimate both the magnitude and significance of causal connections between variables. Path analysis is an extension of the regression model, (Crossman, 2019; Pearl et al, 2018).

The path model has two types of effects as shown in figure 7.11. The first is the direct effect, and the second is the indirect effect. When the exogenous variable has an arrow directed towards the dependent variable, then it is said to be the direct effect. When an exogenous variable affects the dependent variable, through the other exogenous variable, then it is said to be an indirect effect. To see the total effect of the exogenous variable, we have to add a direct and indirect effect. One variable may not have a direct effect, but it may have an indirect effect, (Coffman and MacCallum, 2005) and (Edward and Lambert, 2007).

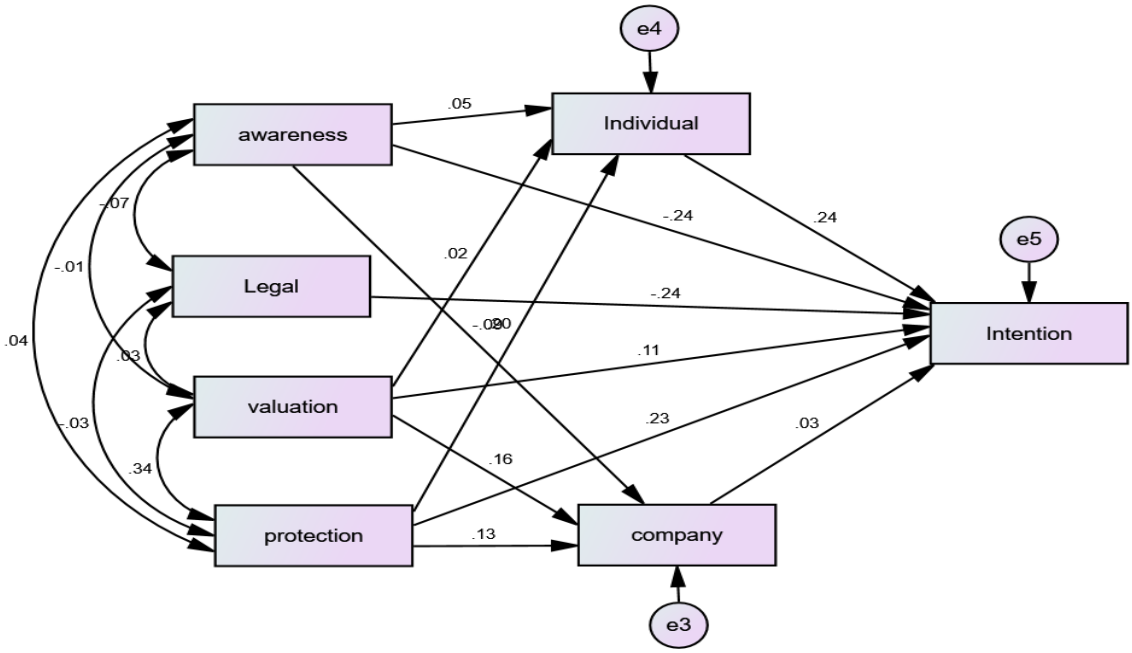

Figure 7.11 Path Analysis results reported with beta coefficients

The path analysis was used to examine the influence that the latent variables: awareness, legal, valuation and protection, legal valuation, had on the intention to use IP as collateral. The effects of mediation by company attitudes and individual attitudes on these latent variables were also shown. Table 7.15 showed a summary of the direct and indirect effects on these results as depicted on the path analysis diagram (Fig 7.11).

Table 7.15 Results of Path Analysis

Variable Name	Direct effects	Indirect effects	Total effects
Awareness	-0.24	0.01	-0.23
Protection	0.23	-0.01	0.22
Valuation	0.11	0.01	0.12
Legal	0.24	0.00	0.24
Company Attitudes	0.03		0.03
Individual Attitudes	0.24		0.24

7.9.1 Path Analysis Results

The model was based on the assumption that there was a) positive correlation between all the six independent variables and intention to use IP as collateral. The relationship between valuation and intention to use IP and that of individual attitudes and intention to use IP as collateral were significant and positive. Every unit change in valuation and individual attitudes increased intention to use IP as collateral by 0.12 and 0.24 respectively. Protection and legal also were found to have a positive and significant impact on intention to use IP as collateral, increasing intention at a rate of 0.22 and 0.25 respectively each time they are manipulated.

Awareness was found to have a weak direct negative impact on intention to use IP (B=-0.24), implying that each time individuals gained knowledge about IP use as collateral their intention to use it as collateral decreased at a rate of 0.24.

7.9.2Mediation Effects

Mediation increased the predictive power of awareness and valuation to the intention to use IP as collateral by a factor of 0.01 (B=0.01) for standardized co-efficient but decreased the predictive power of protection by a similar margin (B=-0.01). Mediation did not have any effect on the relationship between legal and intention to use IP as collateral.

Consequently, conclusions could be drawn that company attitudes and individual attitudes had a partial mediating effect on the relationship between awareness and intention to use IP, protection and intention to use IP, valuation and intention to use IP, company attitudes and individual attitudes and intention to use IP as collateral. However, no mediation was observed on the relationship between legal and intention to use IP as collateral.

7.10 Overall Model Fit

The comparative Fit Index (CFI), the default model (Chis-square for Goodness of fit), Goodness fit index (GFI) and Root Mean Square Error for Approximation (RMSEA) were calculated to estimate the goodness of fit for the study. Coming up with a model was the other and final objective of the study.

The Default model, Baseline comparisons, Parsimony-Adjusted Measures and RMSEA tables indicated the results of the computations.

Table 7.16 Overall Model Fit

Default model	df	Value	p-value	Normalized Chi-square value
Chi-square	3	4.034	0.258	4.03/3=1.34

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.955	.579	.988	.843	.983
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.048	.000	.154	.408
Independence model	.121	.094	.150	.000

The model had a CFI Default model value of 0.983. According to Hu and Bentler (as cited Tabachnick & Fidel, 2001), a CFI value of 0.95 is indicative of good-fitting model. Also, the model had a Default Chi-square value which was statistically insignificant *($X^2(3) = 4.034$, $p<0.258$)* and a normalized Chi-square value of 1.34 provided further evidence that the model fitted well. A good model fit should provide an insignificant result (p>0.05) threshold (Barrett, 2007). The model had a RMSEA Default model value of 0.048 which was below the threshold of 0.08 suggesting model good fit. MacCallum (1996) suggested that RMSEA of between 0.08 and 0.10 provided a mediocre fit and below 0.08 showed a good fit. All the three models suggested the model good fit

7.11 Comparison of Literature results with Qualitative and Quantitative results

The results of literature, qualitative and quantitative are shown in Table 7.17 below

Table 7.17 **Comparison of Literature results with Qualitative and Quantitative results**

LITERATURE RESULTS	QUALITATIVE RESULTS	QUANTITATIVE RESULTS
Indicated that the developed countries had embraced the knowledge economy in which IP was the underlying asset.	Indicated that there were endogenous factors **(Individual and Institutional)** which influenced the use of IP as collateral	Indicated that Intention to use IP was influenced by a combined force of latent variables (protection, valuation legal & awareness) and endogenous factors (individual & institutional). This was shown by the validation of a multiple model.
Indicated that IP was being used as collateral for loans in the developed countries	Individual factors were individual traits which included the following: The need to achieve Internal locus of control Necessity Polarity management	Indicated that Individual factors accounted for 11.98% of the total variability & were also found to be positively correlated to the intention to use IP as collateral at (r=0.285, p, 0.01). Further, these factors were found to mediate for latent variables through path analysis.
Indicated that IP was now being ranked higher than tangible assets in some enterprises.	Institutional Factors included: Normative factors (rules & regulations) Cognitive factors (ability to learn)	Indicated that Institutional Factors had 12.38% of the total variability & were found to positively correlate to the intention to use IP as collateral at ($p<0.05$). Further, these factors were found to mediate for latent variables using path analysis.
Indicated that the main factors influencing the use of IP as collateral in financial transactions included: Protection Valuation Legal and Knowledge of IP		Indicated that Good fit tests corroborated that quantitative data analyses fitted very well with empirical evidence hypothesised.
The literature reviewed examined these factors (latent variables) in isolation and not as a combined force on their influence on the use of IP as collateral.		Indicated that only 33% of the participants believe that IP could and was being used as collateral in other counties.
Indicated that all the three elements of IP (Protection, valuation and legal) were equally important.		Indicates that 33% of the participants believe that IP could be ranked at par with tangible assets and that of the three IP elements, protection was the most important followed by the legal element

In this study, there were individual and institutional factors that had been found through qualitative approach to have an influence on the decisions to use IP as collateral in financial transactions and these were not explained in the literature reviewed. On the individual level,

the vital individual traits found included the need to achieve, internal locus of control, necessity and the management of polarities. At the institutional level, the vital factors included normative, cognitive and regulatory or supportive environment.

The factors for example that were connected to the individual could only be discerned through interaction and character analysis of the individual. These factors were found to be the force behind the formation of individual attitudes. These factors were also found to have nexus to the intention to use IP as collateral in financial transactions through quantitative approach as shown in appendix F. Individual attributes accounted for 11.98% of the total variability and were also found to be positively correlated to the intention to use IP as collateral at (r=0.285, p, 0.01).

Multiple regression (path analysis) indicated that individual attitudes had a direct effect on the intention to use IP as collateral at .24. Also, individual attitudes were found to have a mediating effect on the relationship between latent variables; (awareness, protection and valuation) and the intention to use IP as collateral in financial transactions.

The influence of Institutional factors as established through a qualitative approach were also corroborated through a quantitative approach. Appendix F showed institutional (company attitudes) to have 12.38% of the total variability. It was found to have the most influential support to the decisions to use IP as collateral. Institutional factors were also found to correlate with the intention to use IP as collateral at ($p < 0.05$). Further, they were also found to mediate the relationship between the intention to use IP as collateral in financial transactions and the latent variables (awareness, protection and valuation).

Further, the good fit tests corroborated the findings in that the observed data through quantitative methods fitted very well with the empirical evidence as was shown in the hypothesized model and explained through qualitative methods. The chi-square value (1.34), the baseline comparison (.983) and the RMSEA (.408) all indicated best fit between the observed data and the empirical evidence.

The implications were that the individual and institutional attitudes as found through a qualitative approach to have an effect on the intention to use IP as collateral in financial transactions were supported by the findings through a quantitative approach. This confirmed the suitability of the hypothesized model of this study.

On the other hand, the literature reviewed has demonstrated that IP could be used and has been used as collateral for loan transactions and that IP uses were fast-growing and have overtaken tangible assets in some cases, particularly in the computer industries were companies such as Apple and Google had seen a huge growth in IP, Burton et al., (2014); Sharma and Nerurkar, (2016). Whereas through quantitative method, an average 57% of the participants were not aware that IP could be used as collateral in loan transactions and also that they were not aware that IP had been used as such in other countries. Further that 26% of the participants believed that IP could be used as collateral in loan transactions and only an average of 20% just believed that IP could be used in loan transactions to some extent.

The literature review had shown that IP was ranked even higher in some enterprises than tangible assets, (Fortune Magazine, (017); 100 best companies in USA.).Whereas quantitative analysis showed that only 32% of the participants believed that IP could be ranked at par with tangible assets. On one hand, the literature review indicated that all factors, legal, valuation and protection of IP were equally important for IP to be accepted as collateral. On the other hand, an average of 33% of the participants believed that the Protection factor was more important followed by the Legal factor.

Overall, the qualitative and quantitative findings indicated that people in Zimbabwe lacked knowledge of IP to the extent of the literature reviewed.

7.12 Chapter Summary

This chapter reported the findings of descriptive statistics as well as normality test, Reliability, Construct Validity, Correlations, Regression and Path analysis and Mediation analysis outcomes of the quantitative research. The outcomes were discussed and interpreted based on findings from qualitative and prior research.

Firstly, the findings indicated that the use of IP as collateral for loans was parsimoniously a function of IP knowledge and innovation and that the two attitudinal antecedents (Individual and Institutional) were the major predictors of the intention to use IP as collateral for loans. Secondly, the outcomes exposed that individual and Institutional factors were positively associated with the challenges militating against the use of IP as collateral for loans. Individual factors included IP exposure or knowledge, necessity, polarity, and internal locus of control.

Institutional factors include normative, cognitive, and regulatory institutions. Awareness or understanding of IP significantly influenced the discovery of challenges working against the use of IP as collateral. Such challenges were then to be examined and improvements were suggested and these were found to increase the influence of the intention to use IP as collateral for loans. Until the current research, the effect of normative, cognitive and normative institutions on IP innovation and the resulting commercial uses had not been empirically investigated.

Thirdly, the findings indicated that individual and institutional attitudes mediated the effects of IP valuation, protection and legal factors on the intention to use IP as collateral in financial transactions. This, in turn, led to the effect of mediation on the **Awareness of the Intention to use IP as collateral.** Prior knowledge of innovation based on IP would lead to recognition of IP's commercial uses and hence its use as collateral for loans. The mediational role of individual and institutional factors entailed that these factors transmitted their effects on the intentions of the use of IP as collateral for loans in two ways: a) direct influence on awareness of IP including its factors, and b) Indirect (Mediating) Effects of Company attitudes and Individual Attitudes on Intention to use IP as collateral.

Until the current study, the possibility that individual and institutional factors could have a mediatory role had not been empirically examined. However, the outcomes indicated that individual factors and institutional factors were the main factors while Awareness and the control variables provided additional mechanisms for individual and institutional factors to influence intention to use IP as collateral. The next chapter summarised the main findings of the research and highlighted the contributions to knowledge, including discussion on the implications of the findings to policy and practice. Lastly, the chapter discussed the limitations of the study and identify areas for further research.

