

The IP Practitioner

ADDING VALUE TO INNOVATION?

FÉDÉRATION INTERNATIONALE DES CONSEILS
EN PROPRIÉTÉ INTELLECTUELLE

INTERNATIONAL FEDERATION OF
INTELLECTUAL PROPERTY ATTORNEYS

INTERNATIONALE FÖDERATION
VON PATENTANWÄLTEN



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Abstract

The report explores whether the IP profession (Patent Agents/Attorneys and TM Agents /Attorneys) adds value to the innovation process. The authors initially provide an overview of the IP system itself, the evolution of a qualified IP profession and its role and the organisation of the workflow within the IP profession. The criteria that must be met to provide high-quality IP rights and the role of the IP profession in establishing such rights are explained. Different methodologies for developing quantitative models indicative of the value of the IP profession are discussed based on the premise that value is a function of benefit and cost. A number of quantitative models are proposed that compare the cost of the IP profession to the value attributed to IP rights. In one model, the cost of the IP profession in each country or region is assessed by reference to WIPO statistics for filing of patent applications and attributing an average cost obtained from the profession for the various stages of the patent applications. The value of the IP rights is assessed from a consideration of available patent licensing revenue. An alternative, indirect approach to assessing the value of IP rights is to look at claims made against the IP profession resulting from a loss of rights. The authors also consider a report on the varied outcomes of patent applications in the European Patent Office that are represented by the IP profession or are self-represented by the applicant. It is argued that the data support a finding that the IP profession helps the owners of and applicants for IP rights to realise the full value of those rights in an adversarial application system, but with an attendant, though proportionate, cost. The analyses lead to a conclusion that the involvement of the profession directly enhances the value attributed to IP rights and generally benefits the IP system by increasing the confidence of others in assessing those rights.

This paper was prepared on behalf of FICPI (ficpi.org).
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What is FICPI?

The International Federation of Intellectual Property Attorneys (FICPI) is the global representative body for intellectual property attorneys in private practice. FICPI's opinions are based on its members' experiences with a great diversity of clients having a wide range of different levels of knowledge, experience and business needs of the IP system.

The Australian Federation of Intellectual Property Attorneys, FICPI Canada, Association of Danish Intellectual Property Attorneys (ADIPA), Suomen Patenttiasiamiesyhdistys ry, Association de Conseils en Propriété Industrielle (ACPI), Patentanwaltskammer, Collegio Italiano dei Consulenti in Proprietà Industriale, Japanese Association of FICPI, Norske Patentingeniørers Forening (NPF), Associação Portuguesa dos Consultores em Propriedade Industrial (ACPI), F.I.C.P.I South Africa, the International Federation of Intellectual Property Attorneys - Swedish Association, Verband Schweizerischer Patent und Markenanwälte (VSP) and the British Association of the International Federation of Intellectual Property Attorneys are members of FICPI.

FICPI has national sections in Argentina, Austria, Belgium, Brazil, Chile, China, Czech Republic, Greece, Hungary, India, Ireland, Israel, Malaysia, Mexico, Netherlands, New Zealand, Romania, Russia, Singapore, South Korea, Spain, Turkey and the United States of America, a provisional national section in Poland, an Andean regional section (Bolivia, Colombia, Ecuador, Perú and Venezuela) and individual members in a further 41 countries.

Table of Contents

1. Introduction.....	2
2. Background.....	3
3. Objectives.....	4
4. Organisation.....	4
5. Definitions.....	4
6. What is the IP System?.....	5
7. How are IP Rights Obtained?.....	7
8. The Intellectual Property Practitioner.....	8
9. The Status of the IP Profession.....	9
10. What Does the IP Practitioner Do?.....	10
11. International Protection.....	13
12. Workload of the IP Practitioner.....	15
13. What Does the Intellectual Property Profession Look Like?.....	20
14. Value of the Intellectual Property Profession.....	21
i. The Benefit.....	21
ii. The Cost.....	22
a. General Considerations.....	22
b. Quantifying the Cost of an Intellectual Property Profession.....	23
15. Is the Cost Justified by the Benefit?.....	25
i. Cost vs Benefit.....	25
ii. The Hoisl-Wagner Report.....	25
a. Findings.....	25
b. Commentary.....	26
iii. Subjective Analysis of the Role of the IP Profession.....	27
16. Conclusions.....	32
17. References.....	33

1. Introduction

by Peter Huntsman

This report has been prepared on behalf of **The International Federation of Intellectual Property Attorneys (FICPI)**¹, a non-governmental organisation of intellectual property (IP) attorneys with members in more than 80 countries and regions around the world. The membership of FICPI is exclusively made up of IP practitioners in private practice; that is, IP practitioners who work on behalf of more than one client. Those clients range from individuals and small- and medium-sized entities (SMEs) to multi-national industries, as well as universities, governmental and non-governmental organisations and other institutions, and may be applicants for IP rights or those who are affected by IP rights belonging to their competitors.

The Federation was founded over 100 years ago, in 1906, and brings great experience to the IP system. Over the years FICPI has assisted in the drafting of IP laws and treaties and has offered well-balanced opinions with regards to newly proposed international, regional and national legislation, as well as the associated rules or regulations and practice guidelines, all on the basis of a wide range of different kinds of client knowledge, experience and business needs of the IP system.

This report is known internally by FICPI as the “Project Orange” report after its principal author, John Orange, who was President of the Federation from 1997 to 2000, to whom FICPI owes a great deal of appreciation and thanks. FICPI also acknowledges and thanks the other members of the authorship team, who are named above. The preparation of the report was instigated in early 2012, a time when I was President of FICPI and when there was a perception by our members, and I believe by IP attorneys more generally, that there were some questions by others as to

the true value that IP practitioners brought to the IP system. The report sets out to provide answers to those questions, both for IP authorities and for users of the system.

The conclusions in the report rely in part on an economic study that FICPI commissioned in 2013 from Prof. Dr. Stefan Wagner, Associate Professor for Strategy and Innovation, ESMT Berlin, and Prof. Dr. Karin Hoisl, Hans-Sauer-Foundation Assistant Professorship for “Invention Processes and Intellectual Property”, Ludwig-Maximilians-University Munich, and FICPI also acknowledges and thanks them for their contribution.

