



Organisational innovation in the public sector: the case of the Companies and Intellectual Property Commission (CIPC)

Bheki Zulu

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ABSTRACT

The project seeks to determine, in the South African context, whether or not public/government agencies have a systematic way of managing of innovation, and if so, to find out if they have method of learning and building innovation capabilities. It highlights possible problems that remain within public sector agencies, the CIPC in particular, with respect to learning and capability building, thereby laying the foundation for a more detailed study to be carried out in the future.

The current study further aims to meaningfully contribute to the necessary core skills and teachings in the field of innovation management by trying to improve the understanding of how public sector organisations or government agencies build their internal learning and innovation capabilities. Therefore, the study will make use of two relevant theoretical frameworks, one of which is mostly used to analyse the private sector, that is, dynamic capabilities (DCs), while the other, the Smart Intellectual Property Office Framework (SIPO), is more widespread in the public sector.

During the execution of its mandate, the CIPC makes use of technologies and ought to establish its process to optimise its administration and service delivery to the public for both local and international stakeholders. The responsibility of CIPC inter alia, is to administer, regulate and protect Intellectual Property assets and companies in line with requirements derived from a number of legislations/laws that have been in existence for a number of decades. This suggests that the CIPC ought to have the innovation capabilities to deal with issues regarding the technologies it uses and services it provides in executing its mandate. It is also recognised that public sector innovation has a substantial and varied impact on performance with regard to private sector, such as the services provided by CIPC, which include the registration of companies and intellectual property.

This study adopted a qualitative approach in analysing the CIPC as a case study. In general, qualitative research methods are quite effective in gathering information that deals with matters that are intangible such as the experiences of the population of interest. In this case, the perspectives of participants provided informed conclusions regarding organisational innovation and its management in the public sector, particularly government agencies. The study was executed using both interviews and the analysis of official documents.

In conclusion, it was revealed that public organisations that do not nurture learning and the building of coordinative/integrative capabilities risk losing relevance. This is because coordinative/integrative capabilities reflect the ability of an organisation to properly make use of its resources to support the sustainability and constant renewal of the organisation.

KEY WORDS

Innovation, government agencies, innovation systems, strategic management of innovation, thematic analysis, qualitative research.

DECLARATION

I, __Bheki_Zulu__, “declare that this dissertation is my own unaided work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Innovation Studies at the Wits Business School in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other University.

Signature:

On this day of 20

Name"

DEDICATION

To my wonderful wife, Sihle Zulu and my two awesome daughters, Emihle and Kwenzakwenkosi Zulu

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LIST OF ABBREVIATIONS & ACRONYMS

CIPC – “Companies and Intellectual Property Commission”

IP – “Intellectual Property”

NIPMO – “National Intellectual Property Management Office”

TIA – “Technology Innovation Agency”

SIPO – “Smart Intellectual Property Commission”

SEDA – “Small Enterprise Development Agency”

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CHAPTER 1: BACKGROUND

1.1 PURPOSE OF THE RESEARCH

The public sector, in comparison to the private sector in terms of the structures and resources that promote innovation, has a history that does not favour innovation. It does not have seed funding for new ideas or incentive payments to innovators. Although there are a few incentives for good innovation, the effects of failed innovation are serious. Public servants' ability to innovate is also limited by tight central agency controls. This report is aimed at establishing and enhancing an understanding of the ways in which the public sector's innovation capabilities can be strengthened.

In contrast to methods used in the private sector to promote endogenous innovation, such as the use of incentives and support institutions, in the public sector, on the other hand, innovation is structurally and traditionally discouraged (Borins, 2006). Thus, the rewarding of innovations that are successful in the public sector is meagre. However, innovations that are not successful bear consequences that are grave and fatal. In addition, bureaucracy and controls that are inflexible, naturally depress the innovativeness of public employees.

A lot has been written regarding how organisations can build and develop innovation capabilities, in general, but limited empirical studies and evidence exist about the processes through which innovation capabilities building is carried out in upper-middle income countries within public sector organisations. Little is also established about the breadth and durability of the growth of innovation skills, the efficiency of learning processes over time, and the capacity-building decision-making process.

While public sector organisations use highly sophisticated technology and machinery, often from the developed world, the know-how as well as the technology needed to optimally manoeuvre such technologies and machinery is inescapably beyond the acquiring nations, which are primarily industrialising nations. This research project examines whether appropriate capabilities for innovation exist in public sector

organisations at a micro-level, such as CIPC, and the manner in which these capabilities are developed.

Innovation can be defined, under technological products and processes, to mean making available of products or processes that are technological and possess novelty or are substantially altered, and in this case products relate to goods or services, while processes refer to the manufacturing, distribution, and marketing processes (Gault, 2018; OECD, 2005, 2018).

As per the CIPC strategic plan, over a period of five years, through innovative activities, CIPC aims to focus on the two broadly identified strategic outcome-oriented goals (CIPC, 2018b):

- a) For Company owners and IP holders to have the burden of administrative compliance reduced as a result of three strategic objectives:
 - CIPC clients to have access 24 hours per day, 7 days a week to the entity of CIPC products and services.
 - CIPC products and services to be delivered timeously.
 - To create an environment conducive for high performance, encouraging innovation and intelligence.
- b) To have an environment that is reputable for the regulation of business and intellectual property (IP) protection in the Republic, that is achievable through putting emphasis on the following objectives that are strategic:
 - Improving awareness and knowledge of Laws pertaining Companies and IP.
 - To enhance compliance with regards to Laws pertaining Companies and IP.

This project intends to contribute in establishing, in South Africa, whether public/government agencies have a systematic way of managing of innovation, and if so, to find out if they have a method of learning and building innovation capabilities. This will demonstrate, if any, possible problems that remain within the public sector agency, the CIPC in particular, in relation to learning and capability building, thereby

laying the groundwork that may lead to further studies to be carried out in the subject matter.

1.2 RESEARCH CONTEXT

In managing innovation, the state may be thought of as being responsible, among other things, for defining a vision for innovation (Oyelaran-Oyeyinka, 2014), which would assist in guiding actors in the innovation space. The state should involve different actors when developing a vision such that there could be 'buy-in' or consensus among actors. In this regard, South Africa has a "national development plan (NDP)", which was developed as a vision of what South Africa should be in 2030 (SA Government, 2012). The NDP identifies innovation as a necessary tool to develop a middle income country.

The conventional model of public administration has been described by writers as old-fashioned, outdated, "in need of drastic change" and "nightmarishly challenging" for those "caught in it" (Waeraas & Byrkjeflot, 2012). Public sector organisations are viewed as facing several unambiguous barriers that stifle innovation, such barriers include the lack or non-existence of incentives, financial instruments that are insufficient, the period of political office being short and pressures related to re-election and the constant necessity for public support (Damanpour & Schneider, 2008). The public sector, particularly, the government, was established to enhance the general wellbeing of society by providing necessary products to people as well as entities, which then plays a crucial role in shaping both domestic and global economies (Fourie & Poggenpoel, 2017). The task of public service organisations was re-conceived as 'steering' rather than 'driving' the state ship, and this function was to be accomplished through an imaginative approach to providing public services and avoiding policies based on the heavy hand of government intervention and government provision (Osborne & Brown, 2005).

The CIPC as a public sector organisation, in general, and a government agency in particular, is mandated to register and manage the data of companies, close corporations, co-operatives, as well as intellectual property such as some copyright elements, trademarks, designs, patents, and the enforcement of rules and regulations under fifteen different kinds of statutes that deal with intellectual property rights and companies. Thus, among other functions, the CIPC is an intellectual property office (IPO) where various forms of IP in South Africa are registrable. The Companies Act of 2008 established the CIPC as an entity that falls under administration and also provided the CIPC its primary institutional mandate.

During the execution of its mandate, the CIPC makes use of technologies and ought to establish its process to optimise its administration and service delivery. The responsibility of CIPC is to administer, regulate and protect in South Africa, Intellectual Property assets and companies in line with requirements derived from a number of legislations/laws that came onto existence for a number of decades. This indicates that the CIPC ought to have the innovation capabilities to deal with issues regarding the technologies it uses and services it provides in executing its mandate. It is also recognised that when the public sector develops internal innovations, such innovations tend to play a huge role regarding how the public sector performs (Agolla & Lill, 2013), a case in point is the services such as registration of companies and intellectual property by CIPC.

1.3 STATEMENT OF THE RESEARCH PROBLEM

There is an embraced impression that innovation will lead to improvement to services that the public sector delivers and to enhancing a government agency's ability to come up with solutions to challenges faced by society. Public service programmes around the world face dynamic conditions in which social, economic and political forces continue to influence organisations. Increasing demands, technological changes, rising costs and lack of funds and other resources means that governance types, frameworks and practices remain the subject of major reforms (Barrados & Mayne, 2003; OECD, 2005). Nonetheless, governments that assert the need to reform different industries can hardly afford to ignore their own jurisdictions. The public sector

is therefore, not excluded from efforts to establish organisations that are creative, competitive, responsive to customer needs, and people centric. While in most cases, government agencies enjoy monopoly through legislations, if they are not innovative in this manner, they run a risk of attracting competition and losing relevancy, wherein in the context of South Africa, the South African Post Office might be viewed to have been unable to acclimatise to the environment that is changing (Mathe, 2020).

In the case of the CIPC, the organisation faces challenges faced by public sector organisations, which may have detrimental effects in building and maintaining innovation capabilities, and are ultimately likely to negatively affect the intellectual property section of CIPC as well. In this regard, Prihastomo (2019) has developed a theoretical framework that may assist to develop smart intellectual property offices (SIPOs), particularly for developing countries. Since there is insufficient literature regarding smart SIPOs, and furthermore, with SIPOs generally being government institutions, the smart SIPO framework was developed using the smart city framework (Prihastomo et al., 2019) using smart government concepts and documents from SIPOs that are regarded as being modern.

Another approach suggested in the literature is Dynamic Capabilities (DCs), which seeks to answer questions like how organisation may develop capabilities that are specific for that particular organisation, and also how organisations revive their skills and competences such that they are adaptive to the ever-changing environment.

For the purposes of being able to comprehend the challenges faced by public sector organisations like the CIPC in terms of innovation capabilities, the study involves comparing and contrasting the features of the Dynamic Capabilities (DCs) framework with those of the Smart Intellectual Property Office (SIPO) Framework. The objective of this project is to contribute to general knowledge on what the factors are that promote or hinder the performance of public sector organisations by using a DCs-SIPO analytical approach, as well as offer additional avenues that may not yet be in place.

1.4 IMPORTANCE OF THE PROJECT

The project was attractive to be embarked upon on the basis of the impression that learning in public sector organisations as well as building innovation capacities in developing world such as South Africa are critical and necessary, and many scholars and authors have left this subject matter mostly unexplored. Therefore, the thesis seeks to study the space left unexplored that exists in the body of research.

Interest of policy with regards to innovation occurring in the public sector seek to address issues on how innovation takes place within the public sector organisations, as an integral part of an objective to upsurge innovation uptake to deliver necessary community services that are beneficial and address problems as they arise. However, most studies of innovation concerning the public sector tend to mostly pay attention on innovation policy and its management, while little is said about the human resource aspect within the public sector organisations.

In recent times, when governments are faced with constraints in terms of resources, innovation is paramount to trying to keep up with societal needs (Osborne & Brown, 2011). Public sector and/or government departments and their agencies ought to be naturally pushed to regard innovation as valuable, and therefore need to encourage and manage it in the organisations (Fadil, Singh, & Joseph, 2016). Matei and Drumasu (2015) alluded to the fact that organisational innovation in the public service seeks to promote efficiency, effectiveness, and sustainability while trying to solve societal problems, to meet unmet needs, and improve service delivery. Intellectual property (IP) offices are vital government institutions that deal with the management and administration of various IP domains. Generally, almost every country has an IP office that deals with IP filings such that it either grants or refuses IP rights depending on set requirements.

1.5 DELIMITATIONS OF THE STUDY

The current study aims to determine the method wherein public sector organisations may potentially make use of a combination of DCs and SIPOs to harness innovation capabilities within, such that they may improve their competitive and relevancy within the industries in which they operate. The study is focused on industrialising countries and is limited to South African public sector organisations, particularly, the case of the Companies and Intellectual Property Commission (CIPC). It would put more emphasis on the component of intellectual property (IP) with an aim of indicating that properly functioning management in the IP component would result to a better diffusion of knowledge and commercialisation.

1.6 ASSUMPTIONS

Taking into account that South Africa does have policies regarding the national system of innovation and pertaining to science, technology and innovation, it would be assumed that government agencies do value innovation. However, it is not clear whether they have a systematic way of managing innovation and building innovation capabilities. Innovation is regarded as vital for organisations to construct basic competences and capabilities (Keun, 2012). Innovation at the level of an organisation may be initiated within the organisation, where ideation and development take place within, or innovation can be adopted, wherein in that case, it is an innovation that has been developed elsewhere (Damanpour, 1991). In public sector organisations, more often, innovation is adopted rather than being initiated and developed within, although organisations ought to have a method of adopting new innovations (Vagnani & Volpe, 2017). Innovation in public agencies, whether initiated within or adopted, leads to improved efficiency in delivering services to the public (Fadil et al., 2016). It was the assumption of this research that the participants that were sampled somehow have an understanding of innovation in general, and would be accessible.

1.7 RESEARCH QUESTIONS

The study seeks to answer the following identified key

- What, at present, is the level of innovation capabilities within the CIPC?
- How does the CIPC go about building innovation capabilities?
- What factors currently hinder the development of innovation capabilities in public sector organisations, such as CIPC?

1.8 OUTLINE AND STRUCTURE OF THE REPORT

Chapter 1: Introduction

This chapter deals with the background as to why the project was chosen and includes the study context, statement pertaining to the problem, why the study is important and its delimitations, and research questions to be answered by the study.

Chapter 2: Literature Review

This chapter deals with the theoretical background of the study in relation to innovation, and includes: the theoretical framework, conceptual framework, and statement of propositions

Chapter 3: Research Methodology

This chapter indicates how the project was carried out, which includes research strategy and design, how participants were going to be selected, what methodology was adopted, techniques that were using in analysing data, limitations of the study, ethical considerations , and the dependability and credibility of the study.

Chapter 4: Presentation Of Findings and Data

This section presents and organises the primary data of the research collected through conducting interviews with CIPC personnel, other government agency commentators, and also presents secondary data from the CIPC and other government documents.

Chapter 5: Analysis of the Research Findings

This chapter examines the data presented and organised in Chapter 4, in contrast with the observations and information presented under the literature that was examined in Chapter 2

Chapter 6: Conclusions and Recommendations

The findings of the research are summarised in this chapter and the conclusions that can be deduced taking into account the literature review in combination with interviews and the secondary data.

1.9 CONCLUSION

This research project examines whether appropriate capabilities for innovation exist in public sector organisations at a micro-level, such as the CIPC, which is the study's main emphasis, and the method used to build the capabilities. The aim of the exercise is to learn about the factors that help or hinder the implementation of a combined DCs-SIPOs approach or a similar strategy, because without them, public sector organisations in the field of IP are likely to underperform and lose their relevance in the long run. Thus, finally, the study will assist in understanding how internal learning and the building of innovation capabilities occur in PSOs.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

In a global setting where businesses exist, it is clear that if organisations do not change or improve what is offered such as products and services, and the methods of offering them, such organisations risk losing their competitiveness and relevance and might with time be out of business. Thus, organisations are inherently required to innovate, and innovation in one aspect could be taken as maintaining relevance or a survival feature. Thus, the management of innovation is quite critical, as are the capabilities for innovating (Bessant et al., 2014).

Generally, innovation is regarded among others, as one of main forces behind organisational success. Innovation can manifest itself in different forms, such as, in marketing, and it can significantly contribute as far as how a firm is market driven (Frambach & Schillewaert, 2002). Organisations can use innovation as a strategic mechanism to enhance their competitiveness both locally and internationally, and they may adjust their strategies to the ever changing markets and customer wants, and in the process create or increase value and achieve high performance (Keupp, Palmié, & Gassmann, 2012).

Both innovation and creativity in the place of work have progressively developed to crucial indicators or determining factors of long term relevance and survival, success and improved performance of an organisation (Anderson, Potočník, & Zhou, 2014). Generally, innovation may be understood as one of the forces that drives social and economic growth, thus, the nature of innovation and its indicators have received attention of researchers (OECD, 2009). Generally, creativity may lead to innovation, thus, organisations may seek a way to manage idea generations and suggestions from their employees, and if such process is well managed it may lead to competitive advantage (Anderson et al., 2014; Fagerberg, Martin R, & Esben S, 2013).

One of the innovation forms is organisational innovation. Organisational innovation encompasses many aspects that are significant in nature, which may possess a lasting impact in a long run on the performance of the organisation, and may include: a new or improved organisational method as far as how the organisation conducts its business, how the place of work is organised and how the organisation manages its external relations (Fadil et al., 2016). Organisational innovation is necessary and may lead to an increase in efficiency in terms of operations, gratification of employees or increase in the innovativeness of the organisation, wherein the organisational innovation may lead to improved performance and cost reduction in the organisation (OECD, 2007). Hence, organisational innovation can be viewed as a way that is effective for internally increasing both service quality and efficiency, and consequently, improve employees' satisfaction, which in turn has a potential to result in improving the way customers experience when interacting with the organisation (Fadil et al., 2016).

2.2 DYNAMIC CAPABILITIES FRAMEWORK

Organisations strive to remain relevant, thus, a need to constantly adjust to changing environment that may affect their existence (Lawson & Samson, 2001). The field of strategic management enhances organisations' understanding of how they can keep appealing to relevant stakeholders while remaining relevant. This subsection aims at providing a brief theoretical background regarding the dynamic capabilities' framework, particularly taking into account empirical work embarked on by Teece et al. (1997 & 2007). Dynamic capabilities represent a vital framework that organisations can use to manage and build organisational innovation, in terms of strategic management and capabilities building.

The approach adopted by Teece et al. (1997) started by conducting a review of established theories of strategic management which assist organisations in sustaining their relevance and competitive advantage. The theory review process identified three theories, namely; competitive forces developed in the early eighties by Porter (Ives & Learmonth, 1984), which is based on industrial organisation in a paradigm that takes into account how the organisation is structured, how it conducts its business and the

level of performance. The second theory that was considered, was the strategic conflict theory (Shapiro, 1989), which is quite similar to the competitive forces, while placing emphasis on imperfections regarding markets, barriers to entry and interactions that are strategic. In essence, the strategic conflict theory approach makes use of the game theory elements, therefore implying that it views the strength with which an organisation seeks to overcome competitors using investments that are strategic as well as pricing that is strategic, and management of information, as affecting the competitive advantage of an organisation. Both these theories (competitive forces and strategic conflict) were viewed as applicable to and established from market conditions that are privileged (Teece, Pisano, & Shuen, 1997). Another theory is the cluster of approaches that places a focus on competitive advantage that is built as a result of capturing entrepreneurial capacities harnessed from the benefits of organisational efficiencies. These three paradigms derive their fundamental premises from the weaknesses and strength of corporates analyses.

The dynamic capabilities theoretical framework has its roots in a paradigm that is referred to as the resource based approach (Teece, 2007), which puts emphasis on organisation-specific assets, competence/capabilities, and the availability of isolating instruments as means of measurement of the performance of the organisation. The approach that is based on resources has shortcomings and even though it recognises the isolating instruments, it makes no attempt to address the essence of the isolating instruments that are capable of sustaining entrepreneurial capacities and competitive advantage.

There have been fundamental strides in terms of establishing the level of competences and capabilities that an organisation possesses which may lead to competitive advantage, and to clarify how to create, deploy and protect combinations of competences and resources. It is regarded that dynamic capabilities as a conceptual instrument, promote a neo-Schumpeterian theory regarding organisations and their processes of decision-making that is identifiable to those familiar with the organisations' behavioural philosophy, change theorisation in economics, and a Schumpeterian interpretation of the innovation cycle (Gathungu & Mwangi, 2012; Teece, 2007)

Dynamic capabilities as a framework is viewed as the driving force of the organisation to incorporate, construct, and reconfigure its internal competencies as well as its external competencies to respond to quick and dynamic environments. Therefore, dynamic capabilities address the capacity of a company such that new and innovative ways for competitive advantage are realised, given the direction and its position in the market, and the processes through which business is conducted (Gathungu & Mwangi, 2012; Teece et al., 1997). A fundamental understanding is that the dynamic capabilities framework may have a profound impact on performance where assets, both tangible and intangible are intentionally modified to positively impact the performance of an organisation economically (Zott, 2003). Dynamic capabilities are essentially embedded in routines and standard processes of an organisation, and they influence the direction and optimisation of processes.

In this context, the term 'dynamic' may be interpreted as the ability of the organisation to be flexible and revive its competences so as to maintain relevance while alive to the changing business environments (Teece & Pisano, 1994). The term 'Capabilities' may be interpreted to underline the strategic management that is key in the proper adaptation, alignment and reconfiguration of both micro and macro environment in terms of organisational skills from internal perspective as well as from the external resources and competencies that are functional, to keep up with an environment that is constantly changing (Teece & Pisano, 1994; Teece et al., 1997; Yeoh & Roth, 1999).

The framework concerning dynamic capabilities seeks to answer questions like how an organisation may develop capabilities that are specific for that particular organisation, and also how do organisations revive their skills and competences such that they constantly adapt to the changing environment. Teece (1997) reported that these questions may be linked to the processes relating to how the organisation conducts their business, its position with regards to markets and the path it is able to follow when expanding. Thus, Teece et al (1997) advances the proposition that an organisation's competitiveness is linked to its business (strategic and organisational) processes, and is influenced by the asset position that is specific to the organisations and the available paths it has to pursue (Rosenbloom, 2000).

2.2.1 Business Processes

Managerial and organisational processes are construed to refer to standard procedures as to how things are carried out in an organisation, which may include present standard practice and learning methods. Business processes may be broken down to three specific roles that include a static concept which is coordination or integration; a dynamic concept, which involves learning, ; and reconfiguration which is a transformational concept (Teece, 2007; Teece et al., 1997).

2.2.1.1 Integration or coordination

Even though the price system is viewed as driving the economy, managers in an organisation drive, coordinate or integrate processes and activities within (Lei & Hitt, 1995; Teece et al., 1997). The effectiveness and efficiency at which internal coordination is realised are quite crucial (Puranam & Singh, 2009), as is the integration of activities at the macro level.

Teece et al (1997) reported that there exists empirical evidence that the method by which production is coordinated within an organisation is one of sources of distinguishing factors in its competitive advantage. Thus, coordination/integration often leads to activity pattern and organisational routines that are regular, and such processes require coordinative/integrative capabilities. Integrative capabilities may be construed as reflecting the ability of an organisation to use its resources efficiently to support and ensure the constant renewal of the organisation (Yeoh & Roth, 1999).

2.2.1.2 Learning

While integration or coordination capabilities are important, another factors that is crucial in business processes is learning. Learning may be interpreted as the process that enables improvements, such that tasks may be performed in as short a time as possible, and better (Teece et al., 1997). Furthermore, learning may be construed as a way current operations capability may be refurbished using new knowledge

(Gathungu & Mwangi, 2012). Thus, through learning, organisation may enhance their capacity and skill building and be in a position to sustain their competitive advantage (Wu, Ma, Shi, & Rong, 2009).

Organisational structural settings are quite crucial as individual skills and how they be applied hugely depend on the settings. In essence, learning processes naturally take the form of being social and happening collectively in trying to make sense of problems that are complex, thus, it is not just emulating individuals. Learning process management requires standard procedures of communication that are coordinated. Also, the organisational knowledge that get to be developed through learning process results in new routines and patterns within the organisation (Teece et al., 1997). Learning and knowledge generation may assist an individual or an organisation to be able to identify opportunities to solve customer needs either through current or new solutions (Teece, 2007).

2.2.1.3 Reconfiguration and transformation

Organisation generally operate in conditions that are not static and continuously change at a rapid rate, thus, organisations are constantly required to be able to sense the necessity to reconfigure themselves, in terms of restructuring their assets and to achieve transformation both internal and external (Dutta, Narasimhan, & Rajiv, 2005; Ethiraj, Kale, Krishnan, & Singh, 2005; Teece et al., 1997). Among others, this is achievable through constant monitoring of markets and find out if there are new innovations, and also the willingness to look out for best practices and be able to adopt them.

This necessitates continuous business and technology monitoring, as well as a willingness to follow best practices. Benchmarking, as an organised method for achieving certain goals, is extremely valuable in this regard (Teece & Pisano, 1994). Narcissistic organizations are likely to be affected in complex settings. Thus, organisational skills for reconfiguration and change management are necessary and

obtainable through learning. Organisation may reconfigure and transform themselves through an organisational skill that is learned.

It is often said that change is constant, but change may be costly, thus, organisations ought to develop methods to minimise the cost of change. Teece et al (1997) emphasised that the ability of an organisation to measure the necessities for the change and be able to implement the necessary changes is propositional to functional matrixes of the firm that constantly enable monitoring of the markets and as well as competitors, and then to act quicker than competitors to effect the necessary reconfiguration and transformation. Teece et al (2007), proposed that decentralisation and autonomies within organisation may positively influence the necessary processes.

2.2.2 Market Position

While the processes in which an organisation learns and the coordinates its internal and external processes are vital for any organisation, the organisation position is also influenced by its assets. The assets of an organisation may include: knowledge assets that could be difficult to trade, assets that are complementary to the knowledge assets, perception based on the reputation build and relational assets (Teece, 2007; Teece et al., 1997; Yeoh & Roth, 1999)

2.2.2.1 Technological assets

Even though the know-how trading market is emerging, particularly in the South, technology trading was lagging. This was due to either organisations find it difficult to commercialise their technologies or they are just not willing to sell them (Teece et al., 1997). Technological assets of an organisation may not necessarily be protected through registration using the standard laws that relate intellectual property. It is argued that proper management of technological assets and their ownership/ or access and their utilisation play a key role in differentiating organisation. Thus, proper investments in both technological assets and complementary assets are crucial for survival of organisations (Kaplan, 2008).

2.2.2.2 Complementary assets

Technological assets to be exploited require some relevant assets such that novel products and/or services get produced and delivered. Thus, complimentary assets are quite critical, as successful projects make use of both complimentary and technological assets (Kaivo-oja, 2011). Generally, complimentary assets are precipitates of previous project, and usually lie downstream, thus, new projects may either enhance or do away with them (Teece et al., 1997).

2.2.2.3 Financial assets

In the organisation short term, its financial or monetary position as well as the influence of such cash position may have implication in its strategic ambitions. Even though money is fungible, it is quite challenging to raise it without disclosing sizeable amount of information to potential lenders and investors. It is therefore understood that what an organisation can do in a short run, is mostly determined by its balance sheet. However, in a long term, that does not become the case, as the ability to forecast cash flow become accomplishable (Teece et al., 1997).

2.2.2.4 Reputational assets

As individuals do, so do organisations have reputations. Reputation may be construed as known information about a particular organisation and has an impact of its stakeholders on how they respond to the organisation. Teece et al (1997) took a view that reputational assets may be better understood if viewed as intangible assets that may either enable or inhibit an organisation to realise certain set objectives in relation to the market. Thus, the organisation might derive value from its reputational assets based on how it is viewed externally, based on the reputation build over time, as such reputation may summarise its present position and behaviour while also informing of what might happen in the future. However, there exists a heavy asymmetry between what is going on within the organisation and what is perceived externally. Thus, Teece

et al (1997) promotes the view that it is advisable for external actors to act on what they know instead of relying on perception.

2.2.2.5 Structural assets

Organisations often have formal and informal settings in their internal environments that tend to impact their external environments. The settings play a vital role regarding the speed in which innovation takes place and also its direction (Teece & Pisano, 1994). The coordination of hierarchy and levels of elements both in vertical and horizontal integration is at its basis, a structure that is specific to a particular organisation. Moreover, an organisation might have recognisable modes of governance that are distinctive, wherein the modes may support at different degrees various types of innovation. A case in point could be that for autonomous innovations, virtual structures are appropriate; while for innovations that are systemic, integrated structure could be suitable.

2.2.2.6 Institutional assets

The changing environments in which organisations operate should not be taken in terms of markets, per se. It is noteworthy to take into account that institutions themselves are critical parts of business environments. Thus, elements such as regulatory regimes, intellectual property systems, among others form part of the environment. Other institutional elements such as institutions of higher learning, and national culture also form part of the environments. Thus, institutional assets may not be specific to a particular organisation, thus geographic placements are crucial, as firms from different locations (national, regional etc.) may have access to institutional assets that are different due to factors, such that their institutional policy systems are quite different (Teece et al., 1997).

2.2.2.7 Market (structure) assets

While the product market is important, it is not always the determinant of the actual basic position of the organisation in the environment external to the organisation. This is due to factors such as the difficulty in putting boundaries that make economic sense around the market in which the organisation operates. It is also crucial to note that regimes of fast changing technologies are quite fragile, partly due to time moving differently in these environments. This, in a sense, suggests that the market position of a product is important, it is usually over emphasised. Thus, the formulation of strategy driving the performance of an organisation is quite important, which is believed to be based on competences and capabilities of the organisation, and should be influenced by its position and path (Franco, Sarkar, Agarwal, & Echambadi, 2009; Teece, 2007; Teece & Pisano, 1994).