CHAPTER 8

CONCLUSIONS, CONTRIBUTIONS AND IMPLICATIONS

8.1. Introduction

Based on the extant literature and the problems identified in the statement of the problem this study aimed to inquire into and examine the factors that militated against the use of IP as collateral in financial transactions. Additionally, it sought to explore the effects of individual and institutional factors on the relationship between the latent variables identified from extant literature and the intention to use IP as collateral for loans. Specifically, the research objectives are:

i. To assess the level of understanding of IP as an asset among stakeholders in loan transactions in Zimbabwe.
ii. To explore factors influencing acceptance and non-acceptance of use of IP as collateral in loan transactions in Zimbabwe.
iv. To propose a conceptual framework for adoption of IP as collateral in loan transactions in Zimbabwe.
v. To test a conceptual model for adoption of IP as collateral in loan transactions in Zimbabwe

The preceding two chapters, 6 and 7 discussed the results of the current research-based on qualitative and quantitative findings. This chapter highlighted the major findings under 8.1 followed by contribution to knowledge under 8.2 as well as implications for policy and practice (section 8.3). This chapter also outlined limitations of the current study (8.4), directions for future research (8.5) and recommendations (8.6). Lastly, the final chapter summarises the work carried out by this research summary (section 8.7).

8.1 Major Conclusions

Major conclusions were firstly that IP was being used as collateral in financial transaction in the developed and some Asian countries and was considered as the engine for economic growth. Secondly, that African countries including Zimbabwe were lagging in the use of IP as collateral in financial transactions.

8.1.1 Conclusions based on literature review

Firstly, extant literature has shown that IP was first used as collateral for loan in the late 1800s when Thomas Edison used his patented incandescent electric light bulb as collateral to finance his start-up company, the General Electric. Further extant literature revealed that although the use of IP asset in commercial transactions had been known since the 1950s, there was nothing tangible that was said or written about them until 2000. Statistics indicated that IP as a percentage of the market capitalisation of US companies increased from 20% in 1978 to 73% in 1998. Also, revenues from licensing of patent rights increased in the past ten years, from $15 billion in 1990 to more than $185 billion by 2015.

Extant literature also revealed the increasing use of securitisation of IP which took place with the first such use in 1997 when future royalty payments from Bowie records sales were changed into securities and sold in a private bond offering $55 million. However, most writers and researchers seemed to be concentrating on information-based technologies such as computers, pharmaceuticals and music. This tended to limit the scope of innovations and technological advantages of IP. Innovations and creative ideas should be promoted not only through information technology but also through other technologies.

Literature review, points out that there are many reasons for using IP as collateral with three primary reasons being: (1) IP is an untapped source of collateral; (2) IP securitisation offers a quick return on research and development; (3) IP securitisation captures additional value.

From the US, the commercial importance of IP had been recognised in other developed countries and throughout Asia. In the UK, investment in IP was higher than in tangible assets across the period 2001 to 2014 and this trend was expected to grow in the future years. It was also revealed that the government of Singapore established the IP Office of Singapore (IPOS) to spearhead a scheme aimed at catalysing innovation among local companies, with the Masai Group International being the first company to successfully obtaining the IP financing to unlock the value of its IP. Further that Oversea-Chinese Banking Corp and United Overseas Bank were participating in the scheme. Similar endeavours had been established in Malaysia and Thailand.

Although IP was a recent phenomenon and that there was little literature on the subject, more so in developing countries including Zimbabwe, the available literature reviewed corroborated the fact that the use of IP in commercial transaction had been increasing over the years, spreading widely, overtaking the tangible assets. Notwithstanding this progress, extant literature indicated that there were many weaknesses of IP. These included valuation problems, obsolescence, unpredictable cash flows and jurisdictional differences.

The views and findings of this study were that most of the IP challenges could be solved by first accepting the importance of IP given the changes in the global economic environment. This would enable enterprises to develop business models where IP was a central element in establishing value and potential growth. This also required accounting bodies to come out with regulations in the form of accounting standards for the inclusion of IP in the accounting records of enterprises. It was also the conclusion reached by the study that since accounting standards provided for impairment and obsolescence reviews of tangible assets such provision could also be extended to IP. As for valuation problems associated with IP, extant suggested various methods chief among them being discounted cash flow method. These methods had also been recommended by the accounting bodies through accounting standards. It was also revealed that most legislations allowed the right to Patent for a term not exceeding 20 years from the date of registration. Copyrights endured for the life of the author plus 50 years. Well, known trademarks were protected across jurisdictions. These measures made IP far more durable than most tangible business assets.

Based on the extant literature, a Hypothesised model was developed and is shown in Chapter 4. The variables shown in the proposed model comprise the following:

i. individual variables: knowledge of IP, need for achievement, internal locus of control, necessity and the ability to manage polarities and prior IP exposure;
ii. Institutional variables: normative, cognitive and regulatory institutions; and supporting environment.
iii. Intervening variables: indicated by perceived learning from the literature review, such as protection, valuation and legal factors.
iv. Dependent variables: i.e., the intention to use IP as collateral for financial transactions.

8.1.2 Conclusions Based on the Qualitative Analysis

The qualitative approach was adopted in this study to complement the quantitative approach and to avoid bias. Thus a combination of positivistic (addressing the what issues) and interprevistic research (which addressed the why and how issues) were employed in this study. Findings based on qualitative analysis were that Specific elements of the individual and institutional factors were key towards creativity and innovation leading to decisions or intention to use IP as collateral in financial transactions.

Concerning individual factors, the interviews revealed the major individual attributes that motivated individuals to create new ideas that could eventually be converted into money. The attributes included the need for achievement, locus of control and prior creativity and IP exposure, necessity and ability to manage polarities. These attributes were found to be the driving forces behind the individual's desire to create new ideas and or to improve on existing models.

The major institutional factors included the normative and cognitive institutions. These institutional factors were considered as fuels that powered up the individual to embark on new ideas and innovations. Once new ideas were in place it would be possible to monetise them thereby raising funds for investment in the businesses. As was revealed through extant literature, the organised way to monetise new ideas was to register the ideas as patents, copyrights and trademarks. This process necessitated the need for valuations of IP for inclusion in enterprises' financial statements.

The Hypothesised model adopted for the study was tested for compliance with these findings through model of good fit Table 7.17. Further, model figure 7.11 indicated mediations by individual and institutional factors on the relationship between the latent variables and the dependent variable. Further, the latent variables (protection, valuation and legal) indicated a direct effect on the dependent variable (Table 7.16). Only awareness indicated a weak direct effect but this was strengthened or positively increased through mediation by both individual and institutional factors.

8.1.3. Conclusions Based on the Quantitative Analysis

Data was collected through a questionnaire emailed to 200 participants and 150 (75%) of the participants responded to the questions. The survey data were analysed using IBM SPSS, Statistics 21. The findings from the survey were discussed in chapter 7. Sources of questionnaire items/constructs were developed mainly from this current study.

In the first place descriptive statistic was used in an endeavour to find answers on the following questions:

(a) Demographic Data;
(b) Individual Understanding of IP;
(c) The use of IP as Collateral for Loan Transactions;
(d) Factors influencing the use of IP as collateral in loan transactions;
(e) Individual's Understanding of Securitisation.

8.1.3.1 A Demographic Data

As indicated that the majority of the participants were male which accounted for 58.7% and female at 41.3%. The highest age range of the participants was the 31-40 age (43%) followed by the 41-50 (34%). Most participants were holders of University degree qualifications with 52% holding post-graduate degrees. The association of these control variables with knowledge of IP was supported by the chi-square test in table 8.2 and 8.3.

8.1.3.2 B Individual Understanding of Intellectual Property

It was found out that 0% of participants were using IP as collateral despite that they had a fair knowledge of IP in that:

i. It was found that 56% of the population had significant knowledge of IP and 44% had a moderate to no knowledge of IP.

ii. Generally, most of the participants had significant knowledge of Patents, Trademarks and copyrights. An average of 26% understood the IP elements to a greater extent.

iii. 37% of the population had significant knowledge of how IP was created, and 63% had a moderate to no awareness as to what IP was.

iv. Generally, all participants believed that IP could enhance the value of an enterprise. However, 53% believed that IP could enhance the value of an enterprise to a greater extent while 47% believed so to a moderate extent.

v. 31%, of the individuals' organizations, were largely associated with patents while 69% were from a less extent to not at all associated with patents and that 45% of the individuals' enterprises were greatly associated with copyrights while 55% were from a less extent to not at all associated with copyrights. Further that 42% of the individuals' enterprises were greatly associated with trademarks and 58% were from to a less extent to not at all associated with trademarks.

vi. 19% and 23% of the participants believed that IP should be ranked at par with tangible assets, to a greater extent and full extent respectively, while 43% and 16% believed that IP should be ranked at par with tangible assets to a lesser and moderate extent respectively.

8.1.3.3 C. The use IP as collateral in Loan Transactions

33% of the participants were not aware that IP could be used as collateral for loan transactions, while 39% were aware to a great extent. 33%, of the participants, agree that IP could be used as collateral for loans and 23% of the participants could not say whether they agreed or not while 44% disagreed. 55% were not aware that IP has been used as collateral for loan transactions in other countries, while 45% were aware of this fact.

8.1.3.4 D. Factors influencing the use of IP as collateral on loan transactions;

These results indicated that of the participants, (33%) believed that the most influential factor to the acceptance of IP as collateral for loan transactions was the Protection factor followed by the Legal factor at 32.7% and the Valuation factor at 30%. An average of 30% believed that all three factors were influential to a great extent. By and large, all the three factors are equally important in that IP could be useless unless it was protected and had value. The legal factor was associated with the registration of IP. Therefore all the three factors should be assessed as a whole and not in isolation.

8.1.3.5 E. Individuals Understanding of Securitisation

The results indicated that 36% of the population had significant knowledge of Securitization and 64% had a moderate to no knowledge of Securitization. Only 22%, of the participants, agreed that IP could be used for securitization and 78% of the participants did not agree.

8.1.3.6 Test on The conceptual model

The hypothesised model adopted for the study was tested for Normalcy, including factor and Reliability analysis for the construct development. Further tests for compliance were conducted through Correlations, Path analysis and Mediation analysis.

8.1.3.6.1 Normality tests

For normalcy, all the 35 value items ranged for skewness from -.704 to 0.693 and kurtosis from -0.889 to 0.712 which was within the 1.96 and -1.96 range (95% confidence interval) suggesting that the data was drawn from a nearly normally distributed sample.

8.1.3.6.2 Reliability test

The results of the reliability analysis indicated that –Total Correlation and Cronbach's reliability coefficients suggested that the item's score were internally consistent with composite scores. Total Correlations ranged from 0.397 for awareness to 0.815 for company attitudes which corresponded to the rule-of-thumb cut-of which should be at least 0.3 (de Vaus, 2002). The reliability coefficient rose from0.532 to 0.792 after adjustments. Reliability coefficients for Intellectual Property Concept Constructs had all exceeded the threshold of 0.7

8.1.3.6.3 Construct Validity tests

Correctional matrix suggested relationships of greater than 0.3 and Bartlett's Test of Sphericity was statistically significant ($p=0.000$) at a 95% confidence interval and KMO value ($p>0.5$). Such values suggested that Exploratory Factor Analysis (FCA) could be conducted on the sample as values supported sampling adequacy. The Total Variance Table indicated a 10 component solution with a commutative variance of 74.38%. 12.38% being

Institutional factors having the most influence followed by Individual factors with 11.98%. Valuation, Protection, Legal and a combination of all the factors made up the difference.

8.1.3.6.4 Correlation

The relationships that existed between the latent variables and intention to use IP as collateral in financial transactions was indicated through the following results: Protection ($r=0.324$, $p<0.01$), valuation ($r=0.214$, $p<0.01$) individual attitudes ($r-0.285$, $p<0.01$) and legal ($r=229$, $p<0.01$) were positively correlated to intention to use IP as collateral. Awareness ($r=-0.201$, $p<0.01$) was negatively correlated with intention to use IP as collateral. A weak significant relationship was established between company attitudes to use IP as collateral ($p<0.05$). However, the weak relationships had been mediated thereby increasing the influence of these independent variables on the dependent variable.

8.1.3.6.5 Path Analysis

The regression model was found to be overall statistically significant ($p<0.05$) and the 6 latent variables accounted had a direct effect to the dependent variable with Protection (.23), Valuation (.11), and legal (.24). Individual attitudes and institutional attitudes were found to have a direct effect on the dependent variable at (.24) and (0.03) respectively.

8.1.3.6.6 Mediation

The findings of mediation indicated that individual and institutional factors mediated the effects of IP valuation, protection and legal factors thereby increasing their predictive power on the dependent variable. For every unit change in valuation and individual attitudes increased intention to use IP as collateral by 0.12 and 0.24 respectively. Protection and legal also were found to have a positive and significant impact on intention to use IP as collateral, increasing intention at a rate of 0.22 and 0.25 respectively each time they were manipulated.

8.1.3.6.7 Overall Model Fit

One of the objectives of this study was to come up with a hypothesized model. All the three models of testing hypothesis suggested that the empirical evidence fitted well with

the statistical findings of the model of good fit, with Chi-Square (1.34), Baseline comparison CFI default model (0.983) and RMSA default model (0.048). This indicated that the hypothesized model was congruent with the observed values.

8.2 Contribution to Knowledge

The contributions to knowledge based on the objectives of the research were:

8.2.1 The level of knowledge of IP is 57% with 33% holding the view that IP can be used as collateral for loans. Further, an average of 23% of the participants had their organisations associated with all the three elements of IP and only 42% had the view that IP can be ranked at par with tangible assets. This indicates that a lot needs to be done to educate the general populace about IP.