The original report was approved by the Executive Committee of FICPI in 2015 and predates more recent changes in the IP system. Although some parts of the original report have been updated for publication, the data relied on in it is now a few years old. Nevertheless, I believe the conclusions reached in the report on the basis of this data, including both the methodologies proposed as a starting point for a quantitative analysis of and the subjective considerations of the value of the IP profession, still to be valid today.

Finally, while FICPI members include both patent attorneys and trademark attorneys and the report and its conclusions are broadly directed to the value of all IP attorneys, the data relied on in the report are focused on patent work. It is my hope that FICPI will in due course update the report to include trademark data.

Peter Huntsman

President of FICPI 2009-2012

President of Honour

Melbourne, Australia

2. Background

Innovation is widely recognized as a powerful driver of the economy, and innovation inevitably generates intellectual property rights. Recent reports², notably from the United States Patent and Trademark Office (USPTO) and European Union Intellectual Property Office (EUIPO), document the extent to which intellectual property rights affect the U.S. and European economies and workforce.

The same reports and others³ also suggest that the protection of intellectual property rights is appropriate and of net benefit to innovative companies. The report⁴ “*The Changing Face of Innovation*” by the World Intellectual Property Organisation (WIPO) contains an exhaustive review of studies and their findings which support the development of IP regimes to protect innovation and benefit the economy. However, none of these studies and reports, including the more recent reports from the USPTO and EUIPO, consider the role played by the intellectual property practitioner in obtaining high-quality intellectual property rights and in the exploitation of those rights. There have been very few studies directly focusing on the IP profession⁵.

“Innovation is widely recognized as a powerful driver of the economy, and innovation inevitably generates intellectual property rights.”

Reviewing the websites of the IP authorities⁶ it is clear that some now recognise the desirability of employing a qualified representative to protect the interests of innovators. However, this has not always been the case⁷ and more generally there appears to have been a lack of understanding by those in governments who are charged with developing and managing the IP system as to how the IP profession

is organised, as well as of its role in the IP system and the relationships between the profession and the innovator on the one hand and the profession and the IP authorities on the other⁸.

A similar perception may apply to some parts of the innovator community, with an incomplete appreciation of the role, function and value of the IP professional in securing protection for their innovations. While some IP authorities⁶ do promote these advantages of using an IP professional to innovators, the primary factor for many innovators in determining whether to seek protection for an innovation still appears to be the immediate expense of obtaining professional services⁹. The long-term benefits resulting from investment in high-quality IP rights are often overlooked.

FICPI is firmly of the view that a well-qualified IP practitioner is an essential element in the procurement of high-quality IP rights, to the advantage of both innovators and IP authorities. The purpose of the present report is to explain the framework of the IP system, examine its operation, and discuss ways in which the value the intellectual property practitioner adds to innovation may be evaluated. Given the membership of FICPI, the emphasis in the report is on the role and impact of IP practitioners in private practice. However, it is believed that much of the discussion is equally applicable to those IP practitioners who are employed in-house by companies.

The economic study commissioned by FICPI from Prof. Dr. Karin Hoisl and Prof. Dr. Stefan Wagner considers the value added to the IP process by the IP profession, especially patent attorneys, and the results of their 2014 report *Project Orange – Project Report* (the Hoisl-Wagner report)¹⁰ are discussed in Section 15.

3. Objectives

The primary objective of this report is to examine the role of the IP profession in attaining high-quality IP rights that are of value to the innovator. The report seeks to do this by reviewing the nature of the IP system and the position of the IP practitioner within it, and proposing a number of methodologies by which the value provided by the IP practitioner can be assessed.

It is hoped that by providing a fuller understanding of the role of the IP practitioner, IP authorities and those

influencing the development of the IP system will be in a better position to recognise the impact that changes might have on the role of the IP practitioner and, ultimately, on the benefit or otherwise of those changes to the innovator and to the IP authorities. Similarly, it is hoped that the information in this report and subsequent discussions will stimulate a discussion within the innovator community so they may better understand the value added by the IP profession to the protection of their innovations.

4. Organisation

The report is organised in three parts:

- i. an overview of the IP system and the organisation of the IP profession;
- ii. a discussion of different methodologies that may be used to develop quantitative models indicative of the value of the IP profession; and
- iii. a subjective discussion of the criteria that must be met to provide high-quality IP rights and the role of the IP profession in providing such rights.

Whilst much of the discussion, particularly of the first part in sections 5 to 13, will be familiar to those within the IP system, it is felt necessary to include this in the report because of the inter-relationship of the various concepts and to ensure a full understanding by all readers of the rationale developed in some of the models later in the report.

5. Definitions

“Intellectual property” is a broad, somewhat nebulous, term¹¹. It embraces, as is apparent from the economic reports cited above, many different categories and kinds of rights associated with innovation, including copyright, personality rights, data protection rights, domain names and plant breeders rights, amongst many others. In the context of the present report, however, intellectual property rights are considered to be the statutory rights granted by governments in the form of patents, registered trade marks, registered designs and utility models.

The term “intellectual property practitioner” is used in the report in the context of the professional who is qualified to represent an applicant for an intellectual property right before a government or regional agency (IP authority) that grants the right.

Where “intellectual property right” is used in the report, it refers collectively to all of the statutory rights noted above. Where

necessary, the commentary will differentiate between trade mark rights and patent rights, and patent rights will, unless otherwise noted, include not only exclusive rights for inventions but also for utility models and designs. The report discusses intellectual property rights broadly where appropriate, but it will be recognised that much of the discussion and analysis is biased towards the acquisition of patent rights. Whilst there are close parallels between the procurement of trade mark rights and of patent rights, the frameworks for obtaining those rights differ in their details, particularly with regard to the timelines mandated. The flow of work and the nature of the work differ significantly as between patents and trade marks, thereby making a direct, concise comparison difficult. It is hoped that the methodologies developed can be adapted to the trade mark regime in the future.

6. What is the IP System?

The IP system is an infrastructure that administers and adjudicates legal rights created under IP law¹².

IP law is a series of national, regional and international statutory and other laws whose principal aim is to establish rights in and to intellectual property and, when necessary, to assist their adjudication.

The rationale for the IP law is to act in the public interest to encourage innovation by creating legitimate monopoly rights that reward the innovator¹³.