2.2.2.8 Organisational boundaries

The location of boundaries of an organisation regarding its position is a vital dimension, which may be taken as the flexibility of integration in vertical, lateral and/or horizontal ways. Technological assets and complimentary assets possessed within an organisation are not the only significant aspects of boundaries, but also the way coordination gets undertaken internally is vital, as compared externally through the markets. This is also significant when issues exist, perhaps regarding intellectual assets that are poorly protected, as markets tend to expose parties to different hazards such as the challenges of reconstruction or appropriability. If such circumstances exists, then organisational boundaries such as hierarchical control structures play a huge role (Sousa, 2014; Teece et al., 1997).

2.2.3 Expansion Paths

The direction of an organisation as to where to go from its current market position is influenced by its current assets/positions and the path that lies ahead. Technological

opportunities in a particular industry give meaning to the concept of path dependencies (Teece, 2007; Teece et al., 1997).

2.2.3.1 *Path dependencies*

The concept of path dependencies takes into account that the past matters and generally, the present position of an organisation is influenced by the path it has embarked on. Therefore, an organisation's investments that have been previously made and established range of routines may act as boundaries for future activities. As a results, learning tends to happen in a local environment, where opportunities for learning are through experiences gained from previous processes and business activities which might include transaction and productions specific activities (Teece, 2007; Teece et al., 1997).

The vitality of path dependencies is more pronounced when there is an existence of growing returns to adoption. This may be viewed as a phenomenon on the side of demand, where the likelihood of enhancing the attractiveness of technologies and/ or products embedding such technologies increases as the adoption rate improves. Thus, attractiveness is proportional to product adoption by users, wherein greater adoption may in turn result in a more improved product that is more useful. The increase of returns based on adoption may be due to various sources such as complementary assets presence, external networks, infrastructure for support, and the level of economies of scale regarding production processes and distribution channels (Katz, Preez, & Schutte, 2010; Nelson, 1992; Rosenbloom, 2000; Shapiro, 1989; Teece et al., 1997)

When returns are increasing, organisations may decide to compete in a passive way, or may consider to compete in a strategic way by making use of activities that sponsor technologies. Even though competing passively may be like competition that is biological among species, it may also be shaped through managerial deeds that

enable the improvement of product and process performance. Considering that a strategy to compete is also very important as companies do not just survive through best products, although ‘fantastic events’ may block inferior products (Gault, 2018; Khosravi, Newton, & Rezvani, 2019; Oyelaran-Oyeyinka, 2014; Teece, 2007), organisations ought to constantly learn and put strategic competencies to remain relevant.

2.2.3.2 *Technological opportunities*

The technological opportunities influence and will continue to influence the path as to how quickly and how far a certain aspect of industrial activity can travel. It is recognised that these opportunities could not only be exogenous to that particular industry, and as some organisations have capabilities to embark on the necessary product or service development path, but also because innovation activities themselves feed into technological opportunities. In addition, organisational structures that seek to connect the organisation with external research institutions get to affect how opportunities are recognised in relation to technology (Teece, 2007; Teece et al., 1997).

2.2.4 Managing Innovation Capability in the Public Sector

The capability for innovation allows a new-stream system to function like a conduit that finds, locates and creates possible innovations that may be translated into the mainstream. Thus, an innovation capability is described “as the ability to continuously transform knowledge and ideas into new products, processes and systems for the benefit of the firm and its stakeholders” (Lawson & Samson, 2001). The ability to innovate is not a term that can be described separately. The capability consists of improving internal procedures and processes. Such processes are crucial mechanisms to promote, assess and enhance innovation. Figure 1 illustrates the components that form part of the innovation capability and divided into seven (Lawson & Samson, 2001).

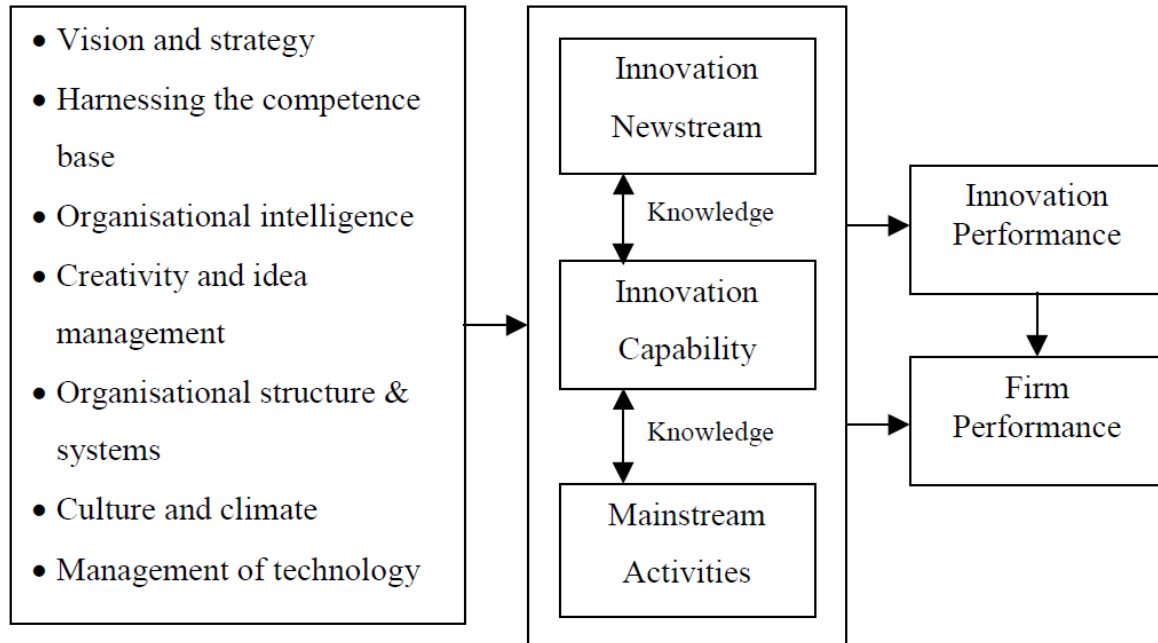


Figure 1: Element of Innovation Capability

Innovative organisations exploit the above components to successfully combine and handle both their new stream and traditional operations. The arrangement of new-stream as well as of conventional activities will be influenced by the potential for innovation and will lead to improvement that is continuous with regards to products, processes and systems. The more an organisation possesses innovation ability, the more successful it will be. The literature suggests that performance in innovation is directly proportional to improved performance in business (Lawson & Samson, 2001). Building from dynamic capabilities, innovation capabilities with regards to the public sector might be expressed in light of management as well as other relevant stakeholders being able to make necessary changes in continuously allocating resources and generating thinking that is new within organisations (Clausen, Demircioglu, & Alsos, 2020).

2.2.4.1 Vision and strategy

For the management of innovation to be successful, the connection between vision, strategy, and innovation is crucial. Organisations' strategy decides the configuration of tools, goods, processes, and structures they use to deal with the instability in their world. This allows organisations to determine what activities and roles they will conduct, and in what markets. Innovation that is successful involves a consistent articulation of a vision that is common as well as a solid direction that is strategic. This is vital and assists to have harmonised creativity that is institutionalised. When there is a lack of an innovation plan, curiosity and focus get too scattered. Strategy for creativity is important in focusing organisational energy. It is suggested that for organisations that are future oriented, having a strategy that is forward looking which seeks to create a potential future, instead of preserving the present or the past, are typically extra creative.(Lawson & Samson, 2001). Consequently, the capacity of the innovation capability to make the new-stream work with the mainstream seamlessly is increasingly crucial. The **new stream** as a conduit for products and services enables their development while promoting reduction on cost and strengthening quality improvement and nourishing strong traditional capabilities.

2.2.4.2 Harnessing the competence base

Long ago, it was recognised that the ability to guide resources correctly and efficiently to where they are required was vital to successful innovation. Important variables in this regard include; the management with respect to resources, having sources for funding available, people leading in creativity, and the concept of e-business availability and its usages (Lawson & Samson, 2001).

2.2.4.3 Organisational intelligence

Intelligence with regard to organisations is about the ability to access information, process it, create a picture, perceive, translate and exploit it in a manner that is purpose driven. This would help an organisation to maximise capacity to adapt in an environment that is dynamic and continuously changing. Due to the realisation that the essential input into the cycle of innovation includes processing of information and

generating ideas, smart companies ought to use that to minimise uncertainty and/or confusion that is generally inherent when it comes to innovation (Borins, 2008). This helps them to identify new research paths, and to remove unprofitable solutions more quickly. This is based on the ability to produce, interact and take action using highly appropriate, and relevant information on their environment. With regards to organisational intelligence, the focus is on consumer learning and competitor awareness (Lawson & Samson, 2001).

2.2.4.4 Creativity and idea management

An environment with a continuum provides for creativity to flourish. Creativity generally can be as a result of numerous minor activities from workers that can accumulate to substantial improvements on a continuous basis. Moreover, creativity can lead to ideas that are radical, which lead to and inform changes in business strategy or can give birth to novel businesses. Creativity naturally thrives in an environment that is open to thinking that is divergent and that allows for contributions that are yet to be tested or proven. The management of ideas requires a setting either driven via information, regarding the application of novel information, or driven through a vision pertaining to achieving a particular goal. Creativity in a nutshell, may be regarded as a method in which ideas get generated (Iddris, 2016; Lawson & Samson, 2001; Stowe & Grider, 2014).

2.2.4.5 Structures and systems

Among the requirements for innovation to be successful is that there ought to be a framework for business that is formal and a business model that is operationalised optimally. Where there is a lack of structure and when the business model does not lead an environment that is conducive for innovation to thrive, it is doubtful that the building blocks of the innovation system can properly function (Oyelaran-Oyeyinka,

2014; Soares & Cassiolato, 2013; Zielicz, 2017). The discussion below further highlights certain aspects of structures and systems.

Organisational structure

During expansion, organisations tend to introduce more layers as a mechanism for management, which results in an institutionalised bureaucracy. It is reported that for organisation to have optimal performance, it ought to inspire and encourage innovation related activities by providing for settings conducive for breaking down boundaries that separate functions within organisations (Agus, Barker, & Kandampully, 2007; Hermans, Geerling-Eiff, Potters, & Klerkx, 2019). Thus, increasing the permeability and organic nature of a structure is most likely to lead to an improved potential for generating ideas that are innovative.

Reward systems

It is regarded that reward systems strongly encourage behaviour that promotes innovation and hence essential to effective creative action. Highly innovative reward systems play a crucial role in distinguishing between organisations that are highly innovative and those that are lowly innovative. It is reported that highly innovative organisations have put in place incentive systems that foster creative activities, and such systems include schemes of recommendations, forms of public recognition, and financial rewards as well (Atun, Harvey, & Wild, 2007; Kaplan, 2008; Wang, 2018). Managers need to be mindful of the behavioral consequences of reward systems.

2.2.4.6 Culture and climate

Particularly essential to effective innovation is the correct community and environment within the organisation. The components that underlie culture and environment building are uncertainty tolerance, motivated workers, imaginative time, and

connectivity (Jain & Jeppesen, 2013; Marcelle, 2005; Osborne & Brown, 2005; Rivera & Landahl, 2019; Tzeng, 2009).

2.2.4.7 Management of technology

Technology implementation is critical for organisations in the modern era. The move towards networks at the macro level and the use of the whole base of organisational expertise has meant that there is more concern with technology management within the overall organisation. (Demir, Collins, & Porras, 2018; Dutrénit, 2004; Jain & Jeppesen, 2013). Innovative companies are duty bound to align their core business strategy with that of innovation. This alignment creates a potent competitive advantage mechanism. Good forecasting helps companies predict future technological, product and business trends, produce more detailed knowledge, and where necessary, refocus the organisation to manage threats and/ or capture potential opportunities (Lawson & Samson, 2001; Rush, Bessant, & Hobday, 2007).

2.3 SMART INTELLECTUAL PROPERTY OFFICE FRAMEWORK IN DEVELOPING COUNTRIES

Intellectual Property (IP) is regarded as being concerned with what is created through human intellect, which includes: written works and artistic works; inventions; the logos, names, and images used in financial activities. Generally, countries have an intellectual property office (IPO) that manages and administers IP applications for various forms of IP, such as patents, trademarks, industrial designs, and copyrights. An IPO can be described as an institution of governmental or intergovernmental nature that administers and/or provides for protection of IP areas. The IPO is a government entity that has the authority to approve or deny an IP application based on whether

the request satisfies the requirements (Prihastomo, Kosala, Supangkat, Ranti, & Trisetyarso, 2019). In general circumstances, the following function may be performed by an IPO: receipt of the request or application, data capture, examination of formalities, classification, publishing, substantive search examination (albeit not every IPO conducts substantive search and examination), registration, and post-registration matters.

Almost every country in the world has an IPO to control and protect intellectual property. The Companies and Intellectual Property Commission (CIPC) in South Africa is regarded as an IPO, particularly the sections that managed the registration of intellectual property. In South Africa, the CIPC is an entity of government that reports to the ministry of trade, industry and competition which administers and protects the following IP areas including patents, trademarks, aesthetic design, trade secrets, functional design, and copyright and associated rights. However, there is another form of IP, which is the right of plant varieties managed and administered by the department of agriculture, forestry and fisheries.

Intellectual property together with globalisation complexities are among the factors that influence the economic development of countries and have effects on the possible transitions of intellectual property offices from the digital arena advancing to a smart paradigm. As human capabilities keep on improving, this leads to new areas of technologies that are not adequately covered for, under general practices of IPOs, such as the patentability of inventions that are computer-implemented. It is reported that with increasingly complex applications of IP registration, it is important to accordingly deal with the ecosystem through the application of the artificial intelligence approach, large-scale data analytics and the use of novel technologies such as block-chain to tackle shortcomings that exist in the IPOs, with a sharp focus on countries that are developing or least-developed (Prihastomo et al., 2019). Consequently, IPOs have an obligation to promote innovation from within, to ready themselves to be in a position to deal with patent applications that are sophisticated.

In this regard, Prihastomo (2019) has developed a theoretical framework/model that may assist to develop smart intellectual property offices, particularly for developing countries. Since there is insufficient literature regarding smart IPOs, and since IPOs are generally government institutions, the smart IPO framework was developed using

the smart city framework (Prihastomo et al., 2019), using smart government concepts and documents from IPOs that are regarded as being modern.

Thus, Prihastomo (2019) regards that the prominence of the definition of smart government suggests that the extraordinary dimension of authority, competencies or skills, ultimately means improving public administration. It further aimed to stimulate a renewal of digital offerings. Smart governments' important precedent is the authority's ability to implement growing virtual technologies that are strategically located, and which include machine learning and connectivity. The degree of government smartness can be classified as follows into fourteen components: sustainability, productivity, creativity, equity, performance, entrepreneurialism, citizen participation, resilience, transparency, savvy generation, innovation, inclusion, citizen centricity, and completely proof-based (Prihastomo et al., 2019).

Drawing from the concept of smart government as highlighted above and taking into account that an IP office is a government agency, therefore, a smart IP office should employ its ICT muscle with an intention to transform its digital arena and also make the necessary reforms regarding IP related services. A number of stakeholders, ranging from institutions that are involved in research and development, business to IP professionals and firms, form part of creating a smart IP office that offers comprehensive services. Advancement in technologies and globalisation would aid smart offices in dealing, among others, with data exchanges, ease of compliance with agreements such as prosecution highways, work-sharing under accessible dossiers and an overall improvement in networking with other IP offices. The smart IP office model also has some enabler components, such as smart governance (in each directorate, law-making activities, law-making fees, internal audit, business-wide regulations, quality and output metrics), Smart infrastructure (buildings, facilities), smart information and communication technology (high-speed internet, comprehensive applications, data processing, computer and/or artificial intelligence making use of deep learning), and smart stakeholders which among others involve institutions for research and development, IP professionals and universities (Prihastomo et al., 2019).

Moreover, other than dealing with intellectual property, IP Offices offer a strategic function to enable global networking. Other issues include the increasing complexity

of data as IP applications develop. Thus, it takes a smart paradigm to respond to the challenges of ICT growth, particularly in the patent sector. Prihastomo (2019) proposed that the smart IPO framework comprises several elements, which are: “1) Smart IPO Model; 2) Smart IPO Enterprise Architecture; 3) Smart IPO Collaboration Model; 4) Smart IPO Development Model; 5) Smart IPO Measurement Model; 6) Smart IPO Standard; and 7) Smart IPO Services”.

2.3.1 Smart Intellectual Property Office (IPO) Model

WIPO makes provision for four IP office models depending on the stage of development of the IP office (Jang, 2017). The four IP office models are: the first model is when the offices offer web-based public services that are basic; the second model is when the office has an internal administration that is advanced; the third model is when services offered by the office together with its processes are fully automated; and the fourth model is when the IP office offers services in relation to IP that are knowledge based. Table 1 below, details the elements of the above-mentioned four IP office models (Prihastomo et al., 2019).

Table 1: Smart Intellectual Property Office model

“Model 1 : basic web-based, public services”	“Model 2: advanced internal administration”	“Model 3: full process automation”	“Model 4: knowledge-based IP services”
Paper-based internal operation	Strengthen & automate internal administration system	A paperless online IP administration system	Knowledge-based operation
Generation of full-text searchable national data	Electronic file wrapper & document management system	Full online filing and payment	non-core services to support substantive search and examination
Easy paper filing	Search system for examiner and public	Increasing database access and a search tool to enable adequate examination	Dynamic systems to respond to stakeholders needs
Digitise documents at the early stage	Web-based information dissemination	Various information services to public	Data exchange platform to other IPO
Construct & exchange IP documents	Join the global platform as accessing office	Data quality improvement	Advanced data analytics
Preparing to join the global IP platform	AI adoption at early stage	Data analytic at early stage	Utilisation & exploitation of IP information
		IP marketplace	IP Marketplace

		development	enhancement
		Join the global platform as depositing office	play a leading role globally as depositing office
		AI adoption enhancement	Advanced AI adoption

2.3.2 Smart Intellectual Property Office (IPO) Architecture

ICT is a powerful enabling tool in smart IP offices that facilitates automation, deep analytical and automated decision-making. Integration and alignment are the most difficult elements of ICT implementation in the smart IPO. Business Architecture System can be used in an intelligent IPO to design all elements into one architecture model and ensure convergence amongst all business processes and ICT support (Prihastomo et al., 2019). Figure 2 summarises the proposed elements of smart IPO architecture.

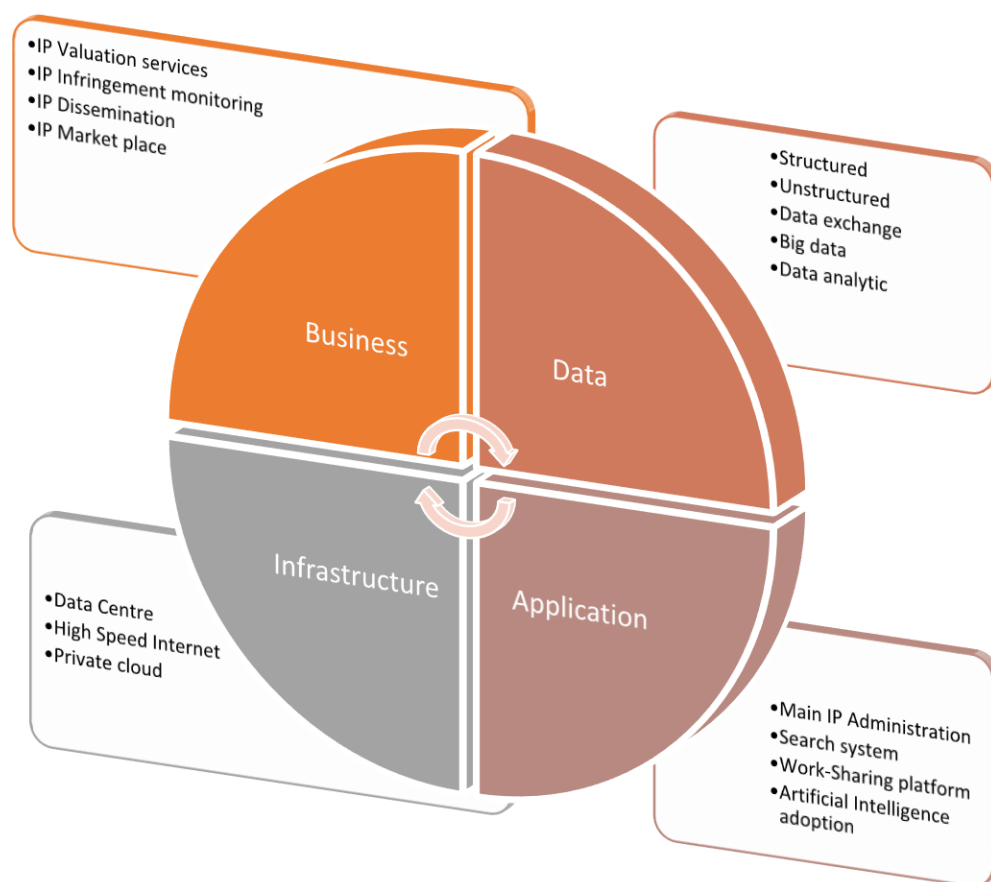


Figure 2: Intellectual Property Office Architecture

Unstructured data will be the most difficult in the data layer to handle the output of a statistic. It is necessary to have big data and data mining services aligned with Industry 4.0 in IP offices. Thus, IP offices ought to analyse data to forecast and respond to emerging trends. A smart IP office also should have an automation system that is robust as a central system in dealing with IP related services. An advanced search programme is also required, from the point of view of substantive searchers and examiners of IP applications, to help them minimise backlog. Platforms for work-sharing are crucial and WIPO has also played a vital role in this regard by providing a platform known as WIPO CASE, which assists among others to avoid duplication of work through work-sharing (Jang, 2017). Smart IP offices should also put an architecture in place such as a data centre, wherein there is a provision for internet with high-speed and a platform suitable for cloud computing in order for the IP office to deliver services in an improved manner. The business layer operating in an environment having the proper architecture, is enabled to provide improved core and support services which include offering IP evaluation services, monitoring and acting on IP infringement and providing a platform for IP commercialisation, wherein the highlighted services tend to complement the IP office basics services.

2.3.3 Smart Intellectual Property Office (IPO) collaboration model

A smart IP office would form linkages with the relevant role players in order to deliver constantly improving services. In general, IP offices has various stakeholders that collaborate with and of which include users on individual basis, organised users in the private sector, institutions that are involved in research and development, various government agencies, institutions of higher learning, merger and acquisition dealers and other IP offices. To provide excellent service, the IP Office must engage stakeholders to collaborate, see Figure 3 (Jang, 2017).

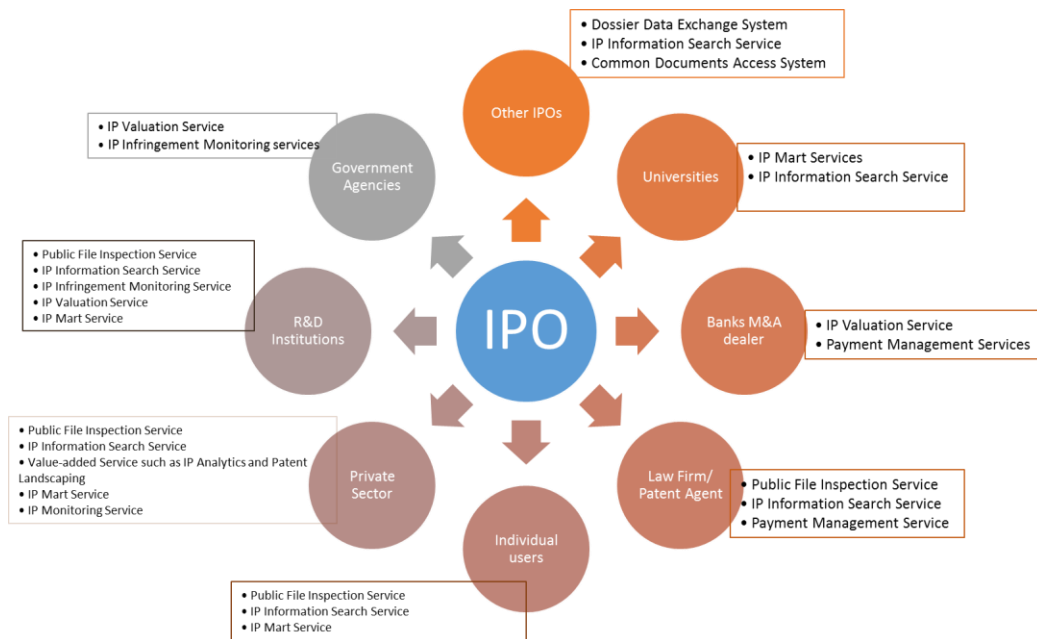


Figure 3: Smart Intellectual Property Office collaboration model

2.3.4 Smart Intellectual Property Office (IPO) development model

The model for development requires that attention is particularly paid to technology development for smart IPOs, which consists of elements such as: a) Delivery cycle, which is a cycle that is necessary for ensuring consistency amongst activities such as detection, preparation, timeously responding, service delivery, monitoring, evaluation and continuous improvement; b) Provision of living labs where new ideas get to be experimented and tested with the aim of improving IP offices, wherein stakeholders also get involved in the process. Living labs are regarded as essential for governments, agencies and collaborators to test implementation of new concepts (Prihastomo et al., 2019). Table 2 below details the components of different stages in developing automation (Prihastomo et al., 2019).

Table 2: IPO Model for Development

"Stage 1 : Automation of Internal Processes"	"Stage 2: Web-based e-services"	"Stage 3: e-Dossier, e-Filing, online Payment"
Application reception to Grant or registration (end-to-end automation) until post registration	Online presence e-awareness	Whole dossier digitisation (scanning / OCR of IP file)
Data capture, validation & Quality Control	IP Search services	Electronic document management system (EDMS)
IP back file digitization	IP File inspection	Workflow Management
Elimination of parallel manual work	e-Publications	Online payment
Streamlined business processes	e-communication for IP data exchange (Madrid, PCT, Hague etc.)	e-Filing system
Capacity building for user	General online presence	Web services
Upgrade / replacement of legacy systems, procedures and policies	Advanced ICT skills or subcontracting	Ongoing upgrade of infrastructure & I CT skills
	Helpdesk services	Work from home
	Decision support systems	Work-sharing platform
	Intranet or Remote Access	

2.3.5 Smart Intellectual Property Office (IPO) measurement model

Prihastomo (2019) reported that a smart IP office ought to have two key metrics as a measuring tool: firstly, there must be an index for satisfaction on the community serviced by the IP offices, where the services offered by the IP offices are used to test the level of community satisfaction. Users can provide feedback indicating if the service is fast, friendly and meets their expectations. Secondly, smart IP offices may make use of maturity level index tests, which talks about how seamlessly the IP office handles initiatives and responds to change. This is an indicator of how the office improves the quality of services offered. This aspect also speaks to how well the IP office collaborates and cooperates with its stakeholders, in dealing with issues of innovativeness, competitiveness and sustainability.

2.3.6 Smart Intellectual Property Office (IPO) standard

It is regarded that an architecture is limited to describing the structure or the design and it is silent on detailed definitions and implementation. A standard is a crucial guidance to architecture implementation, which would result in providing consistency, usability, functionality, manageability and the ease of maintaining quality (Prihastomo et al., 2019). A standard can be viewed as a way of providing management beyond

the sector of ICT. In this regard, WIPO had formed a committee that specifically deals with WIPO standards that are essential in providing direction and harmonising IP offices through global conventions (Jang, 2017).

2.3.7 Smart Intellectual Property Office (IPO) services

A smart IP office in general provides a number of services to the public that ranges from viewing of public files, assisting in providing information to evaluate the value of intellectual property, providing real time IP application statuses and providing access to the public to view bibliographical and full-text data. Moreover, a smart IP office provides for drawing reports based on selected IP information, and to be able to assist regarding IP infringement cases and make platforms available to assist in promoting research and commercialisation (Prihastomo et al., 2019). Furthermore, smart IP offices provide value-added services in relation to analytics regarding intellectual property such as landscaping of trademarks, industrial designs and patents, which assist in gaining insights in terms of trends in IP, the usage of work-sharing programs under global dossier and access to documents, and finally to have a user-friendly payment system.

2.4 PUBLIC SERVICE ORGANISATIONS IN INDUSTRIALISING COUNTRIES

Generally, government at different spheres, including government agencies, institutions and publicly owned companies make up the public sector. The public sector makes a considerable contribution toward countries' general domestic products, thus, with its economic weight, policy interests are increasing in fostering public-sector innovation to boost resource efficiency, the quality of services an organisation provides to society, and tackles a variety of social challenges, comprising global obligations, urbanisation, social and economic disparity (Arundel, Bloch, & Ferguson, 2019). The term public sector for this study is limited to government agencies or public sector service and administration organisations.

In the public service, organisations are responsible in general for managing public affairs, where the needs of the people ought to be met and their problems to be solved. In the current environment that is dynamic and constantly changing, it directly affects authorities and institutions such that government have to face both old and new challenges. The new challenges might be solved with old solutions or new solutions should be developed, and there might be old problems that require new solutions as well (Matei & Drumasu, 2015).

