LLM Mini-Dissertation

Topic:

Patent quality and patent system in South Africa and selected foreign jurisdictions

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Abstract

This dissertation finds significance in the South African government's recognitions and commitments to reforming South Africa's patent system so as to better encourage innovation, research and development. This recognition and commitment can be found in the Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2018. In this policy there is an understanding that South Africa's patent system is deeply flawed as a result of various issues such as its depository system and its weak implementation of the patentability criteria among other things. This calls into question the integrity of patents granted; and the unfair monopolization of subject matter that should not be protected by a patent and should rather be in the public domain i.e. a low-quality patent.

With this in mind, this dissertation sought to determine the parameters and/or components that define a high-quality patent. Whereafter, this dissertation sought to determine whether South Africa's patent system meets those parameters and/or components; or whether it falls short of them. The dissertation conducted a comparative study to determine whether India presented any potential solutions that could address South Africa's patent system as it stands; particularly in instances where there are gaps and where the parameters and/or components of patent quality are not met.

Ultimately, this dissertation concludes that South Africa's patent system produces patents that fall far short of the parameters and/or components needed to produce high-quality patents. This dissertation recommends a number of potential solutions that have been introduced by India's patent system that may potentially resolve these issues. This includes the introduction of substantive search and examination, strengthening the patentability criteria; and various ways and methods of effectively improving the quality of disclosures submitted by patent applicants. These recommendations seek to prevent the unfair monopolization of patents and ensure patents that are granted support the policy justification for patents. This includes granting patents that benefit society, ensures the proper transfer of technology and encourages further innovation.

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To my mom, dad and sister, thank you for your unconditional support and reassurance throughout this journey. I could not have reached this point without each of you.

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Chapter One

Introduction

1.1 Background

The World Trade Organisation (WTO) introduced the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS Agreement) in 1995.[1] South Africa as a member of the WTO signed onto the TRIPS Agreement in the same year. The TRIPS Agreement refers to intellectual property as creations of the mind.[2] A type of intellectual property protected by TRIPS is patents.[3] TRIPS provides for the minimum requirements an invention must meet to receive patent protection, and it provides for the minimum rights a patentee should be able to enjoy. These provisions are all included in South Africa's Patents Act 57 of 1978.[4] Section 25 of the Patents Act provides for the general patentability criteria of an invention stating that an invention must be new, involve an inventive step, and be useful in trade, industry, or agriculture.[5] Inventions that are patented receive patent protection which means that in terms of section 45(1) of the Patents Act, the patentee receives several rights including the right to exclude others from making, using, and disposing of the patented invention.[6] Section 46(1) of the Patents Act states that this monopoly over the patent will last 20 years from the date of application.[7]

The theoretical justification for patent protection in South Africa is simply to encourage innovation, improvement, and the attainment of new knowledge.[8] Therefore, patent protection serves as a quid pro quo:[9] A patentee is given exclusive rights to make, use, and sell their invention for a 20-year period[10]; in exchange, society receives a public

[1] WTO 'Overview: the Trips Agreement' (2023) <https://www.wto.org/english/tratop_e/trips_e/intel1_e.htm > (accessed: 30 April 2023).
[2] WTO (n 1 above).
[3] WTO (n 1 above).
[4] WTO (n 1 above.
[5] Sec 25 of Act 57 of 1978.
[6] Sec 45(1) of Act 57 of 1978.
[7] Sec 46(1) of Act 57 of 1978.
[8] TD Burrell *Burrell's South African Patent and Design Law* 4 ed (2016) para [1.1].
[9] Burrell (n 8 above) para [1.1].
[10] Sec 45(1) and 46(1) of Act 57 of 1978.

disclosure of the workings of the invention, such that when the patent term lapses, such knowledge of the invention becomes part of the public domain for all members of the public to use freely.[11] This quid pro quo given seems to find justification in the reward and incentive theories for intellectual property creation.[12] In terms of the reward theory, a patentee should receive a reward for the labour, costs and effort put into creating something, but also for the benefit society will receive from the creation.[13] This reward is given in the form of the exclusive rights referred to above, and as per s45(1) of the Patents Act.[14] It enhances inventions and dissemination of information that would otherwise remain a secret if not for the reward granted.[15] Further, the incentive theory supplements the reward theory in that it states that the legal protection of patents is necessary for the creation of more patented inventions.[16] Therefore, the monopoly patentees receive is necessary for the advancement of society. The incentive theory also encourages public disclosures of new inventions in exchange for protection.[17] Further, the incentive theory aims to correct market failures that result from the high cost of making inventions and the cost of distributing that invention.[18] What is clear from both theories is that it aims to encourage the creation of inventions that benefit society through the grant of monopolies for those inventions for a limited time in exchange for a public disclosure of that invention.[19] As per the theoretical justification for patent protection, the exclusive rights granted to patents serve as an incentive for the public disclosure of subject matter i.e. an invention.

1.2 Research Problem

[11] Burrell (n 8 above) para [1.1].
[12] M Du Bois 'Justificatory theories for Intellectual property Viewed through the Constitutional Prism' (2018) 21 *PELJ* 31.
[13] Du Bois (n 12 above) 19.
[14] Du Bois (n 12 above) 19; sec 46(1) of Act 57 of 1978.
[15] Du Bois (n 12 above) 21.
[16] Du Bois (n 12 above) 22.
[17] Du Bois (n 12 above) 23.
[18] Du Bois (n 12 above) 23.
[19] Du Bois (n 12 above) 31.

In order to ensure that only patents of a high quality are granted patent status, many jurisdictions have added measures and procedures to their patent protection framework and system.[20] These measures ensure that a patented invention is granted exclusive rights only in instances where it meets the patentability criteria and not instances where the subject matter should fall into the public domain. To do otherwise would be opposite to the theoretical foundation for patent protection which is the disclosure of a high-quality patentable invention for which in return, the patentee receives a monopoly with regards to the invention for a limited amount of time.[21] However, in the case of South Africa, there is the argument that the patent protection system grants patents of a low-quality i.e. the patent does not meet the technical/legal and/or commercial components of patent quality.[22] Reasons put forward include South Africa's depository system, meaning the patent system does not at the point of granting a patent examine whether the substantive requirements of a patent have been met.[23] This omission means there is little certainty as to whether a patent deserves the exclusive rights attached to patents that are granted.[24] A determination of whether patents meet the requirements of patentability has been passed on to the courts in either revocation proceedings or as a potential defence in infringement proceedings.[25] The lack of an effective and efficient online database for prior art search presents an obstacle to for example researchers and developers looking up prior art within their area of expertise, and knowing where and where not to embark on research.[26] South Africa is also argued to have a weak implementation of the patentability requirements which allows for inter alia the patenting of incremental improvements of original patents i.e. evergreening.[27] Evergreening presents a concern where the secondary patent is a trivial improvement and not an effective innovation.[28]

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[20] S Busch 'Promoting Access to Affordable Generics: Reforming South Africa's Patent Law to Prevent Evergreening' (2016) 4 IPLJ 104.
[21] Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2018 7.
[22] (n 21 above) 7.
[23] (n 21 above) 7.
[24] Busch (n 20 above)106.
[25] (n 21 above) 7; *Ascendis Animal Health (Pty) Ltd v Merck Sharpe Dohme Corporation and Others* 2020 (1) SA 327 (CC); *Villa Crop Protection (Pty) Limited v Bayer Intellectual Property GmbH* 2022 JDR 3648 (CC).
[26] L Ndlovu 'Enhancing the Value of Patents as Corporate Assets in South Africa: How can Artificial Intelligence (AI) Assist?' (2020) 24 *PELJ* 20-21.
[27] Busch (n 20 above) 116-117.
[28] Busch (n 20 above) 110.

Therefore, there is a need to deconstruct and evaluate South Africa's patent protection framework and system to determine how the system may be reformed to ensure that patents granted are of a higher quality so that the patent protection system does not hinder but rather promotes innovation.

1.3 Research Questions

This dissertation seeks to examine South Africa's current patent system and to propose ways to ensure that it promotes the theoretical justification for patent protection and the granting of high-quality patents. South Africa grants strong exclusive rights to patentees, however South Africa's design of its patent system may allow an array of patents to be protected which do not necessarily meet the requirements for protection. This in turn can result in various problems. In answering this question, the following sub-questions will be examined:

i. What are the parameters and/or components of patent quality and how is patent quality linked with the design of the patent system?
ii. Based on the parameters of patent quality, to what extent does South Africa's patent system measure up against those parameters?
iii. Looking at the comparable jurisdiction of India, how may South Africa reform its patent system to better ensure the grant of high-quality patents?

1.4 Significance of the Study

The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2018 is the recent attempt by the government to reform and properly optimise intellectual property including patent law. There is a recognition that there is a need for patent reform to ensure the grant of high-quality patents and thus, better guarantee the integrity of patents. In light of the abovementioned, the significance of this dissertation is to explore the current state of South Africa's patent protection framework and system in view of what is considered to constitute or indicate high-quality patents to determine how the South African patent

system may be reformed. This dissertation does this as the South African government seeks to provide a new way forward with regards to its patent protection framework and system; and the importance of intellectual property especially patents in "promoting innovation, technology transfer and research and development".[29]

Therefore, this dissertation is significant in that it attempts to deconstruct and examine the problems that lie within South Africa's patent protection system and framework to determine how South Africa may eradicate or reduce the granting of low-quality patents. Furthermore, it is significant in exploring potential solutions. Specifically, the Indian patent system may provide a suitable model for the problems South Africa's patent system faces. India, like South Africa, is a developing country with an emerging economy, seeking to innovate and grow technologically.[30] India, like South Africa, has signed onto the TRIPS Agreement and therefore adheres to the requirements and guidelines TRIPS provides with regards to intellectual property in general, and patent rights in particular.[31] Both India and South Africa are part of the political formation known as BRICS[32] which inter alia discuss and exchange information regarding science, technology, and innovation.[33] Therefore, patent protection laws becomes an important agenda point with regards to the promotion of science, technology, and innovation. India has measures such as substantive search and examination, pre- and post-grant opposition procedures, and measures to strengthen the patentability requirements and ensure effective disclosures which specifically ensure the grant of high-quality patents.[34] Lastly, India's case law and legislation is often written in English, similarly to South Africa and therefore there should be no potential translation issues.[35]

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[29] (n 21 above) 8.
[30] (n 21 above) 22.
[31] WTO 'Members and Observers' (2024) <WTO ¦ Members and Observers> (accessed 23 June 2024).
[32] BRICS is an acronym for Brazil, Russia, India, China, and South Africa which are the countries in a shared political formation.
[33] (n 21 above) 31.
[34] B Baker, S Flynn, S Ragavan 'Justifying India's Patent Position to the United States International Trade Commission and Office of the United States Trade Representative' (2018) 9 Indian Journal of Intellectual Property Law 205-208.
[35] India Patents Act 39 of 1970.