More concretely, the statutory IP system and the focus of this report are centred on the acquisition and administration of patent, registered trade mark, utility model and registered design rights and the role of the IP practitioner in their acquisition and administration.

The overarching framework of the statutory IP system is set out in the Paris Convention¹⁴, an international convention that requires equal treatment for nationals of all member states and establishes minimum standards to be embodied in the laws of member states. The provisions of the Paris Convention are applicable to patents, trade marks, industrial designs and utility models. One of those provisions allows applicants to rely

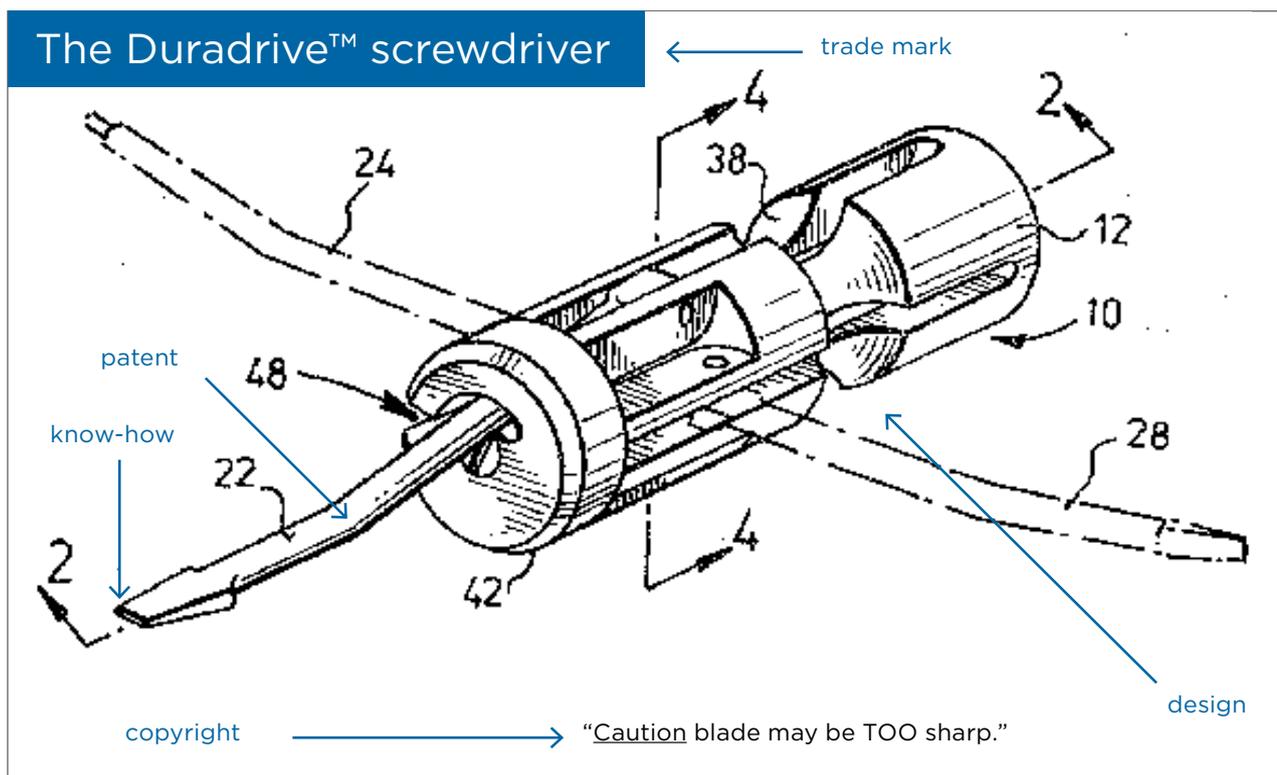
on the filing date of a first application for corresponding applications filed in other countries within a specified time (12 months in the case of patent and utility model applications, 6 months in the case of trade mark and design applications) and is known as “claiming priority”.

The IP system is international in nature, and the provisions of the Paris Convention are incorporated by reference in an international trade treaty, the TRIPS Agreement¹⁵ made between all member states of the World Trade Organisation. The TRIPS Agreement sets out more substantial minimum standards relating to the form of the IP system in member states.

Example of the Application of the IP System

The extent to which the IP system can impact on everyday life can be illustrated by a simple real-world example. FIG. 1 below shows a product developed by a small, innovative company that is looking to expand from operating in a cyclical service industry to become a producer of consumer products. The result is a screwdriver that embodies each of the IP rights under discussion as well as copyright and know-how.

Fig. 1



The screwdriver has four captive blades, each with a different tip, that can be locked in a deployed position. The locking mechanism for the blade was the subject of a patent application; the handle shape was protected by design registration; and the product name was registered as a trade mark. In addition, the technique to form the blade tip was a trade secret and the advertising copy was protected by copyright. Statutory IP rights were obtained, namely U.S., Canadian and European patents, design registrations and registered trade marks. Ironically, even though the venture was not a success and the company failed, an unauthorised copy of the device was subsequently placed on the market and the IP rights were used to collect licence fees. When even a simple, everyday mechanical device such as a screwdriver can be the subject of several different types of intellectual property, the importance and impact of the IP system become apparent.

This example is, of course directed to very simple technology and not at all typical of the complexity of innovations that are commonly handled by the IP practitioner. The product will be made and sold as a complete device, so issues of infringement and validity of the IP rights in the product will probably be self-contained and relatively straightforward.

Fig. 2



Innovations handled by the IP practitioner are often much more complex in terms of the level of technology involved and the legal issues that might arise. A more typical example from the electronics art, a smart phone, is shown in FIG. 2 and is used in Table 1 below to illustrate further the different categories of IP rights involved, as well as to help explain the complexity of technical and legal issues that might arise.

Table 1
Possible IP Rights

Trade marks	Patents	Designs (some of them registered)	Trade secrets	Copyrights
<ul style="list-style-type: none"> House mark "Nokia" Product "N95" Third-party marks "Symbian", "Java" 	<ul style="list-style-type: none"> Data-processing methods Semiconductor circuits Chemical compounds 	<ul style="list-style-type: none"> Form of overall phone Arrangement of buttons in oval shape Three-dimensional wave form of buttons Icons on screen 	<ul style="list-style-type: none"> Manufacturing processes 	<ul style="list-style-type: none"> Software code Instruction manual Ringtone

The categorisation of different IP rights in Table 1 is broadly based, and each category has a number of sub-categories, each representing unique challenges. For example, within the Trade mark category there is the "house mark" Nokia, and consideration has to be given to how that might be protected whilst being available to related companies to use. The use of third-party marks will be governed by agreements with those

other parties, and the overall use of the marks must satisfy the branding strategy of the company, whilst ensuring the marks are used in a manner that preserves their distinctiveness.