8.2.2 The study has shown that extant literature indicated that the factors that influence the use of IP as collateral in loan transactions includes, IP knowledge, valuation, protection and relevant legal issues. Quantitative findings indicated that the level of understanding of these individual factors stands at 56%, 32% 33% and 33% respectively. In addition to the above factors, qualitative results have shown that there are individual and institutional factors that save as springboard towards the influence of using IP as collateral.

8.2.3 That there is a new practice of production that has emerged in major economies in the world known as the Knowledge Economy whose underlying assets is IP as opposed to tangible assets. Further that Intellectual Property is now considered as the engine for economic growth and that IP can be created by an individual without needing resources from anyone else.

8.2.4 Extant Literature indicated that there are many reasons for using IP as collateral with three primary reasons being: (1) IP is an untapped source of collateral; (2) IP securitisation offers a quick return on research and development; (3) IP securitisation captures additional value. In Zimbabwe, the formal sector could increase its financial resources base by tapping into the value of their IP. The informal sector could benefit greatly by using as IP as collateral because many lack the security required by banks to secure loans.

8.2.5 The fifth contribution relates to the proposal of a conceptual framework to be adopted (figure 4.1) and the development and validation of a combination of multiple Antecedent model for IP research. Extant literature indicates that factors that affect the

use of IP as collateral have been assessed separately rather than together as a combination. This study has, as a result, developed a model that helps to examine how a combination of factors help contribute to the phenomenon. Consequently, a combination of multiple factors has been empirically and quantitatively validated a combined influence on the use of IP as collateral. The validated model is shown in figure 8.1

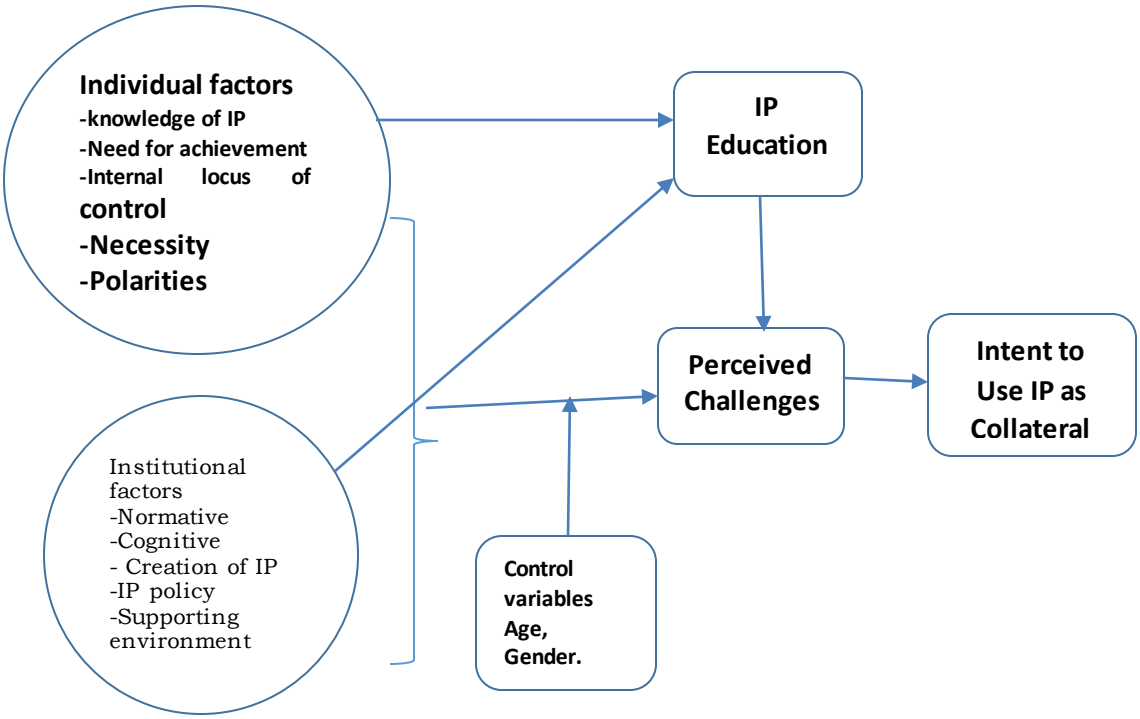

Figure 8.1- Validated Conceptual Model for the Mediating Role of individual & Institutional Factor

This model indicates that individual and institutional factors exert their effects on IP education not only through their mediating role on latent variables (perceived Challenges) but also through their direct influence on the intention to use IP as collateral for loans. This study established that the effectiveness of Individual and Institutional factors comprised perceived learning from the module/programme and experiential learning. Individual factors consist of knowledge of IP, locus of control, need for achievement, necessity and management of polarities. Lastly, institutional factors comprise normative, cognitive IP policy and supporting environment. The study finds that individual and institutional factors are the primary predictors and also mediate on perceived challenges on the intention to use IP as collateral in financial transactions.

8.2.6 This study developed and validated the effect of a combination of multiple antecedent model as the first of its kind in IP transactions and confirms the applicability of the model in developing countries. Because of little research in developing countries coupled with the inductive approach adopted, this study assumes that the theory of planned behaviour applies generally across different cultures. Therefore the basic IP model adopted for this study was found to apply to Zimbabwe.

8.2.7 The study has shown that there is a need to go beyond module leaning by adopting experimental learning. Experimental learning provides validation of constructs which determine the evaluation of the effectiveness of the primary and the latent factors on the desired goal, (Morgen, 2011); Moon, 2013). Experimental learning through quantitative methods in this study has validated the effectiveness of the constructs of IP knowledge, protection, valuation and legal aided by the individual and Institutional factors.

8.2.8 Intellectual-Property can be used as collateral in financial transactions in Zimbabwe and Africa as a whole as is the case in the developed countries.

8.2.9 That individual and institutional factors can be a catalyst to innovation and creativity. Specifically, it establishes, in addition to their own direct effect that effectiveness of individual and institutional factors mediates the effects of latent variables (antecedents) on the intention to use IP as collateral in financial transactions.

8.3 Implications of the Findings to Policy and Practice

This section addressed the issues of whether the research findings improved or changed the understanding of the phenomenon under investigation. Having identified challenges such as lack of knowledge of IP; lack of an understanding of IP's impact on commercial transactions and the underdevelopment of the economy as a whole, the findings could help to a large extent to improving or enhancing the knowledge of IP by introducing solutions targeting the specific challenges. It would no longer be like a fishing expedition where one was not sure of his target. The extant literature provided some ways and means of solving challenges in respect of IP. For example, the literature review provided the basis of knowing and understanding IP, its uses, how it could be identified in an enterprise and how it enhanced the value of an enterprise. The

Literature findings were complemented by the results of the qualitative and quantitative approaches in that the individual and institutional factors significantly influenced behaviour which in turn led to the knowledge of IP. This knowledge, in turn, led to the acquisition of innovative and creative skills leading to the creation of new ideas which could be monetised. Institutional factors were found to play a supportive role through the provision of infrastructure, regulations, marketing and access to funding. Further, institutions could provide access to skills training, which in turn could sharpen individual attributes such as the need for achievement and the internal locus of control.

Further, the result of the literature review, qualitative and quantitative approaches indicated that the practice of using IP as collateral has been explored and was being followed in the developed countries. Therefore, Zimbabwe and other developing countries should realise that IP has been considered to be the engine for economic growth and thus should adopt and implement it along the same lines as the developed counties. Policies aimed at adopting and embracing the knowledge economy should now be considered and implemented in Zimbabwe. Innovation and creativity should be encouraged. Stakeholders in financial transactions in Zimbabwe should be encouraged to widen their knowledge of IP, particularly that IP can be used as collateral in the same way as tangible assets.

Various organisations such ARIPO including research organisations, enterprises and financial institutions may be interested in using these findings professionally as the findings may be capable of leading to changes in the way business is done in Zimbabwe.

8.4 Limitations

The study was only conducted in Harare due to financial resource problems. Besides, Harare houses most business and head offices of most financial institutions. Problems associated with ethical issues and sample size may hinder the study from obtaining a representative sample from a target population. These coupled with lack of appropriate theoretical models and the time given that the study was required to be complete were challenges that limited a more holistic examination of the importance of IP and its use as collateral for loan transactions.

Sample size may not fully represent the views of the community as a whole, however, given that 255 questionnaires were distributed to participants and 200 were completed and returned meant that the findings of the research could be generalised to represent a wider spectrum of

the population thereby achieving external validity. This was complemented by a sample of 25 participants interviewed from the SMEs and senior management of financial institutions. However, this was marred by problems of the unwillingness not only to participate but also to divulge company secrets, without authority despite the study having written for permission from the relevant company authorities.

The effectiveness of qualitative research was heavily based on the skills and abilities of the researcher, and the outcome may not be perceived as reliable, because they mostly came from the study's judgments and interpretations. Further, since qualitative research is more appropriate for small samples, it was more likely that the results of the study would be perceived not to reflect the opinions of a wider population. However, it can be argued that this study achieved internal validity through qualitative research and external validity through quantitative research.

The used empirical data are from one developing country, Zimbabwe and as such the findings may not be generalised to other countries in the region and sub-Saharan countries. What may be common, however, is that most sub-Saharan countries are yet to use IP as collateral for financial transactions. Lastly, human error could not be ruled out especially in content analysis, where there could have been a risk for the study to misinterpret the data gathered and thereby generating false and unreliable conclusions.

8.5 Future Directions

Although this study has touched on issues of IP valuation and obsolescence, these have not been expanded to the extent to which an argument could convincingly be made that IP was as good as tangible business assets and that it could equally be used as collateral in loan transactions and achieving the same results. As a result, it is believed that further studies need to be conducted in the areas of IP valuation and preservation of value. Future research may consider obtaining samples from more countries which are at the same or different levels of economic development to access more liable data. Further, as the awareness of the knowledge economy spreads throughout the sub- Saharan countries more individuals and institutions could be sampled. This would enable researchers to assess the generalisability of the empirical data and the models utilised in this research.

8.6 General Conclusions

The research concludes that indeed IP is now the engine for wealth creation and this should lead stakeholders including decision-makers in government and financial institutions to be aware of how IP can be used to create wealth and increase the value of businesses thereby promoting economic growth. Given that the government of Zimbabwe has crafted an IP strategy it should create conducive environment for research and innovation based on IP and would promote legislation allowing the use of IP as collateral in financial transactions. The research also concludes that indeed the independent variables which are protection, valuation, legal and awareness all influence the use of IP as collateral in financial transactions as proved by the correlation and path analyses. This was corroborated by the chi-square, baseline comparisons (CFI) and the RMSEA tests which all indicate best fit between the observed data and the empirical evidence. Further, it was concluded that the independent variables should be examined in conjunction with factors at individual and institutional levels. Specifically, it was established that individual and institutional factors mediate the effects of other antecedent independent factors on the use of IP as collateral. More specifically, the current study develops and validates a multi-level integrated model to determine how these factors together influence the use of IP as collateral.

8.7 Recommendations

(a) First and foremost, it is considered that the government of Zimbabwe

Should embrace the knowledge-based economy in the same manner as the developed countries have, which now pride in the production of goods and services based on IP. The government should take advantage of the level of knowledge and understanding of IP (at 52%) to promote such a system.

(b) Government should create an enabling environment where people are encouraged to learn or to have knowledge of IP and its uses. This should be manoeuvred from focusing on individual traits and backgrounds such as the internal locus of control and cascading into institutional environments such as universities and other manufacturing entities. Universities should be encouraged and aided to build innovation hubs from which prototype innovations could be developed. Further, local Universities should be encouraged to incorporate IP curricula in their degree courses to enhance its understanding and promoting innovations and creativity based on IP.

(c) The government should also beef up support of SMEs towards innovation and creativity. As revealed in chapter 6, SMEs are the hub of innovation. It is from these small companies that great ideas are derived.

(d) While there is currently IP strategy and policy in Zimbabwe, the government should strengthen the knowledge propagation on IP rights and increase their awareness in the whole society. It should carry out the ordinary IP rights education extensively, and increase the IP rights content in the national promotion of the public awareness of IP being used as collateral in loan transactions and or IP securitisation.

(e) The Zimbabwe Intellectual Property Office (ZIPO) should be allowed to play a leading role in the development of a legal framework for IP registration, protection and solving the infringement and practical challenges associated with the use of IP. Overall, law enforcement and administration systems need to be strengthened, while the courts should play their role with regards to the protection of IP rights.

(f) The government should play a major role in developing a system, such as that of the IP Office of Singapore (IPOS) which issues IP backed securities market. This will encourage some financial institutions to participate in such schemes as well as enabling financial inclusion to a wider spectrum of the population. This should help promote the practice of extending loans secured solely by IP in Zimbabwe

(g) Government and Financial institutions should regularly liaise with institutions such as ARIPO to promote and to protect IP projects and to ensure that these contribute to the economic growth of the economy.

(h) Currently, there is no legislation in Zimbabwe legalising the use of IP as collateral for loans. The government should incorporate the national IP policies in the legislation allowing the use of IP as collateral and also consider fiscal policy measures that encourage the development and commercialisation of inventions and other IP assets. Also, any such legislation should consider policies and legislative measures that impact on non-resident patenting activities as this would influence the expected balance between

FDI with local investment and subsequently influencing economic growth that is linked to the manufacturing sector.

(i) The lenders and manufacturing industries also must play a role in the adoption of IP in financing. Firstly they must all work together to set up a credible institution that will carry out the valuation of IP in question. Secondly, they must promote awareness of IP in their workplaces.

(j) ARIPO member countries should make statistics on IP activities more available on their websites so that policymakers and researchers could consider when making decisions and or undertaking comparative studies. The availability of reliable statistics would help inform scholars and policymakers.

(k) Lastly, if any proposed legislation is to respond effectively to the realities of secured financing in today's technology-driven world, it should acknowledge the importance of other appropriate recommendations concerning security rights in IP.

