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USE OF UTILITY MODEL PROTECTION BY MANUFACTURING SMES AT MAGABA COMPLEX, HARARE, ZIMBABWE

BY

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Abstract

The objective of utility model protection is to protect minor or incremental innovations that do not meet patentability criteria but involve inventive steps and are industrially applicable. Effective utilization of the utility model system is regarded as instrumental to industrial development of economies through protection of innovations mainly from the Small and Medium Enterprises (SMEs) sector. However, there is little documented evidence from a Zimbabwean perspective, a country whose SMEs contributes more than 50% to the Gross Domestic Product (GDP). The purpose of this research was to undertake an in-depth assessment on the use of utility model protection of by manufacturing SMEs at Magaba Complex in Harare as well as examining the factors that affect the use of utility model protection by these SMEs. The first chapter delivered a hypothetical groundwork to some of the more real-world issues which were discussed in the succeeding chapters. Literature review was dedicated to the second chapter which critically examined the existing body of knowledge, indicators and conclusions of studies already done in this field. A mixed method approach was employed in the third chapter in order to have a more comprehensive study on the impact use of utility model protection and to enhance the quality of the findings through the use of questionnaires, in-depth interviews and document analysis. A total of fifty manufacturing SMEs were selected through systematic random sampling. Data analysis was extra descriptive since it afforded the researcher dialogue with representatives of the sample of the manufacturing SMEs and officials from ZIPO and ARIPO. The research identified and established the extent to which the innovations by this adaptive sector of Zimbabwe's economy are registered and protected as utility models. According to the research findings, it was noted that there is suggestively very low levels of utility model protection due to lack of awareness and the basic understanding of the concept and other factors that hinders the utilization of utility model protection system by manufacturing SMEs at Magaba Complex. In this regard it was concluded that the utility models system is not being utilized by manufacturing SMEs to stimulate creativity and innovation for the protection of minor and incremental innovations that do not meet patentable criteria. In order to reap the rewards of their innovations, manufacturing SMEs must start protecting their IP in form of utility models and the government must support this by coming up with domestic laws that guarantees protection of utility models, policies, legislative and related measures should also be created to complement the utility model system for the benefit of the manufacturing SMEs and the country.

Key words: utility model, patent systems, comparative analysis, substantive examination, patent law, novelty, patent quality, innovation, inventiveness, industrially applicable.

Declaration Page

I declare that this dissertation is my original work except where sources have been cited and acknowledged. The work has never been submitted, nor will it ever be submitted to another university for the award of a degree.

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Dedication

This dissertation is dedicated to ARIPO, my Wife and Kids.

List of Acronyms and Abbreviations

ARIPO	African Regional Intellectual Property Organization
CNIPA	China National Intellectual Property Administration
EPO	European Patent Office
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HIT	Harare Institute of Technology
ICT	Information and Communication Technologies
IPC	International Patent Classification
IP	Intellectual Property
IPRs	Intellectual Property Rights
JPO	Japan Patent Office
LDCs	Least Developed Countries
NUST	National University of Science and Technology
OAPI	African Intellectual Property Organization
PCT	Patent Cooperation Treaty

R&D	Research and Development
SIPO	State Intellectual Property Office
SME	Small and medium sized enterprises
STEM	Science, Technology, Engineering and Mathematics
TRIPS	Trade Related Aspects of Intellectual Property Rights
WIPO	World Intellectual Property Organization
WTO	World Trade Organization
ZIMRA	Zimbabwe Revenue Authority
ZIMSTAT	Zimbabwe National Statistics Agency
ZIPO	Zimbabwe Intellectual Property Office

Table of Contents

List of Tables

List of Figures

List of Appendices

CHAPTER 1 INTRODUCTION

Introduction

The chapter provides details into the background information to the study, statement of the problem, the research objectives, research questions and significance of the study. The delimitation, limitations and assumption of the study are also discussed in this chapter.

Closely related to patents and in some cases referred to as 'petty patents', utility models protect new technical innovations by granting innovators limited exclusive rights to exclude third parties from commercially exploiting their protected innovations. Although there is no comprehensive and global definition of a utility model, this form of intellectual property protection in general is considered particularly suited for protecting innovations that make small improvements to existing products or inventions that have a shorter commercial life.

According to the Harare Protocol on Patents and Industrial Designs (Version, 2020), "utility model" means:

> "any form, configuration or disposition of elements of some appliance, working tools and implements as articles of everyday use, electrical and electronic circuitry, instrument, handicraft, mechanism or other object or any part thereof in so far as they are capable of contributing some benefit or new effect or saving in time, energy and labour or allowing a better or different functioning, use, processing or manufacture of the subject matter or that gives utility advantages, environmental benefit, and includes micro-organism or

other self-replicable material, products of genetic resources, herbal as well as nutritional formulations which give new effects."

Utility models are usually protected for a limited period of between 10 to 15 years depending on the jurisdiction. For the countries that are party to ARIPO's Harare Protocol, the term of protection is 10 years. Innovation, utility model protection and its strategic use by governments has been regarded as an important component of the modernization of countries like China especially through SMEs (Grosse Ruse-Khan, 2012). There is however little documented evidence from a Zimbabwean perspective, a country whose SMEs sector contributes more than 50% to the Gross Domestic Product (GDP) according to ZIMSTAT, 2015.

1.2 Background to the Study

One of the oldest treaties on intellectual property (including utility models), the Paris Convention for the Protection of Industrial Property (Paris Convention), which was signed in Paris, France, on 20 March 1883. Zimbabwe also became a member of the Paris Convention in 1980 upon gaining its independence. In November of 1980, Zimbabwe also became party to the Lusaka Agreement that saw the establishment of the African Regional Intellectual Property Organisation (ARIPO). Of particular importance to this study is the fact that Zimbabwe also acceded to the Harare Protocol for the protection of Patents and Industrial Designs (Harare Protocol) in April 1984, a protocol that also addresses the protection of utility models in its member countries.

The need for countries to stay up to date in terms of international standards of IP protection and having strong intellectual property rights (IPRs) frameworks has been associated with improving innovation and economic development. However, there

exists no empirical evidence to objectively prove that strong IPRs spur economic development, technology transfer or domestic innovation (Mohanty, 2008). Another school of thought elevates and associates more technological development and industrial to development to tailor-making IPR systems that are contextual and in line with a country's level of development, the best-case study of which will be China. Utility models are touted to have played a major role in SME development in China. As such, developments in China have made utility models an attractive option for such enterprises. The fact that China has now become the world leader in patent filings in general (WIPO, 2019) can also be attributed to the country's approach to the utility model/utility patent system. From January 2019 to November 2019, a total of 2.012 million utility models were filed and 1.411 million granted (China National Intellectual Property Administration (CNIPA), 2019).

Japan is also another example of a country that has managed to exploit the utility model system very successfully through SMEs in order to promote technological development. Japan's utility model system was established in 1905 and the system is said to have been designed to encourage incremental and adaptive innovations. As a result, early disclosure became very important source of technical change and information diffusion in Japan. The utility model system also made it possible to increase the role of traditional innovators and artisans (SMEs) in economic development. The utility model protection law has been fully utilized by Japanese companies until Japanese's technology became so advanced and gap between Japanese and western technologies disappeared (Suthersanen, 2006).

In Zimbabwe, SMEs make up more than 70 percent of all businesses; employ more than 60 percent of the country's workforce while contributing above 50 percent to Zimbabwe's GDP (ZIMSTAT, 2015). Although mostly incremental, the innovative

capabilities of these SMEs cannot be underestimated and require a proper system of intellectual property protection preferably utility model protection. Although acknowledged that the utility model law or system is not a standard feature of the intellectual property regimes of many countries, the role the system has played in other countries can surely be brought home.

According to Pachasek (2012), many supporters of utility models consider them to be especially beneficial for relatively innovative developing countries that are seeking to advance their technological capacities through local innovation by SMEs. For Zimbabwe, there is need to establish clarity in terms of the benefits of the utility model system through a full and in-depth understanding of the extent to which SMEs are utilizing the utility model protection system. This forms the core purpose of this study with a specific focus on manufacturing SMEs at Magaba Complex in Harare, Zimbabwe.

1.3 Statement of the Problem

In developing economies, patents are considered to be the best form of IP protection by many scholars. Instead, a minor form of intellectual property rights (IPRs) – namely utility models – have been considered to be more conducive to innovation and growth in those developing economies. As such, utility model protection and the effective and strategic use of this form of IP protection has been regarded as instrumental in the industrial development of several countries. Japan, China, South Korea and India are key examples. Utility models are very common in the mechanical, optical and electronic fields and played a role in the industrial development of countries like Germany and Japan, as well as South Korea and India (Suthersanen, 2006). Utility models have played a major role in small to medium-

sized enterprise development in China. As such, developments in China have made utility models an attractive option for such enterprises. As a result of this push, China saw a surge in utility model applications by local SMEs. According to China National Intellectual Property Administration (CNIPA), between 1994 and 2003, China recorded more utility model applications than patents, that is, 644 038 and 226 674 respectively from locals. This is one of the reasons why China has become the world leader in patent filings in general. From January 2019 to November 2019, a total of 2.012 million utility models were filed in China and 1.411 million registered in China alone (China National Intellectual Property Administration (CNIPA), 2019).

References and statistics like these and the inferred results point to the effective use of the utility model system to protect incremental innovations as the countries in question were at one point developing countries like Zimbabwe. For the manufacturing SMEs at Magaba Complex in Zimbabwe, Intellectual Property (IP) protection, specifically utility models, is very important for securing their innovations, the majority of which do not meet patentability requirements. The utility model regime can be regarded as a critical tool to protect their innovations and allow them to secure economic returns on their investments in those innovations as well as promoting domestic inventive activity. However, this might not be the case for the manufacturing SMEs in Zimbabwe since the evidence of their use of the utility model system is close to none. A clear position can only be brought forth by an in-depth assessment of the extent to which these manufacturing SMEs are using utility model protection as a form of securing their intellectual property with a specific focus on those at Magaba Complex in Harare.

1.4 Research Objectives

The aim of the research was to examine the use of utility model protection by manufacturing SMEs housed at Magaba Complex to access the benefits and improve the level of innovation in these organizations. This study was guided by the following specific objectives:

1.4.1 To assess the level of utilization of utility model protection by manufacturing SMEs at Magaba Complex.

1.4.2 To examine factors that affects the levels of utilization of utility model protection by manufacturing SMEs at Magaba Complex.

1.4.3 To establish the benefits of utility model protection for the manufacturing SMEs in Magaba Complex.

1.4.4 To recommend solutions for better protection of utility models.

1.5 Research Questions

The objectives above were successfully addressed by answering the following research questions:

1.5.1 What is the level of utilization of utility model protection by manufacturing SMEs at Magaba Complex?

1.5.2 What factors affect the utilization of utility model protection by manufacturing SMEs at Magaba Complex?

1.5.3 What are the benefits of utility model protection?

1.5.4 What measures can be put in place to promote better protection of utility models by manufacturing SMEs?

1.6 Assumptions

In conducting this study, it is going to be presumed according to the following:

1.6.1 The researcher will have access relevant information to the study.

1.6.2 The research methodology will give reliable results.

1.6.3 The subjects to be interviewed will be co-operative and will give honest and unbiased information and there will be no coercion when administering the research instruments.

1.6.4 The data gathering instruments of interviews and questionnaires will be able to extract responses from the subjects.

1.6.5 The use of questionnaires which guarantee confidentiality will encourage respondents to give credible and sincere responses without the fear of being victimized or recognition.

1.6.6 The study also assumed that the data collection instruments are valid and that they will measure the desired research concepts.

1.7 Significance of the study

The contribution of the SMEs sector to the Zimbabwean economy cannot be reemphasized. Therefore, the study on the use of utility model protection by manufacturing SMEs at Magaba is hoped to be significant to the following stakeholders and institutions.

1.7.1 To the Manufacturing SMEs

The findings and recommendations of this study could go a long way in informing the manufacturing SMEs the importance of them being protected

in terms of their innovations. Moreover, this study will also inform SMEs on possible solutions that can improve the protection of their intellectual property.

1.7.2 To the Researcher

The research and its findings will equip the researcher with deeper understanding of the levels at which utility model protection is being used by SMEs in the manufacturing sector. Moreover, the researcher will also benefit and have a solid understanding of utility models as a form of IP protection for SMEs and the factors that influence the use or non-use of this form of IP protection.

1.7.3 To other Researchers

It is expected that this study could make contributions towards new knowledge and understanding the concept of utility model protection as a way of safeguarding IP assets for SMEs. Moreover, with reference to the scarcity of Zimbabwean literature focusing on the researcher's area of research, this study lays a foundation for further studies around utility model protection in Zimbabwe.