Similarly, for Patents, data processing covers a broad spectrum of technology, embracing telecommunication protocols, database design, data security, internet

and e-mail functionality and so forth. Not only is this technology inherently complex, the legal issues surrounding the patents are equally complex. The protocols may be standardised, with each standard having particular terms of permitted use and obligations. The product is part of a system of interoperable devices (e.g. sender, receiver), each of which is provided through different channels, probably by different entities, and possibly in multiple jurisdictions. The patent protection obtained therefore must cover activities undertaken only within each channel and within each jurisdiction, to

ensure the rights can be enforced effectively against the entity involved.

The Design registrations are directed to features that have eye appeal and can be in either two-dimensional or three-dimensional form. They may be directed to graphical user interfaces that are only selectively visible on the screen and, in some countries, to animated graphical user interfaces.

Each category of IP rights therefore presents a myriad of issues which the IP practitioner must consider to advise properly an innovator.

7. How are IP Rights Obtained?

Although the details of the procedure for obtaining the statutory protection for inventions, designs and trade marks vary from country to country and by the type of protection being sought, the general framework is similar.

An application for protection is made at the appropriate IP authority. This will require a particular form and content and a defined level of innovation or distinctiveness.

The application is examined by the IP authority for compliance with these requirements. Some countries examine the application for formal matters only, leaving a substantive examination to be requested after grant of the IP right; for example, if and when enforcement is contemplated. Other countries (the majority in the case of patent rights) have a substantive examination on the merits of the application before the application can proceed to grant of the IP right.

If the examination requirements are met and, in some countries and regions, subject to a possible third-party opposition before or after grant, the IP right is granted and will exist for a defined period (not less than 20 years for patents for invention and potentially forever in the case of trade marks), provided the necessary periodic renewal fees are paid.

The IP right may be used to exclude others from using the innovation or to license others to use the innovation, or it may form a vehicle for transferring the innovation to others in return for an appropriate consideration.

This process is followed in each country or, depending on the application, group of countries and the IP rights granted are mostly national rights. Current regional exceptions to the grant of national rights for patents, trade marks and designs include the ARIPO patent system¹⁶ in Africa, the Eurasian patent system¹⁷ and the Community trade mark and design systems¹⁸ in Europe. A probable future exception is the European Unitary Patent¹⁹.

The overarching framework provided by the Paris Convention and related international treaties, such as the Patent Co-operation Treaty²⁰ (PCT) for inventions, the Madrid Agreement and Protocol²¹ for trade marks and the Hague Agreement²² for designs, as well as by the regional European Patent Convention (EPC)¹⁹ and the other regional patent systems mentioned above, provides a complex structure for the orderly processing of these applications in each country or region. Strict timelines are set by these agreements which must be adhered to in order to avoid a potentially catastrophic loss of the rights.

The examination process for each application or granted IP right is designed to protect the public interest by ensuring that unjustified rights are not obtained and enforced against third parties. As such the examination process, whether prior to grant or prior to enforcement, is adversarial in nature. The IP authorities act in the public interest to ensure the rights granted are commensurate with the contribution made by the applicant and that there is a uniform application of the law and due process. The applicant, on the other hand, wants to ensure that the rights granted are not so restricted as to lack any real commercial value.

8. The Intellectual Property Practitioner

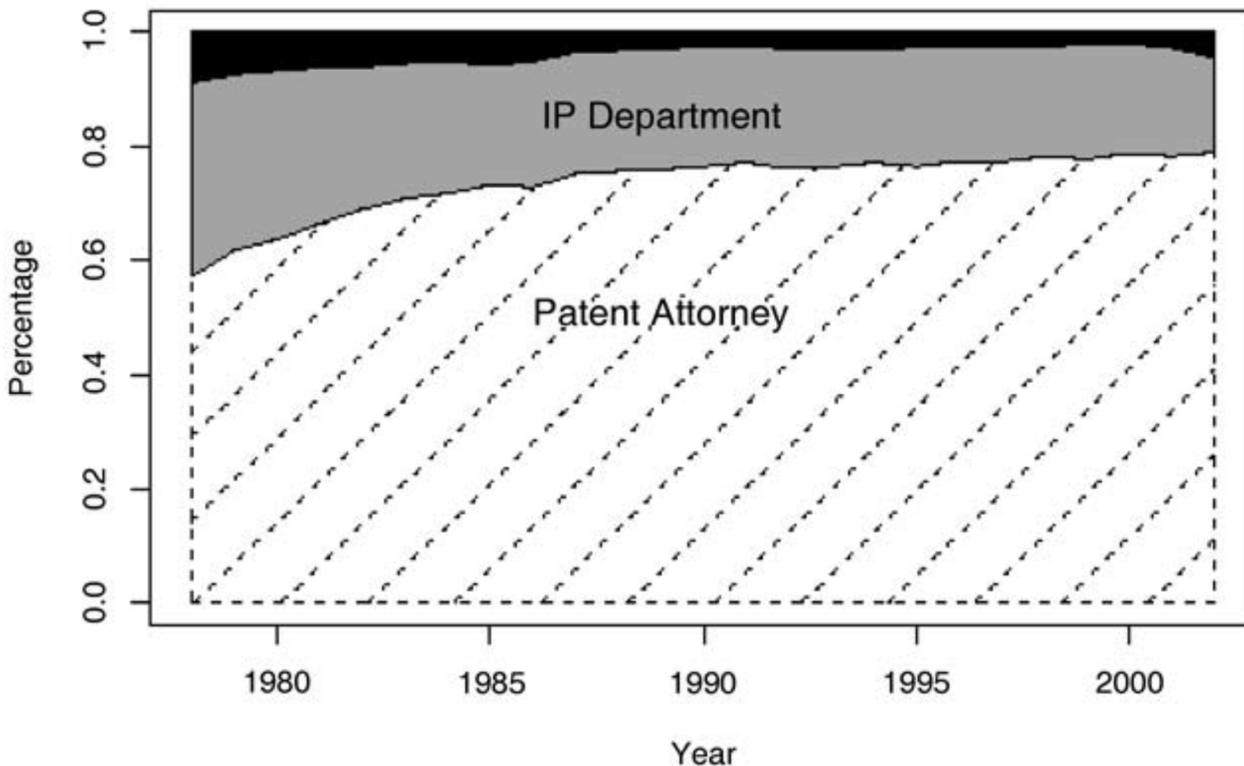
The intellectual property practitioner is a person who has the requisite knowledge and standing to represent applicants before the IP authorities. In addition to expertise in the fields of patents, trade marks, utility models and industrial designs, the IP practitioner will have knowledge in at least some of the areas of trade secrets, copyright, domain names and plant breeders rights, as well as the laws and practices relating to ownership, employment, marketing, advertising, labelling and contracts as applied to all of these IP rights.