8.8 Chapter summary

From the results of the literature review, the qualitative and quantitative findings, it is apparent that there is no dispute to the notion that IP is now the engine for wealth creation. It is also evident that the advent of the knowledge-based economy, which is characterised by information and knowledge emanating from the use of IP has been embraced by the developed counties and others in Asia and as such have made great strides towards using IP not only in commercial transactions but also recognising it as the main business asset. It remains that Africa is yet to seriously pursue the same route. African governments should seriously consider driving the growth of their economies by embracing the knowledge-based economy. In such a knowledge-based economy, IP assets play a crucial role in business performance and economic growth.

African businesses, particularly in Zimbabwe, are still not sure whether they have IP among their assets. Therefore Chapter 3 of this thesis was dedicated to educating businesses on how to be able to identify, evaluate, protect and use of IP as collateral security in commercial lending transactions. The Zimbabwean government and indeed other African countries in the region

should take advantage of the existence of ARIPO in their midst to drive economic growth through IP based technologies. Finally, African governments should realise that for intellectual property to gain acceptance so that using it as collateral could become a normal standard practice, there would be a need for it to be widely publicised so that it would become a household name and appreciated as a tool for wealth creation. In this regard, the Government of Zimbabwe has a huge role to play, in ensuring that the knowledge economy concept is widely embraced in the country.

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APPENDIX A: QUESTIONNAIRE

My name is Onesimo Kadare. I am a PhD student at the University of Lusaka, Zambia. I am carrying out a research on the topic mentioned above. I kindly seek your assistance in answering the questions below. The responses that you give will be kept confidential and the information will be used for academic purposes only. Please tick in the provided circles

SECTION A: Demographic Data

A 1 Gender

1 O Male

2 O Female

A 2 Age range

1 O < 20 years

2 O 20-30 years

3 O 31-40 years

4 O 41-50 years

5 O 51-60 years

6 O 60 years

A 3 Highest level of education

1 o Below 'O' level

2 o 'O' level

3 o 'A' level

4 o Certificate

5 o Diploma

6 o University 1st Degree

7 o Postgraduate

SECTION B: Intellectual Property

B1. Do you understand what Intellectual Property is?

Not at all	to a less extent	to a moderate extent	to a great	yes
O	O	O	O	O
1	2	3	4	5

B 2. To what extent are you aware of the following Intellectual?

Property Concepts?

	Not at all	to a less extent	to a moderate extent	to a great extent	yes
	1	2	3	4	5
B2.1 Patents	O	O	O	O	O
B2.2 Copyright	O	O	O	O	O
B2.3 Trademark	O	O	O	O	O
B2.4 Trade Secrets	O	O	O	O	O

B 3. To what extent are you aware of the process of creation of Intellectual Property?

1 O not at all

2 O aware but to a less extent

3 O aware but to a moderate extent

4 O aware to a greater extent

5 O fully aware

B 4. Do you think IP can enhance the value of an enterprise?

1 O no

2 O Yes

3 O yes, to a less extent

4 O Yes, to a greater extent

B 5. To what extent are the following Intellectual Property elements associated with your industry/organisation?

	Not at all	to a less extent	to a moderate extent	to a greater extent	fully associated
	1	2	3	4	5
B5.1 Patents	O	O	O	O	O
B5.2 Copyrights	O	O	O	O	O
B5.3Trademarks	O	O	O	O	O
B5.4 Trade secrets	O	O	O	O	O

B 6. Do you think Intellectual Property should be ranked at par with tangible business assets such as Warehouses, Plant & Equipment and Motor vehicles?

1 O not at all

2 O yes: to a less extent

3 O yes: to a moderate extent

4 O yes: to a greater extent

5 O yes: to the full extent

B6.1 Please provide more information:

SECTION C: Use of IP as collateral for loan Transactions

C 1. Are you aware that IP can be used as collateral in loan transactions?

1 O not at all

2 O to a less extent

3 O to a moderate extent

4 O to a greater extent

5 O fully aware

C 2. Do you think IP can be used as collateral for loan transactions?

1 O yes

2 O no

3 O yes to a lesser extent

4 O yes to a greater extent

5 O yes to a full extent

C2.1 Please provide more information

C 3. Are you aware that IP has been used as collateral in some countries, particularly in the developed world?

1 O no

2 O yes

C4. Would you advise your organisation to accept IP as a form of collateral

1 O no
2 O yes

C5. Do think your organisation would be willing to accept IP as collateral

1 O no
2 O yes

C6. Do you think that your organisation has future plans to accept IP as collateral

1 O no
2 O yes

SECTION D: Factors influencing the use of IP as collateral in loan transactions

D 1. How do you rate the following factors as influential to acceptance of IP as collateral in loan transactions?

	Not at all	to a less Extent	to a greater extend	very much influential
	1	2	3	4
D1.1 Protection	O	O	O	O
D1.2.Valuation	O	O	O	O
D1.3 Legal	O	O	O	O

D1.1 Protection

D1.1.2 what do you think IP protection is?

D1.1.3 why do you think IP should be protected?

D1.1.4 how do you think IP protection is achieved?

D1.1.5 what do you think are the qualifications for IP protection?

D1.1.6 what are the four types of IP protection?

D1.2.Valuation:

D1.2.1 what do you think IP valuation is?

D1.2.2 why do you think IP should be valued?

D1.2.3 how do you think IP should be valued?

D1.3 Legal:

D1.3.1 what do you think IP law deals with?

D1.3.2 what do you think IP law protects?

D1.3.3 how do you get into IP law?

D1.4 Please provide more information

D 2. What other factors do you think may influence the acceptance or non-acceptance of Intellectual Property as collateral in loan transactions?

D2.1 a.

D2.2 b.

D2.3 c.

SECTION E: Securitisation

E 1. Do you understand what securitisation is?

Not at all	to a less extent	to a moderate extent	to a great extent
1	2	3	4
O	O	O	O

E 2. Do you think Intellectual Property assets can be used for securitisation in the same way as tangible assets?

1	2	3	4
Not at all	to a less extent	to a greater extent	yes
O	O	O	O

From: Onesimo Kadare [mailto:kadareo@yahoo.com]
Sent: Friday, May 04, 2018 3:33 PM
To: emuza@agribank.co.zw; dmbiba@agribank.co.zw; imupfurutsa@bancabc.com; vgorogodo@bancabc.com; agovera@bancabc.com; schaora@bancabc.com; Mukorombindo, Benjamin : FMB-BB Zimbabwe; Murwira, Susan : FMB-BB Zimbabwe; Mujuru, Tsitsi : FMB-BB Zimbabwe; elimon.taundi@barclays.corp; ekutaura@cbz.co.zw; bchanyuka@cbz.co.zw; adrianzidya@cabs.co.zw; jotamum@oldmutual.co.zw; jessiem@oldmutual.co.zw; Jessiemh@oldmutual.co.zw; xolanin@oldmutual.co.zw; FKARANDA@ecobank.com; cmutasa@ecobank.com; pchikwanda@ecobank.com; weston.harunavamwe@fbc.co.zw; patrick.takawira@fbc.co.zw; amashonganyika@idbz.co.zw; mkatoma@idbz.co.zw; mathiaska@mbca.co.zw; ventma@mbca.co.zw; pmuzadzi@metbank.co.zw; ybasiyawo@metbank.co.zw; kndongwe@metbank.co.zw; crispenm@nmbz.co.zw; addisons@nmbz.co.zw; fchirikure@posb.co.zw; cmugonera@posb.co.zw; GondongweG@stanbic.com; MuchenjeM@stanbic.com; angeline.mkombodzi@sc.com; edmore.muhomba@sc.com; roselett.madzinga@sc.com; sinqobile.magenga@sc.com; tonderai.manyeza@stewardbank.co.zw; ndaiva.chimbindi@stewardbank.co.zw; munyaradzi.kavhu@stewardbank.co.zw; fgwdu@zb.co.zw; gmutoko@zb.co.zw; latif.kassim@nbs.co.zw; UChisango@rbz.co.zw; OMasiiwa@rbz.co.zw; MMurahwa@rbz.co.zw; WKutiya@rbz.co.zw; CTembo@rbz.co.zw; CMarufu@rbz.co.zw; IDunira@rbz.co.zw; TMukura@rbz.co.zw; VMotsi@rbz.co.zw; BRopa@rbz.co.zw; MMabika@rbz.co.zw; PShoko@rbz.co.zw; SRubara@rbz.co.zw
Subject: Re: PHD QUESTIONNAIRE FOR KADARE

APPENDIX B: INTERVIEW SCHEDULE

A. My name is Onesimo Kadare. I am a PhD student at the University of Lusaka, Zambia. I am carrying out research. The research topic is '**AN INVESTIGATION INTO THE CHALLENGES IN USING INTELLECTUAL PROPERTY AS COLLATERAL IN LOAN TRANSACTIONS: A CASE FOR ZIMBABWE'.**

B. As part of the research, I am required to interview some people involved in the SME sector regarding their knowledge of Intellectual Property and its uses. I kindly seek your assistance and corporation in participating in the interviews and discussions.

C. The information you will give will be kept confidential and will be used solely for academic purposes.

D. Discussion on what is Intellectual Property as compared to tangible assets.

Let me begin by asking you some questions about where you live and your Family?

1. How old are you?
2. Where do you live?
3. Are you married?
4. If so, how many children do you have?
5. What is your educational background and or work experience?
6. Have you ever been employed in the formal sector before?
7. If so, what were you employed as?
8. Is this were you first acquired your skills from?
9. Do you understand what IP is? Or from my explanation of IP – do you now understand it?
10. Are you now aware that the IP that you are creating can be converted into cash that you can use to improve your creativity and innovation?
11. Do you feel that you need to raise money to invest in your SME and to enable you to be innovative?

12. Do you feel that you need to apply for a loan from financial institutions?

13. Have you applied for a loan?

14. What have been the challenges? – Collateral

15. Do you think you require government intervention in obtaining finance and in selling your products?

16. Do you think you require support from colleagues in the SMEs sector?

17. What sort of support?

18. What motivates you to be creative and or innovative?

- Necessity
- Locus of control
- Others

} some answers given

19. Do you now realise that you can raise finance using your IP?

20. What would you think would be hindrances in using your IP as collateral?

- Valuations
- Protections
- Acceptance by financial institutions

} some answers given

21. How do you handle or solve day to day challenges you come across in your work?

22. How do you rate yourself in view of self-esteem?

23. What specific product(s), innovation or creativity you are currently working on?

24. How do you see yourself now in comparison with when you were employed in the formal sector?

25. You probably have been involved in the creation of the mind when you were employed in the formal sector. If so did you know that such creation belonged to the company that you worked for?

26. Do you now realise that whatever you are creating now belongs to you and you can protect it through registration?

Well, it has been a pleasure finding out more about you, your work and your understanding of IP. I believe that the information will be very beneficial to me, to yourself and to your colleagues. I appreciate the time you took for this interview. If there is anything else you think would be helpful – for me and yourself?

APPENDIX C

Onesimo Kadare <kadareo@yahoo.com>

To:Rufaro O. Hatendi & ten others

Wed, May 6 at 9:40 AM

Good morning I hope I find you well. My name is Onesimo Kadare. I am a PhD student in law, at the University of Lusaka, Zambia. My topic is " INVESTIGATING FACTORS INFLUENCING THE ADOPTION OF INTELLECTUAL PROPERTY AS COLLATERAL IN COMMERCIAL LENDING: EVIDENCE FROM ZIMBABWE". May I please have your thoughts on the use of IP as collateral for loans. Why is it difficult to have such facilities in Zimbabwe given that many in business, particularly those in the SMEs lack collateral to secure loans as required by banks.

Your response will be greatly appreciated.