1.5 Research Methodology

The research for this study will be managed using desktop research. This dissertation will review, critique, and analyse various literature pertaining to the stated research questions. The literature in question will be in the form of primary sources such as legislation, case law and treaties, as well as secondary sources such as journal articles, websites, etc. The literature used will be limited by the research questions formulated above.

1.6 Chapter Outline

Chapter 1 is an introductory chapter. It introduces the topic by providing the background to it, setting the research problem and research questions, indicating the significance of the study as well as providing the research methodology for the dissertation and the chapter outline.

The second chapter seeks to set out the various parameters and/or components of patent quality to determine what constitutes high-quality patent, and thereafter this chapter explores how patent quality is linked with the design of the patent system.

The third chapter seeks to measure South Africa's patent system against the parameters for patent quality established in chapter two. In this regard, South Africa's patent protection framework will be examined, as well as the contextual realities of South Africa's patent protection system.

The fourth chapter looks at the comparable jurisdiction of India and its patent protection framework and system to determine how South Africa may reform its patent system to better ensure the grant of high-quality patents.

The fifth and final chapter will summarise and conclude the research points in each chapter. It will also provide recommendations for reforming the patent system in South Africa.

Chapter Two

Analysis of the parameters and/or components of patent quality

2.1 Introduction

The grant of high-quality patents brings a net benefit to society by ensuring adequate technology transfer, innovation and research and development occurs. This chapter seeks to explore the parameters and/or components of patent quality. The parameters and/or components of patent quality can be split and compartmentalised into two components: the legal and/or technical component of patent quality, and the economic and/or commercial component. Both components will be explored. Thereafter, this chapter will briefly review and determine how the design of the patent system links to the parameters and/or components of patent quality.

2.2 What is Patent Quality?

As stated above, the parameters of patent quality can be compartmentalised into two main components: The legal/technical component and the commercial component of patent quality.[36] Both components play an intrinsic part in ensuring patents are of a high-quality. The legal/technical component is generally a measure of whether the patent meets the substantive and formal requirements of patent protection. Although patent validity is an indicator of the legal validity of the patent, this component on its own does not determine the quality of the patent itself. This is evidenced by the fact that a large number of patents meet the validity requirements, however they are evidently not worth very much and as such bring no new benefit to society.[37] The second component of patent quality therefore is an indication of whether the patent brings a new benefit to society through a determination of whether it has been commercialised by the patentee which is

[36] K Higham, G de Rassenfosse, A Jaffe 'Patent Quality: Towards a Systematic Framework for Analysis and Measurement' (2021) 50 *Research Policy* 2-3.
[37] Higham (n 36 above) 2.

indicated through a number of various factors and indicators.[38] A patent is of a high quality when both components are met.

2.3 The legal/technical components of patent quality

The legal and technical component of patent quality is determined by the substantive and formal requirements of patent quality as mandated by the TRIPS Agreement and as subsequently formalised by national legislation of countries who are member countries of the World Trade Organisation (WTO).[39] The TRIPS Agreement provides that the substantive requirements for patent grant are that an invention must be novel, have an inventive step, and be capable of industrial application.[40] Furthermore, the TRIPS Agreement provides for a number of subject matter excluded from patentability such as mathematical methods and scientific theories etc.[41]

According to the TRIPS Agreement, an invention is deemed novel if it is new, which is understood to mean that the invention comprises a new characteristic/component which has not been disclosed i.e. not available within the prior art. The requirement of inventive step on the other hand is synonymous with the idea of being “non-obvious” i.e. this requirement is met where the invention comprises a sufficient step away from what is known in the prior art such that the step would not be “obvious” to persons skilled in the art. The final criterion of industrial applicability requires the invention to be useful and capable of industrial application. These are the general definitions of the three cornerstones of patentability.[42]

Article 27 of the TRIPS Agreement[43] grants flexibility to the various signatories of the agreement to alter or amend the definitions of the abovementioned patentability criteria

[38] Higham (n 36 above) 3.
[39] Busch (n 20 above) 103.
[40] WTO ‘Module V: Patents’ (2015) <https://www.wto.org/english/tratop_e/trips_e/ta_docs_e/modules1_e.pdf> (accessed: 23 August 2023).
[41] WTO ‘Module V: Patents’ (2015) <https://www.wto.org/english/tratop_e/trips_e/ta_docs_e/modules1_e.pdf> (accessed: 23 August 2023).
[42] WTO ‘Module V: Patents’ (2015) <https://www.wto.org/english/tratop_e/trips_e/ta_docs_e/modules1_e.pdf> (accessed: 23 August 2023).
[43] Article 27 of the Agreement of Trade-Related Aspects of Intellectual Property Rights.

in accordance with their needs.[44] With this in mind, another component of patent quality is stronger patentability criteria, including strengthening the criteria of novelty and inventiveness to ensure patents are only granted for inventions that are breakthrough inventions that cover a new and unexplored area and domain. Strengthening the patentability criteria can therefore prevent the patenting of small and incremental improvements of an original patent which are in essence superfluous variations of the original patent.[45] An example of this is section 3(d) of India's Patents Act[46] which prevents the patenting of new forms of existing compounds that do not show any "enhanced efficacy". The aim of this provision is to prevent the patenting of derivatives of the same patent that are small and/or superfluous improvements of the original that show no real new benefit to society.[47]

Furthermore, having an effective patent database for prior art search is a potential indicator of quality patents.[48] A patent database allows an inventor, or researcher and developer to search the available prior art easily and accessibly before researching and developing new ideas or unexplored areas of potential innovation. It allows such persons to ensure that they are able to cite prior art that has helped contribute in developing their patent and ensures that prior to applying for a patent they are not infringing another patent.[49] Furthermore, the patent database can assist patent examiners in an examining system to ensure that a patent application meets the requirements of patentability, particularly the requirement of novelty prior to grant.[50] Therefore, a patent database is important in ensuring the quality of patents.

Furthermore, there are two important formalities to ensure the legal and technical components of patent quality are adhered to. The first is the disclosure requirement which

[44] Busch (n 20 above) 118.
[45] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 2.
[46] India's Patents Act 39 of 1970.
[47] Busch (n 20 above) 117.
[48] Ndlovu (n 26 above) 14.
[49] Ndlovu (n 26 above) 14.
[50] Ndlovu (n 26 above) 22.

is provided in the specification of a patent application. The TRIPS Agreement in Article 29.1 requires a disclosure of the invention

> That is sufficiently clear and complete for the invention to be carried out by a person skilled in the art[51]

Furthermore, the TRIPS Agreement allows but does not mandate that national legislation

> Indicate the best mode for carrying out the invention known to the inventor[52]

Disclosures are intended to encourage and create more innovation that can become beneficial to society. Therefore, it is important that the invention is sufficiently disclosed to allow others skilled in the art to recreate the invention independent of the inventor and to learn from the invention.[53] As such, high-quality disclosures allow others skilled in the art to build upon the original patent and the discovery made therein and prevents research on identical subject-matter, and therefore, such disclosures should be clear, exact and precise.[54] The disclosure of the invention in the specification of the patent is intrinsic to the role of patents which in essence is a quid pro quo.[55] The quid is the adequate disclosure of the invention, and the quo (which is located in the claims) is the exclusive rights attached to the patent.[56] Therefore, adequate disclosure should be vital before exclusive rights can be granted.[57] Therefore, disclosures that leave out information, are overly complicated and/or unreadable do not support the theoretical justification for patent protection which is to encourage innovation and development, and should not be granted the exclusive rights.

The second important formality of the patent application is the claim/s that define or create the exclusive rights attached to the patent preventing others from infringing on the patentee's patented invention.[58] The claims of a patent determine the exclusive rights granted to a patentee, and therefore determine the line which other researchers cannot

[51] Article 29.1 on the Agreement on Trade-Related Aspects of Intellectual Property Rights.
[52] Article 29.1 on the Agreement on Trade-Related Aspects of Intellectual Property Rights.
[53] T Dyer, S Glaeser, M Lang, C Sprecher 'The effect of patent disclosure quality on innovation' (2021) 30 *Journal of Accounting and Economics* 3.
[54] Dyer (n 53 above) 5.
[55] Dyer (n 53 above) 4.
[56] Dyer (n 53 above) 4.
[57] Dyer (n 53 above) 4.
[58] Dyer (n 53 above) 4.

cross into so long as the patent subsists. Therefore, it is important to ensure that those claims are not overly-broad or narrow or that the claim/s are ambiguous or vague.[59] Well-defined claims that indicate accurately the scope of protection given to the patentee are an indicator of high-quality patents because they do not unduly claim protection for something that should not be protectable, and thus allow researchers to adequately build upon their invention.[60] Overly-broad claims do the opposite and thus stifle research and development by unduly claiming protection for broad subject matter that does not and should not fall within their claims and protectable subject-matter.[61] Claims that are drafted in such a way that blurs the boundaries and number of claims in a patent pollutes the prior art and is opposite to the rationale for patent protection.[62]

2.4 The commercial components of patent quality

The second component of patent quality as aforementioned is the commercial component. A lack of commercialisation of a patent is indicative (although not conclusive) of insufficient societal benefit that the patent can provide and therefore is an indication of a low-quality patent.[63] This is because a lack of commercialisation of a patent can indicate a lack of value in the patent.[64] Therefore, a granted patent that lacks commercialisation stifles and blocks innovation because it protects and grants exclusive rights for subject matter that is not or cannot be used for the benefit of society at large; and prevents others from embarking on research and development that can lead to innovation because the subject-matter is protected by a valid patent that is not commercialised.[65] Conversely, a high-quality patent should have components of sufficient market value, commercial viability, and should be able to therefore stimulate further innovation and create sufficient licensing opportunities.[66] A patent that is commercialised brings a new net benefit to society and encourages the development and creation of more innovation. To determine

[59] A Marco, J Sarnoff, C DeGrazia 'Patent claims and patent scope' (2019) 48 *Research Policy* 1.
[60] Marco (n 59 above) 1.
[61] Marco (n 59 above) 1.
[62] Marco (n 59 above) 2.
[63] Higham (n 36 above) 3.
[64] Ndlovu (n 26 above) 19.
[65] Higham (n 36 above) 3.
[66] Ndlovu (n 26 above) 19.

whether a patent comprises of the second component of patent quality, it is important to use certain indicators. The indicators used herein are patent renewals, forward and backward citations regarding the patent, patent family size, and the number of claims in the patent.[67]

Where patent renewals fees are needed to keep a patent in force for the patentee, then patent renewals can be an indicator of patent value and hence, patent quality.[68] Patents that are not renewed by the patentee fall into the public domain, and therefore, the expectation is that patentees/companies will only pay patent renewal fees where they expect value to be received from a patent because of potential commercialisation opportunities and prospects.[69] Therefore, patent renewals can be a sign of the value a patentee sees in a patent and therefore an indication of the quality of the patent.[70] However, this indicator is not the strongest indicator of patent quality (particularly when measured on its own) because many firms/individuals with patents often renew their patent to full term.[71] Nonetheless, when used in conjunction with other indicators it can be useful.