Most countries and regions recognize the existence of intellectual property practitioners by making provision in their laws for representation by such practitioners. Not all countries mandate the use of a practitioner and a number of countries

permit any person to represent an applicant. The regime in each country is set out more fully in the *Kirby Royal Chambers Report*²³ discussed below in section 9.

In the EPO, the data in Table 1 of the Hoisl-Wagner report¹⁰ show that about 1% of European applicants represented themselves in 2013. The results reported in earlier work²⁴ from Prof. Dr. Wagner using a different data source with less refined coding, illustrated in the chart of FIG. 3 below, are consistent with this. The solid black sector at the top of the chart indicates the proportion of self-represented applicants over the period 1978 to 2002 and suggests that the data for 2013 is not an anomaly. It is likely that other countries have a higher percentage, but less than 5%, of unrepresented applicants.

Fig. 3



Despite the fact that applicants are able to represent themselves and that in some countries the representation of an applicant is open to anybody, the reality is that the vast majority of all applicants are represented before the IP authority by a member of a defined intellectual property

profession. Practitioners permitted to represent applicants will meet a defined set of criteria particular to each country, as detailed in the *Kirby Royal Chambers Report*.

The origins of the intellectual property practitioner are unclear, although at least

one reference²⁵ suggests that pre-federation Australia may have led the world in legislating to regulate the patent profession, with licensing of patent agents being introduced to South Australia in 1877 and to Victoria in 1879 (and prior to this the work being carried out by the likes of commission and shipping agents, surveyors, accountants and land agents).

Midori Okazaki suggests in her essay *Documenting Invention: Patent Attorneys, their Records, and the Study of Invention*²⁶ that a registration requirement for patent attorneys was established in the U.S.A. in 1897, although “in 1861 Congress gave the Commissioner of the Patent Office the authority to bar any person (from acting as a patent agent), either generally or in a

particular case, for gross misconduct”. She also suggests that prior to this registration requirement most patent agency work was performed by “patent solicitors”, who were not necessarily attorneys.

The short story by Charles Dickens *A Poor Man's Tale of a Patent*²⁷ perhaps provides some insight as to why the profession developed and why it has been sustained. The potential value of the rights being obtained and the complexity of the procedure, coupled with the adversarial nature of the application process, creates a need for a body of practitioners who are intimately familiar with those procedures and can act in the applicant's best interest to identify and obtain the rights to which they are entitled.

9. The Status of the IP Profession

FICPI has conducted a number of comparative reviews of the qualifications of intellectual property professionals in different countries. The most recent review, the *Kirby Royal Chambers Report* (the KRC report)²³, was prepared in anticipation of the present work. That report, named after the principal compilers of three successive editions of the work, shows the result of 58 responses to a survey distributed to country delegates of FICPI's Executive Committee¹.

What is noteworthy from the KRC report is the level of academic and practical training that is required in order to practise before the relevant IP authority. The academic qualifications indicate the majority have a requirement for tertiary education, i.e. at least a bachelor's degree, and a separate professional examination set in conjunction with the IP authority. In addition, in the order of 60% of the countries require a period of practical training.

“What is noteworthy from the KRC report is the level of academic and practical training that is required in order to practise before the relevant IP authority.”

As shown on page 9 of the KRC report, patent practitioners are required in many countries to have a technical degree, particularly in those countries that are traditionally seen as the major users of the IP system. It is also noteworthy that many countries do not permit a lawyer to represent an applicant, unless of course they have further qualification as a patent practitioner (page 10).

The KRC report also shows that only about 30% of the countries require the applicant to be represented before the patent office. However, when the applicant is from outside the country, 90% of the countries require local representation. It can be surmised that this is to ensure effective communication between the patent office and the applicant through a recognised representative.

The KRC report further reveals that around the world most countries recognise the importance of a specialist IP profession by conferring a restricted title such as ‘patent attorney’ or ‘trade mark attorney’ on those who are qualified through specialist examinations. Another key finding of the KRC report is that, increasingly, countries are recognising the importance of protecting confidential communications between IP practitioners and their clients from disclosure in legal proceedings. This protection is increasingly being provided by specific legislation conferring such privilege. The

expertise of the profession is also recognised in several countries in which IP practitioners are permitted to represent clients in court proceedings.

A comparison between the original *Kirby Report*²⁸ produced in 1984 and the KRC report²³ produced some 30 years later indicates that the required level of qualification is increasing, rather than decreasing, with more countries recognizing the role to be played by the intellectual property practitioner and providing official status for that profession.

One direct result of the comparative reviews originally embodied in the *Kirby Report* has been the establishment of training courses for IP practitioners in a number of countries, supported by FICPI²⁹ and the profession generally and often in conjunction with universities or government authorities, to formalise the training provided to entrants to the profession. The emphasis of these courses has been on the drafting and preparation of patent specifications. FICPI's Academy of Education now coordinates such courses annually in South East Asia, Europe and South America.

10. What Does the IP Practitioner Do?

The primary role recognized for the intellectual property practitioner is representation of the applicant before the applicable national or regional IP authority. Whilst that may be the origin of the profession, the role of the practitioner has evolved from this to one of also being a key business advisor who provides clients with commercially significant advice regarding the impact of the IP system on their businesses. This includes input on the opportunities to operate without infringing third party rights, IP landscape reports identifying areas for research and development and general counsel in protecting and maximising the value of their IP and, therefore, their businesses.