1.7.4 To the Government

This study may also be helpful for the purposes of improving and tailor-making the current systems in line with the findings of the study. The study could be useful as a basis for the policy makers mandated with crafting manufacturing SMEs specific policies for the country.

1.8 Delimitation

This research is going to focus on the use of utility model protection by manufacturing SMEs in Zimbabwe. It must also be noted that SMEs in developing countries such as Zimbabwe encounters a myriad of obstacles and drawbacks which undermines their efforts to utilize IPRs compared to other businesses. Specifically, the study will focus on manufacturing SMEs in Magaba Complex in Harare and will deliberately exclude other SMEs in other parts of the country. This is mainly because it will not be financially feasible for the researcher to collect and analyze data from all SMEs in the country. Moreover, the researcher resides and works in Harare so it will be convenient to collect data in Harare.

1.9 Limitations

The respondents due to their busy schedules many not fully complete and return the research instruments in time or even at all. In addition to that, some SMEs owners may fear to supply information because they may have a notion that it may get to Zimbabwe Revenue Authority (ZIMRA) or other political players. The researcher will overcome this by personally taking round the questionnaires to Magaba Complex and explaining to the respondents the use of the information and how the findings will also contribute to a shift and change in perception about IPRs. The researcher will also exhibit the approval letter from the University which confirms the reason for the study and that the information obtained will be treated with utmost confidentiality. The researcher will also have to take leave from the place of work to carry out the study and strictly adhering to strict Covid-19 regulations. Another challenge is that the

respondents may lack possible awareness and understanding of the subject matter which will be addressed by the need of explanation about utility model during the distribution of the questionnaires and interviews. There will be difficulties in accessing literature that is specific to Zimbabwe and the researcher will utilize international sources from countries who at that time were at the same stage development that we find ourselves in. The following are the limitations that will be faced during the study:

1.9.1 There will be a likelihood of possible bias and the researcher falling into the trap of simply confirming what the researcher assumes or already knows as opposed to observing and recording what is actually in a setting. The researcher will strictly adhere to the principles of honesty and academic transparency so that reliable results will be obtained from the research.

1.9.2 Non-responses to e-mailed questionnaires.

1.9.3 The respondents may be hesitant to provide the required information about utility model protection as it may be confidential to them. However, this challenge will be dealt with by assuring confidentiality to the respondents and fully introducing the research as purely for academic purposes and will not be used or be disclosed to third parties.

1.9.4 Time has been always a limiting factor in academic studies. It will not be possible to study the whole population of all manufacturing SMEs in Zimbabwe because the research itself is for academic purposes and as such its duration must be within the confines of the Africa University Semester Schedule. The researcher is therefore going to use a sample which is small and manageable.

1.9.5 Some of the targeted respondents are illiterate and may only read and understand local vernacular, making it difficult for them to effectively complete questionnaires on their own. The researcher will overcome this by self-administer questionnaires as a method of data collection in order to deal with this challenge and also creating another questionnaire in the local Shona language and conducting other interviews in the local dialect.

1.9.6 The research is being carried out during the Covid-19 pandemic period where data collection may be difficult due to measures and precautions that should be adhered to during this period. However, the researcher shall seek travelling letters from relevant authorities, wear protective clothing and abide by the rules set by authorities concerning spread of the pandemic.

1.10 Structure of the Study

Chapter 1 provided the foundation or the basis of the full research as well as outlining a framework in which the study will be executed. The statement of the problem and the knowledge gap which the research aims to fulfil were drawn. Chapter 2 will review the relevant literature on the use of utility model protection by manufacturing SMEs and explain the theoretical framework in support of the research and will clearly state the relevance of the theory to the research problem. Chapter three articulated the research methodology, and the appropriate research design, for which the relevant data collection techniques, instruments, and procedures as well as the population and sampling techniques employed in the research. Chapter four analysed the data and presented the research results to answer the research questions according to the stated research objectives. Lastly, chapter five discussed the conclusions, implications and recommendations based on the research outcomes from the data that was presented and in the interest of relevant stakeholders

for decision-making. Evidence of the research work and data collection procedures and relevant documentations and tables are attached in the annexes to this research report. All ethical guidelines as required by AUREC were adhered to during the research.

CHAPTER 2 REVIEW OF RELATED LITERATURE

2.1 Introduction

The role played by SMEs in the Zimbabwean economy's quest for development cannot be exaggerated. The country's economy has deteriorated for many years and unemployment has been ever rising and SMEs are singled out to be the most significant approach to addressing the challenges antagonizing the country. This chapter gives an in-depth look into the body of existing research and knowledge around the use of utility models as form of IP protection by SMEs in the manufacturing sector. A critical review of related literature is necessary to help a researcher develop a thorough understanding of and insight into previous research that is related to the research questions. The definition of key concepts, theoretical framework and empirical studies will be discussed and analyzed in this chapter. The researcher focused on accessible literature in view of the limited availability of literature specific to manufacturing SMEs in Zimbabwe. However, comparisons and inferences were made from experiences of countries and economies which at one point were at Zimbabwe's stage of development.

2.2 Theoretical Framework

In definition, a theory explains what is happening in a given scenario, phenomenon, or situation under investigation (Robson, 2002). It is also defined as a set of interrelated constructs, definitions, and propositions that present a systematic view of a phenomena by specifying relations among variables with the purpose of explaining or predicting the phenomena (Kerlinger, 1973, pp. 9). The theoretical framework brings out the theories that explain the relationship of the studied variables and indicators affecting the use of utility model protection for manufacturing SMEs. The

theory of IP has not, until recently, attracted much philosophical interest or has been the subject of deep controversy. Utilitarian theorists generally recommended the creation of IPRs as a suitable means of cultivating a culture innovation, subject to the admonition that such rights are limited in duration so as to balance the social welfare loss of monopoly exploitation. However, non-utilitarian theorists emphasized creators' moral rights to control their work. The ever-increasing importance of IP in modern societies can be ignored at devastating costs and the development of specific new technologies in the Information Age, the theory of IP has attracted renewed interest. Economic commentators and policy experts have significantly enhanced our understanding of the complex relationship between IP protection and innovation and the dissemination of technological developments. For this study, the Utilitarianism theory will be looked at.

2.2.1 The Utilitarianism theory

Utilitarianism, a form of consequentialism, which was identified by J.S. Mill and Jeremy Bentham in the nineteenth century in an effort to develop a decision-making rule capable of guiding social policies in a world being transformed by science, technology and the Industrial Revolution, will be the guiding theory of this study. Not surprisingly, the principal philosophical theory applied to the protection of utilitarian works – that is, technological innovations – has been utilitarianism (Merger, et al, 1997, pp. 135-136). The social value of utilitarian works lies principally in exclusively their ability to perform tasks more effectively at lower costs. It sounds reasonable though for society to seek protection of such works within an authority that itself is based on utilitarian principles. Moreover, inventions – new processes, machines, manufactures, or compositions of matter – unlike artistic or literary, expression do not normally involve personal interests of the creator.

Utilitarianism is the basis of virtually all contemporary economics and much public policy formation. Policymakers at various governmental agencies commonly weigh the benefits and harm that may accrue from alternative regulatory actions and adopt those judged to produce the greatest overall benefits.

Evaluating the use utility model protection as a form of safeguarding innovations and creativity from a utilitarian perspective gives very interesting and conflicting ideas. As the focus here is on the results of the action rather than the action itself, arguments can be made that an individual act of using the utility model is of greater importance. For instance, an individual can significantly improve his or her productivity in the workplace by use of someone's innovation without being assigned or licensed. The employee's company is also happier since they did not have to spend extra money on purchasing the relevant IPs in question. In the end, the individual, his family, and even his company benefit, while the IP's creator is significantly harmed and left to count their losses and left to question the actual benefits of IP protection. From utilitarian perspective, the benefits of intellectual property rights may in fact outweigh the cost, implying that the act is ethical in nature after all. In other words, it is possible to conclude that protecting creativity and innovation through the use of utility models will result in the greatest good for the greatest number, because many users get the benefit of the IP at a cost, while only those directly involved in producing will benefit from the incentives.

The argument is strengthened when the cost of protecting the innovation or any other technology in low-income countries is considered. In instances where people cannot afford the technology at its regular price, the benefit seems especially great, while the producers having more access to resources do not suffer a corresponding harm. Many people also cite the fact that much of the protected technologies are overpriced,

which probably gives then a justification to illegally copy it or infringe when afforded that chance. However, at the same time utilitarianism also suggests a different conclusion. If the consideration is extended to who benefits and who is harmed, the results are different. In this case, the question to be asked is what good a person would derive by using something that belongs to someone else without paying for it. Here the happiness or benefit is identified that comes from obtaining something for nothing.

Also, in the longer run, unchecked infringement would lead to significant losses to the SMEs manufacturers who would not be interested in continuing with developing their product if there is no reasonable reimbursement for their efforts. Looking from this perspective technology infringement does not actually yield the greatest good for the greatest number of people. Additionally, holders of various creations and innovations would lose the incentive to be creative as their efforts go unrewarded when their creations are the object of infringement, misappropriation, and abuse.

2.3 Relevance of the Utilitarianism theory to the Study

Clark (1927) notes that a system that does not give inventors control of their inventions would result in a rivalry in waiting for others rather than an effort to distance others in originating improvements. In Zimbabwe SMEs, companies and individuals have made no real attempt to protect their innovations, since no protecting of IPs has been made, because of various reasons to be discussed in the research. The same reasoning can be extended to use of utility models protection by manufacturing SMEs in many respects and because there might be no protection being sought by many innovators to curb this loss inventors have no rights to control their creations and see no reason of even improving the existing ones.

2.4 Key Concepts

2.4.1 Utility Model and Patent Protection

According to Peng (2017), similar to patents, utility models protect new technical inventions through granting a limited exclusive right to prevent others from commercially exploiting the protected inventions without consent of the right holders. Utility models, first introduced in Germany in 1891, have been implemented in many developed and developing countries and are essentially suited to protect 'minor' or incremental innovations and can be acquired more easily and at lower cost than patents (Peng, 2017). In order to obtain protection, an application must be filed, and a utility model will be registered upon satisfying the local protection requirements. Suthersanen (2006: p.1) states that there is no globally acceptable definition of the term of utility model due to there being fundamentally different concepts from one country to another. She continued to state that, if one examines national laws, one finds that utility model protection is referred to in Australia as "innovation patent", in Malaysia as "utility innovation", in France as "utility certificate", and in Belgium as "short term patent". Some systems define utility models as intangible subject matter such as technical concepts or inventions or devices, while others anchor their definitions to three dimensional forms (Suthersanen, 2006: p.1). The World Intellectual Property Organization (WIPO) defines utility models like patents but issued for a shorter duration and granted without substantive examination. Thus, "utility model" is a generic term which refers to subject matter that hinges precariously between what is protectable under patent

law and sui generis design law. It is not an accepted or clearly defined legal concept within the intellectual property paradigm.

According to Cohen and Merrill (2014), a patent is a property right granted by a sovereign state to the inventor of a novel, non-obvious and industrially applicable invention. In terms of novelty, patents normally require absolute novelty whereas utility models in some jurisdictions require only national or regional novelty. As such, although patents appear to be better in terms of offering more and longer protection, they also require broader novelty and a significant inventive step, thus making utility models the ideal alternative for inventions that do not involve ground-breaking technical solutions.

Similar to a utility model, the patent right holder can exclude third parties from making, using, offering for sale, or selling his or her invention for a period of 20 years from the filing of the patent application. A utility model however has a shorter period of protection than that of a patent and for ARIPO countries, the term of protection is 10 years. An invention is any new or useful process, machine, article of manufacture, or composition of matter. An improvement on any of these items also can be an invention (Cohen and Merrill, 2014).

2.4.2 Small to Medium Enterprises (SMEs)

Gombarume and Mavhundutse (2014) observed that SMEs are easier to describe than to define. According to Muponda (2012) SMEs can be defined using a number of aspects including size, number of employees, country just to mention a few. The Small Enterprises Development Corporation (2010) defines SMEs as an enterprise whose workers are not more than 100 and whose sales turnover does not exceed $US1, 830, 000. An interesting finding in Agbenyo (2016) was that small businesses

refer to those enterprises in which the owner takes part in the administration and production process. Nyamwanza (2014) found that SMEs can be defined using both quantitative approaches and qualitative approaches. Thus, defining SMEs using quantitative approaches involves the use of quantifiable characteristics which include sales volume, number of employees and worth of assets. Nikisi (2014) found that a number of features distinguish large enterprises from small and medium ones which include:

i. Responsive, firefighting attitude,
ii. Exceptional innovative capacity,
iii. Supple structures,
iv. Dependence on very few customers,
v. Working in imperfect markets,
vi. Individualized management with slight decentralized power,
vii. Strategies that are not formal.