Another indicator of the commercialisation of a patent is that of forward citations.[72] Forward citations are citations received from latter patents that reference i.e. cite an earlier patent/s as part of the prior art.[73] This can be illustrated in the example of a tree. The tree trunk and roots are the earlier patent and forms the foundation of a tree. The branches of a tree refer to the latter patents which builds off of the foundation of the earlier patent. Another illustration of this is for example where Patent A granted in 2020 and Patent B in 2024 cites patent A. This means Patent A received a forward citation and Patent B has done a backward citation. Such citations are made by either applicants or examiners to justify the limitation of a claim or to show a disclosure made regarding

[67] M Squicciarini, H Dernis, C Criscuolo 'Measuring Patent Quality: Indicators of Technological and Economic Value' (2013) 3 *OECD Directorate for Science, Technology and Industry* 59.
[68] Squicciarini (n 67 above) 57.
[69] Higham (n 36 above) 3.
[70] Higham (n 36 above) 4.
[71] Higham (n 36 above) 5.
[72] Squicciarini (n 67 above) 35.
[73] Squicciarini (n 67 above).

knowledge of certain prior art that aided in developing the invention at hand.[74] Therefore, forward citations are indicative of the value of a prior patent because it is evidence that the patent's subject matter occupies 'a newly discovered frontier' of technology or science.[75] Furthermore, forward citations are indicative that an earlier patent is at the forefront of research and development into a particular area of science and technology and subsequently more innovation into this 'newly discovered frontier' of technology will emerge because a subsequent or follow-up patent is referencing the earlier patent's work.[76]

Backward citations on the other hand occur when a latter patent refers to an earlier work and/or patents as a key component for the development of the latter patent.[77] Backward citations recognise the foundational work of an earlier patent that helped make a latter patent possible. Such citations can be listed by the applicant in their initial disclosure of the invention or by examiners when examining the patentability of the invention i.e. the novelty and/or inventiveness of the invention; and to determine the legality of the claims of the invention as listed in the patent specification.[78] This indicator is useful in determining the value and hence, quality of the patent because it can indicate a new technological space which the current patent/invention seeks to explore.[79] Similarly, a large number of backward citations can hurt the value of the patent by limiting the scope of protection that can be claimed by the patent itself.[80] Therefore, backward citations are indicative of the validity of the patent as well as how patents have built on and developed upon prior art and research.

Finally, the patent family size can be a useful indicator of patent quality and its commercial value.[81] Patent family size is referred to as the number of the same or similar granted patents in other countries/jurisdictions.[82] Therefore, the greater the geographical reach

[74] Higham (n 36 above) 4.
[75] Higham (n 36 above) 3.
[76] Higham (n 36 above) 3.
[77] Squicciarini (n 67 above) 22.
[78] Higham (n 36 above) 17.
[79] Higham (n 36 above) 17.
[80] Higham (n 36 above) 17.
[81] Squicciarini (n 67 above) 22.
[82] C Chien 'Comparative Patent Quality' (2018) 50 *Arizona State Law Journal* 103.

and protection of a patent, the greater its value (and hence quality). This is because it is deemed that applicants would only take the time, money, and resources to extend protection to other jurisdictions if they believed their invention was valuable enough to do so; and furthermore, those patents would only be approved by those jurisdictions if the quality of the patent was high enough to do so.[83]

Therefore, the main indicators used to determine patent quality in terms of its commercial value are patent renewals, patent citations (forward and backward citations), and the patent family size.[84] Additionally, although discussed in terms of the legal components of patent quality, patent claims too can be an indicator of the commercial value of a patent.[85] Considering, as aforementioned, that patent claims should not be overly broad or unduly vague, the more claims a granted patent holds, the greater its commercial value because it holds greater 'real estate' i.e. it has exclusive rights to a larger area of technology and/or science which is valuable (and therefore of great quality).[86]

2.5 The link between patent quality linked and the design of the patent system

If the abovementioned represents the parameters and/or components of patent quality, then the design of the patent system represents the real and/or practical measures within the patent system to ensure the theoretical parameters and/or components of patent quality (as determined by that jurisdiction) are met. Therefore, patent quality is linked to the design of the patent system in ensuring and encouraging that only patents of a suitable quality are granted.[87] Examples of this could include India's use of substantive search and examination which involves a search of the prior art to determine if the invention is within or outside the prior art, as well as an examination of the patent application to determine whether it meets the substantive and formal requirements of patentability including novelty, inventive step, and utility. Therefore, this mechanism is

[83] Squicciarini (n 67 above) 14.
[84] Squicciarini (n 67 above) 59.
[85] Squicciarini (n 67 above) 30.
[86] Squicciarini (n 67 above) 30.
[87] RP Wagner 'Understanding Patent-Quality Mechanisms' (2009) 157 *University of Pennsylvania Law Review* 2135.

implemented to assist in ensuring that granted patents meet the substantive and formal requirements of patentability before grant.[88] Another example includes strengthening the patentability requirements such as how section 3(d) of the Indian Patents Act was introduced to prevent derivatives of existing compounds that do not show enhanced efficacy to ensure patents are only granted for inventions that are truly non-obvious and inventive.[89] However, as will become apparent in the context of South Africa's patent system the design of the system does not necessarily match and/or support the parameters and/or components of patent quality that it has set out for itself which in turn results in weak and/or frivolous patents that block innovation instead of incentivising it.[90]Furthermore, the parameters and/or components of patent quality in South Africa are not of a high-quality either.[91] Reasons for this include its non-examining depository system and the weak implementation of the patentability criteria amongst other things.[92]

2.6 Conclusion

What is clear from the above is that patent quality can be compartmentalised into two components. This is the legal/technical component of patent quality and the commercial component of patent quality. Where both components are met, the patents granted are generally high-quality patents; and support the theoretical justification for patent protection i.e. bringing a benefit to society. The legal/technical components consist of the substantive requirements of patent validity as provided by the TRIPS agreement which include an invention which is new, involves an inventive step and is industrially applicable. Furthermore, strong patentability criteria can be a sign of patent quality. Where the patentability criteria are such that for instance a trivial or superfluous improvement made on an original patented invention does not qualify for patentability because it does not

[88] Office of the Controller General of Patents, Designs and Trademarks 'Indian Patent Office: Guidelines for Search and Examination of Patent Applications' (2015) <https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_34_1_guidelines-draftSearch-examination-04march2015.pdf> (accessed: 01 October 2023).
[89] Vawda, Y 'After the Novartis judgment 'Evergreening will never be the same again' (2014) 18 Law, Democracy and Development 307-308.
[90] Busch (n 20 above) 105-106.
[91] Busch (n 20 above) 105-106.
[92] Busch (n 20 above) 114; 116.

adequately meet the novelty or inventiveness criteria, then, this is a sign of high patent quality. Furthermore, having an effective and efficient database for prior art search is an indicator of patent quality. Finally, where the claims and disclosures in the patent specification are clear and unambiguous then this too is a sign of high patent quality. In respect of the commercial components of patent quality, the patent renewals made by patentees/companies can be an indicator of commercialisation, as persons would not renew patents if they were not deemed valuable. So too can forward and backward citations made by the applicant or the patent examiner (if examination takes place) which can assist in determining whether the patent occupies a new frontier of technology. The patent family size can indicate the geographical reach and hence global commercial potential of the patent. Finally, the number of claims (when clear and unambiguous) can indicate a valuable patent because it may occupy a large space of technology and/or science. The abovementioned make up the legal/technical and commercial components of patent quality. Lastly, patent quality as established is linked to the design of the patent system in that the design of patent system presents the practical measures to ensure that granted patents meet the parameters and/or components of patent quality.

Chapter Three

Evaluation of the link between patent system and components of patent quality in South Africa

3.1 Introduction

There are a number of contextual realities in South Africa's patent protection system that may prevent it from measuring up against the parameters and/or components of patent quality. This chapter seeks to explore whether South Africa's patent protection framework measures up to the legal/technical components and commercial components of patent quality as established in Chapter 2. It will do this with some overlap between the components of patent quality.

3.2 The Contextual Realities of South Africa's Patent Protection System

Building on the introduction, this chapter will explore the following in the context of the South African patent system. Specifically, what are the legal components of South Africa's Patent Protection System, and additionally the reality and context of South Africa's depository system. Additionally, the nature and realities of South Africa's court system with regards to patent-related matter, the effectiveness and efficiencies (or lack thereof) of South Africa's patent database as well as patent renewals will be explored. Thereafter, the effectiveness of the implementation of South Africa's patentability criteria will be discussed, followed by a discussion on the claims and disclosures of patents granted.

3.2.1 The Legal Components of South Africa's Patent Protection System

As aforementioned, the cornerstone of patent protection and validity is found in the novelty, inventiveness, and industrial applicability of an invention. The South African Patents Act incorporates these cornerstones in section 25(1) which states that a patent may be granted for;

> Any new invention which involves an inventive step, and which is capable of being used in trade, industry or agriculture[93]

Therefore, where a patent meets these three substantive requirements, it will generally qualify for patent protection. Therefore, South Africa's patent system meets this legal component of patent quality. Furthermore, section 25(5) of the Patents Act states that to determine the novelty of an invention it must be compared to the state of the art that is present immediately before the priority date of the invention.[94] The state of the art as per section 25(6) of the Patents Act comprises:

> All matter (whether a product, process, information about either, or anything else) which has been made available to the public (whether in the Republic or elsewhere) by written or oral description, by use or in any other way[95]

Therefore, the state of the art is what is made available to the public, and therefore what is common to a person skilled in the art. Where what is claimed in the invention is part of the state of the art, novelty is destroyed**.** Section 25(10) of the Patents Act states the inventiveness requirements requires a determination of what is common knowledge in the technical or technological field that the invention is in to determine if the inventive step is obvious to a person of ordinary skill in that field of expertise.[96] If the inventive step is not obvious, then the invention has an inventive step and satisfies this requirement. Finally, as per Burrell, the utility function (or as TRIPS describes it as industrial applicability) is deemed to have been met when the invention achieves the function for which it was made.[97] Furthermore, section 25(2) of the Patents Act lists subject matter which is not patentable under the Act such as a discovery, a scientific method, a mathematical method amongst other things.[98] Therefore, the Patents Act sufficiently meets the intended substantive requirements i.e. legal/validity components of patent quality as established in Chapter 2.