Yours faithfully

O. Kadare

APPENDIX D

Normality Analysis for Intellectual Property Concept

Descriptive Statistics

Awareness of IP	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Kurtosis Statistic
Awareness about intellectual protection	150	4.15	.903	-.586	-.889
Awareness of patents	150	3.67	1.046	-.595	-.036
Awareness of copyrights	150	3.92	.966	-.653	-.277
Awareness of trademarks	150	3.91	.854	-.343	-.270
Awareness of IP as collateral in loan transactions	150	2.55	.864	.076	.247
Valid N (listwise)	**150**				
Availability of Protection Mechanisms	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Kurtosis Statistic
IP protection services are available in Zimbabwe	150	2.41	.943	.108	-.653
IP application and licensing procedure is easy	150	2.41	.950	.086	-.690
Obtaining IP insurance cover is easy in Zimbabwe	150	2.24	.880	.228	-.384
There are institutions which track and report on IP infringement	150	1.99	.867	.464	-.312
The government created conducive environment for IP to be recognised	150	2.26	.930	.269	-.549
Valid N (listwise)	150				
Valuation capabilities	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Kurtosis Statistic
Our company has the capabilities to assess the value of IP assets	150	2.55	1.040	.146	-.625
The measurement and reporting of IP assets is standardised	150	2.20	.920	.693	.712
There are many professional IP valuers in Zimbabwe	150	2.66	1.035	.023	-.814
IP valuation is competently and accurately done in Zimbabwe	150	2.39	.988	.299	-.394
IP valuation is being well-controlled and regulated	150	2.39	.996	.547	.185
Valid N (listwise)	150				
Legal	N	Mean	Std. Deviation	Skewness	Kurtosis

	Statistic	Statistic	Statistic	Statistic	Statistic
The existing IP legal framework is conducive	150	3.53	1.109	-.561	-.176
There are practicing IP attorneys available	150	4.15	.930	-.704	-.404
Processing IP infringement legal cases is done efficiently	150	4.01	.919	-.552	-.391
The enforcement of IP court rulings are expeditious	150	3.75	.934	-.239	-.387
IP ownership/infringement legal disputes are fewer	150	3.85	.893	-.280	-.231
Valid N (listwise)	150				

	N	Mean	Std. Deviation	Skewness	Kurtosis
Company attitudes	Statistic	Statistic	Statistic	Statistic	Statistic
Our company is willing to measure and report their IP assets	150	2.63	1.184	.451	-.489
Our company is willing to recognise the value of IP assets	150	2.16	1.087	.629	-.278
Our company is willing to recognise IP valuations in their decisions	150	2.17	1.064	.575	-.488
Our company is willing to accept/use non-tangible assets as collateral	150	2.31	1.044	.526	-.058
Our company is willing to accept/use IP assets as collateral	150	2.19	.988	.618	.127
Valid N (listwise)	150				

	N	Mean	Std. Deviation	Skewness	Kurtosis
Individual Attitudes	Statistic	Statistic	Statistic	Statistic	Statistic
I am willing to advocate the measurement and reporting of IP assets	150	2.74	.908	-.005	.000
I am willing to recognise the value of IP assets	150	2.49	.947	.068	-.471
I am willing to recognise IP valuations in decision-making	150	2.54	.931	-.169	-.598
I am willing to advocate for the acceptance/use of non-tangible assets as collateral	150	2.63	.937	-.146	-.408
I am willing to advocate for the acceptance/use of IP assets as collateral	150	2.55	.864	.076	.247
Valid N (listwise)	150				

	N	Mean	Std. Deviation	Skewness	Kurtosis
Use/Intention to use IP as collateral	Statistic	Statistic	Statistic	Statistic	Statistic

We already accept/intend to accept IP assets as lending collateral	150	2.69	.843	.156	.477
We already accept/intend to accept other intangible assets as lending collateral	150	2.82	1.050	-.056	-.654
We already consider/intend to consider IP assets in our lending decisions	150	2.85	1.071	.297	-.427
We already consider/intend to consider IP risk in our lending decisions	150	2.34	1.152	.612	-.310
We already have/intend to have a dedicated unit to manage IP assets	150	2.25	1.011	.459	-.522
Valid N (listwise)	150				

APPENDIX E: COMMUNALITIES

	Initial	Extraction
Usage of IP for Securitisation	1.000	.862
IP protection services are available in Zimbabwe	1.000	.657
IP application and licensing procedure is easy	1.000	.695
Obtaining IP insurance cover is easy in Zimbabwe	1.000	.702
There are institutions which track and report on IP infringement	1.000	.657
The government created a conducive environment for IP to be recognised	1.000	.768
Our company has the capabilities to assess the value of IP assets	1.000	.750
The measurement and reporting of IP assets is standardised	1.000	.707
There are many professional IP values in Zimbabwe	1.000	.717
IP valuation is competently and accurately done in Zimbabwe	1.000	.648
IP valuation is being well-controlled and regulated	1.000	.745
The existing IP legal framework is conducive	1.000	.797
There are practising IP attorneys available	1.000	.825
Processing IP infringement legal cases are done efficiently	1.000	.753
The enforcement of IP court rulings are expeditious	1.000	.728
IP ownership/infringement legal disputes are fewer	1.000	.660
Our company is willing to measure and report their IP assets	1.000	.815
Our company is willing to recognise the value of IP assets	1.000	.703
Our company is willing to recognise IP valuations in their decisions	1.000	.843
Our company is willing to accept/use non-tangible assets as collateral	1.000	.759
Our company is willing to accept/use IP assets as collateral	1.000	.729
I am willing to advocate the measurement and reporting of IP assets	1.000	.676
I am willing to recognise the value of IP assets	1.000	.685
I am willing to recognise IP valuations in decision-making	1.000	.681
I am willing to advocate for the acceptance/use of non-tangible assets as collateral	1.000	.775
I am willing to advocate for the acceptance/use of IP assets as collateral	1.000	.859
We already accept/intend to accept IP assets as lending collateral	1.000	.603

We already accept/intend to accept other intangible assets as lending collateral	1.000	.738
We already consider/intend to consider IP assets in our lending decisions	1.000	.665
We already consider/intend to consider IP risk in our lending decisions	1.000	.887
We already have/intend to have a dedicated unit to manage IP assets	1.000	.848
Awareness about intellectual protection	1.000	.699
Awareness of patents	1.000	.746
Awareness of copyrights	1.000	.832
Awareness of trademarks	1.000	.703
Awareness of IP as collateral in loan transactions	1.000	.859

Extraction Method: Principal Component Analysis.

APPENDIX F

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.741	24.280	24.280	8.741	24.280	24.280	4.458	12.382	12.382
2	4.342	12.062	36.342	4.342	12.062	36.342	4.314	11.982	24.364
3	2.998	8.326	44.668	2.998	8.326	44.668	3.499	9.719	34.083
4	2.251	6.253	50.921	2.251	6.253	50.921	3.058	8.496	42.578
5	1.902	5.282	56.204	1.902	5.282	56.204	2.655	7.375	49.954
6	1.703	4.729	60.933	1.703	4.729	60.933	2.409	6.692	56.646
7	1.411	3.918	64.851	1.411	3.918	64.851	1.955	5.431	62.077
8	1.226	3.407	68.258	1.226	3.407	68.258	1.878	5.215	67.293
9	1.158	3.218	71.476	1.158	3.218	71.476	1.382	3.839	71.132
10	1.044	2.899	74.375	1.044	2.899	74.375	1.168	3.243	74.375
11	.948	2.632	77.007						
12	.791	2.197	79.204						
13	.707	1.963	81.167						
14	.643	1.786	82.953						
22	.327	.909	93.233						
27	.225	.625	96.901						
28	.213	.590	97.491						
29	.178	.494	97.985						
30	.162	.451	98.436						
31	.137	.380	98.816						
32	.132	.365	99.182						
33	.116	.321	99.503						
34	.097	.270	99.773						
35	.082	.227	100.000						
36	1.009E-16	2.804E-16	100.000						

Extraction Method: Principal Component Analysis.

APPENDIX G

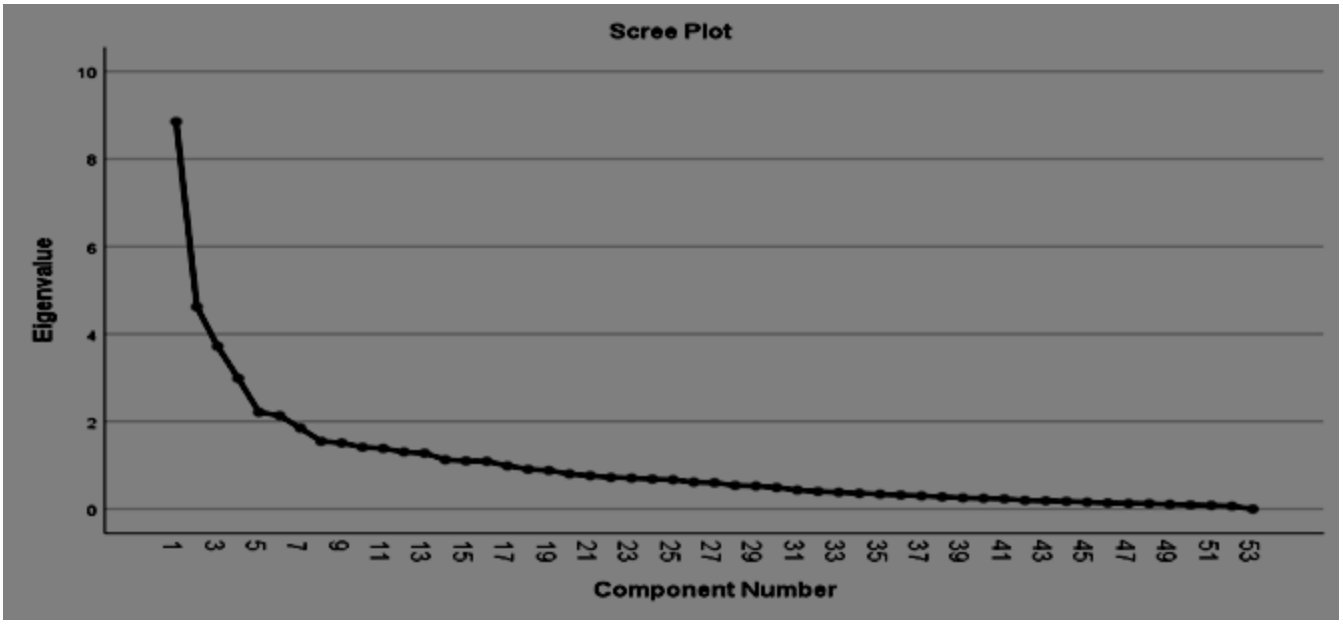
Table8.15 Rotated Component Matrix

	Component										
	1	2	3	4	5	6	7	8	9	10	
Our company is willing to accept/use non-tangible assets as collateral	.850										
Our company is willing to recognise IP valuations in their decisions	.819										
Our company is willing to accept/use IP assets as collateral	.789										
Our company is willing to recognise the value of IP assets	.772										
IP ownership/infringement legal disputes are fewer	-.699										
The enforcement of IP court rulings are expeditious	-.620										
I am willing to advocate for the acceptance/use of IP assets as collateral		.860									
Awareness of IP as collateral in loan transactions		.860									
I am willing to advocate for the acceptance/use of non-tangible assets as collateral		.755									
I am willing to recognise the value of IP assets		.720									
I am willing to recognise IP valuations in decision-making		.678									
I am willing to advocate the measurement and reporting of IP assets		.655									
There are many professional IP values in Zimbabwe			.787								
Our company has the capabilities to assess the value of IP assets			.775								
IP valuation is competently and accurately done in Zimbabwe			.726								
The measurement and reporting of IP assets is standardised			.687								
IP valuation is being well-controlled and regulated			.681								
Obtaining IP insurance cover is easy in Zimbabwe				.761							

There are institutions which track and report on IP infringement				.754							
IP application and licensing procedure is easy				.705							
The government created a conducive environment for IP to be recognised				.623							
IP protection services are available in Zimbabwe				.526							
Awareness of copyrights					.797						
Awareness of trademarks					.739						
Awareness of patents					.620						
Awareness about intellectual protection					.589						
We already have/intend to have a dedicated unit to manage IP assets						.873					
We already consider/intend to consider IP risk in our lending decisions						.840					
We already accept/intend to accept IP assets as lending collateral											
Our company is willing to measure and report their IP assets							.747				
The existing IP legal framework is conducive							-.651				
There are practising IP attorneys available								.786			
Processing IP infringement legal cases are done efficiently	-.547							.595			
We already accept/intend to accept other intangible assets as lending collateral											
We already consider/intend to consider IP assets in our lending decisions											
Usage of IP for Securitisation										.923	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

APPENDIX H



APPENDIX I

Reliability Analysis for Intellectual Property Concept Constructs

Item-Total Statistics

Construct	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Awareness (α=0.818)				
Awareness about intellectual protection	14.05	5.320	.332	.455
Awareness of patents	14.53	4.331	.480	.341
Awareness of copyrights	14.28	3.921	.696	.182
Awareness of trademarks	14.29	4.491	.634	.268
Awareness of IP as collateral in loan transactions	15.65	8.805	-.397	.792
Protection (α=0.832)				
IP protection services are available in Zimbabwe	8.90	8.117	.575	.793
IP application and licensing procedure is easy	8.90	7.661	.672	.763
Obtaining IP insurance cover is easy in Zimbabwe	9.07	7.840	.707	.754
There are institutions which track and report on IP infringement	9.33	8.584	.543	.801

The government created a conducive environment for IP to be recognised	9.05	8.266	.555	.798
Valuation (α=0.792)				
Our company has the capabilities to assess the value of IP assets	9.64	9.400	.684	.782
The measurement and reporting of IP assets is standardised	9.99	10.450	.596	.807
There are many professional IP values in Zimbabwe	9.53	9.472	.675	.785
IP valuation is competently and accurately done in Zimbabwe	9.81	9.889	.640	.795
IP valuation is being well-controlled and regulated	9.80	10.282	.559	.818
Legal (α=0.855)				
The existing IP legal framework is conducive	15.77	8.422	.453	.798
There are practicing IP attorneys available	15.15	8.394	.615	.738
Processing IP infringement legal cases is done efficiently	15.28	8.122	.687	.715
The enforcement of IP court rulings are expeditious	15.54	8.505	.587	.747
IP ownership/infringement legal disputes are fewer	15.44	8.879	.544	.761
Company Attitudes (α=0.861)				
Our company is willing to measure and report their IP assets	8.83	12.811	.480	.877
Our company is willing to recognise the value of IP assets	9.31	12.053	.668	.825
Our company is willing to recognise IP valuations in their decisions	9.30	11.312	.815	.785
Our company is willing to accept/use non-tangible assets as collateral	9.15	11.983	.720	.811
Our company is willing to accept/use IP assets as collateral	9.27	12.455	.695	.819
Personal Attributes ((α=0.763)				

I am willing to advocate the measurement and reporting of IP assets	10.21	9.377	.602	.852
I am willing to recognise the value of IP assets	10.46	8.626	.724	.821
I am willing to recognise IP valuations in decision-making	10.41	8.781	.706	.825
I am willing to advocate for the acceptance/use of non-tangible assets as collateral	10.32	8.501	.763	.810
I am willing to advocate for the acceptance/use of IP assets as collateral	10.41	9.572	.604	.851
Use/Intention of use of IP as collateral (α=0.792)				
We already accept/intend to accept IP assets as lending collateral	10.27	10.183	.510	.731
We already accept/intend to accept other intangible assets as lending collateral	10.14	9.396	.488	.737
We already consider/intend to consider IP assets in our lending decisions	10.11	9.653	.426	.759
We already consider/intend to consider IP risk in our lending decisions	10.62	8.116	.639	.679
We already have/intend to have a dedicated unit to manage IP assets	10.71	8.866	.622	.689