Indeed, there is no universally accepted definition of SMEs. According to the World Bank, SMEs are businesses that employ less than 300 people and have an annual turnover that does not exceed $15 million. In Zimbabwe, the Zimbabwe Revenue Authority (ZIMRA) classifies SMEs as businesses that employ between 5-40 people with annual turnover and assets from as low as $50,000 to $2 million.

2.4.3 Utility Model Protection in ARIPO and Zimbabwe

Utility model protection in ARIPO and its member states (Zimbabwe included) is governed by the Harare Protocol (2020 Version), “a utility model shall be protected under the Protocol if it is new and industrially applicable. In addition, a registration of a utility model through the ARIPO Office shall in each designated State be subject to provisions of the applicable national laws.”

The first ARIPO utility model was filed on 19 February 2001 by a Kenyan SME and was eventually granted on June 06, 2002 (ARIPO, 2020). Since then, the number of applications and grants has been slowly improving for the past nineteen years. The table below shows the total number of ARIPO utility models as of 30 November 2020.

Table 1: Total Number of ARIPO Utility Model applications

ORIGIN	TOTAL APPLICATIONS
International	24
Africa/Regional	37
Local/Zimbabwe	122
Total	**183**

Source: ARIPO, 2020

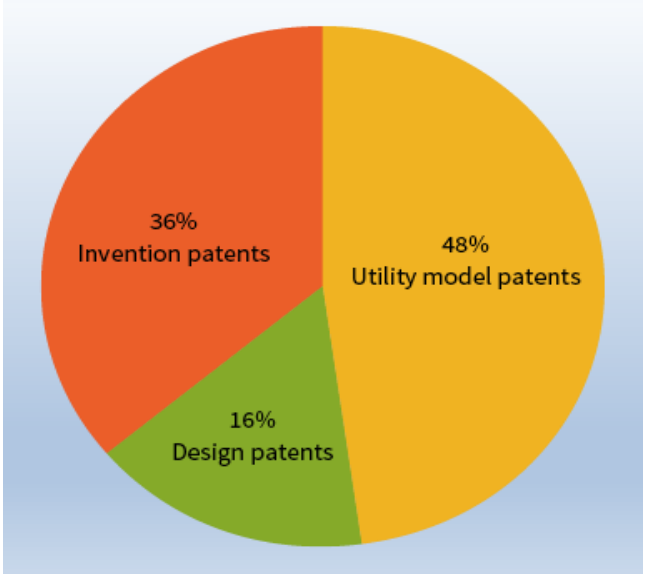
From the statistics above, Zimbabwe is leading in terms of number of applications originating from that jurisdiction, most of which are from SMEs. In the regional category, Zimbabwe is followed by Kenya with 15 and South Africa with 13 applications. In terms of designations, Zimbabwe also saw the highest number of utility model designations (141 applications) since the first application in 2001. The statistics above give us an indication of the actual use of utility model protection in Zimbabwe although the statistics on their own may not be sufficient to establish the actual users since the figures alone may not show whether the applicants are SMEs or not.

2.4.4 Utilization of utility model protection by manufacturing SMEs.

According to Suthersanen (2019) the level of protection for utility models has been very slow since the introduction of this IP protection regime. In addition, Suthersanen (2019) went on to state that since the introduction of utility model protection the level of protection of utility models has not risen but however have slackened. Whether the current economic morass will lead to renewed interest in creating such protection by countries that do not currently have this type of protection remains to be seen (To, Ghinita, Fan & Shahabi, 2016). As propounded by Yin, Xi, Sun and Wang (2017), whereas the early trend seems to have been to have different standards for novelty between patents and utility models, particularly in countries having an absolute novelty standard for patents, the current trend seems to be away from this and towards only requiring a reduced level of inventiveness for utility model protection.

The trend has however been different in countries like China and Japan which have seen a growing trend of utility model protection especially by manufacturing SMEs. In China, utility models are categorized as a type of "patent" under Chinese law, with practical and new technical solutions relating to a product's shape, structure, or combination of the two. China is touted to have utilized the utility model system very effectively with the number of utility model applications filed always the highest and more than invention patent applications. These statistics and trends seem to show that the utility model protection system has been very popular especially with the SMEs and China has been able to successfully exploit the system. This has also been the case in Japan and currently these countries are leaders in technology development and global patent or utility model filing statistics.

Figure 1: Utility Model Protection in China



Source: China National Intellectual Property Administration, 2018

According to Figure 2 above, utility model applications accounted for almost half of Chinese-issued patents in the year 2018.

A study by Rogers, Zhao, Huang, Beutler, Burns, He and Yang (2020) shows that countries in which the most widespread use of utility model protection is made are countries where there are significant differences between the standards of invention required for patents and utility models namely Japan, China, Korea, Taiwan and Germany. In Germany, procedures for enforcement of utility models and patents differ which might be a reason for low level of utility model protection (Kolstoe and Cameron, 2017). Hassan, Case, Winkler, Thackray, Kafai, Bailey and Turner (2020) submitted that countries where there is a lesser distinction between requirements for patent protection and for utility model protection have tended to result in few utility

model applications being filed. From WIPO statistics, it can be noted however that in all countries, utility models, unlike patents in most countries, are much more utilized by locals than by non-residents. Jin, He, Wang and Gong (2018) justified this stating that the costs for utility models tend to be less than those for patent applications. In most jurisdictions, there is no substantive examination for utility model applications, a situation that gives a perception that there is low level of protection for utility models in most countries.

Dispensing with examination seems to be an increasing trend, although Korea at one point abolished this requirement but has now re-introduced it (Panackal & Pillai, 2015). According to Romaniuk (2015) in many countries, it is possible to convert a patent application into a utility model application at any time during pendency of the patent application, for example, if one encounters an obviousness objection where a lower standard required for protection as a utility model would be met even though one cannot satisfy the examiner as to patentability. The conversion of a patent application to a utility model is also possible for ARIPO patent applications. In France, failure to request examination of a patent application will automatically convert the application into one for a utility certificate (Romaniuk, 2015).

2.4.5 Factors affect the utilization of utility model protection.

Recently, inventive efforts have changed from technological breakthroughs to a greater focus on inventions that are incremental in nature (Suthersanen, 2006). As such, broadening patent protection to encompass such incremental innovations can be an accepted patent policy under certain circumstances, especially in encouraging follow-on inventors to secure rights on their cumulative improvements. In some countries, more innovations, both of the breakthrough and incremental nature,

originate from local SMEs than from larger multinational conglomerates. Such inventions tend to have a lower standard of inventiveness and are prime candidates for free riding activities by competitors and deserve protection through the utility model regime. It is argued that *sui generis* regimes have historically improved the legal environment for incremental innovation, and consequently are good for the national economy.

A related reason why utility models may be good for SMEs is that the cost factor may inhibit them from using the patent system as much as they would desire. SMEs in most cases struggle with determining the sales projections of new products, and as such the value of their incremental innovations, because they have inadequate information from market observation and market research. That uncertainty as to the commercial value of the SMEs' inventions has also been attributed to increase the number of utility model applications instead of patents. According to the State Intellectual Property Office of the People's Republic of China now CNIPA, the majority of utility model applications across the world have originated from China since 2003. In China, the system is mainly utilised by resident/local applicants to seek protection within China. Furthermore, the number of utility model applications has averaged over 20% more than the number of patent applications in the past twenty years (CNIPA, 2015).

According to Barro (2015), the protection term for utility models (usually 10 years) is also perceived as too short as compared to other forms of protection which usually may cover a life period or 20 years minimum for patents. In addition, the fact that utility models are viewed as '*lesser'* than patents and in some jurisdictions, patents can be converted or downgraded to utility models, has resulted in a general negative perception of utility model protection. According to Pervukhin and Afanasyeva

(2016), the shorter term of protection for utility models makes the protection useful for products with a relatively short commercial life thus leading to lower levels of protection. In addition, according to Sharma and Kumar (2018), the rate of availability of utility model protection in all or most countries also has an effect on the rate at which this form of IP protection is utilized.

Moreover Suthersanen (2019) mentioned that a registered utility model might be as powerful as a granted patent but needs not to be substantively examined. The absence of substantive examination might be both a positive and negative factor. From a positive point of view, it will mean easier and quicker granting thus meeting the need to quickly protect one's rights. On the other hand, the absence of substantive examination might also mean poor quality protection and exposes the utility model to invalidation. For years in Kenya, utility model protection was through a strict substantive examination process and this discouraged most SMEs whose incremental inventions warranting utility model protection were rejected. The process was also a very long one which ended up eating much into the utility model's short protection term.

Furthermore, and as previously highlighted, utility models in most jurisdictions are granted without substantive examination such that whether the asserted 'creation' in the registered utility model does meet the requirements of patentability is not definite (Rogers et al., 2020). That on its own is a key factor on whether or not one chooses to go with utility protection. Moreover, according to Romaniuk, (2015), some IPR managers in business might not exactly know the difference between patents and utility models thus also affecting the form of IP protection that is chosen for specific innovations. It is even quite possible that some small business owners might not

definitely know that the legal effect of utility model registration is not the same as that of a granted patent.

According to Barro (2015), while to obtain a lot of utility model registration certificates does not necessarily mean that the applicant has made a great deal of many successful research and developments, the applicant does somehow get satisfied with what they have achieved with regards to innovation and creation. In an effort to amplify the inferiority of utility models, Barro (2015) advised that they should be defined as follows: an application originally filed as one for a patent, rejected as being in lack of enough inventiveness or non-obviousness and recognized to bear some kind of improved functionality and utility can be petitioned to be granted as a utility model that can enjoy a shorter protection period and be interpreted to have a narrower protective covering scope.

In a study by Chetty et al., (2018), it was suggested that the creator has the burden to prove its creation and before the creator can take any active legal measure against any asserted infringer, he must prove before the court that the utility model is registrable. Due to the high likelihood of invalidation proceedings owing to the non-availability of substantive examination of utility models, this becomes a major factor in deciding whether or not to use utility model protection. However, on the other hand and from a litigation point of view, there might also be strategic advantages which arise from this form of IP protection. According to Leith, (2000), applicants will be able to claim infringement at an early stage prior to patent grant as well splitting off utility model applications from patent applications for quicker protection. He went on to suggest that this strategy can be used as both a defensive and offensive tool making it a key factor in terms of attractiveness of utility model protection.

Romaniuk (2015) suggested that, for a more complicated thing, for example whether the subject matter contained in a granted utility model is allowable, a governmental interference to definitely and positively determine rather than formally or procedurally examine in advance for them a specific behavior, e.g., copying the utility model, is legally prohibited is desired and necessary for benefits of the general public. If the utility model or design is to be registered without substantive examination, it might be advisable to consider the introduction of a system for copyright (Chetty et al., 2018). Specifically, according to Romaniuk (2015), the protection is automatic upon completion of creation and can be enforced by the court subject to the preceding proof of a creation of eligible protection. By so doing, the workload of the Patent Office is greatly reduced. According to Pervukhin and Afanasyeva (2016), whenever substantive examination of the utility model or design is eventually found unnecessary, a system similar to that for copyright might be suggestible, in order to reduce the workload of the Patent Offices, to obviate misunderstanding of relevant parties and to retain harmony of the society. Moreover Chetty et al., (2016) suggested that, if the utility model is finally found to be beneficial to human society, a clear and definite separating line between it and the patent should be carefully defined. That lack of a clear global definition of utility models or their clear distinction from patents has also been a key in terms of use of utility models by both small and large companies.

2.4.6 Advantages and disadvantages of utility model protection for SMEs.

Utility model protection comes with numerous advantages worth considering especially for SMEs. Generally, utility models have a lower threshold for inventiveness than patents. In practice, utility model protection has often been utilised for innovations of a rather incremental nature that in most cases may not

meet the patentability requirements of a patent. According to Suthersanen (2006), utility model protection may encourage local innovation so that local industries produce more goods. This is said to be especially true for economies with a large SME base and Zimbabwe is a good example of this type of SME-driven economy.

In most jurisdictions, utility models are generally granted without substantive examination if they comply with all national formality requirements. Accordingly, the registration process is in most cases simple and relatively quick. In jurisdictions that register utility models without substantive examination, grants can be obtained within a very short period as compared to patents which typically take three or more years before being granted. Furthermore, the other key advantage for utility model protection is that of being cost effective especially for SMEs. The costs for obtaining and maintaining utility models are cheaper than those for patents.