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[93] Section 25(1) of the Patents Act 57 of 1978.
[94] Section 25(5) of the Patents Act 57 of 1978.
[95] Section 25(6) of Act 57 of 1978.
[96] Section 25(10) of Act 57 of 1978.
[97] Burrell (n 8 above) para 4.20.
[98] Section 25(2) of Act 57 of 1978.

3.2.2 The depository system for patent applications

Despite the abovementioned legal components of patentability being met within the statute, the reality is that the South African patent system is a depository one. This means that South Africa does not examine a patent to determine whether it meets the substantive requirements contained in section 25 of the Patents Act.[99] The Registrar of Patents which is located within the Companies and Intellectual Property Commission (CIPC) is charged with the authority to grant patents.[100] The Registrar is mandated by section 34 of the Patents Act[101] to examine all patent applications that come before them; however, this section is qualified by regulation 41 of the Patent Regulations[102] which provides the Registrar the authority to ensure the formal (and not the substantive) requirements of a patent application are complied with.[103] Therefore, the Registrar of Patents is only tasked by the Patents Act with ensuring that any invention meet the formal requirements of patent applications before grant. The only measure provided to ensure that a patent has met the substantive requirements of a patent is through a declaration that must be signed by an applicant which states that:

> To the best of my/our knowledge and belief, if a patent is granted on the application, there will be no lawful ground for the revocation of the patent[104]

This is not a high standard to ensure that inventions meet the requirements of patentability in exchange for the granting of exclusive rights.[105] The reasons for South Africa's depository system is outlined in the Intellectual Property Policy of South Africa Phase 1 2018 (IP Policy) and is very simple. South Africa has resource constraints.[106] Substantive examination would require the cost of training and employing patent examiners to examine the novelty, inventive step, and utility etc of every invention before grant of a patent. These examiners would need to understand the technological, procedural, and

[99] Act 57 of 1978.
[100] (n 21 above) 7.
[101] Act 57 of 1978.
[102] Patent Regulations 1978 (SAPR).
[103] Busch (n 20 above) 114.
[104] Form P3 in GN R2470 in GG 6247 of 15 December 1978.
[105] B Shozi & Y.A Vawda 'Quo Vadis Patent Litigation: Ascendis Animal Health (Pty) Limited v Merck Sharpe Dohme Corporation 2020 1 SA 327 (CC) – In Search of the Bigger Picture on Patent Validity' (2021) 24 PELJ 11.
[106] (n 21 above) 7.

legal aspects of patent examinations. The training of these examiners would take a significant amount of time and resources.[107] Instead, a depository system alleviates the state of this burden allowing them to concentrate resources on other fundamental developmental areas.[108] As a result, the burden of determining patent validity was shifted to the court system. Through litigation, a patent can be examined for novelty, inventive step, and utility etc either as a defence in infringement proceedings or as an action in revocation proceedings.[109]

3.2.3 The court system

As a result of South Africa's depository system, the courts in theory play an important role regarding safeguarding the validity of patent applications. However, the reality is not so. As the first and final arbiters of patent validity and quality, the court process is time-consuming and expensive which acts as a deterrent to patent litigation. The Court of the Commissioner of Patents, which holds the status of a division of the High Court, acts as a court of first instance in all patent matters. Judges appointed to this position may in certain cases have experience in patent-related matters. This does not mean that they necessarily have the technical background to deal with the technical/scientific aspects of the patent matters. Patent litigants can appeal to a full bench of the High Court or the Supreme Court of Appeal. By contrast, the experience of these judges in patent-related matters is far more limited. Furthermore, interim interdicts are often a hindrance to the rights of patent litigants.[110] Section 72(5) of the Patents Act states that the register of a patent serves as prima facie proof of a prima facie right. Once a prima facie right has been established in favour of a patent holder, what follows is the likely issuance of an interdict restraining a third party from infringing upon a patent holders patent.[111] This is the case, even where the patent is later found to be invalid based on the substantive

[107] Busch (n 20 above) 115.
[108] (n 21 above) 7.
[109] (n 21 above) 7.
[110] A Kapczynski, AS Kesselheim & T Ezer 'Submission to the Department of Trade and Industry on the Intellectual Property Consultative Framework' (2019) <submissiondepttradeindustryintellectualproperty.pdf (yale.edu)> (accessed: 01 April 2024).
[111] *Bayer Intellectual Property GMBH v New Clicks South Africa (Pty) Ltd* [2023] ZAGPPHC 649.

requirements etc. Therefore, many patent holders are able to obtain interim interdicts easily as a result of South Africa's lack of substantive examination; and this too acts as a deterrent to patent litigation. Furthermore, the Constitutional Court highlighted in the case of *Ascendis Animal Health (Pty) Ltd v Merck Sharp Dohme*[112] that their role in ensuring validity of patents in infringement and/or revocation proceedings is not as important as ensuring that procedural missteps in approaching the courts did not go unpunished.[113]

3.2.4 Patent Renewals

A positive of South Africa's patent protection system is section 46(2) of the Patents Act[114] which prescribes patent renewal fees, failing which the patent lapses. Patent renewal fees are due from the third year following the commencement of the patent, and every successive year thereafter.[115] Although extensions for payments of renewal fees of a patent are allowed, it may only be granted with good reason.[116] However, while this is a good indicator of the commercial value of patents; when evaluated in combination with the other requirements of commercial viability of patents including forward and backward citations, and patent family size, this component on its own cannot decisively determine the commercial value of South African patents.[117]

3.3 The patent database

In order to determine and ensure the novelty of an invention, it is important to have the facilities and system to conduct a prior art search to allow an applicant to determine the novelty of their invention prior to application for a patent. This process must be done before inventors can do research into new products or processes.[118] Such a search is

[112] *Ascendis Animal Health (Pty) Limited v Merck Sharpe Dohme Corporation and Others* 2020 (1) SA 327 (CC).
[113] *Ascendis Animal Health (Pty) Limited v Merck Sharpe Dohme Corporation and Others* 2020 (1) SA 327 (CC).
[114] Section 46(2) of the Patents Act 57 of 1978.
[115] Burrell (n 8 above) para 3.5.
[116] Burrell (n 8 above) para 3.5.
[117] As discussed in Chapter 2, patent quality is made up of different components and not one specific component.
[118] Ndlovu (n 26 above) 14.

done through the Companies and Intellectual Property Commission (CIPC) office in Pretoria in what is known as the Disclosure Centre. Search of the prior art is a manual exercise and carried out by the applicant or by their patent attorney.[119] The prior art search allows applicants and/or their patent attorneys to adequately determine the novelty of their invention prior to application for a patent, and to ensure sufficient backward citations and disclosures is made in respect of a patent application to properly determine the scope of rights/claims the invention is capable of holding. It can also be indicative in the case of many forward citations that the patent occupies 'a newly discovered frontier' of technology which can lead to more research and development.[120] There is also an electronic database for prior art search. However, the database is not as comprehensive with regards to the available prior art as the manual search as it only contains summaries of previously granted patents etc, which means interested persons do not have access to the specifications and claims of the patent itself.[121] This was confirmed after I conducted a search on the CIPC's patent database, and found little information on the claims or disclosures of the patents that I searched for.

This is in stark contrast to the EU's and the United States of America's patent offices which have online databases to conduct prior art searches.[122] This ensures that such jurisdictions can carry out prior art searches more easily and precisely. South Africa's ineffective and inefficient paper-based records and limited and incomplete electronic database increases the potential for inadvertent patent infringement as patent applicants may be unaware of possible prior art that is the same or similar to their invention, thereby potentially affecting the novelty of their invention.[123] Furthermore, this can affect third parties who are only aware of the infringement to the patent long after it has occurred, and therefore the absence of third-party opposition proceedings worsens this.[124] This in

[119] Patent Search: Intellectual Property <https://www.svw.co.za/patent-search/> (accessed: 01 December 2023).
[120] Higham (n 36 above) 3; 17.
[121] Ndlovu (n 26 above) 20-21.
[122] Patent Search: Intellectual Property <https://www.svw.co.za/patent-search/> (accessed: 01 December 2023).
[123] T Kamwendo 'The Quest to use CRISPR Technology in Tackling the South African Tuberculosis Epidemic: Examining How the CRISPR Patent and Licensing Regime May Impact Access to CRISPR-Related Tuberculosis Therapies' (2022) *IPLJ* 25.
[124] Kamwendo (n 123 above) 25.

turn affects the certainty of commercial indicators of patent quality, particularly that of forward and backward citations. Without an effective and efficient database for prior art search, proper citations of the prior art cannot take place, with the likelihood of incomplete disclosure of the prior art or overly-broad claims that are not restricted in terms of relevant prior art becoming a greater possibility.[125] This means forward and/or backward citations may not be made at all and if made, can be incorrect or incomplete. A lack of a complete database for prior art search can pollute the prior art, affect the novelty of inventions and as a result, can affect the quality of any forward and/or backward citations made.[126]

3.4 The patentability criteria

In addition to the lack of substantive examination, South Africa's weak implementation of the patentability criteria also poses a challenge to the grant of high-quality patents. The issue of evergreening poses a concern particularly in a depository patent system. Evergreening occurs where an incremental improvement is made on a patentee's existing patent, and the patentee applies for a new patent application based on the incremental improvement.[127] This is dangerous in the context of South Africa especially in instances where the improvements are small, trivial and/or superfluous.[128] As South Africa grants patents without determining whether the patent application meets substantive requirements, these small and trivial improvements of patents are more often than not approved and granted.[129] The lack of enhanced or effective improvement of the original patent calls into question its novelty and inventiveness. The result is that a patent holder's patent term extends past the normal 20-year period and where the patent would be invalid if not for South Africa's lack of substantive examination, then this means that access, research and development and generic competition is continually blocked without valid cause.[130] The result is the grant of exclusive rights without the creation of something new,

[125] Ndlovu (n 26 above) 14.
[126] Ndlovu (n 26 above) 20-21.
[127] Busch (n 20 above) 110.
[128] Busch (n 20 above) 110.
[129] Vawda (n 89 above) 314-315.
[130] Busch (n 20 above) 111.

non-obvious and useful which in turn stifles innovation and serves opposite to the theoretical foundation for patent protection.