Challenges that the public sector is faced with, include incentives that are inadequate, funding is insufficient, political influence which puts focus on short-term projects in representative democracies. While public services are essential, public institutions' support at times is viewed as an obstacle to progress in the public sector. Public administrators and managers are crucial to foster a work environment that is conducive in boosting morale and rewarding and encouraging change as they possess a positional power that directly impacts on the morale of their subordinates and making the organisation an employer of choice (Damanpour & Schneider, 2008)

2.4.1 Characteristics of Public Organisations

In general and at times, there exists a grey area in distinguishing between public organisations and private organisations, in representative democracies. However, public organisations vary substantially from private organisations. Firstly, leadership of public organisation may be derived through democratic means such as voting. In general, a head of a public or government institutions is appointed through political influence. In private organisations, leadership is accountable to a board of shareholders, while in government organisations, leadership is accountable to a leadership that is elected democratically, of which in turn, it is also accountable to people under democratic institutions. Therefore, government agencies form part of government at various level from national government to local government. In general, challenges faced by government agencies are in most cases differentiable to the ones

faced by the private sector. Even though public institutions such as government agencies outlive political terms, the minister responsible for such institutions comes from the legislature in general and the legislature is elected by the people, however, there are formal laws and regulations that govern organisations in the public sector (Christensen, Laegreid, Roness, & Rovik, 2007).

Secondly, due to their multifaceted nature, public organisations differ from their private counter parts. The multifaceted nature brings together factors that are naturally contradictory, such as political terms power and direction, leading parties influence and their degrees of involvement, the business aspect which cater for customer awareness, decision making processes that are static, provision of equal treatment going together with fairness and objectivity, providing quality service, displaying professionalism and striving for both effectiveness and efficiency. In representative democracies, generally, the running of state and its institutions is not purely based on majority rule but are mostly following a judicial system through legislations and regulations and affected by the market. Means are made to try and strike a balance between the majority rule and against constitutional values, although the majority rule is limited within the constitutional prescripts. Since public institutions are governed through legislations, they are open to public scrutiny. Even though it is not easy to balance the various interests in public organisations, such that everyone is please, however, the various interests keep public organisations autonomous and on their toes. Multifaceted organisations normally have leeway due to their autonomy to have desecration in decision making and to exercise power conferred to them (Christensen et al., 2007; Laegreid & Verhoest, 2010).

Multifaceted organisations such as public entities, do face challenges that can be regarded as being inherent to the systems governing public organisation and/or are pathological in nature. The challenges include issues that deal with ambiguities and competing interests while resources are finite. Leaders in the public sector constantly deal with these realities and ought to manoeuvre amongst them. Thus, public organisations constantly face contradictory demands from the public as well as contradictory expectations from the public, which are regarded as a permanent feature in public organisations and may not be solved easily.

Public service programs around the world face dynamic conditions in which social, economic and political forces continue to influence organisations. Increasing demands, technological changes, rising costs and lack of funds and other resources mean that governance types, frameworks and practices remain the subject of major reforms (Barrados & Mayne, 2003; OECD, 2005). Nonetheless, governments that assert the need to reform different industries can hardly afford to ignore their own jurisdictions. The public sector is therefore not excluded from efforts to establish organisations that are creative, responsive to customer needs and market focused. These change imperatives have been part of a rationalisation and corporatisation process in recent years that has informed the entire public sector across OECD countries and beyond. The policy agenda aims at improving quality and efficiency, increasing accountability and transparency, emphasising performance and service delivery and ensuring more efficient resource management. (OECD, 2005; Veenswijk, 2005)

2.4.2 Public Sector Organisations Role within the National System of Innovation

This section takes a look into the necessity of public sector organizations in national innovation systems of countries, and also the challenges they face and how to address the challenges. Contemporary public services include complex interrelationships between different stakeholders comprising players found in government, industry and community groupings, making it difficult to easily identify the origin and impact of a collection of drivers for reform (Osborne & Brown, 2005). It has been argued that historical national dynamics impact the results of institutional change, so that the political and social structure already in place forms the types of institutional response to the reform agenda in different countries (Christensen et al., 2007; Osborne & Brown, 2005).

It is argued that major drivers of institutional change include the large effects of globalisation, disaffected citizenship, the blurring of distinctions between private, public and community-based organisations, and technological advances (Anderson et al., 2014). The task of public service organisations was re-conceived as 'steering'

rather than 'driving' the state ship, and this function was to be accomplished through an imaginative approach to providing public services and avoiding policies based on the heavy hand of government intervention and government provision (Osborne & Brown, 2005).

There exists a number of stakeholders in the public sector wherein each of the stakeholders has its own priorities, which contributes to a variety of public perceptions which are imposed on the organisation (Fourie & Poggenpoel, 2017). Thus, for many years, there have been comments persistently uttering a negative image on public organisations. these negative utterances include portraying a narrative that bureaucrats are reluctant to figure out how to improve citizens contribution instead of expanding their own "negative influence" (Waeraas & Byrkjeflot, 2012) or from an idle, lazy and insensitive bureaucrat without customer and service knowledge, busy "reading newspapers, planning sailing trips or buying and selling stocks" (Osborne & Brown, 2005).

Another critique relates to public organisations' general perception of being too large, expensive, sluggish, ineffective, not adequately open and inefficient. The conventional model of public administration has been described by writers as old-fashioned, outdated, "in need of drastic change" and "nightmarishly challenging" for those "caught in it" (Waeraas & Byrkjeflot, 2012). Organisations in the public sector are regarded as facing a number obstacles that stifle innovation which include that there are no incentives put in place to encourage innovation, there is a lack of funding to finance innovation project, also the short term nature of political office with its issues (Damanpour & Schneider, 2008). Notwithstanding the mentioned obstacles, public sector leaders and /or managers are obliged through positional power to influence the direction to be followed by innovation, which includes giving positive effect to job satisfaction and motivating their employees and introduce incentives for innovation.

2.4.3 Challenges Faced by Public Sector Organisations

The duties that make organisations to exist in the public sector, are in essence managing the affairs of the public, with an effort to meets established public needs and at the same time to try and solve old and new problem that the people encounter. Taking into account that there are established needs that are constantly met, and there are old problems in the system that are yet to be solved, there will be new needs and problem to be solved, thus, public organisations are somehow forced to constantly look for new solutions, and therefore innovate (Matei & Drumasu, 2015).

The political term also affects public organisations, also the insufficient funding and the lack of incentives for part of the obstacles that hinder progress in relation to innovation (Ho, 2002). It is reported that leaders and managers in the public sector have an obligation in motivating and creating a conducive environment for job satisfaction (Damanpour & Schneider, 2008)

In government, there are unique restrictions on creativity, such as fines for ineffective reform, strict guidelines for legislation, and inflexible budgets. Government functions lack a simple measure of the bottom line. It is difficult to implement factory performance measurement, compensation and reward systems (Stone, 1981)

When civil society needs and aspirations grow, organisations in the public sector need to be innovative to address their existing organisational stumbling blocks. Different public sector organisations deal with different societal problems, thus, there is no 'one size fits' situation, thus, organisations should constantly look for innovative ways to address issues as soon as they arise and their recurrences. (Damanpour & Schneider, 2008; Matei & Drumasu, 2015).

2.5FACTORS THAT DRIVE INNOVATION CAPABILITY IN PUBLIC SECTOR ORGANISATIONS

Public sector organisations (PSOs) have recently begun to view and treat innovation as a crucial factors, which assist in dealing with challenges that are as a results of

globalisation phenomenon and the constantly changing demographics, while at the same time, innovation helps PSOs to at least maintain and upkeep with the high standard the business and people expect (Gault & Bloch, 2014). Thus, there is a sense of increased awareness that innovation is needed in every aspect of an organisation, ranging from physical infrastructure and architecture which include ICT, to business services including internal controls such as in procurement (Agolla & Lill, 2013; Oyelaran-Oyeyinka, 2014). Accordingly, the public sector should strive for improved efficiency to seamlessly provide services as needed by citizens and business, of which the needs get affected by advancing technology, demographic trends and the dynamic environment that comes with new factors such as competitions, the ease of products movement and globalisation (Agolla & Lill, 2013; Edler & Yeow, 2016). Agolla (2013) asserts that innovation is internal driven and external driven. There are various components that drive innovation internal and include strategy for innovation, leadership management, climate, entrepreneurship and resources; while the external drivers at the macro level include political activities, social and economic conditions, technological advancement, ecological and legal environment.

Internal drivers

Since innovation is not an occurrence that takes place over night, there are several drivers that have a vital place in the innovation process, from ideation to tangible results that benefit the organisation, while people as consumers of the organisations services also benefits. During this process of innovation internal organisational drivers play an important part (Agolla & Lill, 2013), and are discussed in more details below.

Organisational Strategy

A way to realise effective innovation process in public sector organisations is to have a strategy for the organisation. A strategy would assist the organisation to better align members and cooperate resources for the realisation of the organisation goals and for providing continuity and reproducible results (Bessant et al., 2014; Brix, 2017; Curry,

1999; Robinson, 2015). Thus, to have a proper, functional innovation strategy, it should be aligned to the organisational strategy such that areas of interest for innovation are identified. Through recognising the drivers of the need for innovation an organisation will build its innovation focus areas. Innovation Strategy role is to converge everyone to a clear path and directs all of the organisation's efforts on a common innovation objective (Agolla & Lill, 2013).

Organisational Climate

The environment of an organisation can be described as a place that possess various characteristics that include emotions shared by its people, the behaviour of its members that cumulate to be the behaviour of the organisation. Management has the ultimate responsibility to manage and provide an environment that is conducive for innovation (García-Morales, Lloréns-Montes, & Verdú-Jover, 2007; Nfuka & Rusu, 2010; Tzeng, 2009).

Strategic Leadership

Creative companies aim to improve their efficiency, using strategic leadership to achieve both creative direction and capacity for innovation. There are various leadership aspects that are regarded as highly crucial and can positively respond to innovation strategy include: critical thinking, should possess the necessary technical prowess, have an appetite to solve problems, be able to carry out proper analysis and have competence for numeracy (Fadil et al., 2016; Kim & Lee, 2009; Kuipers et al., 2014; Nag, Hambrick, & Chen, 2007).

Entrepreneurship

One of the mechanisms that employees can use to trigger and generate new ideas in an organisation is entrepreneurial creativity. For entrepreneurship to be successful, there are various skills that are necessary and include psychological aspects, working with other people and possess some technical talents. The psychological aspect relates to mental competences and having the necessary behavioural power, that will result to effective entrepreneurship. Thus, the basic mental skills required comprises of the enthusiasm necessary to provide 'push', dedication with self-discipline and confidence in oneself, and moreover, there must be a will to learn and certain level of ambiguity tolerance (García-Morales et al., 2007).

The Organisation's Intangible Resources

Organisational resources include those that are intangible and give life to tangible resources, such that they add to value proposition of the organisation. The intangible resources include the various skills that the workforce possesses, tacit knowledge and the experience of the organisation (Abdu & Jibir, 2018; Teece, 2007). Thus, human resources are regarded as forming part of intangible resources through learning, personalities and aptitudes, skills and knowledge they provide. People in general would provide a way as to how to handle the intangible resources using means such as incentives, providing a platform for development and flexibility. A point in case is when an organisation generate knowledge, such knowledge would need to be developed and turned into explicit knowledge (Agolla & Lill, 2013; Iddris, 2016).

External Drivers

Organisations by nature, have a profound impact through innovation or value-add on the outside environment in which they operate, and particularly for their customers. While the organisation has impact on the outside environment, the outside environment also has an impact on the organisation, though various factors such as information and new knowledge the environment feeds the organisation (Agolla & Lill, 2013; Rivera & Landahl, 2019; Wang, 2018). Agencies like public sector organisations, feed from the external environment that include other governmental organisations, the private sector organisation and different countries. The external environment can be summarised as comprising three interconnected packages of elements, which include: elements in an environment that is remote, business environment elements, and elements found in the operational environment, of which are crucial in aiding the organisation to assess opportunities and threats that a public sector organisation may face (Agolla & Lill, 2013).

The external environment as per encompasses factors beyond and generally independent of the operational situation of any particular entity-economic, social, political, technical and ecological factors. There are factors that are part of the opportunities and challenges that a company faces in its competitive environment such as operating environment and business environment (Agolla & Lill, 2013).

Political Environment

Political decisions can affect various crucial features of organisations, which include the education the working people possess, whether people are healthy, the status and quality of infrastructure that affect economy, which includes road network, rail network and water circuits. The capability and ability to address the necessities of the public, of which comprise how services get provided people to people to impact their welfare, wherein service delivery occurs in an manner does not waste resources and that is transparent to the people, for innovation to flourish (Agolla & Lill, 2013; Vydra & Klievink, 2019).

Economic Environment

Many organisations' scientific studies and surveys show that creativity leads to new and lower prices. An organisation can adopt various methods to remain competitive, of which include producing products and services of great quality, but also crucially is to produce them at lower cost than their rivals. Thus, it is important for organisation to have a workforce that is creative, remove constraints and operate within the boundaries provided by laws and regulations. A relationship with stakeholders that is healthy is quite crucial in providing feedback that is necessary to improve on products and services delivery, and it may lead to establishing and introducing novel products and/or services (Barrados & Mayne, 2003; OECD, 2007). It has since been realised that the existence of demand and the availability of creative ideas function as a vital source of and a feed to innovation. Moreover, public procurement provides direction for innovation, as an indicator of demand (Edler & Yeow, 2016). Thus, organisations in public sector in general, their enterprise cost of capital for providing the necessary products and delivery of services, are affected by among others the rate of economic growth, changes in interest rate, the currency value and inflation (Agolla & Lill, 2013).

Social Environment

Social environment deals with the demographic characteristics that impact public sector organisations as well as factors in relation to culture. A case in point, is that a population that is aging can effect on a country's system of healthcare, as people impact the healthcare cost as they age. Thus, social factors ought to be regarded as factors that are external but have a substantial influence on the organisation, and the organisation would have little, if any, control over them (Agolla & Lill, 2013). It has been understood that social elements such as poverty, illnesses amongst others, pose huge strain in terms of service delivery in developing and emerging world.

Technological Environment

Development and accessibility to technology has a direct impact on an organisation in terms of its operations, ease of meeting production targets, and play a crucial role to provide a ground that can breed creative activities resulting to innovation. Technological development can provide a challenge to the public sector, such the public is obliged to keep up, and otherwise, technological development can also be disruptive if not properly managed. Technology is essential for automation and making service available to the general public most of the time, however, it is also affected by the changes or new demands the public seek, thus, the necessity for constantly innovating. In the recent past, the public sector has embarked on making most of their services available online, and this has improved on service delivery and introducing new products and services, thus, technological development provides an environment for further innovation (Agolla & Lill, 2013).

Ecological Environment

PSOs should protect the natural ecosystem, and they should do so in a proactive manner, such that they have a mechanism to monitor and manage degrading elements in the environment. It is now a given that corporate through their operations affect the environment, thus, are encouraged to develop ways to reduce pollutions such as carbon and water footprints, of which can have a substantial negative effects on the ecosystem that can result to issues such as global warming, loss of habitants and biodiversity (Arundel et al., 2019; Gault & Bloch, 2014). In this regard, PSOs ought to adopt innovation as a tool to protect the ecosystem though designing public products that are environmental friendly, while realising that policy or legislation alone cannot be the only cure (Agolla & Lill, 2013).

Legal Environment

Public sector organisations are established through law such as legislation, and their activities are governed by what is termed as a "mandate" derived from the legislations. PSOs are required to operate within certain boundaries and guidelines to meet the mandate. Thus, the requirement places a degree of restriction on creativity by its very existence. However, innovation activities within a country by both public sector and private sector organisations, have an influence on national policy and on the role of agencies (Agolla & Lill, 2013).

Collaboration and Linkages

It has been established that improvement and progress does not only depend on how an organisation operates on its own, but rather, on how they operate in unison with other relevant organisations. In this regard, it is crucial to do away with rigidity that may stifle and have a negative impact on a system of innovation of a country, and also to minimise obstacles that can block the path to collaboration and networking (Barrados & Mayne, 2003; Schuurman & Tönurist, 2017).

Collaboration is a mechanism that involves activities resulting from interlinkages and interactions amongst the various role players in a thriving environment that pushes the PSOs to innovate. The degree in which role players promote innovation is strongly influenced by how PSOs deal with internal innovation drivers as well as the external ones. The interface between different drivers brings about creating value for role players involved, making it seamless for PSOs to cross the barriers and being able to harness necessary resources while fulfilling their mandate. Through collocations, organisations learn from each other, information flows easily, the fear that comes with failure is reduced as organisations help each other, which lead to flourishing creativity (Arundel et al., 2019; Gault & Bloch, 2014; OECD, 2005; Szczygielski, Grabowski, Teoman, & Sinan, 2017).

2.6 FACTORS THAT STIFLE INNOVATION CAPABILITY IN PUBLIC IPOs

There are three categories of challenges that Borins (2008) identified. The first category, comprises of obstacles emerging mainly within the bureaucracy, included aggressive or cynical behaviours, turf battles, organisational difficulties in communication, logistical problems, difficulties in retaining system personnel excitement, difficulties when new technologies are implemented, opposition by organised labour, and middle management opposition. In case of IPOs, the Smart IP office ought to include many stakeholders in the creation of comprehensive services, including business, research and development agencies, government, institutions of higher learning, and IP practitioners, while complying to bureaucracy.

The second category considers hindrances that exist in an environment that is affected by politics. The hindrances include lack of access to financial instruments or other tools, restrictions derived from statutes, and political oppositions. Some smart IP office model enabler elements, that include smart governance, are also needed for IPOs (law-setting practices, law-setting fees, internal audit, business-wide regulations, efficiency and production metrics in each directorate) (Prihastomo et al., 2019), smart infrastructure (buildings, facilities), smart information and communication technology (high-speed internet, comprehensive applications, data processing, computer and/or artificial intelligence that comprises deep learning,), and smart stakeholders (agencies that are involved research and development, universities, IP practitioners, and relevant government entities).

The third group discussed environmental obstacles at a macro level regarding the public sector, wherein it includes public concerns about the feasibility of various programmes, challenges in meeting the target group of the program, resistance from impacted competing interests in the private sector, opposition from non-governmental organisations, opposition from society and private sector organisations that would ultimately compete with organisations in the public sector as a result of the innovation (Borins, 2006). IP offices deals with issues that include the increasing complexity of data as IP applications develop and field of applications expand, thus, a smart paradigm is required.

Mulgan (2014) summarised the obstacles to innovation faced by the public sector as:

- “No investment models for innovation in organisations.
- Lack of dedicated budgets, teams, processes and skills.
- “Discouraging” reward and incentive systems.
- Departmental silos blocking the sharing of innovation.
- Lack of mature risk management methods for experimentation”.

2.7 CONCEPTUAL FRAMEWORK

Dynamic Capabilities (DCs) seeks to answer questions like how an organisation may develop capabilities that are specific for that particular organisation, and also how do organisations revive their skills and competences such that are ready and adapt to or influence the changes that happen in the environment. Teece (1997) reported that these questions may be linked to the processes in which an organisation conducts its business, the position it is holding in relation to the market and the path it is able to follow when expanding. Thus, Teece et al (1997) advances the idea that how an organisation is competitive, such is linked to its business (strategic and organisational) processes, get influenced by the asset position that is specific to the organisations and the available paths it has to pursue (Rosenbloom, 2000).

As one amongst other factors considered for promoting economic growth of a country, the challenges of globalisation and intellectual property have consequences on how an IP office can be run to improve their services offering and steadily improve from digital platform to a fully-fledged smart IP office. As human capabilities keep on improving, this leads to new areas of technologies that are not adequately covered for, under general practice of IPOs, such as the patentability of inventions that are computer-implemented (Jang, 2017). It is reported that, with increasingly complex applications for IP registration, artificial intelligence develops to become an important

tool to respond to the complexes, and to assist with analytics as data keeps on growing, (Prihastomo et al., 2019). Consequently, IPOs ought to promote a culture of innovation in order to be in a position to deal with patent applications that are sophisticated.

While public sector organisations in industrialising countries use highly sophisticated technology and machinery, often from developed countries, the industrialising countries in most cases lack the necessary knowledge to operate such technologies and skills to run the machinery optimally. Thus, it is the objective of this research project to examine if appropriate skills for innovation exist and how the skills are developed in public sector organisations at a micro-level, such as CIPC. The current research aims to try to improve the understanding as to how public sector organisations or government agencies promote the generation of knowledge internally and how capabilities are built with respect to innovation. The project combined the elements of two theoretical frameworks of which are dynamic capabilities (DCs) (Teece, 1997) and Smart Intellectual Property Office Framework (SIPO) (Prihastomo et al., 2019) that are noted in Table 3 below.

Table 3: Elements of dynamic capabilities and smart intellectual property offices frameworks

DCs	SIPOs
Business Processes - Integration or coordination - Learning - Reconfiguration and transformation	Model - “basic web-based, public services - advanced internal administration - full process automation - knowledge-based IP services”
Market Position - “Technological assets - Complementary assets - Financial assets - Reputational assets - Structural assets - Institutional assets - Market (structure) assets - Organisational boundaries”	Architecture - Business - Data - Application - Infrastructure
Expansion Paths - Path dependencies - Technological opportunities	Collaboration model - Government agencies, - R&D Institutions - Private sector - Individual users

	- Law firm/Patent agents - Banks, M&A dealers - Universities - Other IPOs
	Development model - “Automation of Internal Processes - Web-based e-services - e-Dossier, e-Filing, online Payment”
	Measurement model
	Services - IP application's real-time status - Search of IP Information - monitoring of IP infringement - IP Analytics and Patent Landscaping - Dossier Data Exchange System - Common Documents Access System - Payment Processing Software

A brief overview of CIPC as an organisation of interest in this study, is that CIPC is agency of government under the ministry of Trade, Industry and Competition, in South Africa. The CIPC came into existence in 2011 and was established through and find its mandate from the Companies Act 71 of 2008 (Act, 2008). Thus, the CIPC was a results of amalgamation of two former states agencies, namely, the “Companies and Intellectual Property Registration Office (CIPRO) and the Corporate and Consumer Regulation (CCRD)”, where the CCRD was known as the “Office of Companies and Intellectual Property Enforcement (OCIPE)” (Act, 2008; CIPC, 2013).

2.8 STATEMENT OF PROPOSITIONS

- What, at present, is the level of innovation capabilities within the CIPC?

The proposition under this question is that even though there have been awards won by CIPC in recent times in the category of innovation, CIPC lacks strategic/ systematic management of innovation with the organisation.

- How does the CIPC go about building innovation capabilities?

The proposition under this question is that since there is there is a lack of systematic management of innovation within CIPC, innovation capabilities get to be built passively.

- What factors currently exist that hinder the development of innovation capabilities in public sector organisations?

The proposition under this question is that there is no systematic management of innovation, and there is too much reliance on external service providers and consultants, of which may be due to bureaucracy.

CHAPTER 3: RESEARCH STRATEGY AND METHODOLOGY

3.1 INTRODUCTION

It is clear that if organisations do not change or improve on their offerings such as products and services, and the methods in which their offerings are diffused, such organisations risks losing their competitiveness and relevance and might with time be out of business. Thus, organisations are inherently required to innovate, and innovation in one aspect could be taken as maintaining relevance or a survival feature. Thus, the management of innovation is quite critical and also the capabilities for innovating (Bessant et al., 2014)

Organisational innovation is necessary and may lead to increase in efficiency in terms of operations, gratification of employees or increase in the innovativeness of the organisation, wherein the organisational innovation may lead to improved performance and cost reduction in the organisation (OECD, 2007). Hence, organisational innovation can be viewed as a way that is effective for internally increasing both service quality and efficiency, and consequently improve employees satisfaction of which in turn has the potential to improve customer's experience (Fadil et al., 2016).

The approach adopted in this project was the constructivist paradigm, as the employees of the selected organisation, the CIPC, would be the source of knowledge to share if there is any, and how their experience is on building innovation capabilities and strategic management of innovation.

3.2 RESEARCH STRATEGY AND DESIGN

In this project, the qualitative approach was preferred, focusing on CIPC as a case study. The study was about generally understanding systematic management of innovation and building innovation capabilities in particular, in the public sector. Thus, this had been achieved by obtaining the perspective of the case organisation population. In generally, qualitative research method is quite effective in gathering information that deals with matter that are intangible such as the opinions, experiences of the population of interest (Family Health International, 2012). In this opinion case,

opinions of participants assisted to obtain an informed conclusion regarding organisational innovation and how it is managed in the public sector, particularly government agencies.

The study being a qualitative one, made use of the case study approach focusing on CIPC. The case study mechanism is useful to exploration of phenomenon about real experiences of people in a practical and normal setting, wherein multifaceted and in depth scrutinisation can be performed (Crowe et al., 2011). The phenomenon that was studied here deals with organisational innovation and its strategic management in public service in general, and government agencies in particular. Thus, the chosen case was one of government agencies, the CIPC. Since the paradigm that would be followed is the constructivist worldview, which will require access to selected people in the chosen organisation, it was envisaged that such access would be granted, and indeed it was granted. The research was conducted to garner the views of the people who participated and were employed by the organisation which assisted in forming a view as to whether government agencies do innovate and have systematic way of managing organisational innovation.

3.3 SELECTION OF PARTICIPANTS

The population of the chosen case was basically the employees of the organisation who were seen to be playing a meaningful role in building innovation capabilities at various levels, as shown in Table 4. The CIPC has workforce is in excess of 500 employees, and a total of 33 employees were approached and of which 19 employees responded positively to partake in the study.

Table 4: Participants selected from CIPC

Position	Unit	number
Commissioner/Divisional manager	Commissioner's Office	1
Executive Manager	Innovation & Creativity	1
Executive Manager	Business Intelligence and Systems	1
Executive Manager	Corporate Services	1
Executive Manager		1
Divisional Manager	Compliance, Risk and Governance	1
Divisional Manager	Strategy	1
Divisional Manager	Finance and Procurement	1
Divisional Manager	Patents, Designs and Innovation	1
Divisional Manager	Creative Industries	1
Divisional Manager	Enterprise Information Management	1
Divisional Manager	ICT Services Delivery	1
Divisional Manager	Human Capital	1
Divisional Manager	Client Engagement and Channel Management	1
Senior Manager	Enterprise Programme Management	1
Senior Manager	Information Assurance	1
Senior Manager	Enterprise information management	1
Senior Manager	Applications Management	1
Senior Manager	Innovation	1
Senior Manager	Innovation Policy and Outreach	1
Senior Manager	Copyright and IP Enforcement	1
Senior Manager	Indigenous Cultural Expressions and Knowledge	1
Senior Manager	Infrastructure Management	1
Senior Manager	E-Communication and Client Engagement Business Unit	1
Senior Manager	Collaboration Business Unit	1
Senior Manager	Service Centres Business Unit	1
Senior Manager	Finance Business Unit	1
Senior Manager	Trade Marks	1
Senior Manager	Patent and Design	1
Manager	Security and Facilities	1
Patent Searcher	Patents	1
Patent Searcher	Patents	1
Patent Searcher	Patents	1
Total		33

Generally, the organisation has four main groups, namely: Business Regulation and Reputation (BRR) Group; Innovation and Creative (IC) Group; Business Intelligence and System (BIS) Group; and Corporate Services (CS) Group. Each group consists of executive management, divisional management, senior management, operational staff and front desk staff levels. Thus, participants were drawn from all the different levels but excluding the front desk staff. Sampling had been done at the levels such that the sampling is a reflection of the population. While the organisation has four groups, three groups (IC, BIS and CS) were chosen as they directly connect with intellectual property management. The group of participants were chosen as shown in Table 4, taking into account the role they play in the organisations. The method that was used to select the participants was firstly to consider people who have a good grasp and understanding of the organisation in their site of work and their positional roles. The method of sampling was purposive sampling, as the selection criteria was followed, however, if there was only one person in a certain level, a person who normally get acting roles in that level was also chosen.

3.4 RESEARCH METHODOLOGY

3.4.1 Data Collection and instrument

The method that was used in executing this project involved using both interviews and collection of documented material. The interviews involved semi-structured interviews with a list of topics that assisted in guiding the interview. Also, relevant accessible documents were used to obtain more qualitative data. Moreover, open-ended questionnaire was also considered to collect qualitative data. In this manner, different types of data were used, which include writing field notes, and making use of voice recording instruments.

It had been envisaged that interviews with the identified CIPC participants might take different forms. One form was to have a one-one, face-to-face interview, where participants would be visited to their convenient areas such as their offices. Alternatively, the interview would be conducted via phone/voice call at the participant's

convenient time. Thirdly, the interview would take the form of a video call in order to properly engage with the participants. The latter two forms were preferred as the world was faced with the coronavirus pandemic; thus, social distancing had been encouraged.

The collection of documents included documents such as the overarching CIPC strategic plan. Other documents amongst others were CIPC annual reports, innovation and creativity group documents regarding innovation, human capital group documents that seek to support innovation capabilities building, such as skills development strategy. Also, documents from the business intelligence and systems were considered in relation as to how this group and ICT in particular support the development of innovation capabilities.

3.4.2 Semi-structured interview: Primary data

The primary data obtained in this project, was sourced directly from the participants through interviews that are semi-structured. Semi-structured interviews in brief, are generally referred as conversing with a purpose, wherein a set of questions were prepared to start the conversation, followed by clarity seeking follow-up questions (Adams, 2015; Barclay, 2018). Characteristics of semi-structured interviews include:

- both the interviewer and participant get to engage in a setting of a formal interview,
- The interviewer leads the interview process with the aid of developed guide, where several open-ended questions are covered following a particular order.
- The nature of the open-ended questions helps to define the specific topic that is investigated, while providing an opportunity to go deeper in some questions.
- The guide assists the interviewer in the process but also being enabled to follow certain line questions in the conversation.