While the cost of registration and maintenance of a utility model is only a fraction of that of a regular patent, there are high transaction costs to practice it, such as prosecution uncertainty, litigation inefficiency, and licensing clearance costs. As such, while there are several benefits to SMEs of considering utility models, it should be noted that there exist several disadvantages which are equally worth of consideration. Besides having a shorter term of protection, the range of innovations that can secure protection under utility model laws is narrower than that of invention patents. In terms of what can and cannot be protected, eligible subject matter for utility models varies significantly from one jurisdiction to another. Furthermore, the lack of substantive examination in most jurisdictions means that legal security is limited with respect to the validity of the registered utility models and, as a result, they may be successfully challenged. According to Suthersanen, (2019), the absence

of substantive examination might also mean poor quality protection and exposes the utility model to invalidation.

2.5 Empirical Studies

Although little research has been done on the use of utility model protection by manufacturing SMEs specifically, a case study to show how a utility model regime could be appropriately adopted for China, especially to influence the growth of research and development (R&D) behaviour of SMEs carried out by Runhua Wang in 2015 is an equally relevant one. According to Wang (2015), the majority of global utility model applications have been originating from China since 2003. The research also notes that in China there has been an important legislative trend to encourage people's enthusiasm for inventing, and the utility model regime, driven by small enterprises or SMEs, has been a necessary element in that trend. Patents and utility models can be very powerful tools for enhancing the competitiveness of SMEs, but they must be used in a very careful way. Every company, even SMEs, should consider carefully how they will use - or perhaps not use – IPR (WIPO, 2003).

According to Kumar (2005), the East Asian countries (Japan, South Korea and Taiwan, Province of China), utilised a combination of relatively weak IPR protection and the availability of second-tier patents like utility models and design patents which encouraged technological learning. The less stringent IPRs systems have been said to be helpful by allowing for local absorption of foreign innovations. This approach to IPR protection saw local SMEs adapting foreign technologies as well as creating their own incremental inventions. A second-tier patent system (utility model system) encourages local small businesses to make minor adaptations and create inventions from existing technologies. Ruifang Chen, as quoted by Wang (2015),

argued that this approach was important for China to provide registration of utility models to stimulate industrial production and scientific research by SMEs. Other studies and scholars have also asserted that utility model protection is important for the domestic economy at the beginning of a country's industrialization. This assertion is one that the researcher agrees with and believes is also applicable to Zimbabwe's level of economic development and stage of industrialisation.

Another important study was carried out by the Commission of the European Communities in 1995; their investigation looked at the utilization of utility model protection in the individual Member States and across their borders. The study also examined the types of businesses and the particular industries which made most use of utility model protection and considered the possible reasons. The study established that Germany, Spain and Italy had the highest numbers of utility model applications (Commission of European Communities, 1995). This was attributed to the fact that these countries had diminished inventive step requirement, a characteristic that was also found to be attractive to SMEs who in this study contributed to the bulk of the utility model applications. In a study carried out in Denmark before the introduction of the utility model system, it was established that utility model protection would be used mainly by small businesses in mechanical and electrical engineering.

Furthermore, a case study of the development of the Japanese utility model system showed how the system had a positive impact on the country's productivity growth through local SMEs. In his research, Kardam, (2007) indicated that the system was designed to encourage, incremental and adaptive innovations and early disclosure became very important source of technical change and information diffusion in

Japan. According to the Japanese utility law, any device which is industrially applicable and relates to the shape or construction of articles or combination of articles may be protected by utility model registration provided such devices **(a)** are not publicly known or publicly worked in Japan or elsewhere prior to the filing of the utility mode application, **(b)** such devices are not described in a distributed publication or made available to the public through electric telecommunication lines in Japan or elsewhere prior to the filing of the utility model application. This meant a high standard and requirement on substantive examination especially for small local businesses whose inventions were typically meant to solve everyday problems in Japan. As such, the substantive examination of utility model applications was done away with by the amendment made to the Japanese utility model law in 1993.

Most empirical studies for various developed and developing countries especially in Asia have shown a systematic and strategic push towards utility model systems which were friendlier to SMEs. This may be attributed to the need by economies to harness and offer cost effective IP protection to local incremental innovations which in most cases could not meet patentability requirements.

2.6 Research Gap

From the reviewed literature it shows that there exists no specific research was carried out to ascertain the level at which utility model protection is utilized by the manufacturing SMEs in Zimbabwe. This study aims to fill that gap with a major focus on manufacturing SMEs at Magaba Complex in Harare.

2.7 Summary

The main aim of this chapter was to review and critically analyse the existing body of knowledge relating to the use of utility model protection by SMEs in various

countries which were at some point at the same level of development as Zimbabwe. The key concepts and theoretical frameworks were also discussed in this chapter. Having done an in-depth literature review, the key research issues can be fully investigated through an appropriate research methodology with an aim to fully answer the research questions, which is the basis of the next chapter.

CHAPTER 3 METHODOLOGY

3.1 Introduction

The methods and procedures used to gather information are of vital importance to the empirical value of the study. This chapter outlines how the research will be executed and gives a detailed account of the instruments that will be utilized during the data gathering process. The research methodology details how the research will be conducted in terms of selecting relevant research design, selecting samples as well as identifying suitable data gathering tools and finally making decisions concerning how the data will be presented and analyzed. Therefore, this chapter gives an insight of the research methodology that is going to be adopted and how the information will be collected and analyzed. Aspects such as the research design, sample design, data sources and data collection instruments to be used are the focus of this chapter.

3.2 The Research Design

Polit and Beck (2014) defined research design as an overall method or procedure of how the researcher collects, analyze and disseminate results. The chosen method should be in a position to answer the research questions and should comprise of sampling procedure, data collection, instruments used in collecting data means of analyzing data, conceptual theory and how the participants are protected. A case study, research design was applied to answer the research questions. The researcher adopted a cross-case analysis from each case study to analyze the data in order to answer the research questions in detail.

3.2.1 Case study research design

A case study research design is an in-depth study of a particular research problem rather than a statistical survey or comprehensive comparative inquiry that is often used to narrow down a very broad field of research into one or a few easily researchable examples. This research design is useful for testing whether a specific theory and model actually applies to phenomena in the real world. It is a useful design when not much is known about an issue or phenomenon. According to Buchanan & Bryman (2009), case study research design helps in bringing us to an understanding of complex issues through detailed contextual analysis of a limited number of events or conditions and their relationships. Also this research design can extend experience or add strength to what is already known through previous research.

Furthermore, a case study research design refers to the collection and presentation of meticulous information about a particular participant or small group, frequently including the accounts of subjects themselves. Mays., et al (1996) devised that a case study looks intensely at an individual or small participant pool, drawing conclusions only about that participant or group and only in that specific context. In this research the case study was used to collect data from ARIPO, manufacturing SMEs at Magaba Complex and personnel from the Department of Deeds, Companies and Intellectual Property (DCIP) within the Ministry of Justice, Legal and Parliamentary Affairs.

A case study was considered because this was a mixed research, as argued by LoBiondo-Wood & Haber, (1990) that case studies can be considered as a qualitative

or quantitative research and as well mixed approach research study. The major aim of the study was naturally on understanding the impact and use of the utility model in protecting IPRs for SMEs at Magaba Complex, in Mbare and how they behave (Denzin, N. K., & Lincoln, Y. S. (2005). Additionally, data often collected and that relate not only to the person's present state but also to past experiences and situations relevant to the problem will be scrutinized.

The researcher assumed the possibility of a depth research because of the inclusion of a small number of entities (Pole, C. and Lampard, R. (2002) and because they obtain the knowledge of people's feelings, actions (past and present), intentions and environment concerning the impact of artisanal mining and illicit gold financing. Benner, (1993) is of the view that case studies help to formalize experimental knowledge and to generate hypotheses which can as well be used for further researches. This research therefore developed and formalised new knowledge through case study design that will contribute to quality and sustainable use of the utility model in protecting creativity and innovations amongst manufacturing SMEs.

Potter, (1997) suggested that using a case study research design is very time consuming and sometimes may be quite costly. Further he asserted that case study participants may drop out during the research as a result of disappointments from the group members (if they arise) or that a participant may move from the locality. However, besides these limitations the researcher decided to use the case study design.

3.2.2 Research Approach

According to Cresswell (2014) there are three main research approaches namely quantitative, qualitative and mixed methods approach. The researcher made use of

mixed research approach to conduct the study because according to Newman and Benz (1998) asserts that only quantitative or qualitative methods falls short of the major approaches being used today in the social and human sciences. Borg and Gall (1989) were of the same view that both quantitative and qualitative approaches have strength and weaknesses, hence combining them or using them in a complementary manner results in having a more comprehensive study. The researcher engaged mixed method research to have a more comprehensive study on the impact use of utility model protection by manufacturing SMEs at Magaba Complex, Harare Zimbabwe.

Neumann (1997) echoes that these approaches have their place research study because of their strengths and weaknesses to fill each other's gap. Therefore, they both (qualitative and quantitative) give a partial solution in this study and that is why the researcher engaged a merger of both quantitative and qualitative approaches since they are complementary. Creswell,(2005) indicated that mixed method research is research in which the researcher uses the qualitative research paradigm for the phase of a research study and the quantitative research paradigm for another in order to understand a research problem in a more complete manner. Greene et al (1989) supported the same standpoint that when qualitative and quantitative methods are used in combination in one study, they complement each other and allow for a more comprehensive and robust analysis of the research problem. The researcher used the two methods in harmony of each other as suggested by Baum, (1995) that the approaches are complementary rather than competitive. The decision by the researcher to use both methods in a single study is based on the nature of the actual research problem and the research questions posed by the research (McKinlay,

1995). The aim of the study was to determine the impact of utility model protection by manufacturing SMEs at Magaba Complex, Harare, Zimbabwe.

3.3 Population and Sampling

According to Welman, Kruger and Mitchell, (2018), the population is the research object and may consist of individuals, groups, organizations, products, events or conditions to which previously mentioned objects are exposed. This study focuses on manufacturing SMEs in Zimbabwe and related institutions that are custodians of the relevant intellectual property registers of registered utility models. The Zimbabwe Intellectual Property Office (ZIPO) and ARIPO are key institutions in this research as well.

3.3.1 Target Population

Kumar (2004) is of the view that a population is the collective association of a distinct class of people, objects, or event, with the required information. Catterall & Maclaran (1997) also further argues that population is a combined word used to define the total quantity of cases of the type which are subject of your study". The best way to research any population "is to gather from every element within it and in order to do this there is need to conduct an in depth research on small, defined and accessible population" (King 2004). The acceptable minimum size is 10% of the target of the target population. In this study the population included the government ministries and department, lawyers and as well from various individuals and institution at Magaba complex. Thus in order to study; the researcher selected a sample from the population. Although there exists no current validated data on the number of SMEs in Zimbabwe, an official study by Finscope remains a key guiding factor. According to a Finscope Micro, Small and Medium Enterprises (SMEs)

Survey (2012), in Zimbabwe there are 2.8 million SME owners employing 2.9 million people. Reliable information gathered from the Small and Medium Association of Zimbabwe (SMEAZ) indicates that there are 225 manufacturing SMEs in Harare subdivided in 36 in carpentry, 64 in industrial supplies, 32 in light engineering, 31 in machinery and tools and 62 are in metal engineering. In view of the numbers of SMEs in Harare and the fact that the researcher will not be able to access all of them, the target population for this study comprises all manufacturing small businesses at Magaba Complex in Harare, Zimbabwe.

3.3.2 Sampling

According to Harvey (2012), a sample is a subset of a wider group of individuals who take part in an investigation. The primary purpose of sampling is that by selecting some elements of a population, the researcher can draw conclusions about the entire population.

3.3.2.1 Sampling techniques

The researcher used probability and non -probability sampling techniques to select the respondents on the use of utility model protection by manufacturing SMEs at Magaba Complex.

3.3.2.1.1 Probability sampling technique

Ogula (1998) postulated that a probability sampling technique is a sampling method in which each element of the population has an equal chance of inclusion in the sample. It was the blind chance alone that determines whether a respondent or the other was selected. To obtain data of the questionnaires, the researcher used systematic random sampling. Systematic random sampling is the random

sampling method that requires selecting samples based on a system of intervals in a numbered population. The researcher adopted the systematic random sampling method. With this approach, the researcher selected manufacturing SMEs using a constant interval between selections, the first interval having a random start. The interval was based on the number of manufacturing SMEs. According to Levy and Lemeshow (2004), systematic sampling is a method of choosing a random sample from among a larger population. The process of systematic sampling typically involves first selecting a fixed starting point in the larger population and then obtaining subsequent observations by using a constant interval between samples taken (Kothari, 2004).

The main reason for using this sampling method was because of the method's convenience and its ability to significantly reduce time and work that is associated with a research study of a very big nature. Furthermore, this method is touted for producing accurate results when properly executed with adequate due care and attention. The method can also be regarded as the most appropriate one for the large population of the manufacturing SMEs. There is an equal opportunity for every member of a population to be selected using this sampling technique. However, the downside of this sampling method is that it may not represent the whole population and there is probability and risk of researcher bias on selection of the sample units (Kothari, 2004).