APPENDIX J

	Key Empirical Studies Pertinent to The effects of Institutional, Individual and Other Latent variables on the intention to use of IP as Collateral in Financial Transactions.2016 -2019.					
#	**Authors**	**Approach**	**Focus of the study**	**Context/ Sample**	**Findings**	**Knowledge gap**
1	Abbasiet al.,(2015)	**Qualitative**	"Impact individualism and collectivism over the individual's technology acceptance behaviour: A multi-group analysis between Pakistan and Turkey". Journal of Enterprise Information Management. **28** (6): 747–768	Technology theory as a base for the conceptual model of the study.	When a new technology is presented users or individuals are influenced by a number of factors to adopt the new technology,	The study became aware of the factors that affect users to adopt new technology.
2	Adrian J,(2009)	**Qualitative**	Piracy. The Intellectual Property Wars from Gutenberg to Gates. The University of Chicago	Analysis of the development of IP wars	Although the use of IP assets in commercial transactions has been known since the 1950s, there is nothing tangible that has been said or written about them over the years until 2000, when countries in the developed world started embracing the knowledge economy concept.	The acceptance of Knowledge economy over time
3	Adrian, (2009)	Qualitative	The Intellectual Property Wars from Gutenberg to Gates. The University of Chicago Press, 2009, ISBN 978-0-22-40118-8, p.247	Trends in the development of the use of IP as collateral	IP assets in commercial transactions have been known since the 1950s, but there was nothing tangible that had been said or written about them over the years until 2000 when countries in the developed world started embracing the	The acceptance of Knowledge economy over time

					knowledge economy concept.	
4	Allison, (2018)	Qualitative	Alternative Dispute Resolution, Arbitration, Federal Courts, International Law, Law & Social Change, Mediation, Negotiation.	Rules/methods of Dispute resolution in IP context	Alternative Dispute Resolution on IP	Alternative Dispute Resolution on IP
5	Anderson etal., (2013)	Qualitative	"Innovation and Creativity in Organisations, .	Traditional knowledge & Folklore	Protection of Traditional knowledge	Know how traditional knowledge can be protected
6	APEC, (2018),	Qualitative/Quantitative	IP Valuation Manual: A Preliminary Guide. P, 5.	Example of DCF calculations	How companies can identify and value their own IP	Importance of DCF valuation method on IP
7	Bahari, (2012)	Quantitative	Qualitative Vs Quantitative; Research Strategies (Epistemological& Ontological.	Statistical methods	Research philosophy is based on two important assumptions regarding the study's views of the world, particularly the ontological and epistemological aspects.	Knowledge that research is based on some philosophical base
8	Roberts, (2009)	Qualitative	"A short History of Private Patent Examination", Insurance IP	History of IP development and protection	Definition of Knowledge-Economy	Understanding of knowledge economy
9	Brasell & Maguire, (2017).	Qualitative	Hidden Value: A study of the UK IP valuation market	IP enhancing the market value of an enterprise	In the event of a sale, merger or acquisition, IP assets may significantly raise the value of an enterprise and at times may be the primary or only true assets of value	Knowledge that IP assets are valuable

10	Brennan (2008) WIPO:		The Challenge of IP Financing.	An introduction to IP financing	Raising funds through IP	IP can be used to raise funds for business
11	British Business Bank PLC (2018)	Qualitative/quantitative	Capital Grants and term loans	most recent data which shows a trend over the medium-term of intangible investment growing faster than tangible investment - in absolute terms: 3.5% CAGR and 2.9% respectively	Investment in intangible assets was higher than in tangible assets across the period 2001 to 2014, although the growth of intangible investment has slowed somewhat since 2009.	Growing investment in IP assets
12	Brook Masters, (2012)	Qualitative	Chief Regulation correspondent Brody, B.A. 2010. Traditional Knowledge and Intellectual Property.	IP Traditional knowledge and conventional IP	Found that several US banks want to tap the value of intellectual property holdings of their borrowers as a way of trimming their capital requirements, which are to be made tougher under Basel 111 rules.	Traditional knowledge can be protected as with other IP
13	Mann, (2014)	Quantitative	Narrative Research evolving	Gave as an example, of high-profile IP securitisation which occurred in 2007 when Sears created $1.8 billion worth of bonds based on the brand names Kenmore,	IP securitisation a reality In Developed countries	IP can be securitised

				Craftsman, and DieHard.		
14	Bryman, (2012)	Qualitative/Quantitative	Social Research Methods; Oxford University Press.	Research methods	Quantitative data collection methods also include various forms of surveys – online surveys, questionnaires, mobile surveys and kiosk surveys, face-to-face interviews, telephone interviews, longitudinal studies, website interceptors, online polls, and systematic observations.	Knowledge of various types of surveys
15	Burrus, (2017)	Qualitative/Quantitative	Creativity and Innovation: Your Keys to a Successful Organization World Leading Futurist on Global Trends and Innovation	Trends in IP uses	Enterprises may also use patents to earn royalty revenue by licensing such patented inventions to other firms that have the capacity to commercialise them and in the process earning a stream of income from its invention.	IP can be licenced and earn royalties
16	Burton et al.., (2014)	Qualitative	"What is Collateralisation"	Financial research	Common uses of IP in Loan Transactions	That IP can be used as collateral in financial transactions
17	Collins, (2010)	Qualitative	"Creative Research: The Theory and Practice of Research for the Creative Industries" AVA Publications	Theory & Practice of Research.	Primary data generated via interpretivism studies might be associated with a high level of validity because data in such	That research is more often based on a theory

					studies tend to be trustworthy and honest.	
18	Collopy & Kua Han Chun, (2014)	Qualitative		April 2014, the Intellectual Property Office of Singapore (IPOS) report	The Intellectual Property Office of Singapore (IPOS) introduced an intellectual property scheme aimed to catalyse innovation among the local companies.	Demonstration of the promotion of IP investment
19	Collopy & Kua Han Chun, 2014	Qualitative	Intellectual Property Office of Singapore; IP Financing; Spruson & Ferguson.	IP Financing schemes	IP financing scheme is aimed to benefit Singapore-based companies such that they could leverage their intellectual property assets and raise capital to expand their businesses, increase their markets, or create new and innovative products through additional research and development.	Demonstration of the promotion of IP investment
20	Creswell, (2008).	Qualitative	Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Thousand Oaks: Sage.	Research Design	pragmatism allows the use of both inductive and deductive reasoning through various combinations of qualitative and quantitative data	How research is designed
21	Creswell, (2012)	Qualitative	Educational research: planning, conducting, and evaluating quantitative and qualitative research, 4th ed.	Research philosophical Assumptions	The qualitative approach, like any other approach, makes ontological and epistemological philosophical assumptions.	How research is design May be designed

22	Creswell, (2014)	Qualitative	Research Design. Qualitative, Quantitative and Mixed Methods Approaches. Fourth ed. Lincoln: Sage Publications.	Research design	Developed a research matrix	How research may be designed
23	Dansky et al., (2016)	Qualitative	Q&A: Creating value through IP asset management and valuation special report: intellectual property Financier Worldwide Magazine	Creation of value through IP	In many start-up companies, particularly in the technology-related industries, intellectual property assets are often the single most valuable assets	That IP can enhance the value of an enterprise
24	Datt, (2016)	Qualitative	Project Guru; Defining Research Strategy	Research methods	defined research method as "*the theory of methods*", or the way through which a researcher makes sense of the object of inquiry	What Research strategy is
25	Defranzo, (2012)	Qualitative	Main benefits of Survey Research. Snap Survey Blog	Research data collection methods	The anonymity of surveys allows respondents to answer with more candid and valid answers,	Surveys can be anonymo us
26	De Clercq et al., 2011	Qualitative	Entrepreneurship as an integrating mechanism for disadvantaged persons	Effect of combination of multiple antecedents on intention to use IP as collateral	focusing on only one angle instead of a combination of factors often leads to incomplete understanding and sometimes inconsistent conclusions,	More factors than one produce better results
27	Devi, (2009)	Qualitative	Understanding the Qualitative and Quantitative Methods in the context of content analysis; QQML2009: Qualitative and Quantitative Methods in Libraries,	Research Analysis	Conceptual analysis can be thought of as establishing the existence and frequency of concepts	Research is about finding effects of concepts on each other

			International Conference, Chania Crete Greece, 26-29 May 2009		– Most often represented by words or phrases. In contrast, the relational analysis goes one step further by examining the relationships among concepts in a text.	
28	Doses and Walter, 2012	Qualitative/Quantitative	Knowledge context & Entrepreneurial intentions among students.	Effect of multiple combination of antecedents on intention to use IP as collateral	Found out that focusing on only one angle instead of a combination of factors often leads to incomplete understanding and sometimes inconsistent conclusions	Combination of antecedents produce better results
29	Dolizal and Kurtz, (2010)	Qualitative/Quantitative	Evaluation of Combined Antecedent variables on functional analysis results and Treatment of Problem Behaviour in a School setting, Journal of Applied Behaviour Analysis v 43 (2)	Consideration of multiple antecedences	Where multiple antecedences are considered it is believed from a statistical perspective that a combination of multiple relevant independent variables does improve the understanding of the impact on the dependent variable. The reason is that multiple regression helpsto quantify the effect each independent variable has on the dependent variable,	Combination of antecedents produce better results
30	Dolizal and Kurtz, 2010	Qualitative/Quantitative	Evaluation of combined antecedent variables on functional analysis results & treatment of problem behaviour in a school setting	Effect of combination of multiple factors on intention to	Found out that focusing on only one angle instead of a combination of factors often leads to	Combination of antecedents produce better results

				use IP as collateral	incomplete understanding and sometimes inconsistent conclusions	
31	Donegan, (2016)	Qualitative		How IP can enhance the value of Enterprises	The absence of intangible assets in corporate balance sheets undervalues the enterprise's value of the market substantially	That IP can enhance the value of an enterprise
32	Dov and Miriam, (2015)	Qualitative	**Intellectual Property Securitization**	IP as resource in Morden economy	in today's information age, high technology products protected by copyrights, patents, and trademarks have become an important resource in the modern economy.	IP is a source of value
33	Dr Peter,	Qualitative	Accounting & Finance for Non-Specialist 9th Ed (2012)	Creating value through knowledge of employees	IP assets should be included in company Balance Sheets	IP assets can be included in balance sheets
34	Solomon & Bitton, (2015)	Qualitative	Intellectual Property Securitization; 33 Cardozo Arts & Entertainment Law Journal 125 (2015)	IP Securitisation	For IP backed securitisation to succeed without hassles there has to be a diversity of the portfolios that may be transferred to Special Purpose Vehicles (SVPs).	IP can be used for securitisation.
35	Drdenechimeg, (2016)	Qualitative/Quantitative	Using IP as collateral; An international experience & a Mongolian Perspective	Using IP as collateral	the government should craft laws relating to the secured transactions and laws relating to IP both need to balance the doctrine of exclusive right providing strong	Governments should promote the use of IP.

					opportunity for individuals (creators or inventors) to manifest their will or interest and to stimulate the production and dissemination of creativity in science, knowledge and creative works under free-market conditions.	
36	Dudovskiy, (2015),	Qualitative	Advantages and Disadvantages of Interpretivism.		Primary data generated via interpretivism studies might be associated with a high level of validity because data in such studies tend to be trustworthy and honest,	Data can be collected in a natural set up
37	Duriau, et al, 2007	Qualitative	A Content Analysis of the Content Analysis Literature in Organization Studies: Research Themes, Data Sources, and Methodological Refinements. Organization Research Methods, 10: 5–34	Analysis of data	Content analysis is a class of research methods at the intersection of qualitative and quantitative traditions.	That mixed research methods can be used in research
38	Edwards & Lambert, (2007).	Qualitative	Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods, 12*(1), 1-22.	Mediation	To see the total effect of the exogenous variable, we have to add a direct and indirect effect. One variable may not have a direct effect, but it may have an indirect effect as well.	Effects of mediation

39	Elo et al., (2014).	Qualitative	Qualitative Content Analysis: A focus on trustworthiness. Sage Open. 4:1-10.	Analysis of data	The focus of relational analysis is to look for semantic, or meaningful, relationships. Individual concepts, in and of themselves, are viewed as having no inherent meaning. Rather, the meaning is a product of the relationships among concepts in a text	The3re are various methods of analysing data
40	Erdenechimeg, (2016).	Qualitative		Analysis of UK IPO's response to the "Banking on IP" report	Another way to improve lenders confidence in IP as collateral is for governments to share the financial risk,	How risk in using IP can be minimised
41	European Commission, 2005		Ref, Ares (2014)78082 - Intellectual Property and Access to Finance for High Growth SMES.	Access to finance using IP as collateral	Found out that SMEs can depend on IP to raise finance	That IP can be used to raise funds
42	Farah et al., 2014).	Qualitative	"Desirability of Commodification of Intangible Cultural Heritage: The Unsatisfying Role of Intellectual Property Rights". Transnational Dispute Management. **11** (2).SSRN 2472339.	IP factors	all factors, legal, valuation and protection of IP are equally important for IP to be accepted as collateral,	All IP factor should be considered to show how important is IP
43	Fayolle and Liñán, (2014)	Qualitative	Beyond Entrepreneurial Intentions: Values and Motivations in Entrepreneurship	Effect of combination of multiple antecedents on the use of IP as collateral	It has been argued that focusing on only one factor than a combination of factors often leads to incomplete understanding and sometimes inconsistent conclusions.	Combination of IP factors produce better results