According to Adams (2018) and Barclay (2018), semi-structured interviews are suitable for use when:

- There is a necessity to probe open-ended questions and interested in knowing independent views of a group.

- There is a necessity to probe open-ended questions on subjects where the participants would not be ordinarily free to discuss when in a group or with peers.
- The interviewer is interested in conducting one-on-one interviews and have an evaluation program that is formative.
- Examining an unfamiliar terrain that has unidentified but probable significant issues, and the interviewer requires apex freedom to identify helpful leads and chart them.

Through the permission of the applicants, the interviews were recorded, including using techniques such as voice recorder. While the interview was recorded, live written notes were also taken to assist with the interview process and also serve as a back-up for the electronically recorded.

3.4.3 Documents Collection: Secondary Data

In general, secondary data refers to a dataset not acquired by the researcher, thus, a study of data is already structured and documented by a third party, which is made available to the researcher. Thus, the secondary data may involve a set of structured information was gathered for reasons that are different from those of the study, but is reusable and relevant for the study, of which was not initially envisioned (Chivaka, 2018; Martins, Cunha, & Serra, 2018). Generally, there are various sources of secondary data and it usually guided by the focus of the research (Chivaka, 2018). Since this study is directed towards innovation capabilities in the public sector, particularly government agencies, secondary data collection was limited to the case study of CIPC and the ministry to which the CIPC report. Therefore, the documents that were considered include:

- National Intellectual Property Policy
- CIPC strategic plan.
- CIPC annual reports
- Innovation and creativity group documents regarding innovation,

- Human capital group documents that seek to support innovation capabilities building, such as skills development strategy. Also, documents from the business intelligence and systems

3.5 DATA ANALYSIS

The data analysis took two factors into account, firstly, the routine in data handling and organisation, and secondly to determine whether it is possible to make some generalisations to broader reality.

3.5.1 Data handling and organisation

There are three broad methodologies that were used to organise and sort the qualitative data that had been obtained from the data collection. The approaches include the usage of charts as well and diagrams, data sorting that is no cross-sectional, and cross-sectional and categorical indexing (Mason, 2002).

3.5.2 Making meaning of data

The process of interpreting and making meaning started by understanding the data through immersion, sorting and categorising the data and then interpreting the data (Rossman & Rallis, 2017). Rossman (Rossman & Rallis, 2017) reported that the interpretation of qualitative data involves three contexts, of which are, participants' understanding, common-sense understanding, and theoretical understanding, and this study followed these contexts. The data was sorted and analysed using an approach known as thematic analysis, which helped to make meaning out of the data. Thematic analysis method requires that one is familiar with data particularly after it has been sorted and categorised (Rossman & Rallis, 2017). There have been reported that thematic analysis possesses six stages that should be followed to build quality (trustworthiness) of the qualitative research (Nowell, Norris, White, & Moules, 2017). Table 5 describes the different phases of the thematic analysis.

Table 5: Phases and the meaning of thematic analysis (Nowell et al., 2017)

Phases of Thematic Analysis	Means of establishing quality (Trustworthiness)
“Phase 1: Familiarising yourself with the data collected	Prolong engagement with data
	Triangulate different data collection modes
	Document theoretical and reflective thoughts
	Document thoughts about potential codes/themes
	Keep records of all data field notes, transcripts, and reflexive journals
Phase 2: Generating initial codes	Peer debriefing
	Researcher triangulation
	Reflexive journaling
	Use of a coding framework
	Audit trail of code generation
	Documentation of all team meeting and peer debriefings
Phase 3: Searching for themes	Researcher triangulation
	Diagramming to make sense of theme connections
	Keep detailed notes about development and hierarchies of concepts and themes
Phase 4: Reviewing themes	Researcher triangulation
	Themes and subthemes vetted by team Members
	Test for referential adequacy by returning to raw data
Phase 5: Defining and naming themes	Researcher triangulation
	Peer debriefing
	Team consensus on themes
	Documentation of team meetings regarding themes
	Documentation of theme naming
Phase 6: Producing the report	Member checking
	Peer debriefing
	Describing process of coding and analysis in sufficient details
	Thick descriptions of context
	Description of the audit trail
	Report on reasons for theoretical, methodological, and analytical choices throughout the entire study”

The data analysis was approached using both inductive reasoning and deductive reasoning, where inductive logic begin from having a particular statement and then transformed to general statement, while deductive reasoning start with theory from the literature and then applied to the data.

3.6 LIMITATIONS OF THE STUDY

Limitations of this project include the sharp focus to innovation capabilities using CIPC as the case study, and innovation capabilities was considered from the perspectives including organisational, technological or educational innovation, or combination of these innovation forms (Stoshikj, Kryvinska, & Strauss, 2016). The organisation chosen as case study forms part of the agencies of the government of the Republic, thus, it is envisaged that findings from the research study would at least be representative of national governments agencies. Therefore, it was envisaged that conclusion from the study would be generalisable only to national government agencies.

3.7 ETHICAL CONSIDERATIONS

Since human beings were involved in conducting the research study, research ethics clearance was applied for. Ethics clearance certificates was sought and obtained from the Ethics Committee of the University. However, it should be stated that even though this research study involved human beings through data collection which considered questionnaires and interviews, it was not therefore invasive (causing any physical pain to the participants).

The researcher ensured to keep the details of the people who participated confidentially at all material times. Participants were asked to consent either verbally or through a written consent before the commencement of the various interviews. The

participants responses remain confidential. The privacy of the participants was protected and kept secret and their identities not be published in any written data resulting from the survey. To reflect participants in the final research report, a pseudonym (false name) was created.

3.7.1 Researcher Relationship with CIPC

It should be stated that the researcher currently, is an employee of the CIPC, and this has been so since January 2016. This setting is seen as an advantage to the researcher since he is familiar with the terminology used in the organisation and their way of doing things. The pre-existing relations between the researcher and CIPC personnel is not viewed as factor that would negatively affect the interview processes.

3.8 RELIABILITY AND VALIDITY

The quality of qualitative research, among others depends on factors such as credibility, dependability, transferability and confirmability (Chowdhury, 2015; Korstjens & Moser, 2018; Nowell et al., 2017; Shenton, 2004). The four factors are defined as:

Credibility: there should exist a confidence in the research findings as truth (Korstjens & Moser, 2018), thus, credibility deals with connection between participants views and representation of data by the researcher (Nowell et al., 2017), and techniques such as triangulation could be used in ensuring credibility. Thus, there is an importance of adopting well established research methods used in qualitative research (Shenton, 2004).

Dependability: finding of the research ought to be repeatable and reproducible (Korstjens & Moser, 2018), thus, researchers ought to ensure that the research follows logic, can be traced and is properly documented, such that readers are able to follow the process used to conduct the research (Nowell et al., 2017). The procedure used to carry the study has to be reported in depth such that it enables other researchers

to practice or carry the same study (Shenton, 2004). Thus, dependability leads to consistency (Chowdhury, 2015).

Transferability: it is the degree wherein the findings from one research setting are applicable to different settings by other researchers, also to different participants (Korstjens & Moser, 2018), thus, it takes into account the concept of generalisability of the research results (Nowell et al., 2017). Therefore, transferability is about the extent at which results of one study may be applicable to other studies or situations (Shenton, 2004).

Confirmability: focuses on whether the researcher was objective in the entire project, thus, establishing whether the researcher's findings are clearly derivable from the data of the study (Nowell et al., 2017; Shenton, 2004). Therefore, other researchers ought to be put in a position to arrive at the same findings based on the data that was collected and presented, thus leading to neutrality of the findings (Chowdhury, 2015; Korstjens & Moser, 2018). Confirmability is generally achieved when all the other three factors (credibility, dependability, transferability) have been met (Nowell et al., 2017).

The study aims to meet the quality aspect by adhering to the normal principles, norms, and practices in the field. Thus, it was ensured that the study was conducted under acceptable norms and systematic approach that make use of interviews, documents collection, proper analysis and followed by meaningful interpretation of data as collected. Also, the study was conducted using the human subject research. This was an endeavour to ensure that the four quality aspects are maintained, the researcher developed a guide in a form for semi-structured interviews, and the researcher conducted the interviews himself.

3.9 SUMMARY

The study was conducted using the constructivist paradigm approach. The population of the chosen case was basically the employees of the organisation which participated in the research and its sampling was conducted using purposive method. This study

followed the qualitative approach and was executed using both interviews and collection of documented material. The data analysis took two factors into account, firstly, the routine in data handling and organisation, and secondly to determine whether it is possible to make some generalisations to broader reality. Ethics clearance was obtained before the commencement of the interviews.

CHAPTER 4: PRESENTATION OF FINDINGS AND DATA

This section presents and sorts the primary data that was collected through the interviews with CIPC personnel, other government agency commentators, and also presents secondary data from the CIPC. Its broad focus was on government agencies' processes of managing innovation and methods of building innovation capabilities, but more specific attention was placed on the intellectual property side of CIPC and its support structures. The presentation of the results here seeks to follow and answer each research question of this project. The chapter is arranged such that there is a presentation that includes a description for the pertinent findings, and visual presentation of the data using techniques, such as bar charts.

4.1 OVERVIEW OF CIPC

The “Companies and Intellectual Property Commission (CIPC)” is an legal entity of state under the ministry of trade, industry and competition. The CIPC came into existence in May 2011 through the Companies Act 71 of 2008 (Act, 2008; CIPC, 2013). Even though it was established as a new entity, the CIPC was a result of the amalgamation of two former entities, of which were the “Companies and Intellectual Property Registration Office (CIPRO)” and another unit which was part of the then department of trade and industry unit, Corporate and Consumer Regulation (CCRD), which was known as “the Office of Companies and Intellectual Property Enforcement (OC�PE)”. Thus, CIPC incorporated both the CIPRO and OC�PE.

The CIPC exists through the Companies Act 71 of 2008 as amended (Act, 2008), wherein it established as a legal entity that would function within the public administration as a state's organ, which is an institution that does not form part of the public service. The objective of CIPC as derived from the Companies Act is stated as;

- (a). *“the efficient and effective registration of—*
- (i). *companies, and external companies, in terms of this Act;*

- (ii). *other juristic persons, in terms of any applicable legislation referred to in Schedule 4; and*
- (iii). *intellectual property rights, in terms of any relevant legislation;*
- (b). *the maintenance of accurate, up-to-date and relevant information concerning companies, foreign companies and other juristic persons contemplated in subsection (1)(a)(ii), and concerning intellectual property rights, and the provision of that information to the public and to other organs of state;*
- (c). *the promotion of education and awareness of company and intellectual property laws, and related matters;*
- (d). *the promotion of compliance with this Act, and any other applicable legislation; and*
- (e). *the efficient, effective and widest possible enforcement of this Act, and any other legislation listed in Schedule 4.”*

The CIPC, under schedule of the Companies Act, is responsible for enforcing and administering the following Acts (Act, 2008; CIPC, 2013), as shown in Table 6:

Table 6: Some legislation administered by CIPC

Legislation	Mandate	Sector
“Companies Act, No 71 of 2008	Register companies, business rescue practitioners and corporate names, maintain data, regulate governance of and disclosure by companies, accredit dispute resolution agents; educate and inform about all laws, non-binding opinions and circulars, policy and legislative advice	All sectors of the economy
Close Corporations Act, No 69 of 1984	Maintain data, regulate governance of and disclosure by close corporations	All sectors of the economy
Co-operatives Act, No 14 of 2005	Register co-operatives, maintain data, regulate governance of, and disclosure by co-operatives	All sectors of the economy
Share Block Control Act, No 59 of 1980	Regulate conduct and disclosure by share block schemes	All sectors of the economy

Consumer Protection Act, No 68 of 2008	Register business names	All sectors of the economy
Trade Marks Act, No 194 of 1993	Register trademarks, maintain data, resolve disputes	All sectors of the economy
Merchandise Marks Act, No 17 of 1941 (Unauthorised Use of State Emblems Act, No 37 of 1961)	Prevent and enforce the unauthorised use of state emblems	All sectors of the economy
Patents Act, No 57 of 1978	Register patents, maintain data, publish patent journal, administer Court of Commissioner of Patents	All sectors of the economy
Designs Act, No 195 of 1993	Register designs, maintain data, resolve disputes	All sectors of the economy
Copyright Act, No 98 of 1978	Provide non-binding advice to the public	Creative industries
Registration of Cinematography Films Act, No 62 of 1977	Register films, maintain data	Film industry
Performers Protection Act, No 11 of 1967	Accredit Collecting Societies; regulate their governance, conduct and disclosure	Music industry
Intellectual Property Laws Amendment Bill of 2010	Record and register IK, administer the National Trust and Council for IK, accredit dispute resolution agencies	Creative industries
Counterfeit Goods Act, No 37 of 1997	Conduct and co-ordinate search and seizure operations, oversee depots	All sectors of the Economy"

The CIPC employs a total of more than 500 permanent employees and primarily generates its revenue through fees from registrations as per the mandates of the various legislations it administers and annual returns. The CIPC consists of broad structures which include core operating divisions and anchoring divisions to support the core operating divisions to deliver on the CIPC mandate, the structures include:

The Office of the Commissioner: the focus of this office is to provide support and also oversight regarding the CIPC carrying out its mandate and implementing its strategic objectives and goals.

Compliance, Risk and Governance: this unit renders services related to risk, compliance, and governance and also services pertaining internal ombud in the organisation.

Strategy: the primary role is to develop CIPC strategy and render planning and monitoring service and provide strategic communication that would result to excellence in terms of the organisation operations.

Internal Audit: the unit regularly conducts evaluation and assessment of work done by CIPC during its course of operations, and then provide informed advice to the organisation.

Finance and Procurement: this division provides services related to legal administration of contracts and financial accounting services.

Business Regulation and Reputation: this unit renders core business services related to the registrations, renewals and amendments in relation to trademarks, corporations and co-operatives, and companies, and also corporate compliance and enforcement.

Innovation and Creativity: this division renders services regarding the registration of patents and designs, maintenance and renewal services of patents and designs, outreach and innovation policy, creative industries, copyright & intellectual property right enforcement and indigenous cultural expressions & knowledge

Business Intelligence and Systems: the unit provides information systems and infrastructure to core units to ensure that CIPC delivers on its mandate

Corporate Services: this unit renders services in relation to human capital management, employee engagement, client engagement and channel management, e-communication and client engagement, knowledge center, security facilities and CIPC service centres

The overall services offered by CIPC include:

- the registration of companies and co-operatives

- the registration and protection of intellectual property; which include: patents, design, trade mark and copyright in relation to cinematography
- Information disclosure on CIPC registers
- Promote and conduct education and awareness drives in relation to the legislations administered by CIPC
- Provide enforcement that is both effective and efficient in terms of the legislations that CIPC is responsible for.
- Licencing services of business rescue practitioners.

The CIPC as it is structured has a huge task in supporting corporates, universities, small and medium enterprises, individuals and others particularly in South Africa. In this regard, CIPC identified three strategic goals that are outcome- orientated (CIPC, 2013), of which are:

- Playing a role in improving the competitiveness South African economy with regards to the economy of the Republic, by significantly and positively impacting the environment of doing business in South Africa and its reputation
- Promoting innovation and creativity to contribute to an economy that is knowledge-based, as well as contribute towards local industries that are competitive.
- To play a role in promoting formal economic participation through constantly improving service delivery and expanding on CIPC footprint

With South African being a member of the global community and subscribing to various Agreements and Treaties, the CIPC is responsible for managing compliance with, and deriving benefits from them. Some of the Agreements and/or Treaties that the CIPC is responsible for are: Patent Co-operation Treaty; Paris Convention; TRIPs Agreement, Budapest Treaty; and the Berne Convention.

4.1.1. Brief Introduction of CIPC Innovation and Creativity Division

The primary focus of this division is to provide an environment that stimulates creativity and promotes innovation within the country through fulfilling its mandate which includes the accurate management of registers for intellectual property such as patent, design and film production (CIPC, 2013, 2019). Moreover, CIPC, through this division monitors the collection of royalties and regulates their distributions, via licensed collecting agencies. The division also plays a vital role in providing input for relevant government policy and advising on legal matters in relation to IP laws it administers. The administration of IP also includes ensuring that the relevant IP forms are administered in accordance with applicable systems of intellectual property (CIPC, 2018b).

The division is also tasked with the swift registration of patent attorneys who completed their patent examination board exam. Furthermore, the division drives education and awareness in relation to the basics of IP and the benefits of IP registration, and in providing means to assist in compliance, enforcement, and commercialisation (CIPC, 2018b). The CIPC has developed various products in order to deliver on its mandate, the products include: IP for SMMEs programme, which assists with regards to IP education and awareness for SMMEs; The Inventor Assistance Program (IAP) as established by World Intellectual Property Organization's (WIPO), is a groundbreaking program that seeks to address the accessibility of the patent system, particularly by grassroots inventors who lack the necessary financial muscles; and CIPC Intellectual Property Online, an online portal that CIPC clients can use to access CIPC IP resources such as patent search and application (CIPC, 2019).

Since the division offers policy input and legal advice when necessary, from time to time, it embarks on conducting research to determine if there are any deficiencies in its functioning and the effects of IP rights registration. The division further pays a particular attention in monitoring usage of IP rights in an unauthorised manner in the creative industries (CIPC, 2013).

4.1.2. Participants Background Profile and Process Followed

This subsection provides a brief background regarding the participants who partake in the study.

The interviews conducted with participants who are in the core operating unit on intellectual property where the innovation and creativity division lies, and with participants from the support structures that support the core operations. Participants were invited and presented with an opportunity to provide information regarding their roles and responsibilities in CIPC, as well as the period spent in the public sector and government agencies, in particular. The interviews conducted were semi-structured, and due to the coronavirus pandemic, they were not face-to-face. Thus, various platforms were used in conducting the interviews, which include the use of Microsoft Teams, Zoom and WhatsApp.

Out of the thirty-three (33) approached prospective participants as per Table 4, nineteen (19) responded positively and participated in the study. Thus, as a results, the researcher conducted nineteen interviews with the management of Internal Audit, Collaboration and Innovation, Patent and Design Register, Copyright and IP Enforcement, E-Communication and Client Engagement, ICT Strategy, Planning and Architecture, ICT Service Delivery, Innovation and Creativity Promotion, Finance and Procurement, Enterprise Information Management and Assurance, Business Intelligence and Systems, Strategy and Planning, Infrastructure Management Services, and four specialists. Among the four specialists, three are from the patents unit and two of them lead special projects, and the fourth is from the Security and Facilities unit and is managing various projects. All the envisaged participants as per Table 4 were approached for interviews. Table 7 shows the composition of the research participants who respondent positively and grouped according to their levels in the organisation.

Table 7: Summary of participants and their roles

Hierarchy	Number of Participants
Executive managers	4
Divisional managers	3
Senior managers	8
Specialists	4
Total	19

Furthermore, there were three additional interviews conducted with managers/experts from three other government agencies, namely; “the Technology Innovation Agency (TIA), the National Intellectual Property Management Office (NIPMO) and Innovation and Technology Policy and Strategy at the Department of Trade, Industry and Competition”. The experts comprised a deputy director, a programme manager and a director. The three experts work for different government agencies, and each possesses at least five years’ experience in their portfolios, thus, understanding the systems of learning (building innovation capabilities) and innovation management in their respective agencies. These three additional interviews were conducted for triangulation purposes, which CIPC was the core focus of the study.

The participants confirmed their willingness to partake in the research study and all but one agreed, before the commencement of the interviews, for the interview to be audio recorded. In addition, all the participants filled and return their consent forms for the interviews. Thus, all the interviews were audio recorded, except for the one participant who indicated that the interview should not be audio recorded.

The audio material was transcribed after the interviews were completed, which took a long time. I then looked for similar themes in the responses. Themes evolved around innovation management in public management as a result of the questions asked.

4.2 DATA AND FINDINGS PRESENTATION

This section presents the findings of semi-structured qualitative interviews with selected CIPC Intellectual Property Section staff members, a review of CIPC documents, and interviews with external experts. For every research question, the findings are described and illustrated using bar charts.

This segment summarises the findings of qualitative interviews via virtual Microsoft Teams, Zoom and WhatsApp platforms with the research participants, and also the secondary data from document analysis. A summary is provided under each research interview question, accompanied by a bar chart illustration.

4.2.1. Organisation's and/or unit's approach to new product/service development and process improvement

This section presents data regarding the approaches used for developing new products or services and improving processes. Responses regarding how the organisation deal with new product and service development and process improvement is illustrated in Figure 4 below. The approaches are grouped and arranged in an order of declining frequency.

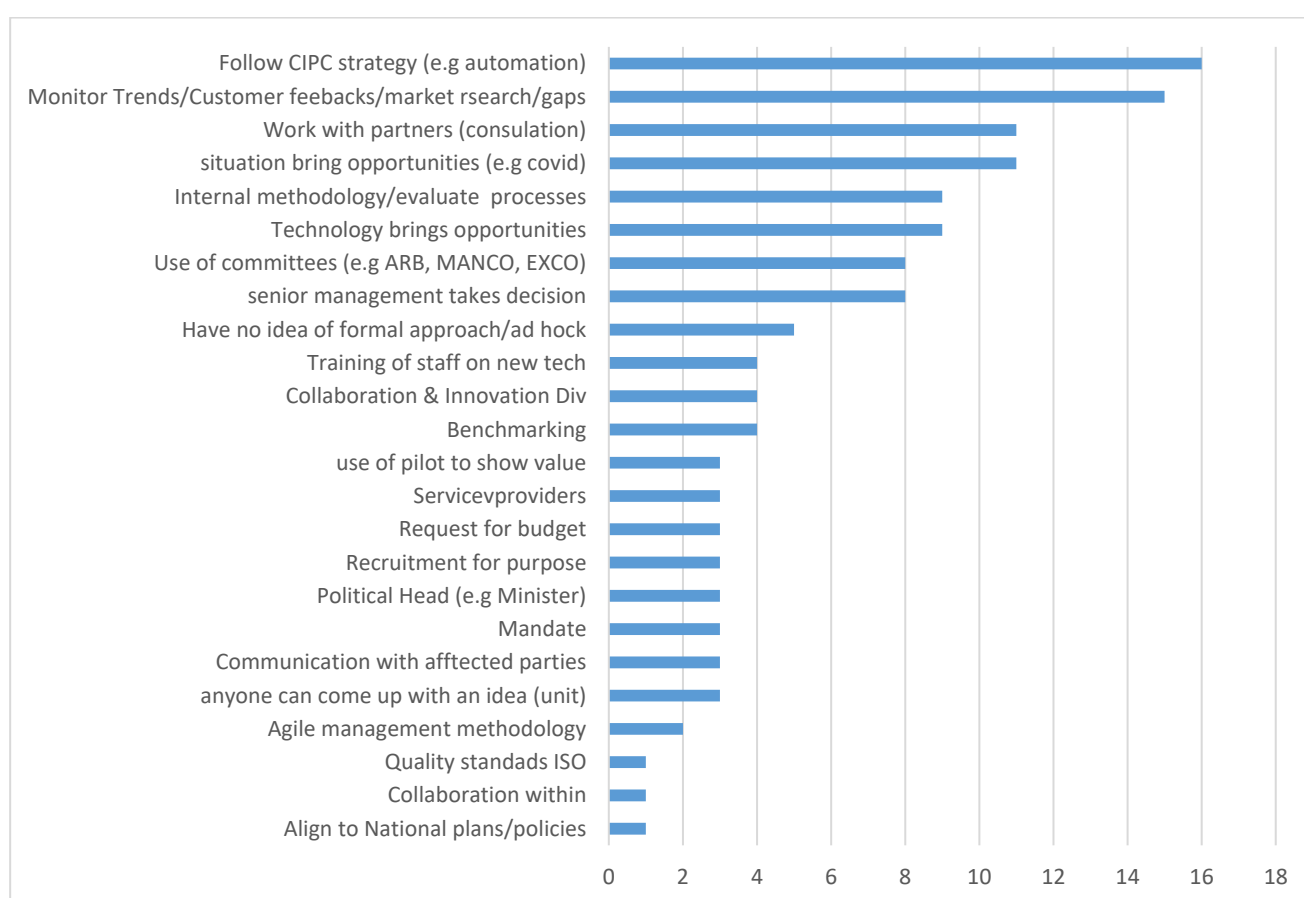


Figure 4: Approach to new product/service development and process improvement

Most of the participants indicated that the CIPC has various approaches for new products or service development and process improvement, even though they highlighted some concerns that the approaches are not fully followed and understood by all. In the main, the participants reported that the approaches used have to follow the CIPC strategic plan with an emphasis on automation, as some participants stated that:

“But in the organisation, I have seen lot of change, we have seen people appointed in our stakeholder management. And we have got a very good strategy unit with some new blood in it, so definitely from an organisation wide perspective, I think we have grown tremendously in the last five years. We have never had such detailed strategy planning sessions that cut across the organisation as it currently did. We have put a lot of effort into trying to break down silos.”

“You will reckon that in an ICT environment, the strategy there is influenced by what business strategy entails. If business entails to follow a particular path, then from an ICT perspective, you need to engage and create an ICT strategy to follow that business strategy. So, the approach there from the ICT perspective would be to follow the business strategy there”

“So the way innovation is dealt with is to make sure that IP is protected in SA. We are currently moving from manual processes to automated processes. I would say the improvement is moving from manual filing to a fully end-to-end process of using the automated systems, mainly IPAS to make sure turnaround is improved drastically”.

‘We train staff to be upskilled to be able to perform automated processes. It’s not only about upskilling employees, but also getting the right tool to make sure that all the info is uploaded to the automated system. The necessary ICT tools are implemented and ensure that we have a support structure for the new system that we are implementing, for instance the IP/ICT specialists that have been appointed, to ensure that the system runs smoothly, to be on board

to deal with any kind of queries that may arise from the implementation of the system to ensure seamless immigration”

The participants also highlighted that the approach to product and service development and process improvements also follows monitoring trends, getting feedback from customers, conducting market research as well as responding to the environment.

“We follow the Agile project management methodology, i.e. we seek a solution to problems/challenges/gaps and involve all stakeholders from the onset and deliver on that. Minimum paperwork, more delivery. Let me give you an example, some time ago, when CIPC was firstly established, customers were asked about how they would like us to interact with them. Some mention they would like us to have an ussd services, online services, more chat services. So what was inevitable at that time was to introduce the ussd service.”

The participants further indicated that, firstly if there is a problem statement that has been identified or an area that has been identified as a potential innovation area that may help to enhance CIPC products and services, they take it through internal processes. Means of identifying areas of interest include marketing, market research and also looking at the studies from similar organisations for similar type of products or services in terms what they are doing, where they are, and how they approach some of these matters. Then based on the problem statement, they interrogate what the problem is, and then come up with an action plan in terms of how to approach it. Then thereafter taking the action plan through internal processes which involve taking it to the management committee, and ultimately to the executive management committee that would actually have to make a decision in terms of rectifying or approving that kind of product or services or that kind of process that has come and took place.

However, even though they indicated that there is a governance structure in place, they also highlighted that there are no formal processes in place, and in most cases, decisions get taken by management, and staff members are only informed when there

is a new system or technology to be introduced. For example, some participants stated:

“There is no formal process in place, but we look at for example, if there is control deficiency. We identify inefficiencies and we look at the reason for those, and what we can do to ensure that control deficiency doesn’t reoccur, if there is inefficiency, doesn’t reoccur as well.”

“For “our area”, the decision was taken by the senior manager as he wanted to micro manage the staff. It was a top-down approach as staff was just informed of the new system, as they wanted to track the work done by staff.”

According to CIPC annual performance plan, CIPC has a process for developing a plan for service delivery improvement (CIPC, 2019). It starts with a review of the previous financial year's results. This is based on the Operational Performance Committee's (OPC) review of monthly service levels. Managers are consulted for feedback into the re-evaluation of their service levels and goals. Following approval, this committee (OPC) deliberates and recommends to the executive committee that the reviewed performance and new priorities be approved. It is clear from the CIPC documents that basically it is the management that deals with product/service developments and process and other staff members are not involved. The specialists who were interviewed indicated that they are not aware of the CIPC approach in this regard. Some participants stated the following:

“Have no idea of approach.”

“If there are problems like fraud, they try to solve the problem when they exist. But there is no process in place, it happens on ad hoc basis”

Since staff members are not involved, they may construe developments from their gathered perspective, for example:

“the decision was taken by the senior manager as he wanted to micro manage the staff. It was a top-down approach as staff were just informed of the new system, as they wanted to track the work done by staff.”

Also, the additional participants from other government departments/agencies concurred with the views of CIPC participants that the approach they follow relies on their strategies. For example, one participant alluded to the fact that:

“We work, we work with institutions and to know what to provide in order to come up with new providers to provide services. So I can say each and every financial year, we develop new strategies that are informed by our long term strategy”

They also alluded to the fact that that they do a gap analysis to understand what the need out there is, in terms of what they offer, and whether there are any gaps that they may want to close or the challenges that need to be addressed. Then after the gap analysis, if there is a good understanding in terms of what are the gaps that exist, they would actually go on and conduct or do planning with respect to available resources, while functioning within the boundaries of their mandate.

The findings, as seen in Figure 4 above, illustrate the processes that were commonly used within the Unit. This is not to say that the approaches with smaller frequency are not as important as those with high frequencies. For example, a political head such as a minister may approach the commission to develop a particular product or service. One participant stated that:

“The president came to the minister, the minister came to the commissioner to say we need this thing for investors. Bizportal to coordinate across government entities”

4.2.2. Monitoring and exploring emerging trends, and developing alternative scenarios that seek to address either threats or opportunities

The participants were asked whether the CIPC has a systematic way or process in place that is aimed at actively monitoring and taking advantage of emerging trends and embark on scenario planning to anticipate different futures in relation to either threats or opportunities. The participants' responses are illustrated in Figure 5.