3.3.2.1.1 Non- probability sampling technique

Non-probability sampling is defined by Kothari (2004) as the sampling procedure which does not afford any basis for estimating the chance that each item in the population has of being included in the sample. In this type of sampling, respondents

for the sample are selected deliberately by the researcher. The researcher's choice concerning the items remains supreme. Mugenda and Mugenda (2003). In other words, under non-probability sampling the researcher purposively choose the particular element of the population for constituting a sample on the basis that the sample size that they select out of the target population will be typical or representative of the population (Burgess 1949) .In order to locate the respondents for interviews, the researcher used purposive non-probability sampling technique. This sampling method is based on the proximity of the sample. The researcher visited the Magaba Complex and respondents who were found available were then interviewed. Purposive sampling the data collection process to be facilitated in a short duration. The sampling techniques that were used to select the sample size and respondents sought to reduce sampling error and bias by ensuring that the sample was as representative as possible.

3.3.3 Sample size

From the preliminary information obtained, Magaba Complex currently houses up to a thousand SMEs. The researcher formed a systematic sample of 50 SMEs from a possible population of 225. With a sample interval of 20, the researcher selected SMEs in the target population to build the sample systematically. The researcher selected a random starting point between 1 and the sampling interval to build his sample.

3.4 Data Collection Instruments

For the purposes of data gathering and acquiring information, the researcher was able to utilize both primary and secondary data. The primary data was obtained directly from respondents using in-depth interviews and questionnaires. The researcher also

analysed documents and data from the regional IP office (ARIPO) as another source of secondary data. Accordingly, the researcher worked with the three main methods of data collection specifically in-depth interviews, questionnaires and document analysis.

3.4.1 In-depth Interviews

In-depth interviews were conducted in strict adherence to Covid-19 restrictions, and data was gathered from the representatives of the manufacturing SMEs' owners or management staff. The process was combined and conducted simultaneously with the administration of the questionnaires.

3.4.2 Questionnaires

The researcher used a questionnaire with both open ended and close ended questions. This was aimed at giving the researcher more information for the purposes of analysis. The close ended questions required the respondents to choose from a ready-made list of alternative answers. On the other hand, the open-ended questions were structured in such a way that was to give respondents room and flexibility to answer openly and widely. In line with the chosen method of systematic random sampling, the researcher self-administered the questionnaires to the 50 participants from the selected sample.

3.4.3 Document Analysis

In view of the limited literature and research specifically for the target population of the study, the researcher utilized document analysis. The analysis was done mainly on the utility model registers and documents at ARIPO as well as other related documents.

3.5 Pilot Study

According to Arain et al (2010), a pilot study is a mini version of a full-scale study or a trial run done in preparation of the complete study. Thus, the pilot study of the current research which consisted of participants in manufacturing small businesses at Magaba Complex. The pilot study respondents were not part of the sample for the actual study. One of the advantages of conducting a pilot study prior to the main research is that necessary changes can be made on the research instruments so that the main research will have minimal problems (Saunders et al., 2009). The researcher conducted a pilot study with ten participants who were not be part of the study population.

3.6 Data Collection Procedure

In view of the likelihood of limited responses via emails, meetings were held during the month of March in 2021 with the owners and representatives of manufacturing SMEs to secure their acceptance of participation in the research. The researcher explained the nature and the scope of his study as part of the process of seeking consent from the respondents. Interviews were conducted simultaneously with the administration of the questionnaires. The discussions with respondents took place on-site at Magaba Complex in Mbare, Harare as well as at the offices of the respective SMEs with strict social distancing and adherence to Covid-19 regulations. During the interviews, the researcher also took notes in order to help the researcher to augment and analyze the gathered data.

3.7 Analysis and Organization of Data

The SPSS 16.0 version tool will be used to analyze data in this study. Information will be presented in the following ways:

a. Tabular Method which provides a more precise, systematic and orderly presentation of data in rows and columns.
b. Semi-tabular Method, which involves the use of both textual and tabular methods.
c. Graphical Method, which will visually present findings using charts and diagrams.
d. Textual or Narrative Method, this method is an exceptional way in which the researcher could enter dialogue with the owners and representatives of the sample manufacturing SMEs.

3.8 Ethical Consideration

The researcher is adhered to all the ethical considerations and guidelines to the highest extent possible.

3.8.1 Informed consent

Before conducting the research, the researcher informed the respondents about the reason for conducting the research and sought their participation through a consent form. The respondents were allowed to voluntarily participate in the study. No coercion or duress was administered or used in the study. In addition, the respondents had absolute freedom of choice of whether or not to continue with the research.

3.8.2 No harm to participants

Through the consent form, the researcher also assured the respondents that they are not going to be any negative implications for participating in the research. The researcher strongly emphasized that the information that was obtained is going to be used for academic purposes only. As stressed by Thorner (2010), when conducting a study, the researcher should make sure that there is no harm to the participants.

3.8.3 Confidentiality and anonymity

Confidentiality and privacy of the respondents was maintained and respected throughout the study. The researcher explained the non-disclosure clause of the consent form to the respondents. In addition, the study used respondent numbers to reflect the study respondents and their real names will not be used or published.

3.8.4 Permission

The researcher sought all the necessary permissions before he conducted the research from the relevant authorities and respondents who participated in the study. The respondents were asked to sign a consent form before taking part in the study as an indication that they are agreeing to participate.

3.9 Summary

This chapter has detailed and justified the research methodology that was utilized in the study in an effort to gather and analyze data which answered the research questions. The research design, target population, and the research instruments were outlined and justified. With all the relevant data in place after the execution of the

research methodology outlined above, its presentation and analysis will be the core of the next chapter.

CHAPTER 4 DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.1 Introduction

This chapter presents the findings of the study with the analysis and interpretation more narrative in relation to the key areas that were part of the questionnaire. These key areas are intellectual property awareness, licensing, R&D and internal intellectual property strategy as well as general opinions. A total of 50 questionnaires were distributed and the response rate was 90%. This chapter focuses on presenting the results, discussion of results, inference and conclusions based on what was gathered during the research.

4.2 Data Presentation

4.2.1 Structured Data Collected from Interviews and Questionnaires

Table 2: Total number of Questionnaires and Respondents

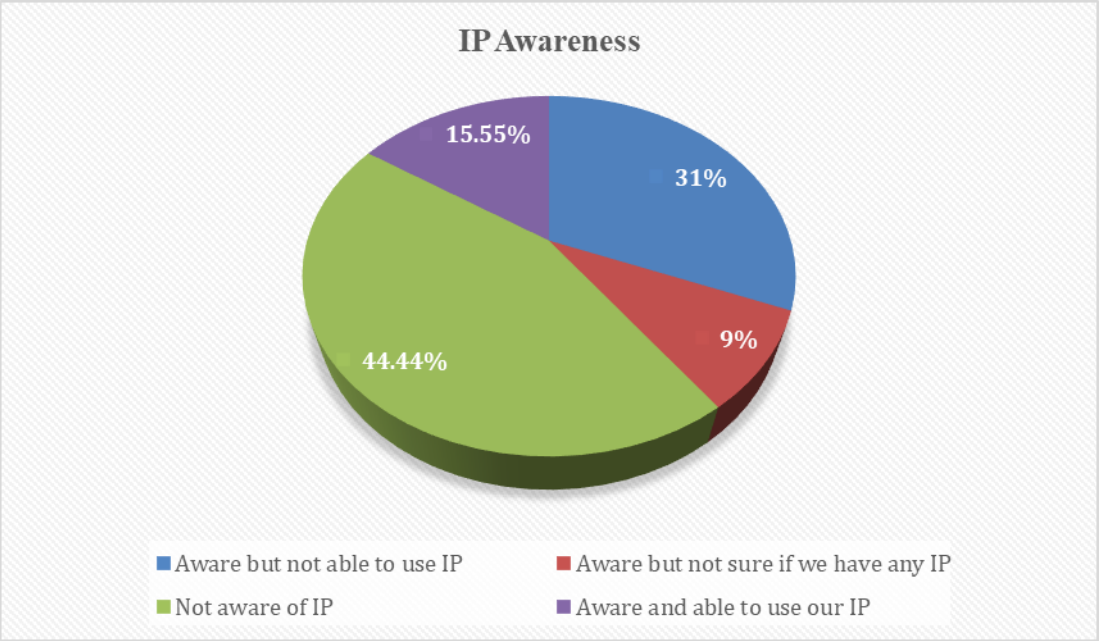
Total Number of Questionnaires distributed		50
Total Number of those that responded		45
Total Number of Spoiled Questionnaires		2
Total Number of Non-Respondents		3

A total number of 50 questionnaires were distributed, and a total of 10 in-depth interviews were conducted simultaneously during the questionnaires distribution exercise. From a total of 50 questionnaires, 3 questionnaires were sent via emails and the respondents did not respond or reply the e-mails and after a follow-up they professed ignorance and unwillingness to complete the questionnaires; 2

questionnaires came back spoiled and the remaining 45 came back with responses. Of the 10 in-depth interviews conducted, only 5 were successful and the other 5 brought no meaningful information. 1 interviewee was an employee from the ZIPO, 1 employee from ARIPO and 3 SMEs owners or representatives.

4.2.2 Intellectual Property Awareness

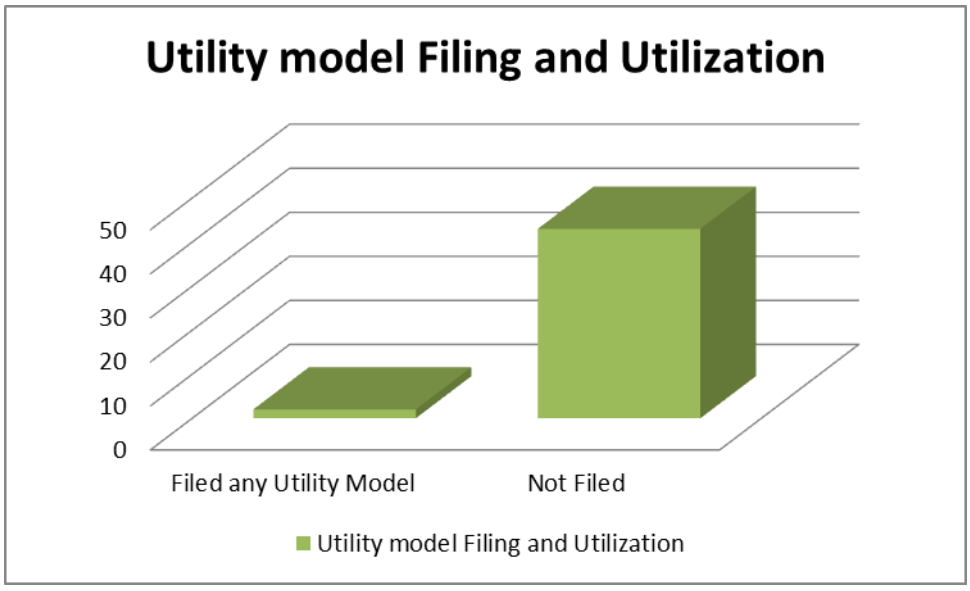
Figure 2: Intellectual Property Awareness



From the above pie-chart it was revealed from the questionnaires that 7 respondents expressed the knowledge about IP and how it is used to for safeguarding of one's ideas/ inventions against infringement, securing your patentable ideas so that whoever what to use them gets permission from the owner and securing products against abuse by third parties in general and about utility models protection, 4 were aware of IP but did not know how it was used, 14 new the subject either from school,

work, colleagues, exhibitions or via various media available as well the Internet and 20 professed ignorance or were not aware of the subject.