An example of this challenge is present in the Yasmin birth control pill which is patented and sold in South Africa.[131] The patent term ended in 2010 however the patent was evergreened due to incremental improvements which prevented generic competitors from selling the product to the public at a cheaper price.[132] This is despite jurisdictions such as the EU rejecting the secondary patents on the basis that the improvement was obvious.[133] The Supreme Court of Appeal[134] adopted an overly broad approach in accepting the patent as inventive because of how the product was absorbed into the body.[135] The court determined that Bayer had discovered something non-obvious by showing something will work despite prejudice to the contrary by experts in the field. Whereas the EU amongst other jurisdictions had determined that contrary to the South African courts, *Yasmin* had always been made in that way and therefore the way the 'pill was absorbed in the body' was obvious and therefore could not be evergreened through a secondary patent.[136] The above is an example of the challenge of the patentability requirements in South Africa, which allows evergreening to prosper at the expense of the consumer public and research and development. Furthermore, the interpretation of what is patentable is relaxed and needs to be reviewed in light of the public interest.

The abovementioned case is an example of a growing trend in South Africa's fractured patent protection system and framework. On average, South Africa grants 93% of patent applications, which is in contrast to other patent office's such as the European Union's (EU's) patent office which grants 51% of patent applications and India's patent office

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[131] J Ashmore, J Hill, C Tomlinson, A Yawa 'Reforming South Africa's procedures for granting patents to improve medicine access' (2015) 105 South African Medical Journal) 741.
[132] Tomlinson et al (n 131 above) 741.
[133] Fix the Patent Laws 'Oral Contraceptives: Yasmin, Yaz and Ruby' (2014) <https://www.fixthepatentlaws.org/wp-content/uploads/2014/10/YasminFinal_3.pdf> (accessed: 01 October 2023).
[134] *Pharma Dynamics (Pty) Ltd v Bayer Pharma AG* [2014] 4 All SA 302 (SCA).
[135] Fix the Patent Laws 'Oral Contraceptives: Yasmin, Yaz and Ruby' (2014) <https://www.fixthepatentlaws.org/wp-content/uploads/2014/10/YasminFinal_3.pdf> (accessed: 01 October 2023).
[136] Fix the Patent Laws 'Oral Contraceptives: Yasmin, Yaz and Ruby' (2014) <https://www.fixthepatentlaws.org/wp-content/uploads/2014/10/YasminFinal_3.pdf> (accessed: 01 October 2023).

which grants only 19% of the patent applications that come before it.[137] Reasons put forward for this difference include particularly South Africa's aforementioned lack of examination of the substantive requirements, lack of an effective and efficient prior art search and the weak implementation of the patentability criteria.[138] The combination of these means the South African patent system grants patents for inventions that other countries simply would not.[139] This further affects the commercial component listed in Chapter 2 of this dissertation of patent family size. Many patents in South Africa simply do not have the same geographical reach as other patents granted in for example the EU or India. This is in large part because patents granted in South Africa would be rejected elsewhere.[140] Therefore this would suggest that the overall commercial value of patents in South Africa are weak and low in quality as compared to patents granted in other countries.

3.5 The claims and disclosures

Section 45(1) of the Patents Act allows a patentee of a granted patent to exclude other persons from making, using, selling etc the subject matter of the invention protected by the patent.[141] This is in exchange for a sufficient disclosure of the invention which can be used by third parties when the patent lapses.[142] Therefore, it is important to understand the scope of the patent and what is protected, and further to disclose the invention for potential future use by third parties.[143] Therefore, it is a requirement in terms of the Patents Act that an application with a complete specification is accompanied by a disclosure that in terms of section 32(3)(b) of the Patents Act:

[137] (n 21 above) 7.
[138] L Ndlovu 'Why South Africa Should Introduce Patent Searches and Substantive Examinations to Improve Access to Essential Medicines' (2015) *WIPO-WTO Colloquium Papers* 74;78.
[139] Ndlovu (n 138 above) 78.
[140] Ndlovu (n 138 above) 78-79.
[141] Section 45(1) of the Patents Act 57 of 1978.
[142] Burrell (n 8 above) para 1.1.
[143] Burrell (n 8 above) para 1.1.

> Sufficiently describe, ascertain and, where necessary, illustrate or exemplify the invention and the manner in which it is to be performed in order to enable the invention to be performed by a person skilled in the art of such invention[144]

Additionally, an application for a complete specification must be accompanied by a claim or claims in terms of section 32(3)(d) of the Patents Act which is defined as:

> The invention for which protection is claimed[145]

Furthermore, the issue of non-examination of patent application can have an effect on the claims and disclosures listed therein. Firstly, non-examination can result in situations where the scope of the claim is uncertain, either in that it is overly broad or unduly vague.[146] The claims can be written in such a way as to blur the true parameters of the patent.[147] Furthermore, there are no limits and/or fee restrictions regarding the number of claims unlike jurisdictions such as the European Patent Office (EPO) which bars more than one independent claim in the same category.[148] All of this, can create uncertainty in respect of the prior art as researchers/inventors will be unable to accurately determine whether they are allowed to do research and development into a certain field/area protected by the invention, which in turn can stifle and harm innovation.[149] Therefore, it is important for granted patents to be clear and concise as it is the claims that define the monopoly granted to the patent holder; and therefore this monopoly must be easy to understand for researchers and developers in the same or similar area or field that the granted patent is in.[150]

The disclosure on the other hand is what is given by the patent holder in exchange for the exclusive rights defined in the claims.[151] South Africa does not mandate the best method for carrying out the invention in the disclosure.[152] In this way, the patentability

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[144] Section 32(3)(b) of Act 57 of 1978.
[145] Section 32(3)(d) of Act 57 of 1978.
[146] A Pouris & A Pouris 'Patents and economic development in South Africa' (2011) 107 *S Afr J Sci* 6.
[147] Pouris & Pouris (n 146 above) 6.
[148] Pouris & Pouris (n 146 above) 6.
[149] Pouris & Pouris (n 146 above) 6.
[150] Marco (n 59 above) 1-2.
[151] Pouris (n 146 above) 7.
[152] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 28-29.

requirements with regard to disclosures are weak, which can affect innovation and development.[153] In terms of ensuring the best method of carrying out the invention is disclosed, this can assist researchers and inventors to properly exercise their research rights with respect to the invention so as to not unintentionally infringe or re-make something already in the prior art.[154] Furthermore, it allows competitors to enter the market quickly upon expiry of the patent.[155] Quality disclosures are an indication of the forward and backward citations present in granted patents which in turn is an indication of the quality (or lack of quality) of the granted patent. However, the lack of substantive examination creates uncertainty surrounding the validity and quality of disclosures in respect of its novelty, inventiveness, and industrial applicability. There may be an insufficient disclosure of prior art, or the disclosure of the invention could be an insufficient shift away from the prior art amongst other things. Where this occurs, the quality of the patent granted suffers. Additionally, disclosures in South Africa are static.[156] This means that disclosures occur during the filing-stage of a patent.[157] Any additional improvements that are made to the patented invention prior to the commercialization of the patent are not included in the patent disclosures.[158] This results in a gap in knowledge transfer from the patentee to the public at large; and as a result hinders the justification for patent protection. [159] Furthermore, South Africa's Patents Act does mandate that patent applicants disclose whether the invention claimed is based on a biological resource, genetic resource or traditional knowledge, and the associated proof of authority to use the resource.[160] However, there are still a number of gaps that affects the transparency

[153] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 28-29.
[154] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 28.
[155] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 28.
[156] C Okorie 'Beyond intellectual property protection: Other artificial intelligence intellectual property strategies for the African context' in C Ncube, D Oriakhogba, I Rutenberg, & T Schonwetter (eds) Artificial Intelligence and the Law in Africa (2023) 165.
[157] JC Fromer 'Dynamic patent disclosure' (2016) 69 Vand Law Review 1716 - 1717.
[158] Fromer (n 157 above) 1720.
[159] Okorie (n 156 above) 165.
[160] Section 30(3A) and (3B) of the Patents Act 57 of 1978.

of those particular patent applications; as well as the novelty and inventiveness of the patent application especially when it comes to the source of the genetic resource and traditional knowledge use.[161] The new WIPO Treaty on Genetic Resources and Associated Traditional Knowledge will ensure that patent applicants disclose the country of origin if their invention is based on a genetic resource, or the Indigenous Peoples or local community if their invention is based on traditional knowledge. This will assist the current provisions in South Africa's Patents Act by increasing the transparency and effectiveness of the disclosures with regards to patent applications based on genetic resources and/or traditional knowledge.[162]

3.6 Conclusion

South Africa falls short of a number of the components of patent quality discussed in Chapter 2 of this dissertation. South Africa's patent system does not ensure granted patents meet the legal requirements of patent quality (as determined by the TRIPS Agreement) with regards to novelty, inventiveness and industrial applicability. It also has a patent renewal system in place. However, as discussed in Chapter 2, there are various components that make up patent quality, and not one specific factor. South Africa's patent system is a depository system meaning it does not have patent examiners that search and substantively examine whether patent applications meet the legal requirements of patent quality. The result is the real possibility of invalid patents on the register, which in turn can stifle and harm research and development and innovation. Furthermore South Africa still has a manual (and not an online) database for prior art search. This affects the quality of the searches that are done in regard to research and development, which can harm and pollute the prior art. The patentability criteria are weak and encourage amongst other things the patenting of incremental and often trivial improvements of existing patents. The abovementioned also affects the claims and disclosures listed on patent applications/granted patents and can negatively affect the quality of forward and backward citations of patents. This in turn, results in uncertainty as to the true quality of

[161] N Syam & C M Correa 'Understanding the New WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge' (2024) *Policy Brief* 1.
[162] Syam and Correa (n 161 above) 1.

the patent granted. South Africa's patent system should therefore look to foreign jurisdictions as an example on which to model its own patent system to ensure the grant of high-quality patents that promote research and development.

Chapter Four

Toward Higher Quality Patents: Insights from India's Patent System for South African reform

4.1 Introduction

In order to ensure patents granted are of a high-quality, India introduced a number of mechanisms and procedures to protect the integrity of its patent system. This chapter will explore these measures which include substantive search and examination, an electronic patent database, pre- and post-grant opposition proceedings, the strengthening of the patentability criteria and more effective disclosure requirements. These measures assist in ensuring that granted patents meet the legal/technical and the commercial components of patent quality. As such, India's patent system may provide a useful model which South Africa can use to strengthen the quality of its patent system.