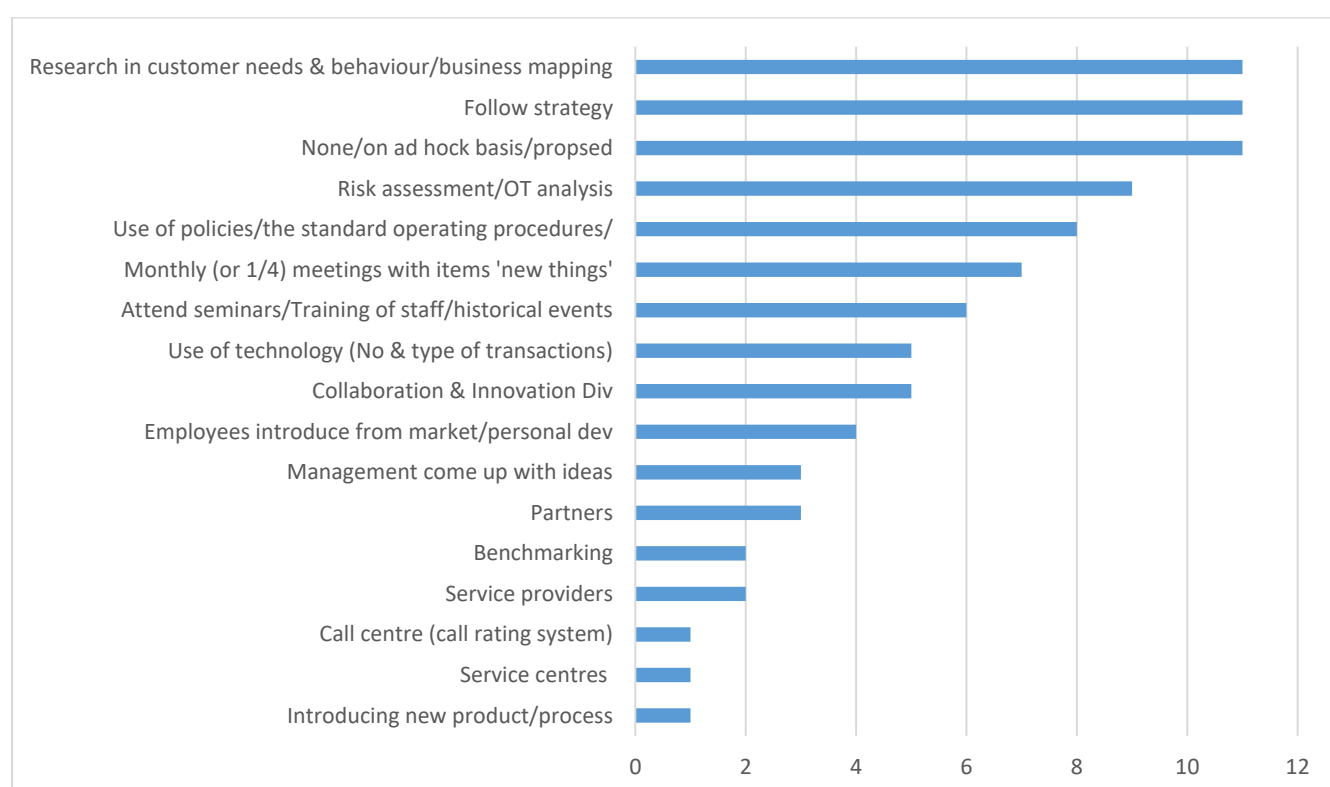


Figure 5: Monitoring and exploring emerging trends, and developing alternative scenarios that seek to address either threats or opportunities

Most of the participants indicated that there is a process for monitoring trends at the CIPC, which includes conducting research on customers' needs, making use of strategy, reporting on meeting monthly or quarterly, attending seminars, benchmarking and the use of technology to monitor transactions among others. They have also mentioned that there is a specific division within CIPC that focuses on collaboration and innovation. The monitoring is also reported to take place at different

structures of the CIPC, which include walk-in centres. For example, some interviewees indicated that:

“The same would also apply to our customers at the centres because there is a personal face to face interaction. We’ve got reports that we draw on a weekly and monthly basis that actually tell us in terms of threads and opportunities, the number of transactions we make, what type of transactions we make, what are the dominant areas that we need to concentrate on, what are the problematic areas, and if there are any other opportunities for CIPC to extend its products and services.”

“The unit has an organic approach to staying abreast, but this emanates from the organisational strategic formulation process. In our organic approach, we do research into customer needs and identify trends from customer behaviour, benchmarking with others etc. we do specific research to customer needs and their behaviour. We do research twice a year, we also attend seminars to get trends, and we also do benchmarking with other similar organisations worldwide.”

Also for strategy developments, there would be strategy sessions where executive and senior manager would attend, including labour representatives. They highlighted that in those sessions, the main thing would be to discuss the trends and the impact that they have on CIPC. In looking at the trends, they do not only consider what would destabilise the organisation, but also look at opportunities, like thinking ahead to suggest that where a trend is being noticed, the opportunity could be used to provide services in a particular way. One participant indicated that:

“So, the process is, at the strategy sessions, the executive and senior managers would present from their perspectives from different functions to say these are the trends, this is the environment, this is what we see in the environment. This is how it would impact the organisation. so that’s the process, and then what happened after those sessions, then as a strategy division we go and sit down and write a strategic plan, and the APP. And you also have a business plan and an operational plan. Where the

manager would go with whatever was agreed to on the strategic session and put it in the operations plan. In preparation for the strategy sessions, the managers must collect data and come and present it at the strategy sessions. And from there, that is captured in the strategic plan, APP and the operational plan. Also, on a quarterly basis, they must always write up their environmental analysis; observing and learning from the environment and how that has been affecting CIPC functioning.”

The participants from other government agencies also indicated that they have a way of monitoring and exploring trends. Whether that method is systematic is unclear, however. The method that they used was such that during the planning phase of every single year, it becomes part of the process that there has to be an analysis done to understand the space, the innovation system at the national space in particular, to understand what the emerging trends are. A participant from TIA indicated that:

“We have a unit called intelligence research in intelligence, their role is to actually collect information and make sure that they are in tune with what is happening. And also through that, you need to have access to various platforms where they can actually source information. And sometimes in order to do that, rather than this, business units themselves also being clued up to the specific investment that they are working on and especially engaging with other people, engaging with stakeholders generally.”

Equally so, some participants indicated there is no systematic way or process of monitoring and exploring trends. Their feeling was that it happens on ad hoc basis and by the managers, where staff members are not directly involved. However, some indicated that there is an organisational design (OD) process that the organisation is undergoing to make it responsive to the current environment. Some indicated that even though they do not have a systematic way really, and it is part of discussions in the strategic sessions, where they look at what is happening, as the world is generally disruptive, and it does not favour static ways. A need to be agile has been identified in order to serve during this period which we are living in as currently CIPC follows their strategic plan for 5 years, which specifies what should be done. However, it was also identified that there is a necessity to create a research capacity unit in the IP section to be able to monitor progress and the effect of the organisation’s education and awareness programs. One participant alluded that:

“Yes, I would say yes hesitantly, because this is an initiative that we are busy implementing currently. So, there is no active monitoring with regards to business value that is taking place at the CIPC. Monitoring is happening where operational and technical tools are concerned. It’s only now that we are implementing an intelligence system that will help with that monitoring. Monitoring business value, monitoring business-oriented challenges with the interest to identify opportunities or detect threads. So, it’s not happening now, but it will happen in the near future.”

The specialist participants also shared the sentiment of the lack of a systematic way to monitor and explore trends and that it might be a work in progress presently as one participant indicated that

“Honestly, as far as I know, I don’t think there is. I don’t know. But, within the patents unit, such a need has been identified. And there is an initiative to actually acquire skills that will enable the commission to identify particular trends within the patent space. Initially, what has to be done, is that people have to acquire relevant skills in order to be able to conduct studies on global trends. In what technical skills/fields in which patents are mostly filed, and which companies.”

The above information indicates that there is different knowledge and understanding regarding CIPC processes and there is no systematic way of information coordination and dissemination. Thus, information in most cases does not cascade to lower-level staff members and also management has contradictory understanding.

4.2.3. Customers (both existing and potential) an integral part of the innovation process

Figure 6 below illustrates the mechanisms that the CIPC mostly used for involving customers in their innovation process. Most of the participants stated that customers are indeed vital in the innovation process and shared the mechanism they use in this

regard. Some of the participants also stated that there are means for identifying the customers both expressed and unexpressed needs.

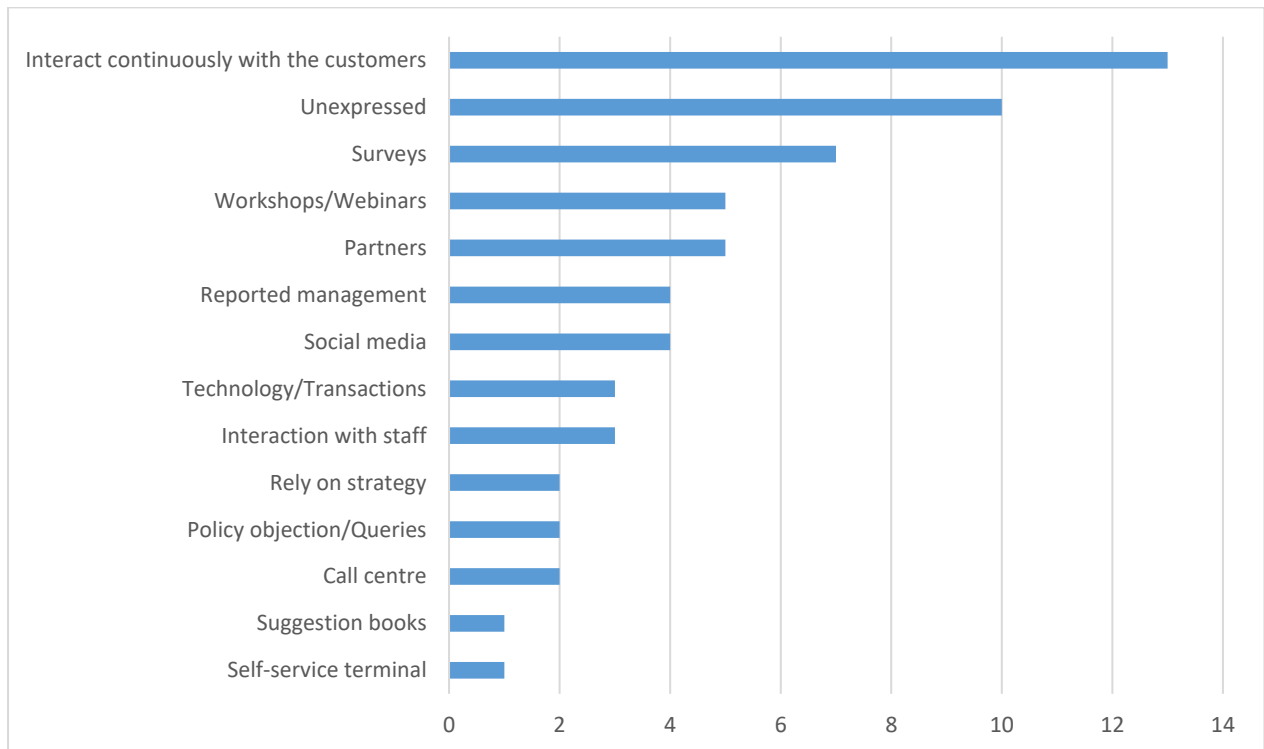


Figure 6: Mechanism for Customers (both existing and potential) forming an integral part of the innovation process

The majority of the participants indicated that there is a process of interacting with the customers continuously. They mentioned that customers are actually a very important part of that, because they deal with the products and services on a daily basis, such that they know what works for them, and they know what does not work for them. So, they will be a very important integral part in terms of giving information and even coming up with ideas, at times customers come up with new ideas that the organisation has not thought of, in terms of how to handle their services. The participants also indicated that they expressed their needs, but they are also able to detect the customers' unexpressed needs in terms of the transaction that is dealt with and processed through on a daily basis. For example, an articulation from two participants:

“Yes, for our organisation, we have what we term client liaison section, where we do webinars and we are present on social networks. This is on top of the standards website and web systems for transactional. There are informal webinars and social

media platforms where we are present and engaging our customers. So that on its own gives us a perspective into what their experiences are, how can their experience be enhanced, as well as the suggestion that you can get from them in terms of how they could further get an enhanced customer experience.”

“Yes, they are an integral part of the innovation process. That’s why we have webinars, that’s why before covid we had a team that moved from province to province to talk to our customers or our potential customers. To ascertain whether the service we are delivering is of any value to them. To actually assess what else, to talk about how else we can deliver this. Whether what we think is important is indeed important.”

Some participants further indicated that they engage customers through either surveys or social media. They also monitor and see customers’ frustration from social media and other platforms such as hello peter and then through the frustrations, they are able to detect customers unexpressed needs.

“This is something that is led from the strategy division or unit. Every three year or two years if I am not mistaken, there is a survey that is conducted to the customers to find out their satisfactory level about the services that we offer them. So, whenever that is conducted, the survey itself would be more inclusive of all areas of CIPC business. So, in that regards, we sit down as the management and look at the response of the customers. So, each and every area where we are not doing well as CIPC, we ask ourselves, what is really needed to improve the customer experience in this area, and available tools or techniques that we can employ to help us improve in that area.”

The additional participants from governments’ agencies/unit indicated that they hardly involve customers in actively trying to understand what is it that they need, and they believe that this is mostly in a public sector kind of setting. They emphasised that they are mostly guided by strategies that support their respective sectors, and also driven by the resources availability, particularly money-wise. So, it is not mainly on what the

customers are looking for, or what customers are doing, it would be mostly focused on where the money is and where the national priority strategies are focused on. Because where the national priorities and strategies are, that is where the money is.

“I think right now we have a very poor input structure because input happens only when we're still developing the policies, like the commercialisation strategy when we were developing it, we commissioned a study for that one. So there was, there was a study that was commissioned and we developed this particular strategy, but that's what ended, so whatever it is that we're implementing now is based on the strategy, and I feel like sometimes, it must be an ongoing thing, but no”

The CIPC annual performance plan highlights a service delivery improvement plan (CIPC, 2019). The plan indicates that customer surveys and report produced from the surveys are used to measure and as an indicator for customers' satisfactory level. The plan does not go into details regarding the surveys and their frequency

4.2.4. Stakeholders involvement as an integral part of the innovation process

Figure 7 below illustrates the mechanisms that the CIPC mostly uses for involving stakeholders in their innovation process. The participants indicated that stakeholders are indeed crucial in the of the innovation process and shared the mechanism they use. Some participants indicated that the agencies rely on partners to deliver some of the products and services they are mandated to deliver.

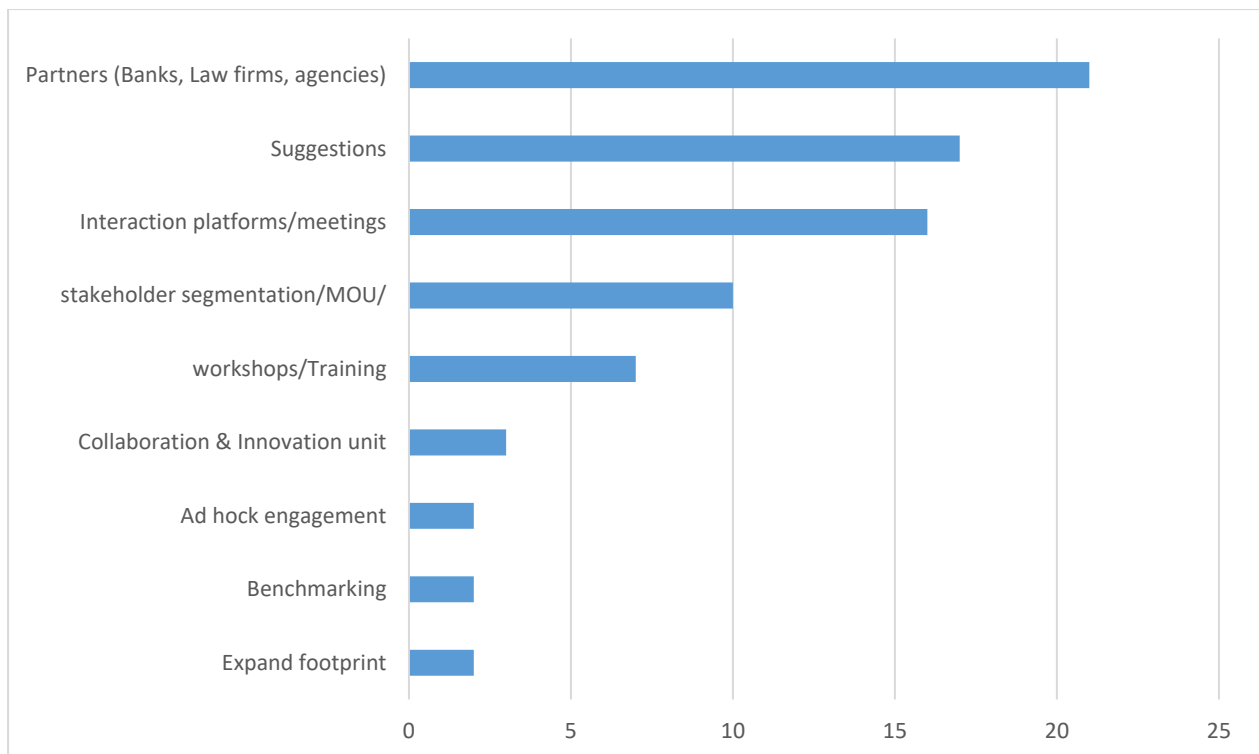


Figure 7: Stakeholders involvement mechanisms as an integral part of the innovation process

Some participants indicated that mostly, as a state agency, the stakeholders are primarily other state agencies. However, they have what they term call collaboration partners which include the law firms, banks and other organised groupings such as Doctors without Borders. They also mentioned that in order to increase CIPC footprint, the make use of collaboration partners as well, as another channel of further spreading their services. In that particular fashion, stakeholders get an opportunity as well to be in the innovation process and assist continuously to implement or provide innovative ideas or the suggestion that they come up with to improve the processes. There are platforms for engagement in terms of quarterly meetings, and partners such as law firm can engage CIPC in terms of what they think will provide better services to customers. Then internally suggestions or ideas get taken forward to see if they also comply with CIPC own governance before taken through to possible implementation.

The participants also mentioned that they also collaborate with international stakeholders such as WIPO and the BRICS grouping, which assist in improving CIPC service offerings. They mentioned that WIPO is useful as they can actually share with CIPC what other IPOs are doing, such that CIPC may actually take best practices,

instead of finding solutions from scratch. In this kind of partnership with the likes of WIPO or BRICS, CIPC is able to ask for and share information. One participant alluded:

“So, stakeholders are very important, they help us in terms of making sure that we are efficient and we do not waste time doing things that have already been done in other jurisdictions. For instance, the BRICS, we have a BRICS platform, we have topics there, we meet every year physically, but now we meet virtually. We have coordinators during the course of the year. We share input, we can ask questions during the course of the year, of what we want to know, of how the other offices are dealing, we can share information, by email and so on. With WIPO, it’s meetings through the year. We have meetings where patent registration improvement can happen. Where all the members come together and discuss the ways in which we can improve. So WIPO is another formal place/institution that brings all IPOs together to deal with all IP domains.”

Some of the interviewees also indicated that they do stakeholder segmentation where they have different types of stakeholders, which include private companies, banks, government itself, government departments, and government agencies. They basically work with stakeholders on a daily basis. For example, they indicated that in their service centres, customers use the home affairs biometric system to access their services. So, in everything that they do, they have a close relationship with their stakeholders in terms of how they implement projects, and they work on guidance and service level agreements or memoranda of understanding/association with the stakeholders that actually guide partnerships. In addition, some participants mentioned that CIPC has collaboration and innovation unit that assists with working with stakeholders even though different units have their own stakeholders that they deal directly with. Some feel that there is a need for a coordinated stakeholder engagement program such that there is a stakeholder database. Two participants mentioned that:

“Stakeholders are categorised based on their role and based on this, different approaches are being followed in engaging them. The larger business want different things from grass root stakeholders. Through stakeholder segmentation exercise we are able to understand stakeholder needs”

“Although at the moment I still have mix feeling that there is still lot that needs to be done in terms of that area, within the CIPC. Stakeholder management is handled at different areas, innovation unit have its stakeholders, companies, they have their own stakeholders, and copyright have their own stakeholders, so everybody else they are running with their own stakeholders. I believe in a long run, all these stakeholders need to be integrated into one area, they are one thing and have actual have access to stakeholder database and able to know what one person does with their stakeholders.”

The additional non CIPC participants also alluded that stakeholders are an integral part of the innovation process. So, the stakeholders, they are part and parcel of the innovation process of ensuring that challenges are identified and improvement are developed to address those challenges, and they have entered into various agreements with stakeholders that are not really binding, but help in ensuring that they work together in a formal process setting. They also indicated that there are governance structures to deal properly with stakeholders. However, there is a lack of laid out formal process for stakeholder management, so it depends on the business units to figure those out for themselves because on the basis that they understand their stakeholders much better. One participant alluded:

“So there is a way we do our own consultations and our own engagements, but there isn't any formal process laid out to say, these are some of the steps that you need to follow in order to engage and take into account input from input from stakeholders. The only formal one is the benchmarking study that we do. And when they are benchmarking, then there are quite specific stakeholders into that.”

The CIPC on their strategy had indicated that the plan to have an annual customer and stakeholder satisfaction survey and to develop a stakeholder management strategy (CIPC, 2018b). The strategy also indicates that the CIPC should forge and exploit synergies between different government departments and their agencies for the handling of intellectual property related issues to identify and implement improvements.

4.2.5. Organisational culture

Figure 8 shows the culture of CIPC with respect to its general mind-set, approach to collaboration, its decision-making style or way of responding to change. The responses are shown in Figure 8 in decreasing order of frequency.

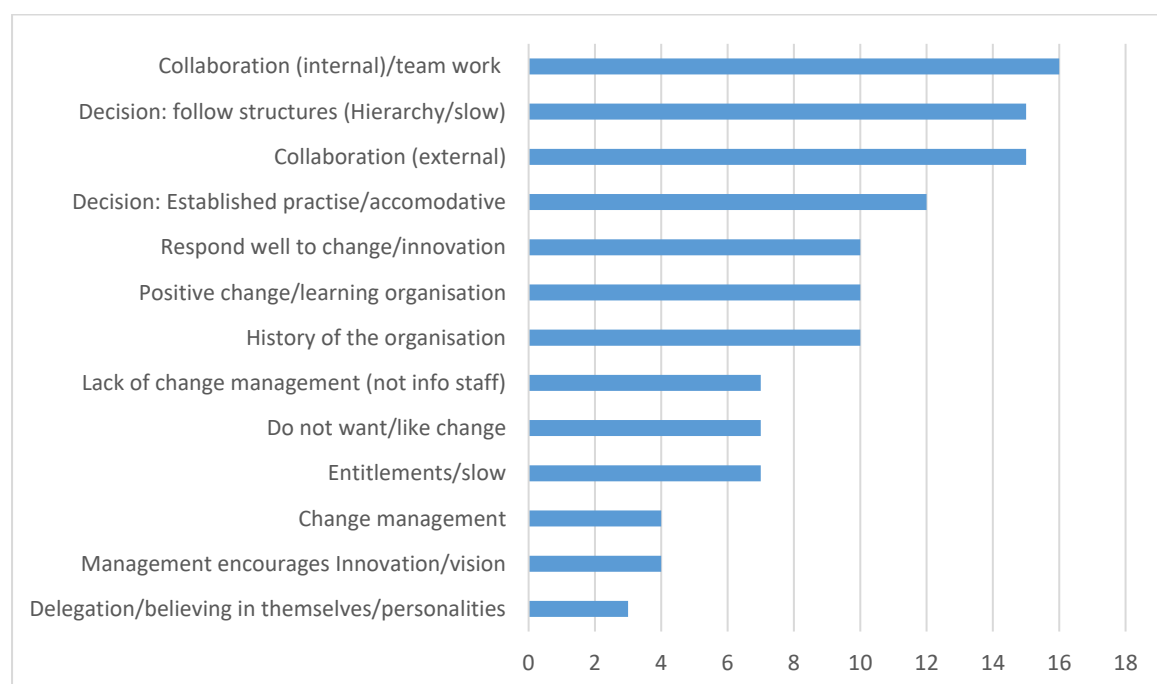


Figure 8: Organisation's culture

Most of the participants responded that collaboration is a key value of the organisation. Collaboration internally amongst different units ought to work together for the organisation to flourish, and also with external collaboration. In terms of collaboration

with external partners, the CIPC is viewed as open to collaborating with anyone and anyone who avails themselves for collaboration. Collaboration can come from all levels, it can be individuals collaborating with individuals with other units within the CIPC, with other departments. But it can also be at the organisational level. For instance, there have been MOUs that have signed between the CIPC and the EPO. The collaborations assist the CIPC in terms of their improvements as one participant stated:

“For instance, I know being part of the BRICS countries, we sit in certain platforms and we work closely with other BRICS countries on issues of policy formulation. But also in terms of general training of staff, particularly within the patents unit, there has been training offered by BRICS countries to the CIPC staff.”

In terms of responding to change, there have been mixed feeling, some saying the organisation is receptive to change as it responds positive to change and has got managements/leadership that encourages innovation. However, others responded differently, saying it is difficult for the people to accept change due to a lack of proper change management, and it also takes time to implement which could be attributed to resistance to change and bureaucracy. For example, two participants stated contradictory views from each other:

“I think CIPC is adaptive and always looking for continuous improvements and we compare ourselves with other international offices to make sure that we adopt to the latest developments and ensure that we are always continuously improving our operations on an ongoing basis. I can say it is a learning organisation. We embrace continuous improvement, we are not static. We have lot of collaborators with stakeholders and with our counterpart internationally. Internally, we do not operate in a silos mind-set.”

“Generally, staff members are not always informed properly or the impact of changes on staff are not taken into account, therefore employees sometimes react negatively towards or are wary of change. Staff sometimes have apathetic mind-set because of lack of communication in organisation.”

In term of decision making, they responded that is quite accommodative but has some gripes as the pace of doing things is quite slow, in term of how quick decisions are made. They indicated that for the CIPC, it is normal for the decision to take up to three years before it gets implemented and, in most cases, due to administrative delays. In addition, CIPC is reported to be hierarchical and emphasising of following protocols. Some decision can be made on unit level by individuals, but more important decision would be at the organisational level, thus top-down approach. In the top-down approach, most of the time employees are not involved in decisions making.

The non CIPC participants also shared the sentiments of some CIPC participants that change is not managed well as there is a lack of communication and also that bureaucracy affect decision making particularly in terms of CIPC. In terms of collaboration, they mentioned that they rely on external collaboration in order to fulfil their mandates and improve on service delivery. However, the pointed out that there are challenges with regards to internal collaboration where at times they find out from the outside world about project taking place internally.

“I mean, within my organisation in terms of collaboration, we actually realise that there are a lot of silos. And it's a known fact, it's known by all stakeholders that is one of silos that happens internally, that and it's one area that we have been actually tagged on to say that there should not be silos. So at times there are different units that are doing things that are supposed to involve the other unit, but in in most cases will fail and end-up hearing from the external stakeholders.”

The CIPC strategy mentioned that CIPC should foster a culture of innovation and that is customer centric (CIPC, 2013, 2018b). Since CIPC was a result of amalgamation of two entities, it is still undergoing a transformational change. The transformation process necessitated the CIPC to embark on a strategy to aid the development of the requisite internal resources such as knowledge, skills and revamping the culture as well as mind-set. The CIPC documents related to strategy recognise the need to strive for a culture that that promote innovation at all level of the organisation through a reward system and a functional operating model (CIPC, 2013, 2018b, 2019). It is also

part of CIPC strategic objective to expand its collaboration and partnering with other government agencies which include the likes of SARS, NIPMO. Also part of the CIPC corporate values include internal collaboration where they believe that teamwork and collaborative effort is necessary for improving service delivery. It appears from the participants' responses that there is a need for the CIPC to properly operationalise their strategic objectives in this regard.

4.2.6. Agency's organisational processes and functional frameworks

The participants were asked to elaborate on the agency's organisational processes and functional frameworks (or a potential development of such) and allocation of staffing, resources and management that are adequate to support innovation initiatives. Their responses are depicted in Figure 9.