Figure 3: Utility Model Filing and Utilization

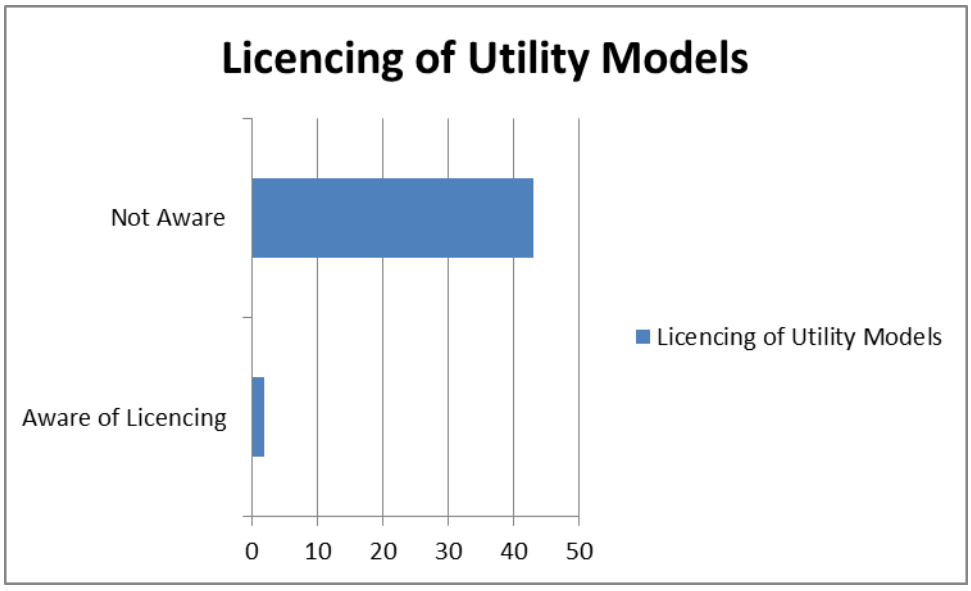


From the total of 45 returned questionnaires, only 2 respondents had utilized the utility model protection system through the ARIPO system and 43 had not utilized it for various reasons like limited financial resources, bureaucracy, knowledge transfer is highly encouraged, so there no reason to seek protection, others had nothing to protect and others were used to copying others' creativity and innovations. Majority of the respondents were not aware of laws guiding the protection of utility models or the steps that are taken to get protection. More than a quarter of the respondents had

personally took time to seek information about IP and had actually become aware about the existence of utility models, the process of filing, formalities, examination, registration as well as related fees and only the 2 who had already filed their utility models at ARIPO knew about the use expired IPRs for free and were actually able to search for them or various databases and exploit them for their benefit. Only 2 believed that utility models were an effective method of protecting minor inventions because they thought it is fast, it a catalyst for enhancing levels of innovation, it is a way of creating highly competitive markets and can used as a trap of luring government support and investors. Those who knew the process and were not in a position to use the process attributed to corruption, theft, complicated administrative procedures, lack of policy clarity, expensive and lack of awareness and lack of knowledge about the subject matter.

4.2.3 Licencing

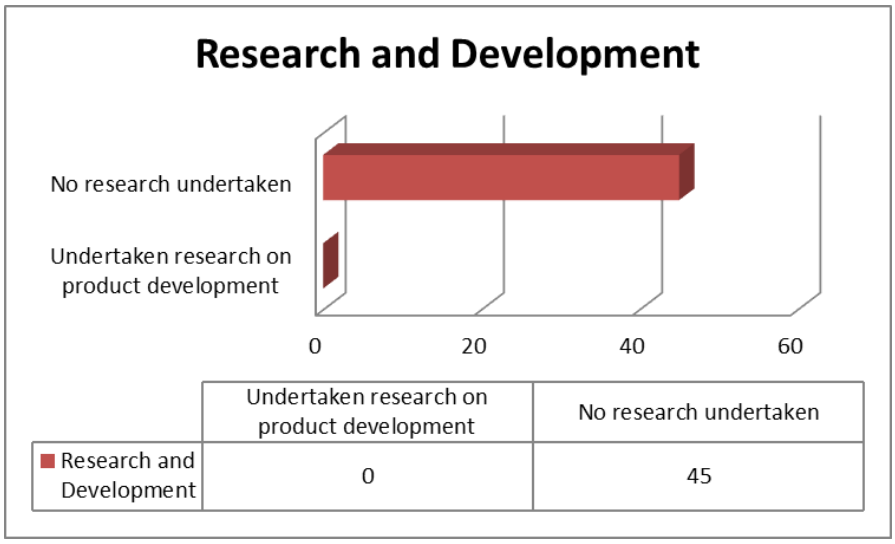
Figure 4: Licencing Utilization and Knowledge



None of the SMEs have either licenced any utility model or have received a licence to use one. Only the 2 who had applied for protection expressed interest in the subject of licensing and were hoping to get partners for assigning or licencing their innovations to generate additional revenue from them. None of the respondents knew about how a licence agreement looks like or any technical know-how included in these documents, though expressed a desire to research about licencing so that they can seek partners who can licence them available technologies for use to generate extra revenue and to improve their product range,

4.2.4 R & D and Internal Intellectual Property Strategy

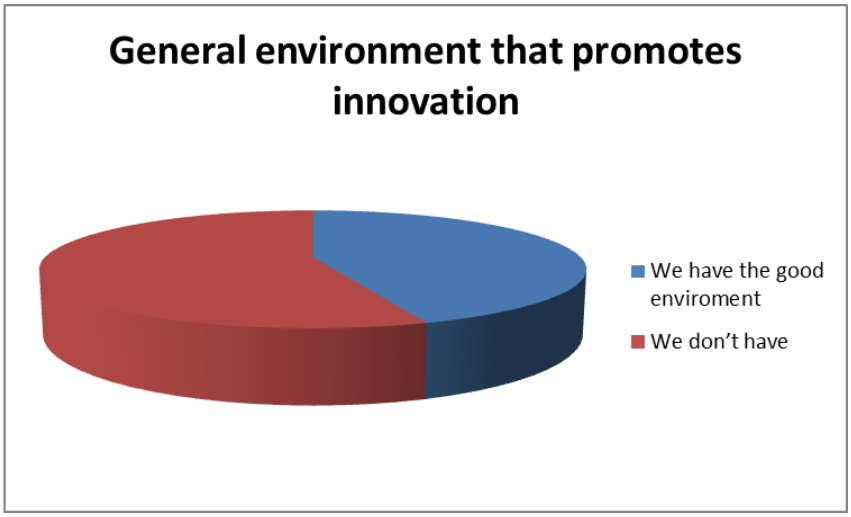
Figure 5: Research and Development



None of the SMEs had conducted any research about utility models even though who have sought protection on their innovation and all of them professed ignorance on the subject including coming up with an IP strategy because they had no financial capacity and had more pressing issues that needed financial attention other than research and development or coming up with an IP strategy.

4.2.5 General Opinions

Figure 6: General Opinions



Just below half of SMEs believe that there is a conducive environment and proper infrastructure to promote inventiveness, creativity and innovation because of a very high literacy rate, government's initiative through Science, Technology, Engineering, and Mathematics (STEM) curriculum, availability of polytechnic colleges and technical universities such as Harare Institute of Technology (HIT) and National University Science and Technology (NUST). Those who were against raised points like lack of government support, education, awareness, financial prowess, and government practical implementation of theoretical policies.

4.2.6 Keys Notes of Verbal Interviews

It has been noted that some of the SMEs have managed to come up with real life creations and innovations which even qualify for patent protection but they have fallen because of either lack of financial resources, knowledge, theft and policy

clarity as well as monotonous administrative process of seeking protection as major setbacks why majority of them have failed to protect their IPs. When I got the chance to interview a ZIPO official he attributed these problems to ZIPO being insufficiently staffed and ill-equipped to provide an efficient service to its stakeholders, staff compliment is too thin owing to the economic downturn and brain drain because all the vacancies which fell void after some of the officers left have been frozen. ZIPO does not have any patent examiners or a department skilled to help clients to draft patent claims the examiners that exist mainly focus on trademarks and industrial designs only and the examiners who have left have not been replaced. It also emerged that ZIPO does not protect utility models. The current Patents Act does not provide for utility model protection which one questions the legality of utility models registered in ARIPO while designating Zimbabwe.

4.3 Data Analysis and Interpretation

4.3.1 Intellectual property awareness

Only 15.55% of participant SMEs showed awareness and understanding of the subject of intellectual property in general and not particularly utility models. The research showed significantly low levels of intellectual property awareness with 44.44% of the SMEs completely unaware of the subject and 9% being familiar with the subject matter but was not sure if at all they generated intellectual property in the course of their business. There was an indication of appreciation of intellectual property in general by 31% of the participants. However, these SMEs were not able to utilize their intellectual property assets. Figure 1 below shows the findings regarding IP awareness among the participant SMEs.

Furthermore, the research also established that only 15.55% of the participants were aware of and familiar with the laws and regulations guiding the protection of utility models. This limited awareness also had a significant bearing on the utility model filing activity of these SMEs. As such, only 4.44% confirmed having their companies at one point filing for utility model protection. In addition, the participants also showed low levels of the motivation to research or seek further information regarding protection of their innovations. Only 28.9% of the participants acknowledged doing research about intellectual property protection and the registration of their utility models. 71.1% of the research respondents confirmed that they had never researched about intellectual property as well as any ways of legally protecting their innovations. This research finding can also be considered to have a direct implication on the usage of free information in lapsed utility models/inventions which was close to none; only 4.4% confirmed using the information with 95.6% completely unaware.

In addition, it was also established that most SMEs were not aware that their innovations/inventions can be protected under utility models (77.78%). For the participants who were familiar with protection of their innovations under utility models, the research also established that 95.6% felt that utility model protection was not the most suitable form of protection of their innovations/inventions. Regarding why most of the SMEs had not filed for utility model protection for their intellectual property, several reasons were raised.

Key among them included:

a. Not having anything to protect.

b. Knowledge transfer was highly encouraged, and the participants saw no reason to seek legal protection.
c. Reliance on copying and manufacturing available products.
d. Lack of financial resources.

4.3.2 Licensing

Regarding intellectual property licensing, particularly that of utility models, none of the participants had any utility models licensed out. The same also applied to licensing of utility models with all participants do not have any intellectual property or utility models licensed out. As such, all the participants did not provide any information that indicated their understanding of intellectual property licensing including utility models.

4.3.3 R & D and Internal Intellectual Property Strategy

The research established that 100% of the participants were not involved in any research around the technologies that were being used by these SMEs. Most of the technologies or innovations are freely shared and copied within the industry and all the participants were using internally developed solutions which did not require employing research or assistance of external technology owners. In addition, 100% of the SMEs indicated that they did not have budgets for R&D and protection of any inventions. As a result, the research also established that 100% of the participants did not have a person or department responsible for protection of their innovations/inventions, most of which are improvements or adaptations of existing technologies. Although 44.44% of the participants indicated that they had enough infrastructures to promote innovation, the research established that 100% of the SMEs did not have an intellectual property policy, strategy, or any provisions in

employment contracts for employee inventions. Those participants that had infrastructure in place to promote innovation attributed that to the government's initiative through the Science, Technology, Engineering and Mathematics (STEM) curriculum. The participants also indicated that availability of polytechnic colleges and technical universities such as Harare Institute of Technology (HIT) and National University of Science and Technology (NUST) have also helped improve their view on innovation and inventiveness.

However, 55.56% who did not have infrastructure in place to promote innovation and inventiveness cited lack of education and awareness, lack of government support as well as lack of practical implementation of innovation policies by the government.

4.6 Discussion

For the greater percentage of participants who showed lack of awareness and limited understanding of IP issues and the need to get protection, several reasons were raised by the participants. Key among them was ignorance of the existence of utility models as a form of protection for their innovations/inventions. Some of the participants showed complete lack of knowledge around intellectual property issues. For the 31% who were aware of the research subject matter, one the main reasons were lack of capital to initiate the utility model protection process. These respondents were also concerned that besides the high fees associated with the process; there was significant lack of financial benefit after the process of registration is done. Furthermore, the research also established from the same group that the protection process was time-consuming, and it did not make financial sense for some of their innovations which did not have a longer lifespan.

On the other hand, the 15.55% who were aware of the research subject matter and were able to use their intellectual property assets also raised various reasons to that effect. One of the key reasons that were raised was exposure to the IP industry through formal education, social media and information communication technology (ICTs). In addition, they also utilized the utility model protection to protect their innovations against infringement by third parties. These SMEs were also exposed to the need to protect their ideas through exhibitions and trade fairs where they also met people from the Zimbabwe Intellectual Property Office (ZIPO) and ARIPO. Although none of the participants confirmed having licensed any of their innovations to third parties, this group (15.55%) also indicated the knowledge of the potential to license their protected innovations/inventions.

The researcher also interviewed the participants (40%) who were aware of intellectual property and showed an understanding of the subject matter of the research who shared a few notes with the researcher. One of the respondents, who was a qualified engineer and an inventor and operated a moderate engineering company highlighted that he invented a corrugated sheets bender and when he approached the authorities to get his technology protected, an official at the IP office asked for a bribe to assist him to get protection and ended up halting the process. Another respondent also mentioned a colleague who worked at a large multinational organization who came up with the idea of mobile money transfer technology before it was being used in the country and shared the technology with one of the executives at the organization. Unfortunately, his technology was implemented by the same organisation and he was only compensated with USD100. As such, the respondent felt that there was no need to protect when has no means to commercialise since the ideas will always be ‘stolen’ by large corporates.