4.2 Methods of ensuring the patentability requirements are met

Building on the introduction, this chapter will examine the following measures India has introduced to strengthen the quality of patents produced. Specifically, it will explore India's substantive search and examination system, as well as the opposition procedures available to interested parties. Furthermore, it will explore the stronger patentability requirements and more effective disclosure requirements that exist to strengthen the quality of patents produced.

4.2.1 India's Substantive Search and Examination System

Firstly, India's Patents Act (IPA)[163] makes provision for examination of patent applications only on filing of a request for examination by any interested person, which includes the applicant themselves. The examination is two-fold and involves both formal as well as

[163] India Patents Act 39 of 1970.

substantive examination of a patent application prior to grant.[164] In terms of substantive examination, a thorough examination is done to determine whether the patent application meets the requirements of novelty, inventiveness, and industrial applicability.[165] Section 13 of India's Patents Act requires an examiner to determine whether a patent is novel.[166] This is done by determining whether the patent application has been anticipated by the existing prior art before the date of filing of the application.[167] This search is done with the assistance of India's electronic patent search database known as the Indian Patent Advanced Search System ("**InPASS**").[168] InPASS is used by both examiners and any interested parties to screen the prior art to determine the novelty of a patent application. It provides comprehensive patent information on its free and easy to use electronic database. This cuts the time and effort needed to search through the prior art which used to be done manually. The manual process would make it nearly impossible to search through all available prior art.[169] By conducting a thorough search, there is assurance that exclusive rights are not granted to an invention/subject matter that is already commonplace in the state of the art which would unfairly monopolise it. Section 2(1)(ja) of India's Patents Act states that a patent will meet the requirement of inventive step where the patent involves a technical advance or has economic significance that is not obvious to a person skilled in the art.[170] Lastly, Section 2(1)(ac) of India's Patents Act requires a patent application to be capable of industrial application.[171] India also has a list of inventions and subject matter deemed not patentable which is in accordance with the TRIPS Agreement.[172] Section 12 of India's Patents Act requires an examiner to determine

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[164] Office of the Controller General of Patents, Designs and Trademarks 'Indian Patent Office: Guidelines for Search and Examination of Patent Applications' (2015) <https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_34_1_guidelines-draftSearch-examination-04march2015.pdf> (accessed: 01 October 2023) 13; 15.
[165] Agreement on Trade-related Aspect of Intellectual Property Rights; India Patents Act 39 of 1970.
[166] India Patents Act 39 of 1970.
[167] India Patents Act 39 of 1970.
[168] Indian Patent Advanced Search System ("InPASS') <Intellectual Property India (ipindia.gov.in)> (accessed: 01 April 2024).
[169] BananaIP Counsels 'Searching for Patents on Indian Patent Database (InPASS)' (2018) <https://www.bananaip.com/ip-news-center/searching-for-patents-on-indian-patent-database-inpass/#:~:text=While%20InPass%20may%20have%20a,of%20a%20skilled%20patent%20searcher> (accessed: 01 April 2024).
[170] India Patents Act 39 of 1970.
[171] India Patents Act 39 of 1970.
[172] Section 3 of the India Patents Act 39 of 1970.

whether the patent application meets these criteria and/or whether there is any objection to the application.[173] The findings are written in their report and this report must be approved by the controller.[174] The controller acts in a supervisory role to ensure and maintain the quality of the examination report written up by the examiner.[175] However, it is ultimately the controller who has the authority to approve or reject the patent application.[176] Furthermore, the examination report can be used by the judiciary in patent litigation proceedings and therefore, is very important as a source of evidence should the courts need to assess the validity/invalidity of a granted patent during patent revocation or infringement matters.[177]Therefore, all patent applications undergo a rigorous examination of the patentability requirements to determine whether the invention meets the substantive requirements before the patent application is granted.[178] In order to carry out substantive search and examination as per the abovementioned sections of the IPA, time and resources are put into the training of examiners in terms of the technical and legal aspects of examining patent applications.[179] This ensures that examiners can understand complex matters of science and technology, as well as being able to interpret and apply patent law properly and sufficiently.[180]

This model could prove useful in the South African context given the challenges of its depository system.[181] As such, it can provide a level of certainty that granted patents meet

[173] India Patents Act 39 of 1970.
[174] Office of the Controller General of Patents, Designs and Trademarks 'Indian Patent Office: Guidelines for Search and Examination of Patent Applications' (2015) <https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_34_1_guidelines-draftSearch-examination-04march2015.pdf> (accessed: 01 October 2023) 79.
[175] Office of the Controller General of Patents, Designs and Trademarks 'Indian Patent Office: Guidelines for Search and Examination of Patent Applications' (2015) <https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_34_1_guidelines-draftSearch-examination-04march2015.pdf> (accessed: 01 October 2023).
[176] Office of the Controller General of Patents, Designs and Trademarks 'Indian Patent Office: Guidelines for Search and Examination of Patent Applications' (2015) <https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_34_1_guidelines-draftSearch-examination-04march2015.pdf> (accessed: 01 October 2023) 89.
[177] Office of the Controller General of Patents, Designs and Trademarks 'Indian Patent Office: Guidelines for Search and Examination of Patent Applications' (2015) <https://ipindia.gov.in/writereaddata/Portal/IPOGuidelinesManuals/1_34_1_guidelines-draftSearch-examination-04march2015.pdf> (accessed: 01 October 2023).
[178] India Patents Act 39 of 1970.
[179] Ndlovu, (n 138 above) 79.
[180] Busch (n 20 above).
[181] Ndlovu (n 138 above) 74.

the legal and technical components of patent quality, which can better promote research and development.[182] Further, it can provide insight as to whether a patent application is infringing on the patent rights of a third party; and as such protect the rights of applicable parties.[183] Practically, this could amongst other things prevent evergreening such as the granting of pharmaceutical patents that would otherwise not be patentable.[184] Additionally, the use of an easy to use and comprehensive electronic patents database in combination with substantive search and examination can ensure patent applicants, examiners and the like are able to provide more sufficient and detailed disclosures of the prior art. Further, it can help to ensure that patent claims correctly lay out the parameters of the exclusive rights that patent owners should receive. This, in turn, can ensure that the forward and backward citations attributable to a patent(s) are more accurately represented thus increasing the overall quality of patents granted and strengthening the quality of the South African patent system.[185] In summary, substantive search and examination can ensure that the South African patent system complies with TRIPS and the parameters of its own Patents Act, which is a step in the right direction of ensuring the registration of high-quality patents.[186]

4.2.2 Opposition Proceedings

India's patent protection system makes provision for pre-and post-grant opposition within section 25 of the IPA.[187] During the period between the publication of a patent application and before the patent is potentially granted, any interested third party may oppose a patent application.[188] The interested third party may do so for reasons ranging from lack of patentability in terms of the patentability requirements, to overly broad claims in the patent application, or insufficient disclosures of the subject matter of the invention.[189] This procedure is known as pre-grant opposition proceedings. This procedure allows third

[182] Ndlovu (n 138 above) 74.
[183] Ndlovu (n 138 above) 74.
[184] Ndlovu (n 138 above) 75.
[185] Ndlovu (n 138 above) 74-75; Higham (n 36 above) 3; 17.
[186] Ndlovu (n 138 above) 74-75.
[187] Section 25 of the India Patents Act 39 of 1970.
[188] Ragavan et al (n 34 above) 208.
[189] Ragavan et al (n 34 above) 208.

parties to oppose patent applications which can conserve time and resources spent into examining the patent before grant.[190] Furthermore, it helps alleviate an already overburdened Indian judicial system.[191] A similar provision is made for after the grant of a patent application whereby an interested party may oppose the granting of a patent within one year of the patent that is granted. This procedure is known as post-grant opposition proceedings.[192]

The court process is quite expensive and time-consuming. Furthermore, most judges have no technical background and/or sufficient understanding of the field of patentable inventions etc. Pre- and post-grant opposition proceedings is quicker and easier to do; and would be financially more accessible than ordinary judicial proceedings.[193] Further, the adjudicators in such proceedings (similar to examiners in India's substantive search and examination process) would have training in the legal and technical aspects of patents allowing them to make a more informed decision on the validity/invalidity of any patent matter that comes before them than perhaps a judge with only a legal background would.[194] Further, this procedure in combination with the aforementioned substantive search and examination procedure can ensure that patents meet the legal and/or technical components of patent quality. This includes ensuring the patent is novel, inventive and industrially applicable, that the claims and disclosures are properly delineated and this as a consequence could strengthen the overall quality of forward and backward citations produced by granted patents.[195]

4.3 Strengthened Patentability Criteria

India introduced section 3(d) into their IPA[196] to specifically deal with the phenomenon of evergreening, and to prevent secondary patents which are in essence, trivial or

[190] Ragavan et al (n 34 above) 208.
[191] Ragavan et al (n 34 above) 208.
[192] Ragavan et al (n 34 above) 208-209.
[193] Ragavan et al (n 34 above) 208.
[194] Ndlovu (n 138 above) 79.
[195] See Chapter 2 part 2.3 and 2.4.
[196] Section 3(d) of the India Patents Act 39 of 1970.

inconsequential improvements on existing patents/inventions.[197] Section 3(d) of the IPA states that:

> "The mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant"[198]

Section 3(d) of the IPA in summary provides that new forms of known compounds and/or substances that show 'enhanced efficacy' will be considered innovative and therefore will qualify for a patent.[199] In essence, this provision excludes the patentability of mere discoveries unless that discovery shows enhanced efficacy.[200] This provision was tested in the Indian Supreme Court in the case of *Novartis AG v Union of India*[201] whereby Novartis applied for a patent in the United States on their pharmaceutical product named 'Imatinib' in 1996, later in 1997 it applied for a patent on a variation of 'Imatinib'. The variation was granted as a patent. Novartis applied for their variation to be patented in India in 1998. When the patent was examined by the examiners in India, Novartis was required to prove that the variation of 'Imatinib' showed enhanced efficacy as per section 3(d) of the IPA.[202] The matter was taken to court and went all the way up to the Indian Supreme Court where the court interpreted enhanced efficacy to mean therapeutic efficacy which suggests that inventions must show "something significant in terms of curative effect"[203], and therefore, that slight improvements regarding the same substance/compound are derivatives of known substances/compounds which then cannot be patented unless there is enhanced efficacy.[204] The result was that the court ruled against Novartis and determined that their invention was a derivative of 'Imatinib'

[197] Ragavan et al (n 34 above) 203.
[198] India Patents Act 39 of 1970.
[199] Ragavan et al (n 34 above).
[200] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 13.
[201] Novartis AG v Union of India & Ors, Civil Appeal No. 2706-2716 of 2013.
[202] Vawda (n 89 above) 308.
[203] Novartis AG v Union of India & Ors, Civil Appeal No. 2706-2716 of 2013; Vawda (n 89 above) 311.
[204] Novartis AG v Union of India & Ors, Civil Appeal No. 2706-2716 of 2013; Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 16.

compound/substance with no significant or enhanced efficacy because enhanced efficacy does not include beneficial flow properties, better thermodynamic stability, or lower hygroscopicity which as per the court are slight and not significant improvements.[205] What is clear from this case and section 3(d) in general is that it strengthens the inventiveness criteria which prevents the patenting of new forms of known substances and new uses of known substances.[206] This in turn prevents evergreening of inventions that are trivial, and thereby ensures patents are awarded only for true innovation and high-quality patents. Patent applications which are incremental improvements of existing patents would have a large number of disclosures and backward citations. As established in Chapter 2 of this dissertation, a large number of backward citations are indicative of a lower quality patent.[207] Inventions that occupies a 'newly discovered frontier' of technology is indicative of high-quality patent which should be encouraged rather than a slight derivative of another invention.[208] Therefore, India's Section 3(d) model proves useful in South Africa in improving the overall quality of patents produced.