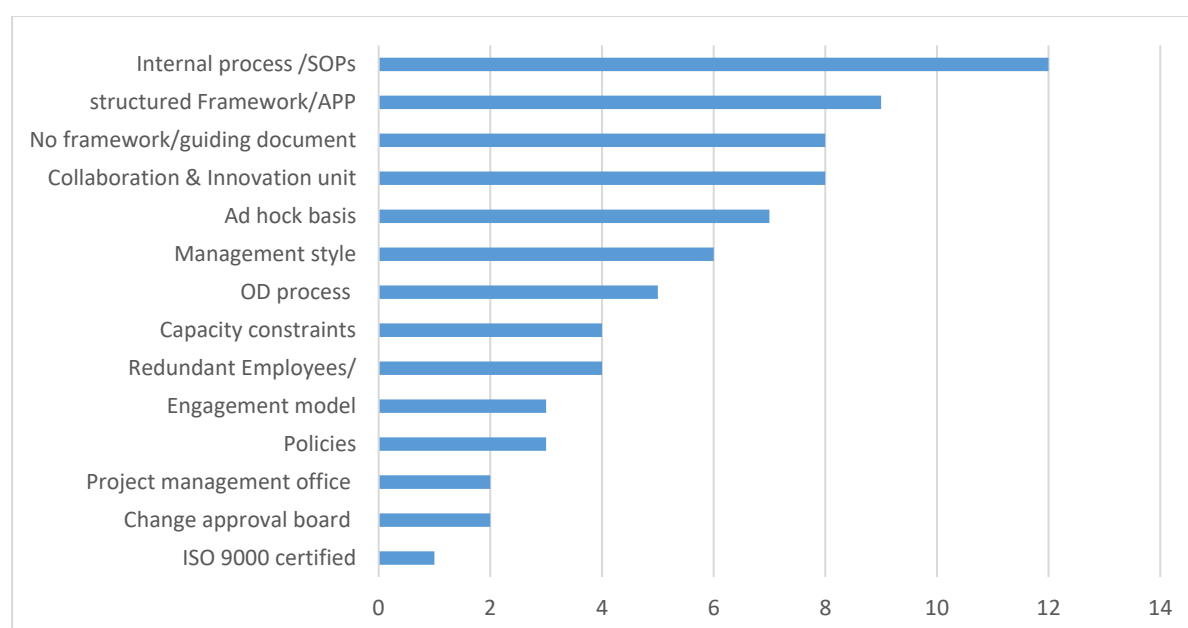


Figure 9: Agency's organisational processes and functional frameworks

Some participants in the main indicated that there are organisational processes, which in general are the governance structure. For instance, they mentioned that when they implement a change, there is a change approval board as a body and there is also an engagement model that had been implemented. The engagement model is a

collaboration tool that the CIPC uses to engage, for its employees to engage among each other, and, for different units, or technical or support units to engage with business. So, the change approval board is on the other end. When a change is implemented, the change approval board decides on how this thing adds value to the CIPC and whether it should be absorbed into the tool set of the CIPC. So, in this instance it shows that the starting point is the engagement model process to foster change and then the change approval board comes in latter to assess if the desired results are achievable.

Others added another perspective that firstly, there is a business plan. The process is, if there is a project or a major project, it should be on the business unit business plan. Then it would go from there until the organisation business plan, and from there to check if there is a budget for it. It would be prioritised if there is budget for it, obviously budget would be allocated. Once budget is allocated, the timing among other things sit with the unit that is leading, allocation of staff sit with the unit

“We have the management committees that look at the suggested or requested allocation of funds. But mainly what will determine whether resource or staffing is going to be allocated, would be our strategic objectives first. We would firstly develop our strategy then we identify the objectives. Then based on that, then the management committees would approve the allocation of such so that they are adequate to support the innovation initiatives. So the innovation initiative should talk to our strategy first and then we allocate the resources to those initiatives. It has to be the strategy as well as the mandate of CIPC.”

Even though there are those mentioned internal processes or governance structures, some responded indicated that there is a lack of structured functional framework and allocation of staffing and other resources takes place on an ad hoc basis.

“In terms of the patent examiners, if we got a project that comes in, a short term project, we look at individuals that have got skills in that line and allocate them in relation to

their skills and capability in that projects. It is an ad hoc decision making, and I don't think there is a framework in this regards."

The CIPC strategy (CIPC, 2013) emphasises that the CIPC was established through the Companies Act, while at the same time the CIPC administers the Companies Act. Thus, the CIPC embarks on its mandate as a registry and regulator of various Act earnestly, and as a result developed frameworks to guide governance and the formation of various committees in this regard to assist the accounting authority, the Commissioner. Moreover to the governance structures, the CIPC also has various policies that also enhance its operative direction, the policies include: performance management policy, rewards and recognition policy, recruitment policy among others.

The additional participants also indicated that their organisations have policies, processes and framework on almost everything. The documents seek to guide them, how best to perform their functions in relation to resource management, for decision making such as for hiring or recruitments. They also mentioned that they have established standard operating procedure for each and every service or product they offer.

4.2.7. Innovation-related targets and measures

The figure below shows the mechanisms used by the CIPC for targets identification and how they get measured. The participants stated that the CIPC has a variety of targets set and there are measures in place for some, while for other targets are not entirely dependent on CIPC and it is difficult to measure such targets. Figure 10 below shows the responses in decreasing order of frequency.

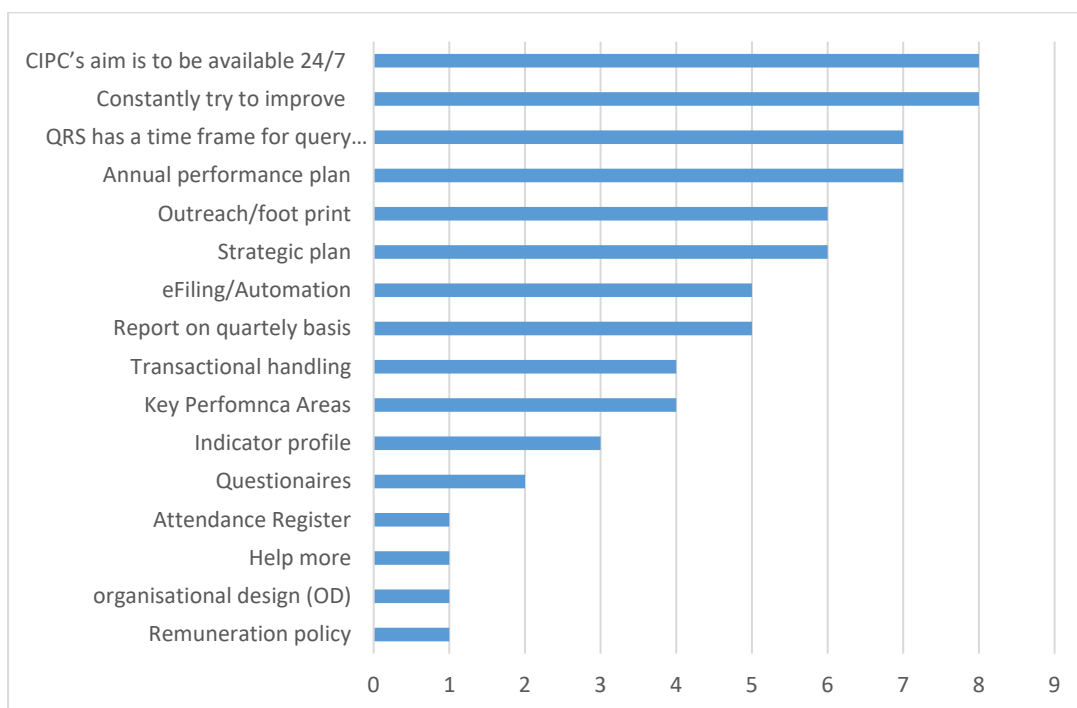


Figure 10: Innovation-related targets and measures

Most of the participants mentioned that on a yearly basis, the CIPC develops an APP (annual performance plan), which is a main document and is also a public document and is an official document. The stated innovation targets include to achieve 24/7 access to CIPC services, to increase the outreach of CIPC services to clients, to enable the CIPC staff to work from everywhere, to improve on efficiency in terms of turnaround time for CIPC services and products. One participant alluded to the fact that:

“A good one would be a percentage of our services that have been in our APP for years and we always try to do better. The percentage of services that are available on line 24/7. Remember CIPC came from a paper-based environment where things were done on paper. And now what we are doing is to move it to online platform. So, what percentage of services every year we are moving online, and thereafter, because it’s online it’s available for 24/7. So, that’s one of the targets. I Think if you talk of innovation related targets, it’s also efficiency, for example, our turnaround time with regard to CIPC service.”

On the ICT side which support the IP division among others indicated that their targets include keeping the systems and availability at an acceptable level for business and the country at large, to do business or transact with the organisation. In this regard, there are key standard sets on the network standards, where the network has an uptime of at least 95 %, the server environment to have an uptime of about 96 % and the website of about 98 %. So the measure in this regard is that standards where they need to make sure system availability of the 95, 96 and 98 % different categories, thresholds are maintained. And this gets reported on a quarterly and a monthly basis to the audit committees in the operational plan reports, and it is done against the annual performance plan.

Some of the respondents mentioned that there are targets set but they are difficult to measure which relate to footprint and outreach. On the outreach side they indicated that they plan to increase the number of self-service centres CIPC has around the country, through collaboration with stakeholder partners such as the chambers of commerce and things like that. Even though every year there is a set target to increase CIPC footprint and making its services more accessible, it is difficult to measure this target. One participant made an example with one of CIPC products, known as IAP (Inventor Assistance Program) which aims at addressing the accessibility of the patent system particularly by grass inventors who lack the necessary financial resources:

“In terms of IAP, there is no numbers I can say the program is aiming for 10 or 20 approved applications. The programme constantly tries to improve and increase the number of people who are helped through the process. So, each year we look at our past number and try to look at how we can help more applicants. So we look at processes and ways on how we can help increase our numbers of intake through the program. The target is to help more people than the previous year and that’s it.”

On the CIPC five year strategic plan (CIPC, 2018a), there are some targets that are stipulated, of which some are shown in Figure 11. It appears from the participants

responses that they are aware of the target and are in motion in terms of implementation. However, the challenge might lie with measurement.

Goal/Outcome	Strategic Objective	Output	Performance indicator/measure	Audited Actual Performance			Estimated	Medium Term Targets		
				2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Reduced administrative compliance burden for companies and IP owners	24/7 access to all CIPC products and services.	Increase % in website performance for e-services 24/7	% website performance for e-services 24/7	92%	96%	95%	94%	93%	95%	95%
		Increase in % of CIPC services with option to file electronically compared to manually filed services	% of CIPC services with an option to file electronically compared to manually filed (See Annexure C)	-	18%	20%	26%	27%	28%	50%
	Intelligent, innovative, high performance organisational environment.	Increase the score of the customer stakeholder value index	A score between 1 – 10 of the customer and stakeholder value index, a higher score indicating satisfaction with the CIPC	-	6.3	6.95	7	Not measured	7.5	8
A reputable Business Regulation and IP Protection environment in South Africa.	Increased knowledge	Increased IP knowledge and awareness	Number of education and IP awareness events conducted by the CIPC	-	-	23	30	30	40	40
	Improved compliance	Increased IP knowledge and awareness	Number of education and IP awareness events conducted by the CIPC	-	-	4	6	6	8	10

Figure 11: CIPC five year strategic plan targets

4.2.8. Organisation/unit targets achievement

Participants were asked if the organisation/unit regularly achieve its intended targets and outcomes, and there were mixed responses where others stated that at times they exceed the targets, while others stated challenges which make them to fail to achieve those targets on regular basis. Figure 12 below illustrates responses from the participants in descending order of frequencies.

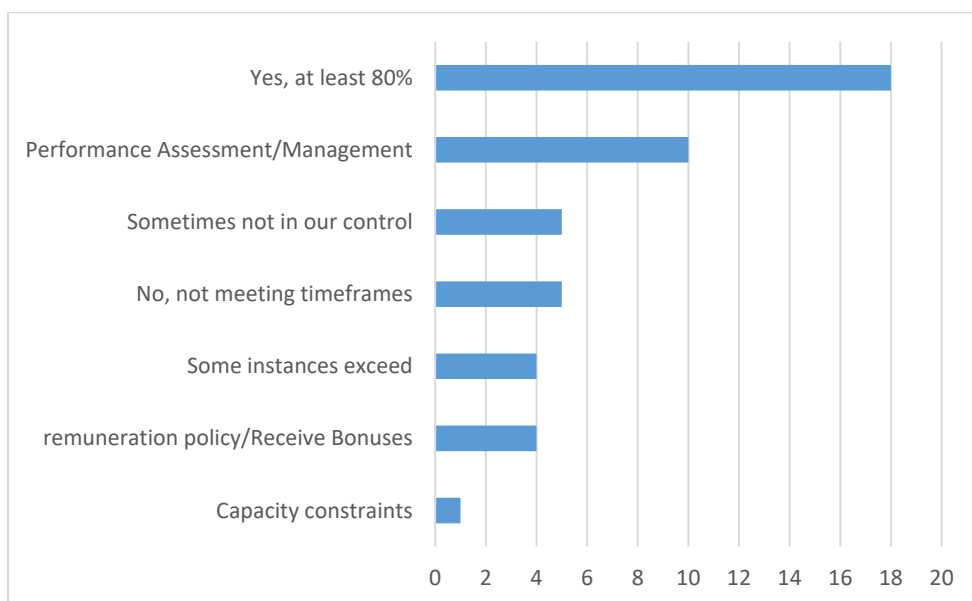


Figure 12: Organisation/unit targets achievement

Most of the participants indicated that they cannot remember when the organisation did not achieve its targets and outcomes. They also mentioned that the organisation has regularly and annually managed to achieve most of its the targets and on top of that, for a number of years, the organisation has been very bright in terms of clear and clean audit all-round. Some of the participants indicated that at times they exceed on their targets and added that they appear to be good at collaboration, and the collaboration efforts increase CIPC reach, and that assists in exceeding targets.

Some participants indicated that there are only few targets that they do not achieve, and such targets are mostly beyond their control. For an example there is number of companies or individuals that need to file patent renewals with CIPC, as it is known that if you are a client having a patent registered with CIPC, on its anniversary if it is still active, there is an annual fee payable to CIPC. So, there are such indicators as set targets that at times are not met, but it is beyond CIPC control. Such are beyond CIPC control even though somethings like customers awareness campaigns are done to show what is it expected of customers, to say if they do not pay their renewal fees, their patents would lapse. The participants indicated that they can only communicate,

but the responsibility lies with the customer, who is the one that has the obligation for paying the renewal fees.

Thus, they indicated that for targets that are dependable on CIPC, they do everything to ensure that they meet them. On quarterly basis, they report on how they are doing, and these quarterly targets accumulate to annual targets. So, if there is something that did not go well in that particular quarter, as an organisation, they come together and see what it is that could be done to correct the situation. If the CIPC does not meet their target, then there would be no bonus to be paid. So, everyone is coming together to make sure that their target are met. One participant summed up as follows:

“Yes, although some we do not achieve 100 % but consistently above 80% from 2016. Since joining CIPC, we have been receiving bonuses, because CIPC meeting their targets.”

4.2.9. Performance Improvement in relation to Innovation Targets

Figure 13 below illustrates the mechanisms that the CIPC mostly used for improving its performance in relation to the innovation targets identified by the organisation. The participants indicated the challenges that they are faced with in improving its performance at times taking into account CIPC organisational culture.

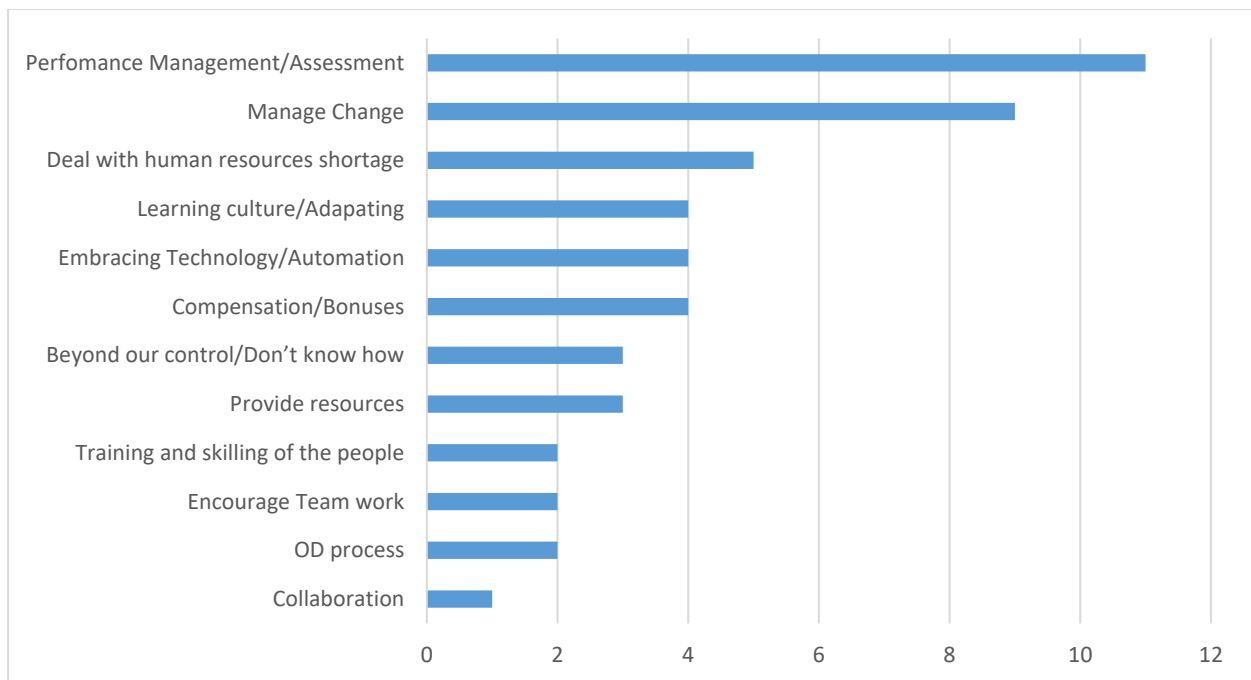


Figure 13: Performance Improvement in relation to Innovation Targets

One of the most, widely used methods for enhancing efficiency, according to the majority of participants, is performance management policy. The majority of participants indicated that the company rewards good results with a bonus and that it follows a specific scoring matrix, and that this process appears to be successful in improving performance in relations to target set by CIPC. One participant alluded:

“So, basically there are incentives with regard to performance. You set targets, you incentivise your employees to achieve them. So, that’s how we work, because the organisation has a performance bonus allowance. For instance, also your increase in salary is determined by how well you performed during that financial year.”

Some participants indicated that the CIPC is trying to improve its performance by embracing technology. Specifically, trying to automate most processes, but compared to culture, they might be bit of resistance because at first people are not open to like automating everything. People are still embracing the old way of doing things of pushing files, opening manual files. But with CIPC trying to automate most things is an indication of an organisation trying to improve its performance. In terms of

organisational culture, people slowly embrace the change of automation, with an improved change management.

Some also expressed challenges that should be address with an aim to result in improved performance. Challenges included a moratorium in terms of hiring new staff members where existing vacancies cannot be filled. They also indicated that there is currently an organisational design process that is underway which is hoped to assist CIPC improve on its performance.

According to the CIPC annual performance plan, the Strategy Office, which is part of the Commissioner's Office, is in charge of developing strategies and tracking organisational efficiency (CIPC, 2019). As part of the strategy development and preparation phase, suitable indicators that gauge the implementation of the strategy are developed as well. In this regard, the CIPC has a service delivery improvement plan (SDIP), and the SDIP follows the framework used for performance management for monitoring and reporting purposes.

4.2.10. Ensuring organisation relevance

The outcomes of the interview process are depicted in the diagram below, showing that the CIPC has processes in place to ensure relevance in the context in which it works. The findings suggest that, despite the fact that CIPC is innovating, there is a deep perception that the organisation's relevance is unaffected. The responses are shown in Figure 14 below in decreasing order of frequency.

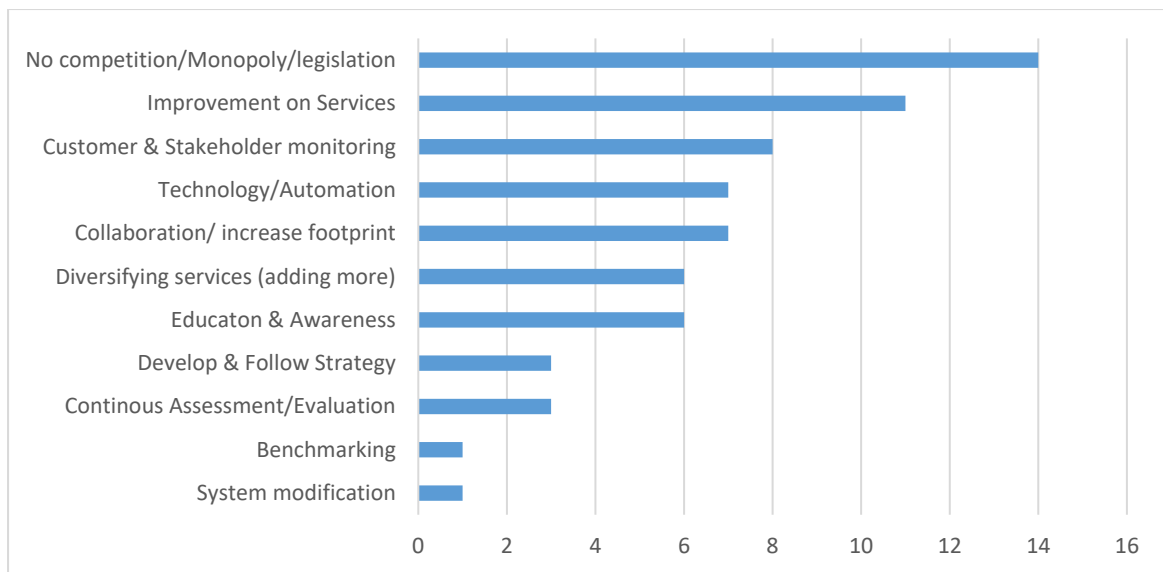


Figure 14: Ensuring organisation relevance

Most of the participants share a strong belief that the CIPC is a unique organisation that has no competition, is a monopoly and is protected by legislation and through the legislation it would remain relevant. The belief is that there is no other company nor organisation in South Africa that offers or can offer the services offered by CIPC which include intellectual property registration. Some participants alluded:

“I feel like the CIPC, mostly in the IP space, I am struggling to see how CIPC can lose its relevance because it is the only national patent office. I cannot see how CIPC can lose its relevancy in terms of its mandate, because it does not do things which are common where everyone can do it. You can only go to one place to file you patent application, it is not like there is a new private place where you can go and do it. So I don’t see CIPC losing its relevancy. I do not see competition in SA and don’t see SAPO happening in CIPC. The virtue of its mandate keeps its relevant.”

“Through legislation. Our mandate comes from legislation, so as long as the law is relevant, our mandate will still be there. Not sure other than legislation.”

However, others stated that even though there is a claim that the CIPC has no competition, is a monopoly, but they still need to make sure that they up their game, such that they do not find themselves rendering services that is not making CIPC customers happy or stakeholders happy. Thus, they are aware that at times CIPC customers would access CIPC services via third parties which is unnecessary at times. However, because some of CIPC customers are not aware, there are private people who take advantage of that and claim that it is quick and in the process charge customers lot of money, because the customer is not aware, they fall for such. Thus, they reported that continuous education and awareness in terms of CIPC processes and service is vital. In addition, they also reported that they benchmark CIPC against organisations that provide similar services in other countries for relevancy and see how they can improve on CIPC service offerings.

According to the CIPC strategic plan (CIPC, 2018a), the CIPC aims to conduct satisfaction survey on CIPC stakeholders and customers. The survey as per the strategic plan would assist CIPC in terms of expanding its footprint, increasing its customer awareness to establish an informed environment that nurtures innovation to be in a position to offer products and services that are online based as well as automated, with an aim of having a reputable environment dealing with IP registration.

4.2.11. Partnering with other organisations

The outcomes of the interview process are depicted in Figure 15, which illustrates how working with other organisations has complemented CIPC product offerings in terms of awareness and brand value. The responses are shown in Figure 15 in decreasing order of frequency.

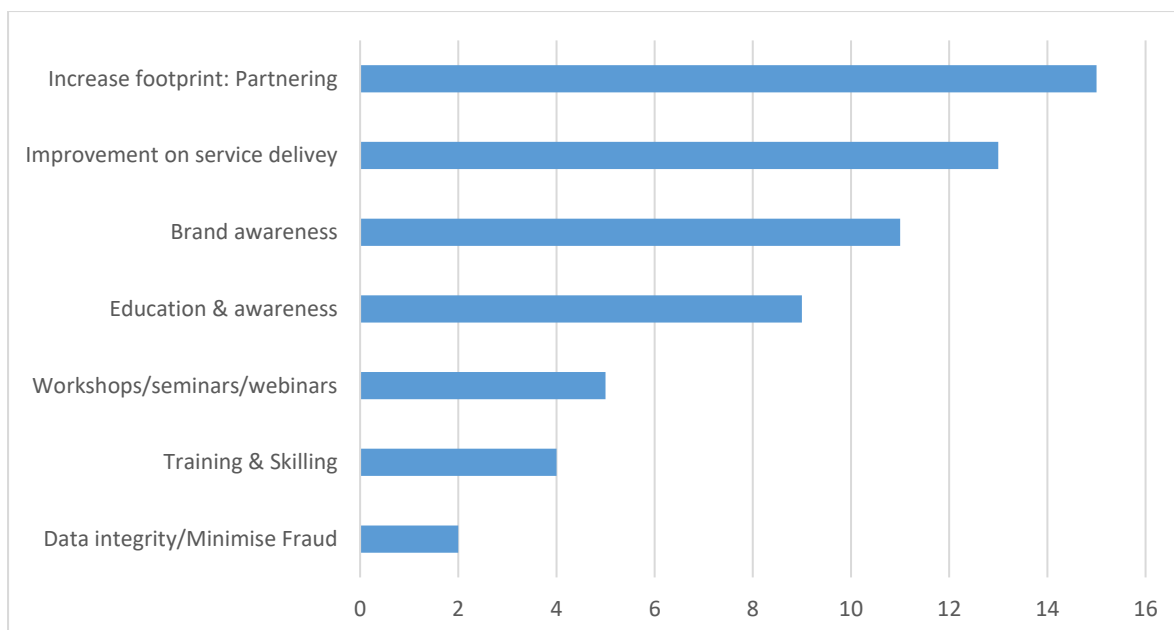


Figure 15: Partnering with other organisations

Most of the participants indicated that when they partner, they look to leverage their partner's capabilities and competencies. In the case of the CIPC, the banks for example assist CIPC on its goal to extend its footprint so that a lot of people can access CIPC services. So, banks already have footprint in lot of places all over the country. So, they have infrastructure, bank branches all-over the country. So that helps, instead of CIPC building offices all over the country, they go to the banks because the banks have already systems, and they use them. The participants indicated that they do not only partner with the private sector, but also with other government agencies, for example provincial departments, CIPC has placed self-service terminals in them also to make sure that their services are accessible, to both old and new customers, especially who cannot access internet. That can be credited to having that collaboration and innovation unit. Three participants stated that:

“An example with our partnership with NYDA and the NYDA works with the youth. Their target is the youth and they have offices countrywide, in all the provinces, where they interact on daily basis with the youth. So, in terms of our products when we partner with them, it assists us in terms of increasing our brand awareness at their offices, making sure that the youth also have more education and awareness of our products and services. And making sure that the youth have access to our services.”

“Collaboration is key. We work together on system integration, product and service pairing, education and awareness campaigns etc.”

“I think it helps a lot actually. If you look at things like IP day, CIPC partners with a whole lot of people, WIPO and other organisations to bring IP awareness to people. Also, signing MOUs with other countries organisations, such EPO, it has complemented for example this product of SSE, I believe partnering with EPO and sometimes WIPO has really accelerated the process of getting the SSE train moving.”

According to CIPC strategic plan (CIPC, 2018b), among others, collaboration is a core value of CIPC, and the CIPC relies on its values to drive the organisation. Therefore, the CIPC makes use of partners from both those in the private sector such as banks and international partners, and those in the public sector such as other government departments as an aid to bring its products and services to the people.

Also the additional participants indicated that partnering with other organisations has been very effective, because they are able to spread their wings easily and monitor systems together that make a better implementation and quality product. They indicated that partnership is one of the biggest pillars in their strategy. They mentioned that it is because they have truly realised that they cannot do everything themselves.

4.2.12. Source of technical and business knowledge

Participants were asked about where CIPC sources the technical and business knowledge needed to successfully fulfil its mandate. The mechanisms for sourcing the necessary knowledge are depicted in Figure 16, below. The responses are shown in Figure 16 below in decreasing order of frequency.