44	Flowers, (2009)	Qualitative	Forbes article on University-led innovation hubs in Africa, (2018),	Research Philosophy	Realism holds that real structures exist independent of human consciousness, but that knowledge is socially created and that knowledge of reality is a result of social conditioning,	Every research is based on a philosophy
45	Gabriel, (2013)	Qualitative	Research Guides; deductive research, doctoral research, grounded theory, inductive research, qualitative research, research approaches and research methods	Research Approaches	An inductive approach is generally associated with qualitative research, whilst a deductive approach is more commonly associated with quantitative research. However, there are no set rules and some qualitative studies may have a deductive orientation,	That there are more than one research approaches
46	Gallant, (2016)	Qualitative	What is securitization?.	Analysing of Financial tools	Securitisation is a process of taking a liquid asset or group of assets, and through financial engineering, transforming them into a security.	Securitisation as a financial tool
47	Ghafele & Benjamini, 2014	Qualitative	IP Commercialization Tactics in Developing Country Context; Journal of Management & Strategy Vol 5, No 2.	Commercialisation of IP	Despite the closing gap in patent ownership in technologically sophisticated	That IP can be commercialised

					developing countries, a significant gap in patent commercialization remains	
48	Glaser et al., (2015);	Qualitative	What Grounded Theory Is…A Critically Reflective Conversation Among Scholars	Research strategies	In grounded theory, the theory is grounded in the data	Theory can be built from existing data
49	Gorbatyuk, A., (2016),	Qualitative	Resolving IP disputes in Open Innovation – Is IP mediation the way to go?	IP dispute Resolution	In mediation, the mediator does not decide substantive issues.	Dispute in IP can easily be resolved through mediation
50	Hagiu, & Yoffie, (2013).	Qualitative	"The New Patent Intermediaries: Platforms, Defensive Aggregators, and Super aggregators," J. Econom. Persp., 27(1), p. 60.	Increasing Trend in Patent collateralisation for loans	A new trend emerging where non-bank lenders are offering asset-based loans to technology start-ups. Such institutions have adopted unconventional credit practices and have been willing to lend to technology start-ups, especially those with marketable patent as collateral.	Lenders other than bank accepting IP as collateral
51	Haussler, et al, (2008).	Qualitative	The role of patents for VC financing, Paper presented at the Babson College Entrepreneurship Research Conference (BCERC) 2008.	IP Backed loans	A substantial amount of expertise is required to value marketing assets such as trademarks and trade names,	IP needs to be evaluated
52	Hassan, E et al, (2010),	Qualitative	IP & Developing Countries; RAND Corporation.	IP & Developing countries	while there is a lot of education on IP in the developed world, the question of IP and its education is a murky one in the developing world	Developing countries should start to embrace IP

					particularly Zimbabwe,	
53	Hauber, (2013)	Qualitative	How to identify and protect your IP.	Identification and protection of IP	Businesses should identify and protects their IP to avoid costly legal lapses.	Ability to identify own IP
54	Hayes, (2013).	Qualitative	Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. New York ...	Mediation	A **mediation** model in statistics seeks to identify and explain the mechanism or process that underlies an observed relationship between an independent variable and a dependent variable via the inclusion of a third hypothetical variable, known as a **mediator variable** (also a **mediating variable**, **intermediary variable**, or **intervening variable**).	The cause-effect of some factors to a phenomenon
55	Heale, & Forbes, (2013):	Qualitative	Understanding Triangulation in Research; BMJ Journal.	Triangulation	The combination of findings from two or more rigorous approaches provides a more comprehensive picture of the results than either approach could do alone.	Combination of findings produces better results
56	Helmenstine, (2019)	Quantitative	The Role of a Controlled Variable in an Experiment: Thought Co	The rationale of control variables	The control variable is not part of an experiment (not the independent nor the dependent) but it is important because it can	Control variables determine knowledge based on background

					have an effect on the results,	
57	Hennessy, 2011	Qualitative	in Handbook of Traffic Psychology	Internal & External locus of control	Factors within one's self, or within a person's control, such as abilities, skills and efforts, are referred to as internal locus of control. Factors outside one's control such as coincidence, chance, luck and influence of others are referred to external locus of control,	
58	Idris, (2003):	Qualitative	Intellectual Property – A Power Tool for Economic Growth.	Leveraging IP to promote economic development & wealth creation	Shows how countries can use the intellectual property system to leverage their intangible assets - such as inventiveness, creativity and knowledge - to promote economic development and wealth creation.	IP can be used as a source of economic growth
59	IPOPNG, (2016)	Qualitative	IPOPNG, 2016;	How IP can Enhance the value of an enterprise	In the event of a sale, merger or acquisition, IP assets may significantly raise the value of an enterprise and at times may be the primary or only true assets of value,	Ip can enhance the value of an enterprise
60	Ishii, (2017).	Qualitative	Income Approach Method. *APEC IP Valuation Phase II* (pp.	Analysing methods of IP valuation	Found out that excess profit	IP must be valued to be useful

			2-24). Quezon City: APEC.		method of IP valuation is good.	
61	Jacobs, (2011)	Qualitative	Using Intellectual Property to Secure Financing After the Worst Financial Crisis since the Great Depression, 15 Property L. Rev 449.	Using IP to Secure Financing	In recent years most companies in the developed countries that have little or no tangible assets are now able to obtain significant funding through collateralising intellectual property,	IP can be used as collateral in financial transactions
62	James, et al, (2013)	Qualitative	Learning and innovation in the knowledge-based economy: beyond clusters and qualifications, Journal of Education and Work, 26:3, 243-266, DOI: 10.1080/13639080.2011.653556.	Knowledge economy	Statistical Learning provides an accessible overview of the field of statistical learning, an essential toolset for making sense of the vast and complex data sets that have emerged in fields ranging from biology to finance to marketing to astrophysics in the past twenty years.	In knowledge economy, innovation & creativity are the norms
63	Joe, Esq, (2017),	Qualitative	What Is a Patent, and How to Use It? "Mediation analysis in social psychology: Current practices and new recommendations". *Social and Personality Psychology Compass*, 5/6, 359–371.	About Patents	A patent can be ceded, sold and when the right expires, the ultimate beneficiary is the public at large.	Patents can be traded for value
64	Johnson & Autuoro, (2014).		IP Valuation. *2014 AIPLA Mid-Winter Institute* (p. 15). Phoenix: Fish & Richardson P.C.	IP Valuation	IP valuation is important to determine value of an investment	IP valuation is important to determine value of an investment

65	Judea, (2018).	Qualitative	The Book of Why. New York: Basic Books. p. 6.Wue	Mediation	Path analysis is an extension of the regression model,	
66	Judd&Kenny, *(2010)*.	Qualitative	Data analysis in social psychology: Recent and recurring issues.	Mediation	A **mediation** model in statistics seeks to identify and explain the mechanism or process that underlies an observed relationship between an independent variable and a dependent variable via the inclusion of a third hypothetical variable, known as a **mediator variable** (also a **mediating variable**, **intermediary variable**, or **intervening variable**)	The cause-effect of some factors to a phenomenon
67	Jurevicius, O., (2013),	Qualitative	All you need to know about Resource Base View- Strategic tools	Research strategy	Supporters of the Resource-based view argue that organisation should look inside the company to find the sources of competitive advantage instead of looking at the competitive environment for it,	Innovation and creative enablers can be found from within
68	Lai, (2017)		The Literature Review of TAM, a Theories for Novelity Technology; Journal of IS & Technology Management.	Technology Adoption Theory	Consumers or users acceptance of new technology is largely influenced by factors such as perceived usefulness of the technology, the perceived ease of use and user	Bases of adoption of new technology

					acceptance and after experiencing several stages of development characterised by understanding, persuasion implementation and confirmation,	
69	Laya, J. (2017).	Qualitative	IP Valuation the Market Approach The Income Approach (A case study). *APEC IP Valuation Phase II* (pp. 2-43). Quezon City: APEC.	IP Valuation methods	**Market-based valuation;** looks at comparable market transactions, whether sale or purchase, of similar assets to arrive at conclusions,	**Various IP valuation methods**
70	Laya, (2017).	Qualitative	The Imperative Need for Valuation in Intangibles. (p.14). Quezon City. *APEC IP Valuation Phase 1* (p. 14). Quezon City: KPMG.	IP Valuation methods	Recommending future economic benefits as a method of IP evaluation method	Various IP valuation methods
71	Leger, (2007)	Qualitative	Intellectual Property Rights and Innovation around the World: Evidence from Panel	IP rights and innovation	Although Intellectual property rights may provide incentives for innovations there is limited local technological capacity to react to the incentives.	IP is registered as a right
72	Leone & Mania, (2017),	Qualitative	IP Backed Financing for enhancing access to credit: An analysis of US Patients' securitisation agreements; Anno Accodamico 2016-2017	IP Baked Financing	Companies are realising that intangible assets are becoming more and more valuable than their physical assets,	IP can be used for securitisation
73	Lom. L., (WIPO);		Branding: How to Use Intellectual Property to Create Value for Your Business?	Creating value for business using IP		IP can create value for an enterprise

74	Loumioti. M., (2011),	Qualitative	The use of intangible assets as loan collateral – Sematic Scholar;	Using IP as Collateral	Companies are realising that intangible assets are becoming more and more valuable than their physical assets,	IP can be used as collateral for loans.
75	Maina, C., 2011.	Qualitative	Power Relations in the Traditional Knowledge	Analysis of securitisation of IP in the US	Once securities are transferred to the SPV they place the IP assets out of reach of the originator's unsecured creditors,	Risk aversion when dealing with IP
76	Matthes (World trade Review 2013)	Qualitative/Qualitative	Matthes (World trade Review 2013)	Use brands & Trademark as collateral	States that the use of brands and trademarks as collateral is becoming increasingly common.	Brands and trademarks can be used as collateral
77	Mcleod, S., (2017);		Quantitative vs Qualitative Research *Merges, et al, (2007). Intellectual Property in the New Technological Age*	Research Methods	In Qualitative research, researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them,	Qualitative & quantitative are the most acceptable research methods
78	Mertens & Hesse, (2012)		Triangulation & Mixed Research: Provocative Positions: Journal of mixed research, 6(2) 75-79.	Mixed Research Methods	Advocate for the importance of deepening-ing the meaning of credible evaluation practice and findings by bringing multiple philosophical and theoretical lenses to the evaluation process as a basis for the use of mixed methods in evaluation, thus providing evaluators with	Mixed research methods produce better results

					strategies for garnering more complex and diverse perspectives on the creation of credible evidence.	
79	Miller, S.P., 2013.		Where's the Innovation: An Analysis of the Quantity and Qualities of Anticipation and Obvious Patents.	Patents	A patent can be ceded, sold and when the right expires, the ultimate beneficiary is the public at large.	Patents rights are transferable
80	Mills. G., (2008),		"Perfecting Security Interests in IP: Avoiding the Traps,"	IP Appraisals	IP Appraisals are meant to establish value which may be recovered on default	IP needs to be valued
81	Moghalu, (2014)	Qualitative			Given the development of innovation and creativity with IP as the underlying asset in the developed countries and other Asian countries, Africa must realise that no country can develop without innovation and creativity.	Africa including Zimbabwe must embrace knowledge economy for the creation of value
82	Morgen, 2011	Quantitative		Combination of multiple factors	Experimental learning provides validation of constructs which determine the evaluation of the effectiveness of the primary and the latent factors on the desired goal,	Cause effect of a phenomenon
83	Munari et al., (2010).	Qualitative		Diagram **adapted from Hillery, (2004)**	An explanation of Securitisation process	IP can be used for securitisation
84	Munari &Oriani, 2011;	Qualitative		Combination of multiple antecedents	Extant literature indicates that factors that affect	Cause effect of a combinati

					the use of IP as collateral have been assessed separately rather than together as a combination,	on of factors produces better results
85	Murphy, (2018),	Qualitative	How do tangible and intangible assets differ?	Tangible & Intangible Assets	The difference between tangible and intangible assets is that tangible assets have physical substance and intangibles have no physical substance but have special rights attached to them	Differenc e between tangible & intangible assets
86	Mwiya, (2012)	Qualitative/Q uantitative	3 W.I.P.O.J., Issue 2 © 2012 Thomson Reuters (Professional) UK Limited	Innovation activities	Comparative analyses of trends in innovation activity in five newly industrialising countries (NICs) in Asia (China, India, Philippines, Thailand and Malaysia) and 32 member countries of the Africa Regional Intellectual Property Organisation (ARIPO) and the African Intellectual Property Organisation (OAPI).	Evidence of innovatio n activities taking place in Asian countries
87	Odasso & Calderini, 2009	Qualitative	Intellectual Property Portfolio Securitization: An evidence-based analysis.	Evidence of the use of IP for securitisation	established that the first example of securitisation of intellectual property assets took place in 1997 when future royalty payments from David Bowie	Evidence of the use of IP for securitisat ion

					record sales were converted into securities and sold in a private bond offering 55 million dollars	
88	Odasso &Galaderini, (2009)	Qualitative	Patent Securitisation	Pointed at 4 writers who analysed Patent Securitisation	Through the SPV, 115 million dollars in debt and equity securities were issued in three tranches: the senior rating was a single A and the originator received an up-front payment of 100 million dollars. Although this deal entered into early amortisation in 2002, it has been considered extremely innovative in structured finance landscape.	Evidence from some scholars on the use of IP for securitisation
89	Odasso, (2010)	Qualitative		Combination of multiple antecedents	factors that affect the use of IP as collateral have been assessed separately rather than together as a combination,	Need to asses factor as a combination for better results
90	Owen P., (2012).	Qualitative	Portrayals of Schizophrenia by Entertainment Media: A Content Analysis of Contemporary Movies. Psychiatric Services. 63:655-659.	Data Analysis	The focus of relational analysis is to look for semantic, or meaningful, relationships. Individual concepts, in and of themselves, are viewed as having no inherent meaning. Rather, the meaning is a product of the relationships	