As aforementioned, the requirement of non-obviousness is determined in South Africa where the inventive step of the invention is a sufficient step/move away from the state of the art such that it was not obvious to a person skilled in the art.[209] The IPA however has a higher bar for inventive step; and this as a result attempts to ensure the grant of truly innovative inventions, and additionally the prevention of secondary patents that are often minor and/or trivial advances to an existing patent. Section 2(ja) of the IPA defines inventive step as

> A feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art.[210]

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[205] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 17.
[206] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 15;19.
[207] Higham (n 36 above) 17.
[208] Higham (n 36 above) 3.
[209] Section 25(10) of Act 57 of 1978.
[210] Section 2(ja) of the IPA.

What is clear is that for the Indian Patent Office, the inventive step requirement must not merely be a sufficient step away from the state of the art. Rather, the invention must incorporate and involve a technological advance and/or have economic significance.[211] The result is that patent applications that are mere combinations of the prior art or slight improvements of the prior art will be rejected for lacking a technological advance or lacking economic significance and as such, it would be obvious to a person skilled in the art.[212] Therefore it rejects patent applications that attempt to integrate and blend different prior art, as it is not inventive.[213] Furthermore, the emphasis on the inventive step having a technological advance and/or economic significance goes to the heart of patent law, which is to encourage the creation and transfer of knowledge and works that advances science and technology for the betterment of society.[214] This will ensure patents occupy a newly discovered frontier of science and technology, which means that there will be a large number of forward citations of the patent; and the patent itself will have less backward citations of the prior art.[215] This, as per chapter 2 of this dissertation, is a commercial indicator of the quality a patent holds, especially its economic significance and commercial viability.[216] Therefore, in the context of South Africa this model proves useful as more innovation will be encouraged.[217]

4.4 Effectively improving the quality of disclosures

India in terms of section 10(4)(b) of the IPA[218] mandates the disclosure of the best method of carrying out the invention in the complete specification of the patent application. This in many ways acts as a type of technology transfer allowing others skilled in the art to

[211] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023).
[212] S Chaudhri, P Bhupatiraju & T Baranwal 'Overcoming the Inventiveness Barrier to Patentability' (2023) <https://www.worldtrademarkreview.com/guide/india-managing-the-ip-lifecycle/2024/article/overcoming-the-inventiveness-barrier-patentability> (accessed 01 February 2024).
[213] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 25.
[214] Du Bois (n 12 above) 31.
[215] Higham (n 36 above) 3.
[216] Higham (n 36 above) 3.
[217] Higham, (n 36 above) 3.
[218] Section 10(4)(b) of the IPA.

learn from the patent; and to exercise their research rights in respect of the invention by allowing researchers/competitors to use the patent adequately and effectively when it enters the public domain.[219] A high-quality patent should meet the requirements of patentability whilst simultaneously providing detailed disclosures of the patent. Society does not benefit from a patent whose disclosures are not sufficiently described or illustrated. Disclosing the best method of carrying out an invention allows the public to efficiently and effectively make use of technological innovations.[220] This contributes to a higher quality patent and therefore proves useful in improving the quality of patents produced in South Africa's patent system.

Furthermore, patent disclosures occur during the patent-filing process which is well before the commercialisation of the patent.[221] The issue with this static type of disclosure of patents is that there are several improvements done to a patent in anticipation of its eventual release onto the market.[222] The improvements may occur as a result of the refinement of the invention, market testing and customer feedback etc.[223] However, since disclosures of patents do not occur post-filing of a patent any improvements made post-filing are not part of the patent disclosures submitted to the patent office which in turn does not facilitate an adequate transfer of knowledge that patents are supposed to facilitate to the public.[224] In order to combat this, scholars such as Fromer suggest a more dynamic form of patent disclosure be mandated by the legislature.[225] Fromer suggests that patentees should be compelled to disclose all patented inventions that are commercialised or licensed to the patent office that arise post-filing. This would promote and not hinder the justification for patent protection by properly disclosing all relevant information related to a patent (even where improvements occur after the grant or filing of the patent) for the public to use so as to better understand the nature and scope of the

[219] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 28.
[220] Stoll, R 'Let's take this simple first step toward better quality patents' (2023) <Let's Take This Simple First Step Toward Better Quality Patents (ipwatchdog.com)> (accessed 1 February 2024).
[221] Okorie (n 156 above) 165.
[222] Okorie (n 156 above) 165.
[223] Fromer (n 157 above) 1721.
[224] Okorie (n 156 above) 165-166.
[225] Fromer (n 157 above) 1722.

claimed invention.[226] In order to ensure that patentees submit accurate dynamic disclosures, fines are recommended where it is found that false or misleading information has been submitted.[227] This on-going duty to disclose information regarding the patent should persist up to either the rejection of the patent or the expiry of the patent.[228]

On 24 May 2024, the member states of the World Intellectual Property Organisation ("**WIPO**") adopted the Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge ("**the Treaty**").[229] The Treaty seeks to ensure that patents are not granted to inventions that are not novel or inventive with regard to the genetic resources and associated traditional knowledge.[230] Where a patent application is based on a genetic resource or associated traditional knowledge the Treaty mandates that the patent applicant disclose the country of origin so concerned; if that is unavailable the source of the information known; and if that too is unavailable the applicant should declare so.[231] The Treaty will come into force three months after there have been 15 ratifications and accessions.[232] This Treaty will help supplement sections 30(3A) and 30(3B) of the South African Patents Act which mandates that a patent applicant state whether or not the invention concerned is based on or derived from an indigenous biological resource, genetic resource, or traditional knowledge or use; and if it is so based then the proof of their authority to use the resources must accompany it too.[233] All in all these provisions from the Treaty and the Patents Act prevent the misappropriation of genetic resources and traditional knowledge emanating from specifically developing countries, regarding patent applications.[234] These provisions will increase transparency; and in combination

[226] Fromer (n 157 above) 1722 - 1723.
[227] Okorie (n 156 above) 167.
[228] Baker, BK & Vawda Y 'Submission by University of KwaZulu-Natal-Affiliated Academics* on The Draft Intellectual Property Policy of the Republic of South Africa Phase 1 2017' (2017) < UKZN-Submission-on-SA-Draft-IP-Policy-23.10.17.pdf (fixthepatentlaws.org)> (accessed: 01 October 2023) 31.
[229] WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, 2024.
[230] Syam and Correa (n 161 above) 1.
[231] WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, 2024.
[232] WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, 2024.
[233] Act 57 of 1978.
[234] Syam and Correa (n 161 above) 1.

with substantive search and examination may alleviate the burden on examiners conducting prior art search in determining the novelty and inventiveness of a patent application.[235] This will be a step in the right direction by disclosing the source of patent applications where the claim(s) is based on a genetic resource and associated traditional knowledge.[236]

4.6 Conclusion

What is clear from the abovementioned is that India has introduced a variety of measures to ensure that patents are granted to inventions of a high-quality. These measures may assist the South African patent system in increasing the overall quality of granted patents. India's patents system makes provision for substantive search and examination which involves a search of the prior art and an examination of a patent application to determine whether it meets the legal and technical components of patent quality. This is done by examiners trained in the technical and legal aspects of patent law, with the assistance of an electronic patents database. There are also pre- and post-grant opposition proceedings which allows any interested party to oppose the validity of a patent. This provides a potential solution to South Africa's depository system and court process. Section 3(d) of India's Patents Act is an example of stringent patentability criteria which can amongst other things prevent evergreening; and section 2(ja) of India's Patents Act which presents a higher bar for meeting the inventive step criteria ensuring any granted patents do in fact have a technological advance or economic significance, and this, thus improves the quality of patents granted. India's Patents Act mandates that patent applicants provide better and more detailed disclosures. Patents do not only provide exclusive rights to a patentee but must also ensure technology transfer happens at the end of the patent term. Mandating detailed disclosures assist in this regard. The abovementioned provides measures and procedures which can aid South Africa's quest to produce patents of a substantially higher quality than what are currently produced.

[235] Syam and Correa (n 161 above) 2.
[236] Syam and Correa (n 161 above) 1.

Chapter Five

Conclusions and Recommendations

5.1 Introduction

The main objective of this dissertation was to determine whether the South African patent system meets the parameters and components of patent quality. On average, South Africa grants 93% of received patent applications, which is in contrast to other patent offices such as the EU's patent office which grants 51% of received patent applications and India's patent office which grants only 19% of the patent applications that come before it. Reasons put forward included South Africa's depository system, lax patentability criteria amongst other things. This dissertation sought to explore the reasons for the low-quality patents produced and also to seek and provide recommendations for possible solutions.