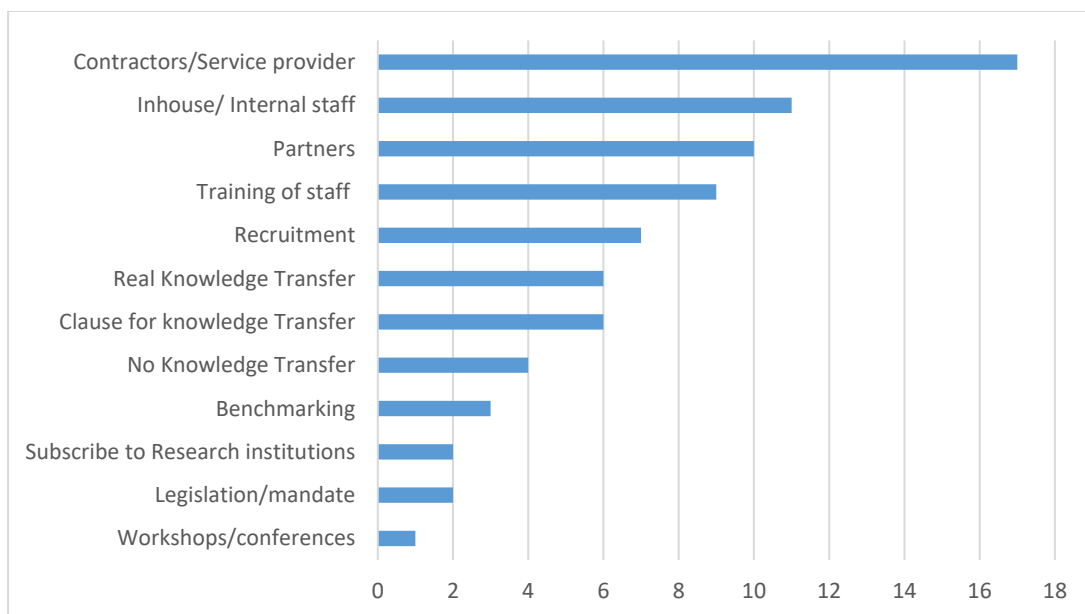


Figure 16: Source of technical and business knowledge

Participants generally concurred that like many other organisations, the CIPC makes use of consultants/service providers in specific specialised areas to assist them in terms of whether being with their systems, whether being with knowledge regarding specific areas, and that is something that has been allowed and given space to operate within the organisation. They also mentioned that through learning technically and otherwise in terms of what other organisations are doing in the same fields or in the related fields. In the field like IP, through collaboration with the WIPO, they have got internal employees who regularly attend program and courses from the WIPO. That actually assists them to grow their skills and knowledge within IP. They have interaction with those organisations, they learn and come back to apply what they have learned. It might be something that is being applied in other countries that can be used to improve systems within the CIPC. There is a mix response in terms of knowledge transfer when using consultants or service providers that even though every contract has a knowledge transfer clause, at times it does not happen due to various factors that include that at time there is no one to transfer the knowledge to. Some participants indicated:

“So, it is sourced within, so the CIPC has professionals trained in various aspects, so I think primarily, the knowledge is sourced from within. It is also sourced from CIPC other stakeholders, such as mentioned, SEDA, NIPMO, WIPO, the EPO and a whole range of others. Consultants/service providers are also used to deal with certain aspects.”

“I think they source it from, they do benchmarking, I know there has been benchmarking that was done with other registration offices in other countries. But they also source, mostly it is internal resources. I think as a government entity we have taken a stance of saying we would source technical and business knowledge internal. And, if we don’t have it internally, we improve the skills of our people. But in instances where maybe it’s urgent, we then source it from consultants. We go out into the market and acquire that technical and business expertise.”

Other participants mentioned that knowledge is source from the Companies Act, with its enhancement and modification. Thus, they indicated that business knowledge is sourced from the Act, is sourced from the people that are engaging with the CIPC, client and partners. There are pockets of sharing that come from the clients to say “if you can this, it could be better or if you can do that it would be better”, besides CIPC analysing data that comes from the clients. They also indicated that collaboration is also a source of business and technical knowledge, because that’s where organisations or people share how to do things better. Technical knowledge also sourced from conference as well as through recruitments, where professionals get recruited.

4.2.13. Helping the organisation to remain relevant

Participants were asked what has helped their organisation to remain relevant to date and also what has hindered it. The participants shared various mechanisms that have helped the organisation to remain relevant and what they believe has hindered it. The responses are shown in Figure 17 below in decreasing order of frequency.

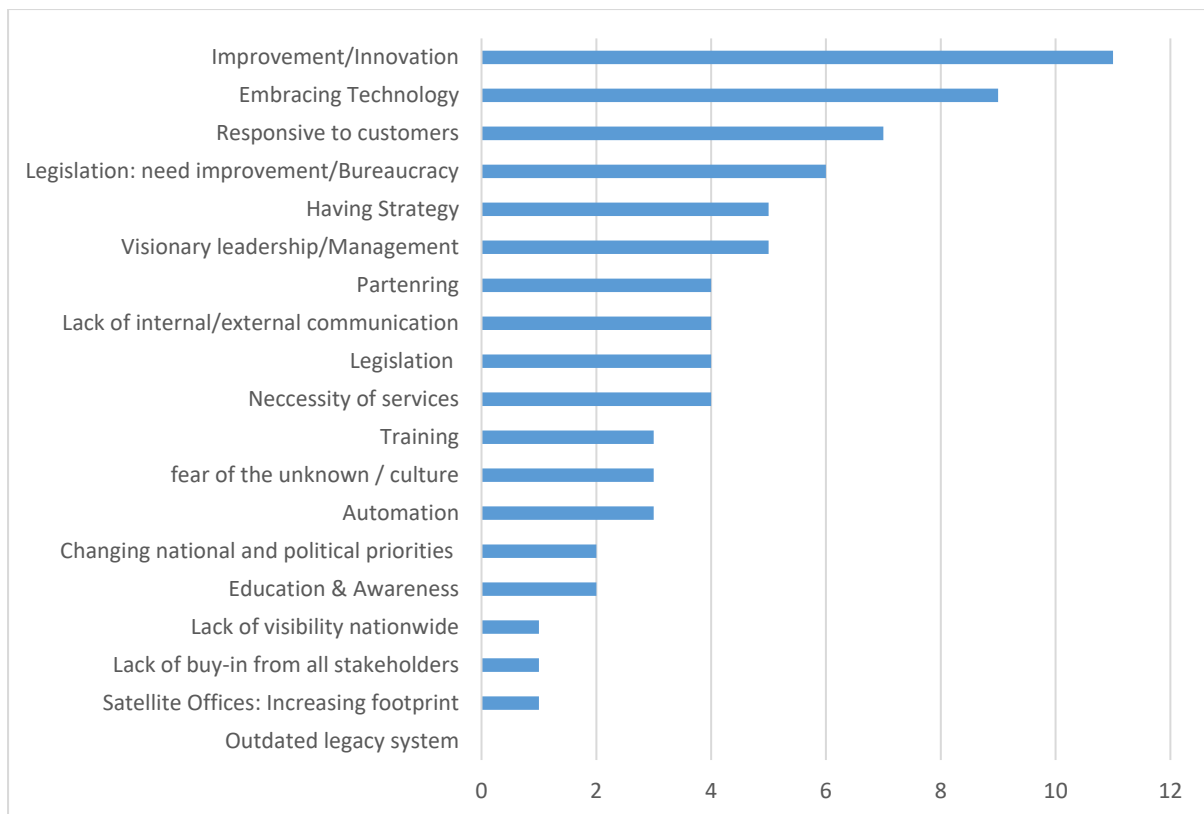


Figure 17: Helping the organisation to remain relevant

The majority of the participants indicated what helps the organisation in its quest to remain relevant to date includes the stakeholders' relationships that CIPC has entered to and kept and also keeping in touch with CIPC clients. Continuously looking at ways in which they can improve, innovative ways in which they can deliver CIPC services or even tools that can make them deliver and be more effective. Some participants also added that CIPC exists due to legislation and has to see to it the legislation that establishes CIPC is implemented, thus, legislations keep CIPC relevant. Two participants alluded that:

"Is one of the major things, if we move with the time in terms of technology and disseminating of information, and in terms of how we deal and keep contact with our clients."

“That in terms of the governance of the law, the company must remain, but more primarily to that is that the organisation has managed to provide innovative solutions, to provide that business service. That has also been in a forefront of ensuring good relevance of the organisation.”

In the hindering aspect, most of the participants alluded that the challenges that are mostly found are due to lack of education and awareness part that CIPC must still continue to rollout on the people who come and consume CIPC services such as the registration and find that after they acquired whatever they acquired from the organisation, how to proceed forward. At times people would think that by registering or filling a provisional patent application, they are done and are going to make money, which is not necessarily the case. Some participants stated that state procurement processes and changing national and political priorities affect the delivery of planned services.

4.2.14. Technological resources used in rendering the organisations services

Participants were asked on what technological resources they are using in rendering CIPC services, and what organisational process followed in acquiring them. The responses are shown in Figure 18 below in decreasing order of frequency

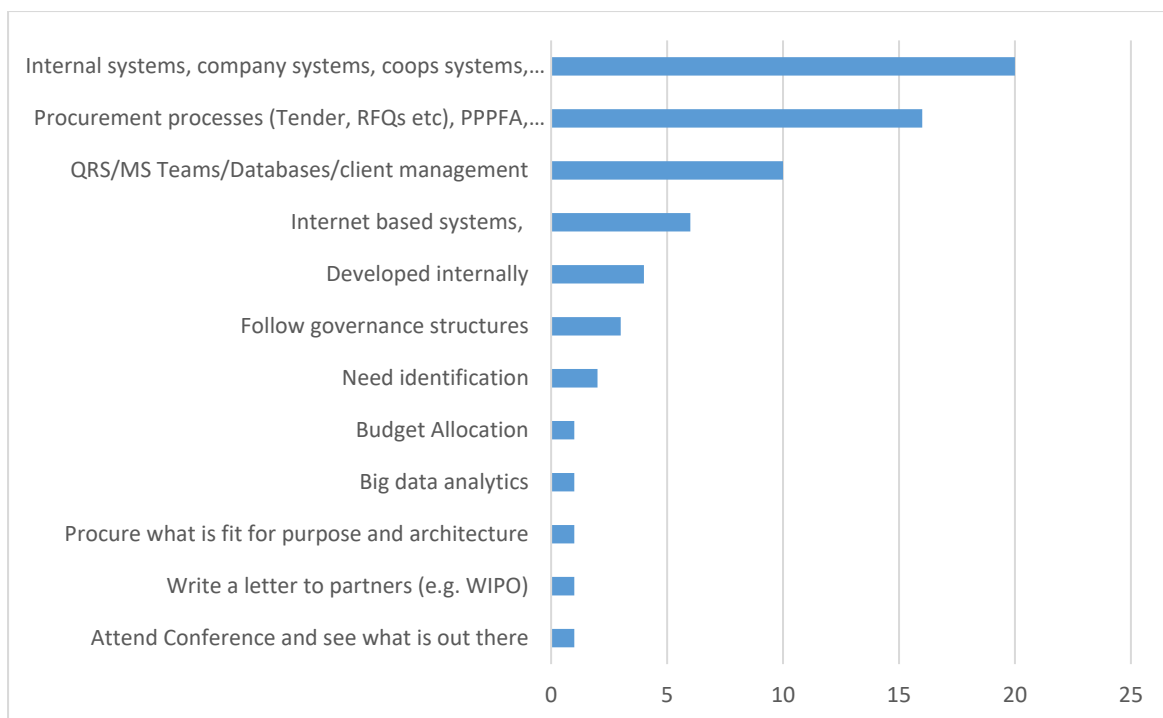


Figure 18: Technological resources used in rendering the organisations services

The technological resources used include IP search tools/databases in order to conduct searches on patent applications, IP registration system such Ptolemy, IPAS “Industrial Property Automation System” which is a software tool that has been made available to intellectual property (IP) offices by WIPO to assist IP Offices to seamlessly administer IP rights, QRS (query resolution system) which is a system that customers use to log in queries and to make sure that the queries are resolved within a particular period of time and the feedback is given to the customers.

Acquiring process, when acquiring from WIPO, the participants mentioned that the process include writing a letter of request to the director of WIPO, if the director ‘likes’ the request, he gives a go ahead and a directive to write a letter to the Director General of WIPO. Then after doing that and WIPO considers it and they come back to say if they like it, they express interest to assist the organisation and the terms and conditions such as funding half of the technological resource or WIPO partners with CIPC in terms of resources, whether technological resources or human resources. So organisational processes followed relate to the governance structure. It is always followed in acquiring technological resources. The organisational processes include writing a submission, which follows the CIPC hierarchy of going to Senior Manager,

Divisional Manager, Supply Chain Manager, Executive Manager, Chief Finance Officer and then it goes to the Commissioner. The process is generally the tendering system where the government framework is followed as CIPC is also regulated by the national treasury.

4.3 SUMMARY OF DATA PRESENTATION

The findings showed that the CIPC has various approaches for new products or service development and process improvement, even though they highlighted some concerns that the approaches are not fully followed and understood by all. The participants also indicated that there is a process for monitoring trends in CIPC, which includes conducting research on customers' needs, making use of strategy, reporting on monthly or quarterly meetings, attending seminars, benchmarking and the use of technology to monitor transactions among others. Most of the participants mentioned that there is a process of interacting with the customers continuously. They said that customers are actually a very important part of that because they deal with the products and services on a daily basis, such that they know what works for them and they know what does not work for them. Some participants indicated that mostly, as a state agency, the stakeholders are primarily other state agencies. However, they have what they term call collaboration partners which include the law firms, banks and other organised groupings such as Doctors without Borders.

Most of the participants responded that collaboration is a key value of the organisation. Collaboration internally amongst different units is necessary for the organisation to flourish. The CIPC documents in relation to strategy, recognise the need to strive for a culture that brings about an environment that is conducive in promoting innovation at every level of the organisation, through a reward system and a functional business model. It is also part of the CIPC strategic objective to expand its collaboration and partnering with other government agencies which include the likes of SARS, NIPMO. Also part of the CIPC's corporate values including internal collaboration where they believe that teamwork and collaborative effort is necessary for improving service

delivery. It appears from the participants' responses that there is a need for the CIPC to properly operationalise their strategic objectives in this regard.

The participants stated that the CIPC has a variety of targets set and there are measures in place for some, while other targets are not entirely dependent on CIPC and it is difficult to measure such targets. One of the most widely used methods for enhancing efficiency, according to the majority of participants, is performance management policy. The majority of participants indicated that the company rewards good results with a bonus and that it follows a specific scoring matrix.

Most of the participants share a strong belief that the CIPC is a unique organisation that has no competition, is a monopoly and is protected by legislation and through the legislation it would remain relevant. Participants generally concurred that like many other organisations, the CIPC makes use of consultants/service providers in specific specialised areas to assist them, whether in terms of their systems or knowledge regarding specific areas. The majority of the participants indicated what helps the organisation to remain relevant to date includes the stakeholder relationships that the CIPC has entered into and kept, and also keeping in touch with CIPC clients.

The participants indicated that the CIPC acquires technological resources in order to fulfil its mandate. The technological resources used include IP search tools/databases in order to conduct searches on patent applications, IP registration system such Ptolemy, IPAS IPAS "Industrial Property Automation System" which is a software tool that has been made available to intellectual property (IP) offices by WIPO to assist IP Offices to seamlessly administer IP rights , QRS (query resolution system) which is a system that customers use to log in queries and to make sure that the queries are resolved within a specified time frame and the feedback is given to the customers.

CHAPTER 5: ANALYSIS OF THE RESEARCH FINDINGS

5.1. INTRODUCTION

This chapter examines the data presented and organised in Chapter 4, in contrasting with the observations and information presented under the literature that was examined in Chapter 2. The information was gathered through content analysis and conducting interviews that were semi-structured, and the results are focused on that. The key results of the study are analysed considering each research question and applicable literature is incorporated where appropriate.

The discussion focuses on three main areas: the level of innovation capabilities within the CIPC, the CIPC processes about building innovation capabilities, and the factors currently exist that hinder the grooming of innovation capabilities in public sector organisations, such as the CIPC. The results were compared and contrasted with the examined literature.

5.2. BACKGROUND

This study made use of both the primary data obtained through the conducted interviews with personnel from the CIPC and external participants, as well as the secondary data through documentary research, as defined in Chapter 3. It investigated the methods used by CIPC to manage innovation and develop innovation capabilities. All of the data was examined, and related CIPC documents were examined. The study is about understanding the systematic management of innovation as well as building innovation capabilities, in the public sector, government agencies, focusing on CIPC as a case study.

5.3. THE LEVEL OF INNOVATION CAPABILITIES WITHIN THE CIPC

5.3.1. Dynamic Capabilities (DC)

The capability for innovation allows a new-stream system to function like a conduit that finds, locates and creates possible innovations that can be translated into the mainstream. Therefore, an innovation capability is characterised as means to properly manage knowledge and ideation to continuously lead to novel products and processes and improving the necessary linkages for the organisation to reap fruits as well as the stakeholders (Lawson & Samson, 2001). Building from dynamic capabilities, the public sector innovation capabilities can be expressed as the means in public sector management in sync with key stakeholders to make continuous resource distribution changes and generate novel thinking within organisations (Clausen et al., 2020)

Dynamic Capabilities (DCs) seek to answer questions like how an organisation may develop capabilities that are specific for that particular organisation, and also, how organisations revive their skills and competences such that are able to remain relevant to the changing environment. Teece (1997) reported that these questions may be linked to the organisation's processes of doing business, its position in the market and the path it is able to follow when expanding. Thus, Teece et al (1997) advance the idea that an organisation's competitive advantage is linked to its business (strategic and organisational) processes and gets influenced by the asset position that is specific to the organisations and the available paths it has to pursue (Rosenbloom, 2000).

5.3.1.1. Business Processes

Managers in an organisation drive, coordinate or integrate processes and activities within it (Lei & Hitt, 1995; Teece et al., 1997). The effectiveness and efficiency with which internal coordination is realised are quite crucial (Puranam & Singh, 2009), as is the integration of activities that are external to the organisation. Among others, the

study found that collaboration is a key value of the organisation. Collaboration internally amongst different units ought to work together for the organisation to flourish and also in terms of collaboration with external partners. The CIPC is viewed as being open to collaborating with anyone who avails themselves for collaboration. Collaboration can come from all levels, it can be individuals collaborating with individuals with other units within the CIPC, or with other departments. It can also be at the organisational level, for instance, there have been Memoranda of Understanding (MOUs) that have been signed between the CIPC and other organisations such as the European Patent Office (EPO). The collaborations assist the CIPC in terms of their improvements.

Teece et al (1997) reported that there exists empirical evidence of the method by which production is coordinated within an organisation as a source of distinguishing factors in its competitiveness. Thus, coordination/integration often lead to activity patterns and organisational routines that are regular, and organisational processes therefore require coordinative/integrative capabilities. Integrative capabilities may be construed as reflecting the ability of an organisation to properly make use of its resources to support the sustainability and constant renewal of the organisation (Yeoh & Roth, 1999). The findings indicate that the CIPC has some coordinative or integrative capabilities, particularly through governance structures. The participants indicated that, firstly, if there is a problem statement that has been identified or an area that has been identified as a potential innovation area that may help to enhance CIPC products and services, they take it through internal processes. Means of identifying areas of interest include marketing, market research and also looking at the studies from similar organisations for similar types of products, in terms what they are doing, where they are, and how they approach some of these matters. Then based on that, they could come in and interrogate what the problem is, and then develop an action plan in terms of how to approach it. They may thereafter take it through internal processes which involve taking it to the management committee, and ultimately to the executive management committee that would actually have to make a decision in terms of rectifying or approving that kind of product or service, or that kind of process that has come and taken place.

However, even though they indicated that there is a governance structure in place, the participants also acknowledged and highlighted that there are no formal processes in

place, and in most cases, decisions get taken by management and staff members are merely informed when there is a new system or technology that would be introduced.

As the space that organisations operate in is continuously changing and does so at a fast rate, organisations are constantly required to be able to sense the necessity to reconfigure themselves, in terms of restructuring their assets and to achieve transformation both internal and external (Dutta et al., 2005; Ethiraj et al., 2005; Teece et al., 1997). Among others, this is achievable through the constant monitoring of markets, finding out if there are new innovations, and also the willingness to look out for best practices and being able to adopt them. The findings indicated that there is a process for monitoring trends at the CIPC, which include conducting research on customers' needs, making use of strategy, reporting on meeting monthly or quarterly, attending seminars, benchmarking, and the use of technology to monitor transactions, among others. They have also mentioned that there is a specific division within the CIPC that focuses on collaboration and innovation.

The monitoring is also reported to take place in different structures of the CIPC, which include walk-in centres. The monitoring ought to be a constant project to survey what happens in the markets and to take stock of available and emerging technologies with aim to be adaptive to better practices. Thus, continuous benchmarking with sister organisations is considered as being highly valuable as a monitoring mechanism. It is reported that in environments that are dynamic in nature, organisations with narcissism behaviour tend to suffer the most. It also realised that an organisation can teach itself the ability to reconfigure itself where and when necessary and to transform itself, which is learned from practising frequently (Teece & Pisano, 1994). Organisation may reconfigure and transform itself through an organisational skill that is learned. The findings establish that even though there is a claim that the CIPC has no competition, and is a monopoly, they still need to make sure that they improve their performance, such that they do not find themselves rendering services that are not making CIPC customers or stakeholders happy. Thus, they are aware that at times, CIPC customers

access CIPC services via third parties, which is unnecessary at times. However, because some CIPC customers are not aware of such activities, there are private people who take advantage of that and claim that the process is quick and in the process charge customers a lot of money. And because the customers are not aware either, they fall for such. Thus, the respondent reported that continuous education and awareness in terms of CIPC processes and services are vital. In addition, they also reported that they benchmark the CIPC against organisations that provide similar services in other countries for relevancy and see how they can improve on CIPC service offerings.

It is often said that change is constant, but change may be costly, thus, organisations ought to develop methods to minimise the cost of change. Teece et al (1997) put an emphasis that the ability of an organisation to measure the necessities for the change and be able to implement the necessary changes is propositional to the ability of the firm to constantly monitor the markets, as well as competitors, and then to act more quickly than competitors to effect the necessary reconfiguration and transformation. Teece et al (2007) proposed that decentralisation and autonomies within organisation may positively influence the necessary processes. The findings indicated that most of the participants share a strong belief that the CIPC is a unique organisation that has no competition, is a monopoly and is protected by legislation, and through that legislation it would remain relevant. The belief is that there is no other company or organisation in South Africa that offers, or can offer the services offered by the CIPC, which include intellectual property registration.

5.3.2. Smart Intellectual Property Office (SIPO) Framework in Developing Countries

The smart IP office is regarded as an entity of government that makes use of technology and has propensity of transforming IP related service to digital arena. It constantly collaborates with various strategic stakeholders to continuously expand its service offerings to cater for various users such as research and developments

entities, professionals in the IP space amongst other relevant stakeholders. The smart office plays a crucial role in globally partnering with other sister organisations, where best practices would be shared, and avoid repetitions through work-sharing, expediting IP applications via agreements such as prosecution highway. However, there are necessary enablers that the smart IP office should possess, which include an office model that encompasses the principles of smart governance such as standardised practices, the principles of smart infrastructure such as facilities, and the elements of smart ICT such as efficient speed of internet (Prihastomo et al., 2019).

The IP Office does not only deal with intellectual property issues, but also it is strategically positioned to deal with multinational networks. Moreover, other complications include the complexity of the data as IP applications expand. Thus, it takes a smart paradigm to respond to the challenges of ICT growth, particularly in the patent sector. Prihastomo (2019) proposed that the smart IPO framework comprises several elements, “such as 1) Smart IPO Model; 2) Smart IPO Enterprise Architecture; 3) Smart IPO Collaboration Model; 4) Smart IPO Development Model; 5) Smart IPO Measurement Model; 6) Smart IPO Standard; and 7) Smart IPO Services”.

5.3.2.1. Smart Intellectual Property Office (IPO) Model

On the basis of guidance from the WIPO (Jang, 2017), four IP office models are as follows: “Model 1 (basic web-based, public services); Model 2 (advanced internal administration); Model 3 (full process automation); Model 4 (knowledge-based IP services)”. Most of the participants indicated that the CIPC has various approaches for new product or services development and process improvement, even though they highlighted some concerns that the various approaches are not fully followed and understood by all. In the main, the participants reported that the approaches used have to follow the CIPC strategic plan with an emphasis on automation. Thus, it appears from the findings that the CIPC is currently embarking on model 2 in a journey of moving from manual filing to a fully end-to-end process of using the automated systems, mainly the IPAS (Industrial Property Automation System) to make sure turnaround is improved drastically, and of also introducing substantive search and

examination to assess patentability. Thus, the CIPC is in the process of acquiring the technological resources, which include IP search tools/databases in order to conduct searches on patent applications, as well as IPAS which is a software tool that has been made available to intellectual property (IP) offices by WIPO to assist IP Offices to seamlessly administer IP rights. The CIPC is currently using IP registration system such as Ptolemy. It appears that CIPC still has long journey to catch up with developed IP offices.

5.3.2.2. Smart Intellectual Property Office (IPO) Architecture

The ICT system that a smart IP office possesses is regarded as a powerful tool that enables the smart IP office to realise automation and conducting analytical services seamlessly, and to have decision making processes that is automated. Thus, smart IP offices require integration and alignment that are properly executed, as they are regarded as the quite difficult ICT implementable elements. Thus, a smart IP office may make use of the system of enterprise architecture as a tool to align and integrate every element into a single architectural model, which would ensure convergence amongst all business processes and ICT support (Prihastomo et al., 2019). The findings indicated that there is some level of alignment and integration at the CIPC between business components and ICT. Some participants indicated that in an ICT environment, the strategy is influenced by what the business strategy entails. If business entails following a particular path, then from an ICT perspective, they need to engage and create an ICT strategy to follow that business strategy. So, the approach from the ICT perspective would be to follow the relevant business strategy.

Prihastomo (2019) proposed that an IP office architecture ought to include four components, namely, Business, Data, Infrastructure, and Application. The Application component includes the main IP administration, search systems and artificial intelligence adoption. The findings in this aspect indicate that on the administration part, CIPC would move to make use of the IPAS, which would also help and function as a working sharing platform. Thus, it appears that the CIPC is moving towards that

direction. It also appears from the findings that CIPC has a lot of work ahead to have the architecture of a smart IP office.

5.3.3. Dynamic Capabilities –Smart IP Office

According to the primary data obtained through the interviews, most participants believe that the CIPC is a one-of-a-kind organisation that has no competition, is a monopoly, and is protected by legislation, and that it will remain true as long as the legislation exists. It is believed that no other organisation in South Africa provides or can provide the services provided by CIPC, which include IP registration. However, the findings indicated that there is process for monitoring trends in CIPC, which include conducting research on customers' needs, making use of strategy, reporting on meeting monthly or quarterly, attending seminars, benchmarking and the use of technology to monitor transactions among others. There is also a section within the CIPC that focuses on cooperation and creativity, according to the respondents. The monitoring is also said to take place at the CIPC's various structures, including walk-in centres. Despite some concerns that the approaches are not embraced and recognised by all, most participants indicated that the CIPC has a range of methods for developing novel products or services as well as improving processes. Many of the participants mentioned that the approaches used would follow the CIPC strategic plan, with an emphasis on automation. The study findings indicate that there is some level of alignment and integration at CIPC between business components and ICT. Some participants indicated that in an ICT environment, the strategy is influenced by what business strategy entails.

5.4. THE CIPC PROCESSES ABOUT BUILDING INNOVATION CAPABILITIES

5.4.1. Learning, Reconfiguration and Transformation

Even though integration or coordination capabilities are important, another factor that is crucial in business processes is learning. Teece (1997) described and interpreted learning as the process that enables improvements, such that tasks may be performed in as short a time as possible, and better. Furthermore, learning may be construed as a way in which current operations capability may be refurbished using new knowledge (Gathungu & Mwangi, 2012). Thus, through learning, organisations may enhance their capacity and skill building and be in a position to sustain their competitive advantage (Wu, Ma, Shi, & Rong, 2009). Some participants in the main indicated that there are organisational processes, which in general, are the governance structures. For instance, they mentioned that when they implement a change, there is a change approval board as a body and there is also an engagement model that had been implemented. The engagement model is a collaboration tool that the CIPC uses for its employees to engage among each other, and, for different units, or technical or support units to engage with business. So, the change approval board is on the other end. When a change is implemented, the change approval board decides on how this thing adds value to the CIPC and whether it should be absorbed into the tool set of the CIPC. So, while the engagement model is at the beginning, the other change advisory board is on the other end.

Organisational structural settings are quite crucial as individual skills and how they can be applied hugely depends on the settings. In essence, learning processes naturally take the form of being social and happening collectively in trying to make sense of problems that are complex. Thus, it is not just about emulating individuals. Learning process management requires standard procedures of communication that are coordinated. Learning and knowledge generation may assist an individual or an organisation to be able to identify opportunities to solve customer needs either through

current or new solutions (Teece, 2007). Participants indicated that even though there are those mentioned internal processes or governance structures, some respondents indicated that there is a lack of a structured functional framework, and the allocation of staffing and other resources takes place on an ad hoc basis. Thus, the findings show a lack of standard procedures for learning and poor communication. However, the additional participants indicated that their organisations have policies, processes and frameworks on almost everything. The documents seek to guide them, how best to perform their functions in relation to resource management, and for decision making, such as for hiring or recruitments. They also mentioned that they have established standard operating procedures for each and every service or product they offer.

Since the world in which organisations work is continually evolving and changing at a rapid pace, organisations must be able to feel the need to reconfigure themselves in terms of transforming their assets and achieving both internal and external change (Dutta et al., 2005; Ethiraj et al., 2005; Teece et al., 1997). This can be accomplished, among other things, by constantly tracking markets to see if new innovations emerge, as well as a desire to seek out and follow best practices. According to the findings of the analysis, CIPC has a mechanism for tracking trends, which involves conducting consumer needs research, implementing strategy, and reporting on meetings particularly monthly or quarterly, attending seminars, benchmarking and the use of technology to monitor transactions among others. They have also mentioned that there a specific division with CIPC that focus on collaboration and innovation. The monitoring also is reported to take place at different structures of the CIPC, which include walk-in centres.