The researcher also interviewed another participant, an inventor who had a thriving business at the Magaba Complex. The respondent indicated that at one point, he filed several utility models under the educational institution he was working for due to lack of funds to protect his inventions. The respondent indicated that he was introduced to the intellectual property field by chance, while being a full-time lecturer at the academic institution. Accordingly, he bemoaned the lack of awareness and education of the field of intellectual property. Of the several utility models he filed none of them were yet to be registered. The respondent also said that besides lack of awareness on IP matters, exorbitant fees were also another deterrent.

During the meetings I also managed to interview a respondent who herself has filed 3 utility model applications in the poultry field. Only one utility model has been registered. She has managed to start a company focusing on the manufacturing of the products protected under this registered utility model which she was selling by the time I managed to interview her. Her protected product is a device for fast and efficient slaughtering of broilers. She was introduced to the IP field after attending a trade fair in Bulawayo when she bumped into the Zimbabwe Intellectual Property Office (ZIPO)-ARIPO stand and the same year she filed her first application. She has since partnered with the Ministry of Youth to raise awareness on the importance of IP amongst the youth as start-ups and to use her own story as a motivation to encourage innovation amongst the youths. She spoke highly of the utility model protection system for SMEs as a tool for creating confidence in your clientele, as it gives you a competitive edge over your rivals and your continued survival in the ever-changing business environment where intellectual property assets have become of very high importance.

4.7 Summary

This chapter concentrated on a thorough analysis and interpretation of the gathered data as a way of accomplishing the objectives of the project as well as responding the research questions. A number of gaps were acknowledged which called for immediate attention. The last chapter delivers the complete conclusion, an ephemeral discussion concerning the use of utility model protection as well as recommendations for the improvement of the established challenges affecting the manufacturing SMEs in general and the nation at large in as far as the utilization of the utility model system is concerned.

CHAPTER 5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings of the research with particular reference to the statement of the problem, objectives and research questions. The research findings are also discussed in brief in this chapter. Finally, the researcher also puts across his recommendations based on his findings on how to correct and improve areas of concern uncovered by the research.

5.2 Discussion

Although utility model protection comes with numerous advantages worth considering especially for SMEs, this value cannot be experienced by many manufacturing SMEs in Zimbabwe the majority of which are not aware of the subject matter itself. The research established that innovations of a lower threshold for inventiveness are the driving force behind these SMEs; however the majority of these are not documented and protected as shown by the insignificant utility model filing activity. According to Uma Suthersanen (2006), utility model protection may encourage local innovation so that local industries produce more goods. This is however not the case with manufacturing SMEs at Magaba Complex in Harare and more needs to be done for this reality to be experienced.

In most jurisdictions, utility models are generally granted without substantive examination and the registration process is in most cases simple and relatively quick. This is however not the case in Zimbabwe which currently do not have utility model law. As such, the registration of utility models can only be obtained through ARIPO

under the Harare Protocol which Zimbabwe is also party to. This situation raises another key issue which has a significant bearing on the utilization of utility model protection by local SMEs – enforcement. Without local utility model law, it will be difficult if not impossible for these manufacturing SMEs to enforce their rights in Zimbabwe.

While the cost of registration and maintenance of a utility model is said to be only a fraction of that of a regular patent, there are high transaction costs which the respondents (15.55%) raised as a major concern. As such, while there are several documented benefits to SMEs of considering utility models, it should be noted that these benefits are not being experienced by most of the manufacturing SMEs 44.44% of whom are not even aware of intellectual property and utility models in particular.

According to the research findings, most of the participants (44.44%) were completely not aware of intellectual property in general and more particularly utility models. As such, the utilization of utility models as a form of intellectual property protection was almost insignificant (4.44%). The main reason was being the complete lack of awareness of the subject matter. Innovation plays a significant role in technological progress and economic development of countries and economies. Majority of the lower-middle income countries, including Zimbabwe have national patent systems to regulate the protection of various innovations. Although a functional patent system exists in Zimbabwe, there is no law for the registration of utility models in Zimbabwe. According to the research findings, before a proper utility model law is put in place, more needs to be done in terms of general intellectual property awareness and establishing a culture of protecting and registering inventions.

5.3 Conclusions

The conclusion drawn from this study about utilization of utility model protection by manufacturing SMEs in Zimbabwe that there is low utilization. And there is no underlying drive by these entities to get protection because of non-motivating factors and enforcement of these rights is non-existent.

5.4 Implications

From analyzing the data collected from respondents and the review of related literature, there exist a huge challenge in Zimbabwe among the individuals and institutions at Magaba Complex and some loopholes in laws enforcing utility model protection in Zimbabwe. This study recognizes and admits that the shortcomings are multi-faceted but the implications upon the manufacturing SMEs industry and other related entities are serious and far-reaching. There may be possible loss of income, restriction of innovations and many other associated repercussions borne from the inadequate laws, inconsistent policies and enforcement thereof in order to encourage innovation and the use of the utility model system in Zimbabwe. Therefore the study gives recommendations below.

5.5 Recommendations

a. The Government should encourage and support the manufacturing SMEs to invest in research and development and creation of intellectual property.

b. The government needs to prioritize the protection of innovation. The approach that is needed is a deliberate one where the government incentivizes creativity and avails grants for SMEs to protect their innovations.

c. The government needs to prioritize the enactment of the utility model law as a matter of urgency. Issues of theft of intellectual property raised by some respondents will be easier to handle and enforce with an appropriate law in place.

d. Increasing R&D funding to at least 1% of the GDP with a major focus on SMEs which for Zimbabwe are a key driver to the economy.

e. Nation-wide intellectual property awareness campaigns and capacity building programs especially for SMEs in the manufacturing sector.

f. The Industry Policy should be linked to the National IP policy and make it mandatory for the manufacturing industry to utilize the National IP Policy as a guiding framework.

g. The patent system should be supplemented by the utility model law.

h. The function of the Intellectual Property Office should expand from administration of IP rights to promotion on IP and IP awareness creation with priority to the IP needs for SMEs.

i. Since most innovations by the manufacturing SMEs are incremental and based on existing technologies, provision of access to lapsed patents and utility models for these SMEs through the national IP office is recommended.

j. The Government should promote and fund innovation and IP related awareness programs.

5.6 Suggestions for Further Research

i. A study should be done on other aspects of the utility model in their role to stimulate innovation, creativity and in averting of theft of protectable ideas.

ii. The relationship between utility model protection and economic growth.

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Appendices

Appendix 1: Questionnaire (English)

QUESTIONNAIRE

RESEARCH PROJECT ON THE USE OF UTILITY MODEL PROTECTION BY MANUFACTURING SMES AT MAGABA COMPLEX, HARARE, ZIMBABWE

This project is to be submitted in partial fulfilment of the Masters Degree in Intellectual Property offered by Africa University in conjunction with the World Intellectual Property Organisation (**WIPO**) and the African Regional Intellectual Property Organisation (**ARIPO**)

The purpose of this questionnaire is to gather information and experiences on use of utility model protection by manufacturing SMEs at Magaba Complex, Harare, Zimbabwe. The information gathered by way of this questionnaire shall serve as the research basis for formulating strategies that can be put in place to promote better appreciation and utilisation of utility model protection by manufacturing SMEs at Magaba Complex.

CONFIDENTIALITY

Although this questionnaire requests your company name and other specific information, this is only for the researcher and will not be passed on to third parties or attributed directly in any public way.

PART 1: COMPANY DETAILS

Name and Address **Contact Person & Title**

_____ _____
_____ _____
_____ _____
_____ _____

Year of Establishment_____

Number of Employees _____

PART 2: INTELLECTUAL PROPERTY AWARENESS

1. Are you aware of Intellectual Property and protection of inventions (utility models)?

a)	Aware of it but not able to use it	
b)	Aware of Intellectual property but don't know if we have any	
c)	Not aware	
d)	Aware and able to use it	

2. Has your company ever filed or registered any utility model/inventions?

   YES ☐ NO ☐

   If no, please give reasons

   _____
   _____
   _____
   _____

3. Are you aware of the laws guiding the protection of utility models/inventions?

   YES ☐ NO ☐

4. What do you understand about protection of ideas/innovations?

   _____
   _____
   _____
   _____

5. Are you aware of how utility models are protected or registered?

   YES ☐ NO ☐

   If yes, name them

   _____
   _____
   _____

_____

6. Have you ever researched about intellectual property protection or registration of utility models before?

   YES ☐ NO ☐

   If yes how did you use the information?

   _____
   _____
   _____
   _____

7. Are you aware that you can search for expired/lapsed utility models/inventions in your area of technology that you can use for free?

   YES ☐ NO ☐

8. Are you aware of the rights of inventors?

   YES ☐ NO ☐

   If yes give details

   _____
   _____
   _____
   _____

9. Do you think that utility models are an effective method of protecting innovations?

   YES ☐ NO ☐

   - If yes give reasons

   _____
   _____
   _____
   _____

   - If no, what in your view are the barriers for the use of utility model protection in your industry?

   _____
   _____
   _____
   _____

10. Are you aware that small inventions/innovations can be protected as utility models (petty/small patents)?

    YES ☐ NO ☐

PART 3: LICENSING

11. Do you have any utility models/inventions that you have licensed out?

YES ☐ NO ☐

12. Are you aware of the laws guiding the unauthorised use of your utility models/inventions?

a)	Yes but not able to use it	
b)	Yes	
c)	No	

13. Is your company using any utility models/inventions under licence?

YES ☐ NO ☐

If your answer to the above is yes;

a) Is the utility model(s) local or foreign owned?

_____
_____
_____
_____

b) Is technical know-how included in the licence agreement?

YES ☐ NO ☐

c) Are you aware of the lifespan of the utility model/invention under licence?

YES ☐ NO ☐

If yes, what are your plans after the expiration of the utility model(s)?

_____
_____
_____
_____

14. Are there any improvements that your firm has made to the licensed technology?

YES ☐ NO ☐

If yes, have you made any attempts to get protection?

YES ☐ NO ☐

15. Is your company in touch with the licensing company for exchange of information?

YES ☐ NO ☐

PART 4: R & D AND INTERNAL INTELLECTUAL PROPERTY STRATEGY

16. Have you done any research in the area of technology that is being used by your company?

    YES ☐ NO ☐

    If no, have you alternatively employed the owner of the technology to do research for you?

    YES ☐ NO ☐

17. If using licensed technology, have you researched for alternative technologies or try to come up with your own? Give details;

    _____
    _____
    _____
    _____

18. Do you have a budget for R&D including protection of inventions?

    YES ☐ NO ☐

    If your answer is no give reasons;

    _____
    _____
    _____
    _____

19. Is there an individual or a department responsible for intellectual property?

    YES ☐ NO ☐

    If your answer is no, do you have anyone assisting you?

    _____
    _____

20. Do you have an intellectual property policy or a provision in employment contracts for employee inventions?

    YES ☐ NO ☐

PART 5: GENERAL OPINIONS

21. Do you think we have enough infrastructures to promote inventiveness/ innovation?

    YES ☐ NO ☐

If your answer is no give suggestions

_____
_____
_____
_____

Appendix 2: Questionnaire (Shona)

QUESTIONNAIRE - SHONA

RESEARCH PROJECT ON THE USE OF UTILITY MODEL PROTECTION BY MANUFACTURING SMES AT MAGABA COMPLEX, HARARE, ZIMBABWE

This project is to be submitted in partial fulfilment of the Masters Degree in Intellectual Property offered by Africa University in conjunction with the World Intellectual Property Organisation (**WIPO**) and the African Regional Intellectual Property Organisation (**ARIPO**)

The purpose of this questionnaire is to gather information and experiences on use of utility model protection by manufacturing SMEs at Magaba Complex, Harare, Zimbabwe. The information gathered by way of this questionnaire shall serve as the research basis for formulating strategies that can be put in place to promote better appreciation and utilisation of utility model protection by manufacturing SMEs at Magaba Complex.

CONFIDENTIALITY

Although this questionnaire requests your company name and other specific information, this is only for the researcher and will not be passed on to third parties or attributed directly in any public way.

CHIKAMU 1: MAERERANO NEKAMBANI

Zita neKero	**Munhu Wekubata neChigaro chake**
_____	_____
_____	_____
_____	_____
_____	_____

Gore rakavamba Kambani_____

Huwandu hwevashandi _____

PART 2: RUZIVO NEZVEPFUMANJERE KANA KUTI INTELLECTUAL PROPERTY

1) Pane ruzivo rwamuinaro here nezve Intellectual Property kana kuti pfumanjere uye nekuchengetedzwa kwayo (utility models)?

a)	Ruzivo ruripo asi handizive nzira nemafambisirwo	
b)	Ruzivo rweIntellectual property ruripo asi handione kana tinayo	
c)	Handina ruzivo	
d)	Ruzivo ruripo asi handizive mashandiro ayo	

Kambani yenyu yakambotora matanho ekuchengetedza pfumanjere semautility model here?