Chapter One outlined the requirements to obtain a patent and provided the general theoretical justification for patent protection which in summary is that patent protection serves as a quid pro quo. A patentee is given exclusive rights to the invention for a 20-year term after which the patent lapses and falls into the public domain for the benefit of society. This quid pro quo encourages innovation.[237] The South African patent system potentially presents a problem in this regard as it does not have sufficient mechanisms in place to ensure patents granted actually meet the requirements for patentability. This upends the theoretical justification for patent protection in the first place.[238] This chapter also outlined this dissertation's research question which provides a basis for an exploration into whether the South African patent system produce high-quality patents; and what jurisdictions could potentially provide solutions to South Africa's patent system problems.[239]

Chapter Two examined the parameters and components of patent quality. This chapter showed that there were two main components of patent quality namely the legal/technical

[237] See Chapter 1 part 1.1.
[238] See Chapter 1 part 1.2.
[239] See Chapter 1 part 1.3.

components of patent quality; and the commercial components of patent quality. A high-quality patent should meet both the legal/technical and commercial components.[240] In this chapter, it was discussed that the legal/technical components of patent quality is met where the substantive and formal requirements of patentability as mandated by the TRIPS Agreement and in turn, the South African Patents Act, are met. The substantive requirements consist of an invention that is novel, inventive and industrially applicable. Further to this, there are exclusions from patentability including where a patent application is a mathematical method or scientific theory. Also, an effective database allows both inventors, examiners and others to effectively and efficiently search and cite prior art or examine the patent application. Strong patentability criteria are also deemed to be a criteria for the production of high-quality patents as it can ensure patents are granted to inventions that occupy a newly discovered frontier of technology rather than incremental improvements of existing inventions. Disclosure requirements that are sufficiently clear, concise and complete to allow a person skilled in the art to perform the invention should be encouraged as it promotes research and development. Further to this, claims that adequately define the parameters of the exclusive rights provided to the patentee is an indication of high-quality patents. Both disclosures and claims work together to ensure the quid pro quo of patents is carried out.[241]

Commercialisation of a patent indicates greater value in a patent; and that the patent provides societal benefits. Patent renewal fees can be a sign of commercialisation as companies are likely to renew their patent(s) where they see potential commercialisation opportunities and prospects. A greater number of forward citations of a patent is another indicator that an earlier patent is at the forefront of research and development as it provides evidence that the earlier patent occupies a newly discovered frontier of technology or science. Backward citations occur when a latter patent refers to an earlier patent as a key component of the development of the latter. The greater the number of backward citations, the lower the value of the patent as such citations limit the claims of the patent. Finally patent family size can be a useful indicator of commercial value as patent family size refers to the global reach of the patent concerned. Patent quality and

[240] See Chapter 2, part 2.2.
[241] See Chapter 2, part 2.3.

its link to the design of the patent system was also discussed. In summary, the design of the patent system is determined to be the real and/or practical measures within the patent system used to ensure the parameters and/or components of patent quality are met.[242]

Chapter 3 of this dissertation discussed the contextual surroundings of South Africa's patent protection system. Further, the chapter sought to review whether South Africa's patent protection framework measured up to the components of patent quality as discussed in Chapter 2. It was found that one of South Africa's prime issues is its lack of substantive search and examination i.e. its depository system. South Africa's patent system does not examine a patent to determine whether it meets the substantive requirements as contained in Section 25 of the Patents Act; and this brings about a lack of certainty.[243] The judicial system is not a viable option to oppose invalid patents as a result of the time-consuming and expensive nature of court proceedings, the issue of interim interdicts and certain recent decisions pose a hindrance to patent litigants.[244] Additionally, South Africa's patent database is (still) mostly manual. Although there is an electronic patent database, the information provided on the patent is very limited in scope. I conducted a search on the CIPC's patent database and received minimal information on the patent's searched for and received no information on the scope of the claims, nor the disclosures of the patent. This poses effectiveness and efficiencies concerns with regards to the searching of the prior art by patent applicants or potentially by patent examiners.[245] The South African patent protection framework has a weak implementation of the patentability criteria. The result is that many secondary patents applications, which are superfluous improvements of original patents, are granted. This is further evident in the number of the same/similar patents that are granted in South Africa that are rejected elsewhere. This reality is highlighted in the Supreme Court of Appeal case of *Pharma Dynamics (Pty) Ltd v Bayer Pharma*.[246] Further to this, South Africa's depository system affects the claims of a granted patent; and with no limits on patent claims for patent

[242] See Chapter 2 part 2.4.
[243] See Chapter 3 part 3.2.2.
[244] See Chapter 3 part 3.2.3.
[245] See Chapter 3 part 3.3.
[246] *Pharma Dynamics (Pty) Ltd v Bayer Pharma AG* [2014] 4 All SA 302 (SCA).

applications, this presents numerous problems. Additionally, South Africa's disclosure requirements are weak and affect innovation and research and development.[247]

Finally, Chapter 4 examined India's patent protection system. This jurisdiction was examined to determine whether it presented any potential solutions to South Africa's patent protection framework and system. This chapter found that India has a rigorous substantive search and examination procedure. This procedure includes trained examiners that examine a patent application to determine whether it meets both the formal and substantive requirements of patentability. Further to this, India has an electronic patent search database known as inPASS which provides comprehensive information to all interested parties (including the aforementioned examiners) of prior patents and what is common in the art.[248] India has pre- and post-grant opposition proceedings allowing interested third parties an alternative to the courts to oppose a patent application or newly granted patent.[249] India also has strengthened patentability criteria such as section 3(d) of the IPA which prevents evergreening and promotes the grant of patents that occupy a new undiscovered area of science and technology.[250] Further to this, India has measures in place which effectively improve the quality of disclosures granted, thus ensuring that granted patents have heightened disclosures.[251]

5.2 Recommendations

There are various issues with South Africa's patent protection framework and system. The below proffers potential solutions to ensure the grant of higher quality patents.

5.2.1 Adoption of a substantive search and examination system as well as oppositions proceedings

[247] See Chapter 3, parts 3.4 and 3.5.
[248] See Chapter 4 part 4.2.1.
[249] See Chapter 4 part 4.2.2.
[250] See Chapter 4 part 4.3.
[251] See Chapter 4 part 4.4.

As discussed in chapter 3 of this dissertation, South Africa's patent system is a depository one. South Africa must seek to introduce substantive search and examination to ensure a rigorous examination of all patent applications are done to determine whether a patent is indeed patentable. In order to carry this out, several mechanisms must be put in place. There must be examiners trained in both the legal/procedural and scientific/technological aspects of patent applications so that such persons can properly and effectively examine all patent applications before them. Acting examiners can be utilised on a pro-bono basis, in conjunction with permanently-employed examiners in certain circumstances as a cost-saving mechanism, and to assist any backlog there may be in properly and effectively examining patent applications. Examiners must conduct a substantive search of the prior art whereafter the examiners will examine the patent to determine whether it meets substantive requirements for patentability. In order for examiners and patent applicants to conduct an effective and efficient search of the prior art, there must be an electronic patent database with comprehensive information of all that is common in the art. Substantive search and examination must be carried out as the first of many checkpoints that ensure patents meet the legal and commercial requirements of patentability. A report produced from this process can later be used as a source of evidence in patent litigation proceedings, should the need arise.[252]

South Africa should also introduce pre- and post-grant opposition proceedings. This procedure will allow any interested parties dissatisfied with a patent application or subsequently granted patent to oppose it in an effective and efficient manner without the need to approach the courts. Interested parties should be allowed to oppose the patent application any time before grant, and up to a period of one-year after grant. This would provide those interested parties with an opportunity both before and after grant to oppose the granting of the patent. This constraint on time is important to ensure that patentees eventually receive certainty on the status of their patents. Interested persons would only be allowed to approach the courts itself after one-year has passed post-grant of the patent. Furthermore, the decisions of the adjudicators would serve as a source of evidence should patent revocation proceedings arise. This system would help alleviate

[252] See Chapter 3 part 3.2.2 and Chapter 4 part 4.2.1.

an already overburdened judicial system and simultaneously provide a cost-effective alternative to the courts. Adjudicators in such proceedings would ideally have the legal and technical training to effectively deal with these sorts of matters. This would provide 3 different opportunities for the opposition of a patent granted i.e. pre- and post-grant opposition procedures, and finally patent revocation proceedings through the court system, if necessary. This would provide ample opportunity and provision to any competitors or affected persons etc to challenge the status of patents/patent applications they believe (for any lawful reason) to be underserving of a monopoly. This will assist in protecting the integrity of the patent protection system.[253]

5.2.2 Strengthening South Africa's weak implementation of the patentability criteria

South Africa's patentability criteria should be amended to introduce genuine innovation that presents a breakthrough in science and/or technology. "Inventions" that are in essence slight of improvements of existing patents should be avoided. With this in mind, India's approach of rejecting new forms of known compounds and/or substances unless it shows 'enhanced efficacy' should be adopted and incorporated into South Africa's Patents Act. This will help stem the tide against ever-increasing applications to evergreen inventions that represent slight but superfluous improvements on existing patents. This will ensure the legal/technical components/standards of patent quality are upheld.[254]

Additionally, South Africa's inventive step criteria should also be amended to show that an invention will only be accepted where it involves a technological advance and/or has some economic significance. Therefore Section 25(10) of the Patents Act must be amended and modelled after India's Patent's Act to state that an invention will be deemed inventive where it shows either a "technical advance" or "has economic significance" such that it makes the invention non-obvious to a person skilled in the art. This will improve both the legal/technical and commercial components of the patents produced

[253] See Chapter 4 part 4.2.2.
[254] See Chapter 4 part 4.3.

subsequently improving the overall standard of quality of patents in South Africa's patent protection system.[255]

5.2.3 Providing more effective disclosures

There are recommendations put forward to improve and provide effective disclosures modelled after India's patent protection system. Firstly, South Africa's Patents Act must mandate the disclosure of the best method of carrying out an invention in the complete specification of the patent application. In this regard, Section 32(3) of the Patents Act can include an insertion stating that the "identification of the best-known method" of working the invention should be included in the specification.[256]

The South African patent system must also seek to move away from its current static disclosure system and towards a more dynamic disclosure.[257] This would mean continuous disclosure of a patented invention takes place especially where improvements to the invention take place well after the patent is filed or granted. As a result there will be better and more effective transfer of knowledge to the public upon the expiry of the patent.[258] The Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge will , once Parliament enacts the treaty into law by passing domestic legislation to that effect, supplement the current provisions in the Patents Act by increasing transparency, preventing misappropriation and ensure the source of patent applications whose claims is based on a genetic resource and/or associated traditional knowledge is properly acknowledged,[259]

5.3 Final remarks

The design of the patent protection framework and system is important in ensuring that high-quality patents are granted. This dissertation highlighted the numerous issues and

[255] See Chapter 4 part 4.3.
[256] See Chapter 4 part 4.4.
[257] See Chapter 4 part 4.4.
[258] See Chapter 4 part 4.4.
[259] See Chapter 4 part 4.4.

concerns embedded in South Africa's patent system. The patents granted in South Africa are mostly low-quality and as such, serve opposite to the rationale for patent protection. India however has various measures and procedures to ensure the grant of high-quality patents. It is submitted that South Africa should follow the approach of India and amend its Patents Act to improve the design of its patent system by putting procedures in place that promote and do not hinder the grant of high-quality patents.

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