Teece et al (1994) reported that monitoring trends is an exercise that necessitates that the markets get to be surveillance on continuous bases as well as the availability and emerging technologies, while having a drive to employ best practices. Thus, benchmarking is regarded as an essential tool in conducting monitoring. The participants indicated that for strategy developments, there would be strategy sessions where executive and senior managers would attend, including labour representatives. They highlighted that in those sessions, the main thing would be to discuss the trends

and the impact that they have on CIPC. In looking at the trends, they do not only consider what would destabilise the organisation, but also look at opportunities, like thinking ahead to say if there is this trend that is being noticed, the opportunity could be used to provide services in a particular way.

5.4.2. Collaboration Model and Development Model

Prihastomo et al (2019) indicated that the IP Office ought to connect with the stakeholders to work together such that excellent service is delivered. Some participants indicated that mostly, as a state agency, the stakeholders are primarily other state agencies. However, they have what they term collaboration partners which include the law firms, banks and other organised groupings such as Doctors without Borders. They also mentioned that in order to increase the CIPC's footprint, they make use of collaboration partners as well as other channels of further spreading their services. In that particular fashion, stakeholders get an opportunity, as well, to be in the innovation process and assist continuously to implement or provide innovative ideas, or the suggestions that they come up with to improve the processes. There are platforms for engagement in terms of quarterly meetings, and partners such as law firm can engage CIPC in terms of what they think will provide better services to customers. Then, internally suggestions or ideas get taken forward to see if they also comply with the CIPC's own governance and mandate before taken through to possible implementation.

The participants also mentioned that the CIPC also collaborates with international stakeholders such as WIPO and the BRICS grouping, which assists in improving the CIPC's IP service offerings. They mentioned that WIPO is useful, as they can actually share with the CIPC what other IPOs are doing, such that the CIPC may actually take best practices, instead of finding solutions from scratch. In this kind of partnership with the likes of WIPO or BRICS, CIPC is able to ask for, and share information. The CIPC strategy mentioned that CIPC should foster a culture of innovation and that is customer centric (CIPC, 2013, 2018b). Since the CIPC was a result of the amalgamation of two entities, it is still undergoing a transformational change. This transformational phase

would necessitate that CIPC embarks on a road to realise transformation that is based on its strategy, which would assist CIPC to develop the necessary internal resources that include knowledge, the necessary skills and a conducive culture in order to realise the aspirations of CIPC. The CIPC through its documents related to strategy has emphasised for a culture that promote innovation catering for every level of the organisation and an operation model that encompasses a reward system for innovation. It is also part of the CIPC's strategic objectives to expand its collaboration and partnering with other government agencies, which include the likes of SARS and NIPMO. Also, part of the CIPC's corporate values include internal collaboration when they believe that teamwork and collaborative effort is necessary for improving service delivery. It appears from the participants' responses that there is a need for the CIPC to properly operationalise their strategic objectives in this regard.

Prihastomo et al (2019) alluded to the fact that the development model, particularly for the technology of Smart IPOs consists of elements such as: (a) Delivery Cycle, which assist in ensuring consistency in terms of needs or problem detection, preparation, mechanisms of addressing the needs or solving the problems, delivery and ongoing activity, and monitoring and enhancement; (b) Living Labs, of which is one of the building blocks in an IP office allocated as an experimental area where new ideas are tried and managed for the betterment of IP offices, and stakeholders can connect and use it. Amongst others, the research project found that the CIPC possess numerous approaches for new product or service development and process improvement, even though they highlighted some concerns that the approaches are not fully followed and understood by all. In the main the participants reported that the approaches used have to follow the CIPC strategic plan with an emphasis to automation. The participants also highlighted that the approach to products and service development and process improvements also follows monitoring trends, getting feedback from customers, conducting market research as well as responding to the environment. However, the study did not detect if there is any living lab within CIPC for testing new ideas. The CIPC approach is more on an ad hoc basis and is much dependent on the manager at the time.

In order to realise the fruits of innovation and learning, collaboration and communication within the organisation and its business network is important. Collaboration facilitates the exchange of information by incorporating different experiences of collaborators, initiating communication, drawing on each other's ideas and addressing innovation-related issues (Collm & Schedler, 2014; Damanpour, 1991b; Wood & Weigel, 2011). Innovative companies discourage solos mentality and promote proper linkages horizontally across different sections, vertically across different levels in the hierarchy, tolerance of different cultures and sharing of resources such as information and technology as well as knowledge. The findings indicate that like many other organisations, the CIPC makes use of consultants/service providers in specific specialised areas to assist them in terms of whether being with their systems, whether being with knowledge regarding specific areas. That has been something that has been allowed and given space to operate within the organisation. However, there is a mixed response in terms of knowledge transfer when using consultants or service providers that even though every contract has a knowledge transfer clause, at times it does not happen due to various factors that include that there may be no one to transfer the knowledge to. They also mentioned that learning technically and otherwise occurs through benchmarking in terms of what other organisations are doing in the same fields or in the related fields. Technical learning in the field like IP, also takes place through collaboration with the WIPO, where they have got internal employees who regularly attend programs and courses from the WIPO. That actually assists them to grow their skills and knowledge within IP. The participants indicated that some CIPC employees would have interactions with those organisations that the CIPC collaborates with, where the employees learn and come back to apply what they have learned.

5.4.3. Measurement and Standard Model

There are two key metrics for measuring smart (IPO (Prihastomo et al., 2019): firstly, community satisfaction index, which is an indication on how the stakeholder felt post using the products or services of the IP office, this metric tests the level of community satisfaction. For example, whether service is fast, user-friendly according to the rules stated in the time or not, most of the participants shared a strong belief that the CIPC

is a unique organisation that has no competition, is a monopoly and is protected by legislation and through the legislation it would remain relevant. It is believed that no other corporation or organisation in South Africa provides or can provide the intellectual property registration services provided by CIPC. Others noted that they would continue to improve their game such that the CIPC does not find itself providing services that do not satisfy CIPC customers or stakeholders. On the CIPC five year strategic plan (CIPC, 2018a), there are some targets that are stipulated which include increasing the customer and stakeholder satisfaction value index from 6.3 in 2015 to 8 in 2022 in a score of between 1 – 10.

Secondly, smart IPO maturity level metric tests another aspect of the smart IP office initiative. The smart IPO maturity level can be used as an indicator to determine how the quality of service can be improved. Most of the participants mentioned that on yearly basis, the CIPC develops an APP (annual performance plan), which is a main, official document and is also a public document. The stated innovation targets include to achieve 24/7 access to CIPC services, to increase the outreach of CIPC services to clients, to enable the CIPC staff to work from everywhere, to improve on efficiency in terms of turnaround time for CIPC services and products. On the ICT side which support the IP division among others indicated that their targets include keeping the systems and availability at an acceptable level for business and the country at large to, to do business or transact with the organisation. In this regard, there are key standard sets on the network standards, where the network has an uptime of at least 95 %, the server environment to have an uptime of about 96 % and the website of about 98 %. So the measure in this regard is that standards where they need to make sure system availability of the 95, 96 and 98 % different categories, thresholds are maintained. And this gets reported on a quarterly and a monthly basis to the audit committees in the operational plan reports, and it is done against the annual performance plan.

The study findings indicate that the organisation mostly achieved its intended targets and outcomes. The participants also mentioned that the organisation has regularly and annually managed to achieve most of its the targets and on top of that, for a number of years, the organisation has been very bright in terms of clear and clean

audit all-round. Some of the participants indicated that at times they exceed on their targets and added that they appear to be good at collaboration, and the collaboration efforts increase CIPC reach, and that assist in exceeding targets. Some participants indicated that there are only few targets that they do not achieve, and such targets are mostly beyond CIPC control. For an example there is number of companies or individuals that need to file patent renewals with CIPC, as it is known that if you are a client having a patent registered with CIPC, on its anniversary if it is still active, there is an annual fee payable to CIPC. The participants indicated that they can only communicate, but the customer is the one that has the responsibility for paying the renewal fees.

In terms of improvement purposes, one of the most widely used methods for enhancing efficiency, according to the majority of participants, is performance management policy. The majority of participants indicated that the company rewards good results with a bonus and that it follows a specific scoring matrix, and that this process appears to be successful in improving performance in relations to target set by CIPC.

Teece (2007) indicated that the direction of an organisation as to where to go from its current market position is influenced by its current assets/positions and the path that lies ahead. Technological opportunities in a particular industry give meaning to the concept of path dependencies. Lawson (2001) indicated the significant impact that e-business brings in improving the processes involved in innovation. ICT applications that are modern are regarded as befitting in providing services in an improved manner. Thus, it has been established that organisations that embraces e-business tend to realise tremendous improvement in innovation, while doing away with retarded old ways, reducing obstacles to innovation, while creating new activities and models. The findings revealed that the CIPC is trying to improve its performance by embracing technology. Specifically, trying to automate most processes, but compared to culture, there might be a bit of resistance because at first people are not open to like automating everything. People are still embracing the old way of doing things of pushing file, opening manual files. But with CIPC trying to automate most things is an

indication of an organisation trying to improve its performance. In terms of organisational culture, people slowly embrace the change to automation, with an improved change management.

5.5. THE FACTORS THAT HINDER THE DEVELOPMENT OF INNOVATION CAPABILITIES IN PUBLIC SECTOR ORGANISATIONS

There are three categories of challenges that Borins (2008) identified. The first category comprises of obstacles emerging mainly within the bureaucracy. The second group established obstacles that exist at the micro level where politics play a huge role, that include financial instruments that are inadequate, statutory environment that often increases bureaucracy and opposing organised groupings. The third group discussed environmental obstacles outside the public sector organisation.

The first category, comprises of obstacles emerging mainly within the bureaucracy, included aggressive or cynical behaviours, turf battles, organisational difficulties in communication, logistical problems, difficulties in retaining system personnel excitement, difficulties in introducing new technology, and opposition from organised labour and middle management. Notwithstanding that the knowledge accumulation and the coordination of processes both internal settings and external environment are vital for any organisation, the organisation position is also influenced by its assets. The assets of an organisation may include knowledge assets that could be difficult to trade, assets that are complementary to the knowledge assets, assets based on the organisation's reputation and relational assets (Teece, 2007; Teece et al., 1997; Yeoh & Roth, 1999). The findings indicated that in terms of responding to change, there have been mixed feeling, some saying the organisation is receptive to change as it responds positive to change and has got managements/leadership that encourages innovation. However, others responded differently, saying it is difficult for the people to accept change due to a lack of proper change management, and it also takes time to implement which could be attributed to that there might be elements of resistance to change and bureaucracy.

In term of decision making, they responded that is quite accommodative but has some gripes as the pace of doing things is quite slow, and in terms of how quickly decisions are made. They indicated that for the CIPC, it is normal for the decision to take up to three years before it gets implemented which in most cases, is due to administrative delays. In addition, the CIPC is reported to be hierarchical and emphasising of following protocols. Some decision can be made on unit level by individuals, but more important decision would be at the organisational level, thus top-down approach. The non CIPC participants also shared the sentiments of some CIPC participants that change is not managed well as there is a lack of communication and also that bureaucracy affect decision making particularly in terms of CIPC. In terms of collaboration, they mentioned that they rely on external collaboration in order to fulfil their mandates and improve on service delivery. However, they pointed out that there are challenges with regards to internal collaboration where at times they find out from the outside world about project taking place internally, which indicate working in silos settings. Mulgan (2014) also indicated that departmental silos block the sharing of innovation, creativity and ideas in the public sector.

Teece (1997) indicated that it is understood that what an organisation can do in a short run, is mostly determined by its balance sheet. The participants indicated that CIPC follows a business plan. The process is, if there is a project or a major project, it should be on the unit business plan. Then it would go from there until the organisation business plan, and from there to check if there is a budget for it. It would be prioritised if there is budget for it, and budget would be allocated. Once budget is allocated, the timing among other things sits with the unit that is leading, allocation of staff sit with the unit. Thus, introducing change also depends on funding availability and a business plan. Lastly, Mulgan (2014) suggests that a lack of dedicated budgets and teams as a stumbling block to innovation in the public sector.

The second group established obstacles that exist at the micro level where politics play a huge role, that include financial instruments that are inadequate, statutory environment restrictions, and opposing organised groupings. Some participants also

expressed challenges that should be addressed for performance to improve. The mentioned challenges include a moratorium in terms of hiring new staff members, such that existing vacancies cannot be filled. They also indicated that there is currently an organisational design that is underway which it is hoped, could assist the CIPC in improving on its performance.

The third group discussed environmental obstacles in which the public sector exist, that include concerns of the public whether certain programmes are feasible, challenges in meeting the target group of the program, resistance where certain interests get affected, opposition stemming from the public and organised civil society organisations that circumstantially compete with public sector as a result of the innovation (Borins, 2006). The findings indicate that the external environment is currently not hostile to CIPC. Most of the participants indicated that when they partner, they look to leverage their partner's capabilities and competencies. In the case of the CIPC, the banks for example assist CIPC on its goal to extend its footprint so that a lot of people can access CIPC services. So, banks already have a footprint in a lot of places all over the country. So, they have infrastructure, bank branches all over the country. That should help, such that instead of going to CIPC building offices all over the country, they can go to the banks because the banks already have systems and we use them. The participants indicated that they do not only partner with the private sector, but also with other government agencies, for example, at provincial departments, the CIPC has placed self-service terminals in them also to make sure that CIPC services are accessible.

5.6. SUMMARY OF THE RESULTS

The literature indicates that organisations ought to develop capabilities that are specific for that particular organisation, and also revive their skills and competences such that are able to respond to the changing environment (Teece et al, 1997). The literature has revealed that the smart office ought to be an institution that makes use

of ICT optimally to enable the IP office to embark on a transformation journey to have all IP services in a digital manner. In so doing, it is crucial for the IP office to work with relevant partners or stakeholders to form comprehensive service offerings that cater for relevant users that include innovative institutions, professionals in the IP space amongst others.

The study indicated that the CIPC has various approaches for new product or services development and process improvement, even though they highlighted some concerns that the approaches are not fully followed and understood by all. In the main the participants reported that the approaches used have to follow the CIPC strategic plan with an emphasis to automation. Findings emanating from this project indicate that collaboration is a key value of the organisation. Collaboration internally amongst different units ought to work together for the organisation to flourish and also in terms of collaboration with external partners. The CIPC is viewed as open to collaborating with anyone and anyone who avails themselves for collaboration. Collaboration can come from all levels, it can be individuals collaborating with individuals with other units within the CIPC, with other departments. It can also be at the organisational level, for instance there have been Memoranda of Understanding (MOUs) that have signed between the CIPC and other organisations such as the European Patent Office (EPO). The collaborations assist the CIPC in terms of their improvements. The study further revealed that collaboration with external stakeholders is stronger than internal collaboration as there are still silos among CIPC units.

The literature revealed that learning is a crucial factor in business process which may be construed as a way through which current operations capability may be refurbished using new knowledge. Learning process management requires standard procedures of communication that are coordinated. The study found that even though there are those mentioned internal processes or governance structures, some respondents indicated that there is a lack of structured functional framework and allocation of staffing and other resources, it takes place on an ad hoc basis. Thus, the findings show a lack of standard procedures for learning.

Organisations operate in environments that continuously change at a rapid rate, organisations are constantly required to be able to sense the necessity to reconfigure themselves, in terms of restructuring their assets and to achieve transformation both internal and external (Dutta et al., 2005; Ethiraj et al., 2005; Teece et al., 1997). Among others, this is achievable through constant monitoring of markets and find out if there are new innovations, and also the willingness to look out for best practices and be able to adopt them. The study findings indicated that there is process for monitoring trends in CIPC, which include conducting research on customers' needs, making use of strategy, reporting on meeting monthly or quarterly, attending seminars, benchmarking and the use of technology to monitor transactions among others. They have also mentioned that there a specific division with CIPC that focus on collaboration and innovation. The monitoring also is reported to take place at different structures of the CIPC, which include walk-in centres.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

The findings of the research are summarised under chapter 6 and the conclusions that can be deduced taking into account the literature review in combination with interviews and the secondary data. The summary is based on three areas of interest, namely: The innovation management within the CIPC, the mechanisms of building innovation capabilities, and the factors that currently exist that hinder or affect how innovation capabilities in public sector organisations are built. It was the objective of the project to determine in the South African context, whether public/government agencies have systematic way of managing of innovation, and to find out whether they have a method of learning and building innovation capabilities. The objective of the project was to have a meaningful contribution in answering the following identified key questions:

- What, at present, is the level of innovation capabilities within the CIPC?
- How does the CIPC go about building innovation capabilities?
- What factors currently exist that hinder the development of innovation capabilities in public sector organisations, such as CIPC?

6.1.1. Key Conclusion of the Study

The study revealed that if organisations do not intentionally invest their resources to learn and build coordinative/integrative capabilities might end up lacking relevance as coordinative/integrative capabilities reflect the ability of an organisation to properly make use of its resources to support sustainability and constant renewal of the organisation. The study found that even though there is a governance structure in place, the participants also acknowledged and highlighted that there are no formal processes in place, and in most cases, decisions get taken by managements on an

ad hoc basis and staff members just get informed when there is a new system or technology to be introduced.

The study revealed that organisations that lack investment in building innovation capabilities have high possibilities of lagging behind and underperforming. Innovation capabilities is characterised as the cognitive mechanism to, at all material times, translate knowledge and transform ideas into novel products, where processes are improved, and functional linkages within systems so that organisations would reap fruits as well as the stakeholder. The literature (Lawson & Samson, 2001; Teece, 2007) revealed that organisations strive to remain relevant, thus, a need to constantly adjust to changing environment that may affect their existence. The field of strategic management is crucial in forming a view on how organisations can achieve and sustain relevancy. This means public organisations in general and government agencies in particular, in the developing world are obliged to put a concerted determination towards realising innovation capabilities. Innovation capabilities can be expressed as the means of management as well as relevant key stakeholders in the public sector to make continuous, purposeful resource distribution changes and lead the generation of new thinking within organisations.

6.2. MAJOR FINDINGS

A detailed analysis of the relevant body of knowledge, secondary data relevant to CIPC, and semi-structured interviews were used to construct the study, using the CIPC (intellectual property and support divisions) as a case study. The study examined whether appropriate capabilities for innovation exist in public sector organisations at a micro-level, such as CIPC, and how the capabilities are developed as well as the features that hinder or impact on the development of innovation capabilities in public sector organisations.

The research revealed that the CIPC has a strategy with a specific vision and objectives. However, there is a lack of coordinated formal processes to effectively implement the strategy. It is understood that managers in an organisation drive,

coordinate or integrate processes and activities within. The effectiveness and efficiency at which internal coordination is realised are quite crucial, as is the integration of activities that are external to the organisation. The study showed that collaboration is a key value of the organisation. Collaboration internally amongst different units ought to work together for the organisation to flourish and also in terms of collaboration with external partners. However, some feel that there is a need for a coordinated stakeholder engagement program such that there is a stakeholder database, to help minimise silos as different units have their own stakeholders.

According to Teece et al (1997, 2007), there is empirical evidence that the mechanism by which development is organised within an organisation affects its competitiveness. As a result, coordination/integration often leads to predictable task patterns and organisational schedules, and organisational processes necessitate coordinative/integrative capabilities. Integrative skills can be thought of as an organisation's ability to properly and efficiently use its resources in order to support long-term growth and renewal. The results suggest that CIPC possesses certain coordinative or integrative capabilities, owing to its governance frameworks.

Organisations must be able to feel the need to reconfigure themselves, in terms of transforming their properties and achieving both internal and external transformations, since the environment in which they function is continually evolving and doing so at a rapid pace. This can be accomplished, among other things, by constantly tracking markets to see if new innovations emerge, as well as a desire to seek out and follow best practices. The findings revealed that CIPC has a mechanism for tracking trends, which includes conducting consumer needs analysis, implementing strategy, and reporting on monthly or quarterly meetings, attending seminars, benchmarking and the use of technology to monitor transactions among others.

On the basis of guidance from the WIPO, four IP office models were formulated,: Model 1 deals with public services that are web-based in a basic manner; Model 2 is where internal administration is at an advanced level; Model 3 is where all processes and services offering are fully automated; the last model, Model 4 is when the IP office offers additional service which include IP services that are knowledge-based IP. Most of the participants stated that the CIPC has a variety of methods for developing new

products or services and improving processes, despite some reservations that the approaches are not completely adopted and understood by all. Many of the participants agreed that the techniques used would adhere to the CIPC strategic plan, with a focus on automation. Thus, it appears from the findings that CIPC is currently embarking on a journey of moving from manual filing to fully end to end process of using the automated systems, mainly IPAS (Industrial Property Automation System) to make sure turnaround is improved drastically, and of also introducing “substantive search and examination” of patent applications.

In smart IP offices, ICT is a powerful enabler that allows for automation, deep analytics, and automated decision-making. The most complicated aspects of ICT implementation in the smart IP Office are integration and alignment. In a smart IP Office, an Enterprise Architecture System can be used to design all components into a single architecture model and ensure that all business processes and ICT support are in sync. The study findings indicate that there is some level of alignment and integration at CIPC between business components and ICT. Some participants indicated that in an ICT environment, the strategy is influenced by what business strategy entails.

Organisational structural settings are quite crucial as individual skills and how they be applied hugely depend on the settings. In essence, learning processes naturally take the form of being social and happening collectively in trying to make sense of problems that are complex, thus, it is not just emulating individuals. Learning process management requires standard procedures of communication that are coordinated. Learning and knowledge generation may assist an individual or an organisation to be able to identify opportunities to solve customer needs either through current or new solutions. Even though there are those mentioned internal processes or governance structures, some respondents indicated that there is a lack of structured functional framework and allocation of staffing and other resources for innovative or new projects takes, it takes place on an ad hoc basis. Thus, the findings show a lack of standard procedures for learning and poor communication.

There are two key metrics for measuring a smart IPO: firstly, Community satisfaction index, where customers share their experiences post using IP office services, this metrics tests the level of community satisfaction. For example, whether service is fast, user friendly according to the rules stated in the time or not. Most of the participant shared a strong belief that the CIPC is a unique organisation that has no competition, is a monopoly and is protected by legislation and through the legislation it would remain relevant. The belief is that there is no other company nor organisation in South Africa that offers or can offer the services offered by CIPC which include intellectual property registration. However, others stated that even though there is a claim that the CIPC has no competition, is a monopoly, but they still need to make sure that they up their game, such that they do not find themselves rendering services that is not making CIPC customers happy or stakeholders happy.

In terms of improvement purposes, one of the most widely used methods for enhancing efficiency, according to the majority of participants, is performance management policy. The majority of participants indicated that the company rewards good results with a bonus and that it follows a specific scoring matrix, and that this process appears to be successful in improving performance in relations to target set by CIPC.

Borins defined three types of challenges that stifle innovation in the public sector. The first group includes roadblocks that arise primarily from the bureaucracy. The second group identified political roadblocks such as a lack of financial injection or other resources, statutory environment limits, and political opposition. The third party spoke about environmental issues.

6.3. RECOMMENDATIONS

This segment contains suggestions that have been made to the CIPC derived from the outcome of this research study. These suggestions are geared toward successful

innovation management and the nurturing of innovation capabilities of the organisation.

- The leadership or management of CIPC should consider reviewing its strategy such that even though the CIPC is formed through a legislation and exists to implements certain legislation, that should not be considered as a safe net to keep the organisation relevant.
- The CIPC should consider developing formal process that are communicated to every staff member in relation to product or service development and process improvement. From the findings, it appears that there is no formal channel for staff members to table their ideas and for the ideas to get tested. Thus, the CIPC should consider developing a way to involve staff members in innovation processes, not only managers.
- The CIPC should consider ways to improve communication within the organisation, particularly for change management purposes so that there would be minimal resistance if there is any, and employees get to fully appreciate that change and its effects
- The CIPC should consider formalising the allocation of staff and other resources for innovation and not only rely on an ad hoc allocation, made at the managers' discretion.
- The CIPC performance improvement method should be reviewed such that it does not only directly cater for monetary incentives such as bonus and pay progression, but other types of incentives should be considered.
- The CIPC may also consider establishing a living lab as an experimental area to apply some ideas to improve the IP office, such that stakeholders can connect with each other, and use it.

6.4. LIMITATIONS OF THE RESEARCH

- The scope of the study was limited to the CIPC intellectual property divisions and support structures.
- The analysis for this study took place at a specific point in time. At the CIPC, a longitudinal study is needed to cover the years that have not been investigated previously.

6.5. SUGGESTIONS FOR FUTURE RESEARCH

- This study was limited to CIPC, with an emphasis on intellectual property and support structures. The nature of CIPC business differs vastly, thus, a comparative study with a focus on companies' units is suggested.
- In addition, a cross-sectional study cutting across different is needed or a study that is comparative involving other government agencies in South Africa and other industrialising countries is needed.
- Further, a study on international organisations' influence on government agencies may be done to consider whether they enhance or hinder innovation.
- A study to consider the use of consultants or service providers by government agencies, and how that influences the building of innovation capabilities.
- A study that includes a perception of the customer and participations from front desk levels is recommended.

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APPENDIX A

Interview Protocol: - Public sector/government agencies

“This study seeks to determine in the South African context, whether public/government agencies have systematic way of managing of innovation, and if so, to find out whether they have a method of learning and building innovation capabilities. It aims to make a contribution to the body of knowledge by trying to improve the understanding as to how public sector organisations or government agencies promote their internal learning and building of innovation capabilities. Public sector innovation capabilities can be generally expressed as the ability of public sector management and other key stakeholders to make continuous resource allocation changes and generate new thinking within organisations

Could you please tell me more about your role and responsibilities?

For how long have you been in public sector, particularly government agencies?

1. Could you please tell me about your organisation's and/or unit's approach to new product/service development and process improvement **DC business process**
2. Does your organisation/unit have a systematic way/process in place for actively monitoring and exploring emerging trends, and developing alternative scenarios that seek to address either threats or opportunities?
3. Are customers (both existing and potential) an integral part of the innovation process as a means of identifying both their expressed and unexpressed needs? **SIPO collab model**,
4. Are stakeholders (e.g law firms, other IPOs, Banks, etc.) involved as an integral part of the innovation process as a means of identifying necessary improvement? If so, how? **SIPO collab model**,
5. Could you please tell me about your organisation's culture? For example, with respect to its general mind-set, approach to collaboration, its decision-making style or way of responding to change.

6. Elaborate on the agency's organisational processes and functional frameworks (or a potential development of such) and allocation of staffing, resources and management that are adequate to support innovation initiatives.
7. Please tell me about some innovation-related targets and measures that have been defined by the organisation (for example: 'X percent of revenue must come from products/services launched over a certain number of years') **SIPO measure model**,
8. Does your organisation/unit regularly achieve its intended targets and outcomes?
9. How does your organisation attempt to improve its performance relative to those targets? I'm particularly interested in this in relation to its organisational culture.
10. In an environment where private sector entities offer or have a potential to offer the same/similar products/services offered by government agencies/organisation, how does your organisation ensure relevance?
11. How has partnering with other organisations (e.g., Banks, other government agencies) complemented your products offerings (for example Awareness, Brand Value, etc.)?
12. Where does your organisation source the technical and business knowledge needed to successfully fulfil its mandate?
13. What has helped your organisation to remain relevant to date? What has hindered it?
14. What technological resources do you use in rendering your services, and what organisational process followed in acquiring them?
15. Are there any additional persons or organisations that you think I should talk to for further information?"

APPENDIX B

“Consent Form

Title of project: **Organisational Innovation in the public sector: the case of the Companies and Intellectual Property Commission (CIPC)**

Name of researcher: **Bheki Zulu**

I, ..., agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous YES ☐ NO ☐

I agree that the researcher may use anonymous quotes in his / her research report YES ☐ NO ☐

I agree that the interview may be audio recorded YES ☐ NO ☐

I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained. YES ☐ NO ☐

..... (signature)
..... (name of participant)
..... (date)”

APPENDIX C

**“The University of Witwatersrand, Johannesburg
Graduate School of Business Administration**

2 St David's Place, Parktown, Johannesburg, 2193, South Africa
P O Box 98, WITS, 2050
Telephone: +27 11 717 3947
Facsimile: +27 11 717 3538
Website: www.wbs.ac.za



Participant Information Sheet

Dear Sir / Madam

“My name is” Bheki Zulu and I am a Masters student in Management (Innovation Studies) “at the University of the Witwatersrand, Johannesburg. As part of my studies, I have to undertake a research project, and I am investigating” Organisational Innovation in the public sector, “under the supervision of Dr” Diran Soumonni. The aim of this research project is to find out whether public/government agencies have systematic way of managing innovation, and if they have a method of learning and building innovation capabilities.

“As part of this project, I would like to invite you to take part in an interview. This activity will involve answering questions and will take between 30 and 60 minutes. With your permission, I would also like to record the interview using a digital device”, and it is envisaged that this would be a once-off interview.

“There will be no personal costs to you if you participate in this project, You will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. The interview will be completely confidential and anonymous as I will not be disclosing your name or any identifying information without your consent, and the information you give to me will be held securely and not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation in my final research report. If you experience any distress or discomfort at any point in this process, we will stop the interview or resume another time”. However, since I work for the organisation, anonymity with regards only to myself cannot be guaranteed.

“If you have any questions during or afterwards about this research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you. The data collected from this research project will be stored and be kept for 10 years. With your permission the data collected from this research project may be used by other researchers. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrec-medical.researchoffice@wits.ac.za

Yours sincerely,”
Bheki Zulu

Researcher:
Bheki Zulu,

Supervisor:
Dr. Diran Soumonni,