HONGU ☐ KWETE ☐

2) Kana iri kwete tsanangura kuti sei?

_____
_____
_____
_____

3) Mune ruzivo here nezvekungetedzwa kwepfumanjere kana utility models?

HONGU ☐ KWETE ☐

4) Mune chamunonzwisisa here pamusoro pemazano ehumizha kana zvigadzirwa zvitsva zvehumizha?

_____
_____
_____
_____

5) Mune ruzivo here nezvekunyoreswa kweutility models kuti achengetedzwe zviri pamutemo?

HONGU ☐ KWETE ☐

Kana mhinduro yenyu iri HONGU, tiudze nzira dzacho.

_____
_____
_____
_____

6) Makamboita here tsvakurudzo dzezvekuchengetedzwa kwepfumanjere kana kuti intellectual property protection kana nzira yekunyoreswa zviri pamutemo kwemautility models?

HONGU ☐ KWETE ☐

Kana mhinduro yako iri HONGU,ruzivo rakawana wakarushandisa sei?

_____
_____
_____
_____

7) Une ruzivo here kuti unogona kutsvagawo pfumanjere kana utility models evamwe akanga achengetedzwa zviri pamutemo zvehumizha hwakasiyana-siyana zvisina mubhadharo padandemutande?

HONGU ☐ KWETE ☐

8) Une ruzivo here nezvekodzero nevagadziri vezviro zvitsva zvehumizha kana pfumanjere?

HONGU ☐ KWETE ☐

Kana mhinduro yako iri HONGU tsanangura zvaunoziva

_____
_____
_____
_____.

9) Mutsvakurudzo dzako kana ruzivo rako unoona maUtility Models iri nzira inoshanda here kuchengetedza zvigadzirwa kana pfumanjere?

HONGU ☐ KWETE ☐

- Kana mhinduro yako iri HONGU tipe zvikonzero

_____
_____
_____
_____

- Kana mhinduro yako iri KWETE tipewo muono wako kuti zvipingaidzo zvinoita vanhu vasashandise mutemo wemautility model muindastiri yauri?

_____
_____
_____
_____

10) Une ruzivo here kuti hunyanzvi hwezvigadzirwa zvidiki-diki zvinogona kuchengetedzwa zviri pamutemo semautility models kana petty/small patents)?

HONGU ☐ KWETE ☐

CHIKAMU 3: KUPIHWA KWEMAREZINESI KANA KUTI LICENSING

11) Mune mautility models kana pfumanjere dzamakapihwa marezinesi ekuti mushandise here?

HONGU ☐ KWETE ☐

12) Mune ruzivo here nezvemutemo unorambidza kusashandiswa zvisiri pamutemo kwepfumanjere neutility models?

d)	Hongu asi hatizive nzira inoshandiswa	
e)	Hongu	
f)	Kwete	

13) Kambani yenyu ine mautility models kana pfumanjere yamakapihwa rezinesi rekuti mushandise?

HONGU ☐ KWETE ☐

Kana mhinduro yako iri HONGU;

d) Ko muridzi weutility model(s) ndewemuno here kana kuti imwe nyika?

_____
_____
_____
_____

e) Pane hunyanzvi here kana humhizha hwamunobatsirwa nawo pachibvumirano cherezinesi ichi?

HONGU ☐ KWETE ☐

f) Makaudzwa here hupenyu hweutility model kana pfumanjere yamakapihwa rezinesi kuti inoguma rinhi?

HONGU ☐ KWETE ☐

Kana mhinduro yenyu iri HONGU, ko kana hupenyu hweutility model(s) hwapera makarongei?

_____
_____
_____

14) Pane ruzivo ramakawedzera here sekambani kupfumanjere kana utility model yamakapihwa rezinesi kuti muishandise?

HONGU ☐ KWETE ☐

Kana mhinduro iri HONGU makambotora matanho here ekunyoresa zviri pamutemo?

HONGU ☐ KWETE ☐

15) Ko kambani yenyu inotaurirana here nevaridzi vepfumanjere vachichinjana hunyanzvi netsvakurudzo here?

HONGU ☐ KWETE ☐

CHIKAMU 4: TSVAKURUDZO NEBUDIRIRO NEMAZANO EZVEPFUMANJERE

16) Mune tsvakurudzo dzakadzama here dzamakaita kuutility model kana pfumanjere yamakapihwa rezinisi kuti mushandise kuti ishande nehunyanzvi hwakadarika hwainawo?

HONGU ☐ KWETE ☐

Kana mhinduro iri KWETE, ko makapa basa here kumuridzi wayo kuti aitewo dzimwe tsvakurudzo pairi?

HONGU ☐ KWETE ☐

17) Pane chamakaitawo here kuti muvewo neyenyu pfumanjere kana imwe inoshanda zvakafanana neyamakapihwa rezinisi? Tsananguro zviziere;

_____
_____
_____

18) Mune mari yakaiswa padivi here yekubatsiridza mutsvakurudzo yepfumanjere kana humhizha hwezvigadzirwa?

HONGU ☐ KWETE ☐

Kana mhinduro iri KWETE tipe zvikonzero

_____
_____
_____

19) Pane munhu kana bazi rinoona nezve pfumanjere kana kuti intellectual property here?

HONGU ☐ KWETE ☐

Kana mhinduro yenyu iri KWETE mune vanokubatsiridzayi here?

_____

_____

20) Mune mutemo wepfumanjere here kana gadziriro muchibvumirano chebasa kana mushandi ava nechigadzirwa chitsva pabasa?

HONGU ☐ KWETE ☐

CHIKAMU 5: MAONEROWO NEPFUNGWA DZENYU

21) Maonero enyu mune zvikwanisiro zvakakwana kuti muve nezvigadzirwa zvitsva here kana pfumanjere?

HONGU ☐ KWETE ☐

Kana mhinduro yako iri KWETE tipewo pfungwa dzako

_____

_____

_____

Appendix 3: Informed Consent Guide

INFORMED CONSENT GUIDE

RESEARCH PROJECT ON THE USE OF UTILITY MODEL PROTECTION BY MANUFACTURING SMES AT MAGABA COMPLEX, HARARE, ZIMBABWE

This project is to be submitted in partial fulfilment of the Masters Degree in Intellectual Property offered by Africa University in conjunction with the World Intellectual Property Organisation (**WIPO**) and the African Regional Intellectual Property Organisation (**ARIPO**)

The purpose of this informed consent guide to inform the respondents about the reason for conducting the research and seek their participation through a consent form. The information gathered by way of this consent form shall serve as the research basis for formulating strategies that can be put in place to promote better appreciation and utilisation of utility model protection by manufacturing SMEs at Magaba Complex.

CONFIDENTIALITY

This specific information is only for the researcher and will not be passed on to third parties or attributed directly in any public way.

My name is **Mailos Nhokwara**, a final year **(Master's in Intellectual Property), MIP** student from Africa University. I am carrying out a study on the use of utility model protection by manufacturing SMEs at Magaba Complex. I am kindly asking you to participate in this study by answering a few interview questions and filling in a questionnaire.

Purpose of the study:

The purpose of the study is to get a clear position on the use of utility model protection as a form of securing intellectual property rights by manufacturing SMEs at Magaba Complex. The study research is in partial fulfilment of a Master's Degree in Intellectual Property (MIP) at Africa University.

Procedures and duration

If you decide to participate you will be asked by the researcher to answer a few questions as well as filling in the above-mentioned questionnaire. It is expected that the whole process will take about 20 minutes or less to complete.

Risks and discomforts

There are no any foreseeable risks and discomforts associated with you participating in this research.

Benefits and/or compensation

Participants in this research will not receive any financial benefits or compensation. The study is purely academic, and participation is voluntary.

Confidentiality

All the information being gathered is for the purposes of the research only. Any information that is obtained in the study that can be identified with you will not be disclosed without your permission. Names and any other identification will not be asked for in the questionnaires.

Voluntary participation

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your future relationship with Africa University. If you choose to participate, you are free to withdraw your consent and to discontinue participation without penalty.

Offer to answer questions

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

Authorization

If you have decided to participate in this study, please sign this form in the space provide below as an indication that you have read and understood the information provided above and have agreed to participate.

---------- ----------

Name of Research Participant (please print) Date

Signature of Research Participant or legally authorised representative

If you have any questions concerning this study or consent form beyond those answered by the researcher including questions about the research, your rights as a research participant, or if you feel that you have been treated unfairly and would like to talk to someone other than the researcher, please feel free to contact the Africa University Research Ethics Committee on telephone (020) 60075 or 60026 extension 1156 email aurec@africau.edu .

Name of Researcher: Mailos Nhokwara  05/05/2021

Appendix 4: AUREC Approval

AFRICA UNIVERSITY
(A United Methodist-Related Institution)
INVESTING IN AFRICA'S FUTURE

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

P.O. Box 1320 Mutare, Zimbabwe, Off Nyanga Road, Old Mutare-Tel (+263-20) 60075/60026/61611 Fax: (+263 20) 61785 website: www.africau.edu

Ref: AU1926/21 3 March, 2021

Mailos Nhokwara
C/O CBPLG
Africa University
Box 1320
Mutare

RE: **USE OF UTILITY MODEL PROTECTION BY MANUFACTURING SMES AT MAGABA COMPLEX, HARARE, ZIMBABWE**

Thank you for the above titled proposal that you submitted to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following.

a) Research proposal
b) Data collection instruments
c) Informed consent guide

- **APPROVAL NUMBER** AUREC1926/21
  This number should be used on all correspondences, consent forms, and appropriate documents.
- **AUREC MEETING DATE** NA
- **APPROVAL DATE** March 3, 2021
- **EXPIRATION DATE** March 3, 2022
- **TYPE OF MEETING** Expedited
  After the expiration date this research may only continue upon renewal. For purposes of renewal, a progress report on a standard AUREC form should be submitted a month before expiration date.
- **SERIOUS ADVERSE EVENTS** All serious problems having to do with subject safety must be reported to AUREC within 3 working days on standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

AFRICA UNIVERSITY
RESEARCH ETHICS COMMITTEE (AUREC)
APPROVED
P.O. BOX 1320, MUTARE, ZIMBABWE

Yours Faithfully

MARY CHINZOU – A/AUREC ADMINISTRATORFOR CHAIRPERSON, AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE

Appendix 5: Interview Guide

INTERVIEW GUIDE

RESEARCH PROJECT ON THE USE OF UTILITY MODEL PROTECTION BY MANUFACTURING SMES AT MAGABA COMPLEX, HARARE, ZIMBABWE

This project is to be submitted in partial fulfilment of the Masters Degree in Intellectual Property offered by Africa University in conjunction with the World Intellectual Property Organisation (**WIPO**) and the African Regional Intellectual Property Organisation (**ARIPO**)

The purpose of this interview guide to drive the researcher and provide direction and acts as a fence during the in-depths interviews session. The information gathered by way of this guide shall serve as the research basis for formulating strategies that can be put in place to promote better appreciation and utilization of utility model protection by manufacturing SMEs at Magaba Complex.

CONFIDENTIALITY

This specific information is only for the researcher and will not be passed on to third parties or attributed directly in any public way.

Interview Guide

The aim of this interview is to collect data purely for academic purposes. The data which will be collected will be treated with confidentiality. Your participation in the completion of this interview is completely voluntary, and you may choose to withdraw at any stage, should you wish to do so. This will be used to get in-depth information on issues relating to Intellectual Property. It is targeting the use of utility model protection by manufacturing SMEs at Magaba Complex in Harare, Zimbabwe. The following questions will asked.

Contacts details: +263 71 435 9477, malik0785@gmail.com

1. Have you ever sought to protect any form of Intellectual Property, especially Utility Models? Please clarify.
2. Have you ever heard about Utility Model protection? If so please fully explain.
3. Have you ever developed new products having some level of inventiveness or made minor or incremental innovation to any machinery or process that you currently use? Kindly explain fully.
4. If the answer to the above is yes, have you been protecting these improvements in your machinery or processes against copying by competitors?
5. Have you ever faced any challenges in an effort to seek protection for your inventions or innovations? Please elaborate.
6. Are you aware of patent protection and its close relation with Utility Model protection?

7. Have you faced conflicts from competitors who have stolen or attempted to use some of your technologies or innovations without your authorization? Explain.
8. If your answer to the above is yes, please outline the challenges faced in attempting to resolve these conflicts?
9. What are your views on how these conflicts may be resolved?
10. Have you ever leased or rented any form of technology that you have developed?
11. What procedural and structural changes can be made to increase overall use of utility model protection by manufacturing SMEs?