“The role of the practitioner has evolved from this to one of also being a key business advisor who provides clients with commercially significant advice regarding the impact of the IP system on their businesses.”

In a working group organized by the Canadian Intellectual Property Office (CIPO) to consider the modernization of Canada's intellectual property profession, a job description, reproduced below, of a

qualified intellectual property practitioner was developed. This “job description” was developed for Canadian practitioners but is generally applicable to most countries. Some countries and regions, as detailed in the *Kirby Royal Chambers Report*²³, permit the qualified practitioner to represent litigants before the court, and some countries require broader knowledge of certain areas of the law. However, the core skills are similar to those described above.

The CIPO working group determined that

The role of an IP professional can be subdivided in to two categories:

- A. *A resource that provides advice on the procurement of IP rights and the avoidance of 3rd. party rights, primarily, but not exclusively, for Canadian business*
- B. *The representation of applicants and third parties in proceedings before CIPO.*

A) Resource to Canadian business

The first of these roles (A) is broader than the second (B) and encompasses practice beyond Canada. The expertise of the professional should be such that he/she is considered a “trusted business advisor” to the highest levels of the business.

It requires general knowledge of practices in major territories of interest to Canadian business, notably U.S., Europe, Japan and China, sufficient to advise Canadian industry as to the general framework for

acquiring IP rights and potential pitfalls in those procedures. It also requires knowledge of international treaties, including those to which Canada may not adhere but which may impact upon Canadian interests. The level of expertise expected is that necessary to develop with their client a coherent, effective IP strategy, subject to input from foreign professionals on specific issues. An agent is aware that a Canadian applicant can avail itself of regional application procedures and what major countries are parties to those regional groups, even though Canada is not part of the region.

The IP professional should also be able to advise Canadian business on infringement and validity of Canadian IP rights and therefore should have a thorough knowledge of the principles and case law that govern those issues.

The IP professional should have a thorough knowledge of the national and European Court systems, the rules of evidence, corporate structures and legal principles applicable to IP matters, such as ownership of IP rights, employment, and transfer. In many EP countries, the Patent attorney has a significant role in the litigation system for IP rights (perhaps except Copyright); this will obviously be enhanced by the future UPC System.

A core skill for a patent agent is the evaluation of potential inventions for inventive subject matter, the preparation of a patent application that properly protects that invention and complies with the accepted practices in the significant offices of the World, and the selection and implementation of an appropriate filing strategy to meet the requirements of the business. This skill embraces the identification of potentially inventive subject matter, the determination of the appropriate form of protection for that subject matter, an analysis of the prior art and its effect on the patentability of the subject matter, and the preparation of advice to the business person.

A core skill of the trade mark agent is the identification of protectable marks, evaluation of their distinctiveness and registrability, preparation of an application to register the mark and selection of an appropriate filing strategy to meet the needs of the business.

In each case, the agent should be able to identify and evaluate third party risks,

advise on the proper scope of those rights, identify risks associated with such rights, and implement a strategy to mitigate those risks.

An agent is aware of the basic boundaries between different forms of statutory IP, so that he or she is able to alert a client regarding a possible issue in relation to another form of protection (but perhaps not able to advise on that issue).

Some of this knowledge is to be expected for all qualified practitioners, other will be acquired by experience.

B) Representation before CIPO

The second of these roles is easier to define.

An agent has a thorough and complete understanding of the meaning and implementation of the relevant Canadian acts and regulations, and any CIPO Practice Notices and manuals (this is not to say that the agent should have all of this committed to memory — especially the wares and services manual).

An agent prepares and files Canadian patent and trademark applications and ensures compliance with the Canadian Act and Regulations.

An agent represents applicants before CIPO in respect of tm/patent prosecution of the applicant's own applications to ensure proper application of the Act, Rules and jurisprudence.

An agent represents clients in any proceedings before CIPO, whether adversarial (such as oppositions) or ex parte (applications and re-examinations).

An agent is aware of what proceedings must be commenced in court and what threshold conditions in the Patent or Trade-marks Act must be met to do so (e.g. interested persons, whether licensee must name owner as party), but does not need to know civil procedure or what is required in a sufficient pleading, or anything about burden of proof or rules of evidence. (exception: agent should know rebuttable presumption of validity).

An agent has a thorough understanding of the Canadian jurisprudence relating to all the above, and the proper application of that jurisprudence to properly represent the applicant before CIPO, subject to any exceptions carved out (see (b), below).

An agent is aware of the statutory requirements of an assignment or license (e.g. written or not; the form of document that CIPO will register) and the necessary content of an assignment or license (identification of parties, consideration) but not whether all the terms of the assignment or license are enforceable, since this is provincial law.

The patent agent's knowledge of the above is not restricted to New Act patents.

[Note to reader: New Act refers to a major revision of the Canadian Patent Act.]

An agent is aware of the rights afforded applicants in Canada under the provisions of different treaties, their implementation in Canadian Statutes, and the correct application of those rights by CIPO.

An agent is fully conversant with the operation and application of the PCT as administered by CIPO, the processing of such applications before the IRA, ISA and IB, and the representation of the applicant before those bodies in substantive and procedural matters.

[Note to reader: the International Receiving Authority or Office (IRA), International Searching Authority (ISA) and International Bureau (IB) of WIPO are all IP authorities designated under the PCT.]

“Implicit within the range of activities of the IP practitioner is the ability to navigate the rules and procedures necessary to ensure the IP rights remain in force and viable.”

This description (in which minor grammatical changes from the original document have been made) is by no means exhaustive, or the most demanding, of the expectations placed upon IP practitioners. For qualification before the European Patent Office (EPO), for example, the candidate must have a full and expert knowledge of the EPC, the Rules, the Rules relating to Fees, the Guidelines for Examination, and opposition division, Boards of Appeal and Enlarged Board case law. In many cases, this is in addition to the equivalent knowledge of the national laws of the practitioner's country of residence and of significant expertise not within the purview of the EPO, such as infringement.

Implicit within the range of activities of the IP practitioner is the ability to navigate the rules and procedures necessary to ensure the IP rights remain in force and viable. Taking a European patent application from filing to grant and validation in individual member countries of the EPC involves close to 100 deadlines, some of which may be many months or even years in the future.