					among concepts in a text.	
91	Pankaz and Madhani, (2010)	Qualitative	RBV of competitive advantage: An overview.	Resource-based views	Supporters of the Resource-based view argue that organisation should look inside the company to find the sources of competitive advantage instead of looking at the competitive environment forit,	Innovation enablers can be from within the organisation
92	Pharm,(2018)	Qualitative/quantitative	who-are-the-biggest-conglomerates	US Conglomerates growing through using IP	The value of US conglomerates such as Apple, Microsoft and Facebook have increased tremendously such that they have become overnight sensations and economic powerhouses	Evidence of Conglomerates growing through IP
93	Ponto, J., (2015);		Understanding & Evaluating Survey Research: Journal of the Advanced Practitioner in Oncology.	Research strategies	surveys are frequently used in social and psychological research	The impotence of surveys as methods of data collection
94	Powell & Snellman, 2004	Qualitative		Definition of Knowledge-Economy	The creation of wealth in most world economies is now being driven by the knowledge economy which is characterised by information and knowledge emanating from the use of Intellectual property (IP)	Knowledge of IP
95	Roxas-Divinagrac	Qualitative	Intellectual Property Valuation of New Technologies: Concepts	IP Valuation	Discounted cash flow (DCF) analysis sits across all the	Importance of DCF as a method

	ia, (2017),		and Methodologies. Quezon City.		methodologies and is probably the most comprehensive of appraisal techniques,	of IP valuation
96	Samaras. H., (2011),	Qualitative	ADR Advocacy, Strategies, and Practice for Intellectual Property Cases. KF2983 .A93	IP Dispute resolution	ADR offers the option of selecting an informal, private and consensual process which is less costly as an alternative to the official state-sponsored process of dispute resolution, which is litigation,	That there are alternative dispute resolutions for IP disputes
97	Saunders et al., (2012)	Qualitative	Research Methods for Business Students. Pearson Education Ltd., Harlow.	Research methods	Research Methods	How to conduct research
98	SCITECH Africa, (2018)		SCITECH Africa, Promotion of science education in Africa	Educational & Science promotion	Business hubs and incubator helps new and start-up companies to develop	Innovation hubs being built in Africa
99	Stoddard, (2013)			History of IP development in Singapore and Malaysia	Asian countries are now leaders in IP strategies and are prospering while Africa's economies are still heavily dependent on mining, agriculture etc., while the overwhelming percentage of finished goods are imported	Evidence of IP development in Asian countries
100	Surbhi, (2016),	Qualitative	Difference Between Tangible and Intangible Assets	Business Assets	Business Assets includes both tangible and intangible assets	Difference between tangible & intangible assets
101	Kim, (2016),	Qualitative	P Asset Value as Collateral: The Increasing Use of	Tables showing growth in IP	Countries in the developed world are obtaining	Evidence of growth

			Patents as Collateral in Asset-Based Lending; abf journal	royalties& licensing fees from 2004 to 2015	funding through collateralisation of IP	of the use of IP
102	Taweepon & Julagasigorn2017	*Qualitative*	*The use of IP valuation in IP transactions: a global survey of IP brokers,* European IPR Helpdesk Bulletin n.4:	Thailand's new Business Security Act of 2016,	Thailand's new Business Security Act of 2016, allows borrowers to use their IP assets as collateral in securing loans while retaining the right to possess and to use such collateral for commercial purposes during the secured period.	Evidence for the use of IP to raise funds
103	Wang and Chugh, 2014)	Quantitative	*Research design and implementation*	Effect of combination of multiple factors on intention to use IP as collateral	Combination of multiple factors on a phenomenon produces better results	Combination of multiple factors in assessing the intention to use IP as collateral
104	Wessing, (2016)	Qualitative	Global IP Index 5th Report	the UK Intellectual Property Office's Banking on IP Report)	Found out that intangible assets are now estimated to represent 70-80% of the value of UK companies	Evidence of the growth in the use of IP in the UK
105	WIPO. (2012),	Qualitative	World Intellectual Property Indicators; Publication No 941E/2012; ISBN 978-92-805-2305-8.	IP information	unlike marks, protection of industrial designs, once granted, is not subject to cancellation if they are not actively used,	Sustainability of industrial designs
106	WIPO (2005)		Why is IP Relevant to your SME?	Relevance of IP	Copyright protection covers original creations in the literary (including software), musical and artistic domain, whatever	The relevance of IP to SMEs

					the mode or form of expression. Acquisition of copyright protection is usually automatic once the work is fixed in some material form.	
107	WIPO Magazine (2006),		Resolving IP disputes through Mediation and Arbitration	Alternative Dispute resolution	Disputes interference with the successful use and commercialisation of IP rights.	How disputes in IP may be resolved other than litigation
108	WIPO; (2008)	Qualitative	Intellectual property Financing – An Introduction.	Using IP to raise funding	IP rights are used as collateral in loan transactions in the same way as tangible assets.	IPR used as collateral in the same way as tangible assets
109	Xuan-Thao Nguyen (2008)	Qualitative	Collateralizing Intellectual Property.	Analysing and discussion on the understanding of IP collatersaltion for past 20 years	There is a growing use of IP as Collateral for Loans	Evidence of the growing use of IP for the past 20 years
110	Yahong LI*, (2011),	Qualitative	Intellectual Property and Innovation: A Case Study of High-Tech Industries in China	Development of IP in China	That Chinese High Tech industries have embraced the knowledge economy	Evidence of use of IP in High-Tech industries in China
111	Yeo,(2010)	Qualitative	Driving the Knowledge Economy: Explaining the Impact of Regional Innovation Capacity on Economic Performance; Contemporary Management Research	Knowledge economy	Knowledge economies are products and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advance including equally	Importance of knowledge economy

					rapid obsolescence	

APPENDIX K

Analysis Summary

Date and Time

Date: Friday, August 2, 2019
Time: 6:22:31 AM

Title

kadare_final_01: Friday, August 2, 2019 6:22 AM

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.
Sample size Questionnare = 150

VARIABLE SUMMARY (GROUP NUMBER 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
intention
Individual
company
Observed, exogenous variables
protection
valuation
legal
awareness
Unobserved, exogenous variables
e3
e4
e5

VARIABLE COUNTS (GROUP NUMBER 1)

Number of variables in your model: 10
Number of observed variables: 7

Number of unobserved variables:	3
Number of exogenous variables:	7
Number of endogenous variables:	3

PARAMETER SUMMARY (GROUP NUMBER 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	3	0	0	0	0	3
Labeled	0	0	0	0	0	0
Unlabeled	12	6	7	4	3	32
Total	15	6	7	4	3	35

Models

Default model (Default model)

Notes for Model (Default model)

COMPUTATION OF DEGREES OF FREEDOM (DEFAULT MODEL)

Number of distinct sample moments:	35
The number of distinct parameters to be estimated:	32
Degrees of freedom (35 - 32):	3

RESULT (DEFAULT MODEL)

Minimum was achieved
Chi-square = 4.034
Degrees of freedom = 3
Probability level = .258

GROUP NUMBER 1 (GROUP NUMBER 1 - DEFAULT MODEL)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

REGRESSION WEIGHTS: (GROUP NUMBER 1 - DEFAULT MODEL)

			Estimate	S.E.	C.R.	P	Label
Individual	<---	awareness	.046	.067	.680	.496	
company	<---	awareness	-.099	.084	-1.175	.240	
company	<---	protection	.135	.087	1.545	.122	
company	<---	valuation	.215	.113	1.898	.058	
Individual	<---	valuation	.021	.090	.228	.819	
Individual	<---	protection	.164	.069	2.365	.018	

			Estimate	S.E.	C.R.	P	Label
intention	<---	Individual	.299	.089	3.369	***	
intention	<---	company	.025	.071	.348	.728	
intention	<---	protection	.236	.077	3.054	.002	
intention	<---	valuation	.147	.099	1.490	.136	
intention	<---	legal	-.254	.073	-3.497	***	
intention	<---	awareness	-.249	.073	-3.404	***	

STANDARDIZED REGRESSION WEIGHTS: (GROUP NUMBER 1 - DEFAULT MODEL)

			Estimate
Individual	<---	awareness	.054
company	<---	awareness	-.093
company	<---	protection	.130
company	<---	valuation	.161
Individual	<---	valuation	.019
Individual	<---	protection	.202
intention	<---	Individual	.241
intention	<---	company	.025
intention	<---	protection	.233
intention	<---	valuation	.112
intention	<---	legal	-.245
intention	<---	awareness	-.239

MEANS: (GROUP NUMBER 1 - DEFAULT MODEL)

	Estimate	S.E.	C.R.	P	Label
awareness	2.817	.112	25.132	***	
valuation	2.821	.089	31.590	***	
protection	3.233	.115	28.056	***	
legal	2.760	.112	24.599	***	

INTERCEPTS: (GROUP NUMBER 1 - DEFAULT MODEL)

	Estimate	S.E.	C.R.	P	Label
Individual	2.004	.343	5.838	***	
company	2.304	.433	5.326	***	
intention	2.730	.492	5.547	***	

COVARIANCES: (GROUP NUMBER 1 - DEFAULT MODEL)

			Estimate	S.E.	C.R.	P	Label
protection	<-->	valuation	.523	.133	3.938	***	
protection	<-->	awareness	.081	.158	.515	.607	
valuation	<-->	awareness	-.018	.122	-.148	.882	
legal	<-->	protection	-.057	.158	-.363	.717	
legal	<-->	valuation	.043	.122	.350	.726	
legal	<-->	awareness	-.135	.154	-.874	.382	

CORRELATIONS: (GROUP NUMBER 1 - DEFAULT MODEL)

			Estimate
protection	<-->	valuation	.342
protection	<-->	awareness	.042
valuation	<-->	awareness	-.012
legal	<-->	protection	-.030
legal	<-->	valuation	.029
legal	<-->	awareness	-.072

VARIANCES: (GROUP NUMBER 1 - DEFAULT MODEL)

	Estimate	S.E.	C.R.	P	Label
protection	1.979	.229	8.631	***	
valuation	1.181	.137	8.603	***	
awareness	1.872	.217	8.631	***	
e3	1.978	.229	8.630	***	
e4	1.246	.144	8.631	***	
legal	1.876	.217	8.631	***	
e5	1.466	.170	8.630	***	

MATRICES (GROUP NUMBER 1 - DEFAULT MODEL)

Total Effects (Group number 1 - Default model)

	awareness	valuation	protection	legal	company	Individual
company	-.099	.215	.135	.000	.000	.000
Individual	.046	.021	.164	.000	.000	.000
intention	-.238	.159	.288	-.254	.025	.299

STANDARDIZED TOTAL EFFECTS (GROUP NUMBER 1 - DEFAULT MODEL)

	awareness	valuation	protection	legal	company	Individual
company	-.093	.161	.130	.000	.000	.000
Individual	.054	.019	.202	.000	.000	.000
intention	-.229	.121	.285	-.245	.025	.241

DIRECT EFFECTS (GROUP NUMBER 1 - DEFAULT MODEL)

	awareness	valuation	protection	legal	company	Individual
company	-.099	.215	.135	.000	.000	.000
Individual	.046	.021	.164	.000	.000	.000
intention	-.249	.147	.236	-.254	.025	.299

STANDARDIZED DIRECT EFFECTS (GROUP NUMBER 1 - DEFAULT MODEL)

	awareness	valuation	protection	legal	company	Individual
company	-.093	.161	.130	.000	.000	.000
Individual	.054	.019	.202	.000	.000	.000
intention	-.239	.112	.233	-.245	.025	.241

INDIRECT EFFECTS (GROUP NUMBER 1 - DEFAULT MODEL)

	awareness	valuation	protection	legal	company	Individual
company	.000	.000	.000	.000	.000	.000
Individual	.000	.000	.000	.000	.000	.000
intention	.011	.011	.052	.000	.000	.000

STANDARDIZED INDIRECT EFFECTS (GROUP NUMBER 1 - DEFAULT MODEL)

	awareness	valuation	protection	legal	company	Individual
company	.000	.000	.000	.000	.000	.000
Individual	.000	.000	.000	.000	.000	.000
intention	.011	.009	.052	.000	.000	.000

MINIMIZATION HISTORY (DEFAULT MODEL)

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e	0	246.480		9999.000	489.926	0	9999.000
1	e	0	392.595		.805	215.630	4	.000
2	e	0	212.060		.704	80.805	1	.705
3	e	0	207.250		.288	17.965	1	1.210
4	e	0	200.398		.205	5.238	1	1.164
5	e	0	193.922		.086	4.054	1	1.078
6	e	0	193.925		.013	4.034	1	1.015
7	e	0	193.925		.000	4.034	1	1.000

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	32	4.034	3	.258	1.345
Saturated model	35	.000	0		
Independence model	7	89.420	28	.000	3.194

BASELINE COMPARISONS

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.955	.579	.988	.843	.983
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

PARSIMONY-ADJUSTED MEASURES

Model	PRATIO	PNFI	PCFI
Default model	.107	.102	.105
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	1.034	.000	10.590
Saturated model	.000	.000	.000
Independence model	61.420	36.572	93.881

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.027	.007	.000	.071
Saturated model	.000	.000	.000	.000
Independence model	.600	.412	.245	.630

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.048	.000	.154	.408
Independence model	.121	.094	.150	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	68.034	71.665		
Saturated model	70.000	73.972		
Independence model	103.420	104.214		

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.457	.450	.521	.481
Saturated model	.470	.470	.470	.496
Independence model	.694	.527	.912	.699

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	289	420
Independence model	69	81

EXECUTION TIME SUMMARY

Minimization: .002
Miscellaneous: 1.025

Bootstrap:	.000
Total:	1.027