The matters dictating these deadlines must be addressed on a day-to-day basis, but rules frequently change, often with unintended consequences and a need for alertness by the practitioner.

In countries where the IP practitioner may appear in court, knowledge of court procedures and broader legal issues is necessary and these are likewise often subject to frequent change.

The evolution of the IP practitioner to a “trusted business advisor” has also broadened the necessary expertise. The IP practitioner will develop an IP policy that is consistent with the strategic objectives of the innovator. He/she will also assist in setting up licensing policies and negotiating IP-related contracts. Even where the IP practitioner is not able to appear in court, he/she will act in support of litigation, including trying to avoid litigation and, when necessary, preparing the client for litigation. The IP practitioner will also assist in the valuation of IP assets, both for the acquisition of such assets and in seeking financing for and investment in the innovator. On a broader scale, the intellectual property practitioner will develop an appropriate matrix of protection for the company's intellectual assets in order properly to protect the assets.

To put this in the context of the screwdriver illustrated in FIG. 1, the IP practitioner will start from the innovator's concept and advise what may be protected, the strategy to follow in seeking protection, including appropriate timing, countries/regions and costs, may investigate the existence of any competing rights (thereby protecting potential investment to be made by the innovator) and will implement the strategy by filing applications for protection in the appropriate sequence.

For the more complex example of the smart phone in FIG. 2, the activities outlined for the screwdriver example will be replicated for each of the many different facets of the innovation and will expand to the vetting of and acquiring licences for third-party rights, investigating and accessing standards and

advising on branding and corporate identity. In performing these tasks, the IP practitioner will interface with multiple other disciplines, such as legal, engineering, marketing and finance, as part of a comprehensive business team. Even within the IP function, the range of technologies presented in the smart phone example requires different technical disciplines, and therefore most likely a number of different IP professionals, to work together.

Midori Ozaki’s essay²⁶ also provides a detailed description of patent attorneys and their functions, perhaps best summarised by the following paragraph:

“Patent attorneys can provide invaluable assistance to inventors in understanding patent laws and developing strategies for maximizing the value of their inventions under those laws. They can ensure that those strategies are implemented when patent applications are prepared. They are experts in writing (drafting) patent claims and in negotiating the wording

(and, hence, scope) of those claims during the prosecution of the patent application. They can also develop strategies that help the client avoid infringement liability.”

She also details the process by which a patent attorney works with an inventor to identify the invention(s), with the end result being that:

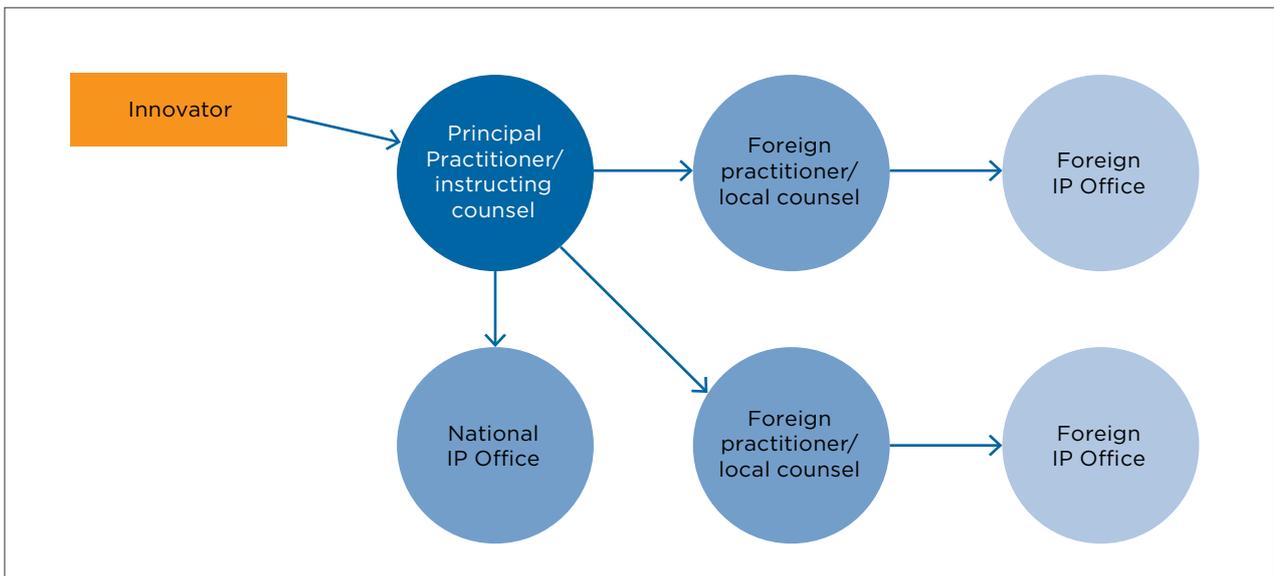
“(t)he inventive idea may have changed or been improved upon, but the more common result is an invention which is more generic and broader in scope. By extending patent coverage to potential variations of the invention that a competitor may try to manufacture, the patent attorney has helped to increase the patent’s value. There is little doubt that the patent attorney influenced the shape of the claimed invention. He clearly exercises creativity. He may even be ‘inventive’ in the layman’s sense of the word. However, it is unlikely that he will admit that his contributions are inventive in the patent context.”

11. International Protection

One of the major roles of the intellectual property practitioner is to manage the portfolio of IP rights of a client in a number of different jurisdictions. Each application in a family (for the same right in a number of different countries) proceeds in parallel, but not necessarily in lock-step, as dictated by the rules and operations of the different IP authorities concerned. Whilst each jurisdiction may require representation by a local practitioner domiciled in that

jurisdiction, the overall control of the parallel processing of the applications in different countries is conducted through a principal instructing intellectual property practitioner retained by the applicant. That practitioner instructs (and often selects for the applicant) practitioners in other countries, as shown schematically in FIG. 4 and ensures that the rights obtained in the different countries are defensible and consistent with the applicant’s needs.

Fig. 4



The prime contact with the applicant is the principal practitioner, who co-ordinates the filing of new applications and then drafts responses to reports issued by the IP authorities detailing examination objections and other requirements (refer to section 7 for a broad outline of the application procedure). Those responses may also reflect changes to the application resulting from objections raised by other IP authorities and not raised in the examination report being dealt with. The principal practitioner therefore consolidates information received from the different IP authorities and co-ordinates responses through local foreign practitioners. The principal practitioner ensures the rights being obtained in each jurisdiction are consistent and defensible and result in an IP right of a high quality, taking into account all the information known at the time the right is granted.

“The procedural complexity is significant, and failure to attend to the different procedures can lead to a catastrophic loss of rights. Despite best efforts through harmonisation and co-operation between IP authorities, this complexity appears to continue to increase.”

It should be noted that not all responses will be identical, as different countries have different laws and regulations, even, in the case of patents, on such fundamental issues as the definition of prior art and, for example, what subject matter is eligible to be patented. The principal practitioner must take this into account when formulating each response.

The principal practitioner may also have to make recommendations to the client on the filing of divisional and continuation applications. These are later applications directed to part, or in some cases all, of the subject matter in an earlier, related application.

In parallel with the substantive work of analysing objections and responding to the IP authorities, the practitioner must also monitor deadlines and attend to procedural

or administrative matters relating to the applications. Responsibility for this lies with the principal IP practitioner, who seeks instructions from the applicant as appropriate. The procedural complexity is significant, and failure to attend to the different procedures can lead to a catastrophic loss of rights. Despite best efforts through harmonisation and co-operation between IP authorities, this complexity appears to continue to increase. IP authorities must maintain a balance between the rights of applicants and the rights of third parties, and the rules must balance flexibility to the applicant with clarity and certainty to third parties. The result is ever more complex regulations within which the IP practitioner must operate.

The development of the IP system itself over the last 40 years has introduced more options and therefore more complexity. From the patent perspective, prior to the implementation of the EPC and the development of the PCT, the decision for filing in other countries was very simple: select the countries in which protection is needed and file in those countries.

The EPC introduced another option for patent protection in Europe and so it becomes necessary to consider which of the options is preferred. The relative cost has to be considered, and this depends on the number and particular selection of countries where protection is required. The speed with which enforceable rights can be obtained is another factor if there is an infringement in a particular country. The relative ease of obtaining the grant in the countries of interest or the language used may also be factors in selecting one route over another. Similar considerations apply to the other regional patent systems; the ARIPO and Eurasian systems.

The PCT system introduced a further layer of complexity still by allowing deferral of national and regional filings, but at the same time restricting choice of processing applications nationally in some European countries. An applicant needing protection only in France would not be well served by using the PCT route, for example.

Much the same considerations apply to trade marks with the Madrid system and the EU trade mark, as well as to designs with the Hague Agreement and the registered Community design.

Counselling on these options and selection of the most appropriate strategy is part of the value provided by the IP practitioner.

12. Workload of the IP Practitioner

As discussed above, the IP practitioner is engaged in a mixture of work; some from domestic clients before the local IP authority and some for foreign clients before the domestic IP authority and some for domestic clients before foreign IP authorities. Just as for any business, the demand for these services will determine the viability of the profession.

“Removal of the requirement for a local representative would, in some countries, make the local profession untenable. This would mean that local industry would no longer have access to the IP profession.”

In submissions made by FICPI to the Diplomatic Conference³⁰ held in Geneva from 11 May to 2 June 2000 that led to the Patent Law Treaty³¹, it was shown that removal of the requirement for a local representative would, in some countries, make the local profession untenable. This would mean that local industry would no longer have access to the IP profession.

A more nuanced result would also be that the legal expertise needed to advise on IP matters in that jurisdiction would not be available and that the technical expertise necessary in the adjudication of IP rights would similarly not be available. It is therefore important to look at the workload of the IP profession in different countries that results from the current flow of applications.

A review of the statistics available from WIPO relating to patent filings³² shows that on average an originating case (i.e. an initial application filed by an applicant) leads to corresponding applications in between two and three other countries. Only 50% of the cases filed in the United States are filed outside the U.S., indicating the primary interest of U.S. applicants in obtaining protection is their home market. A review of the statistics also demonstrates clearly the impact of adherence to treaties such as the PCT where there is an initial reduction in the filings in different countries as those treaties come into effect there, with the numbers later recovering.

In order to obtain a better understanding of the origins of work for the intellectual property practitioner, the WIPO 2012 IP Facts and Figures³³ were reviewed and the results shown in Tables 2 to 8 extracted.

Table 2
Number of Resident Patent Filings by Region

Region	No. of Resident Filings (2010)	No. of Resident Filings (2005)
ASIA		
China	293,066	93,485
Japan	290,081	367,960
S. Korea	131,805	122,188
Russia	28,722	23,796
N. Korea	8,018	5,861
India	7,262	4,721
Total for Asia	758,954	618,011
% of total resident filings	63%	61%
EUROPE		
EPO	74,399	N/A
Germany	47,047	72,165
UK	15,490	22,483
France	14,748	22,362
Italy	8,814	4,200
Poland	3,203	2,139
Netherlands	2,575	10,016
Ukraine	2,556	3,538
Turkey	2,555	996
Austria	2,424	3,323
Sweden	2,196	5,008
Belarus	1,759	1,166
Finland	1,731	3,344
Switzerland	1,645	6,671
Total for Europe	181,142	157,411
% of total resident filings	15%	15%
NORTH AMERICA		
U.S.A.	241,977	207,867
Canada	4,550	5,183
Total for N. America	246,527	213,050
% of total resident filings	21%	21%

The percentage of resident filings in a country, as set out in Table 2, is indicative of the origins of the work for the IP practitioner in that country. In reviewing the resident filings by region, it will be noted that Asia has a relatively high percentage of its filing originating from within the respective country, in the order of 60%, whereas North America has only 20% of the filings originating locally and Europe an even lower proportion at 15% of the total resident filings. Extrapolating that to the impact on the profession, it can be concluded that the Asian IP practitioner must rely more upon the resident-originating work than, for example, the European or North American practitioner.

Table 3
Total Number of Resident Patent Filings in Top 5 IP Authorities in 2010

Country	No. of Resident Filings	% of Total
China	293,066	24.5%
Japan	290,081	24.3%
U.S.A.	241,977	20.2%
Korea	131,805	11%
EPO	74,399	6.22%
Total	1,031,328	86.22%

Looking at the total number of filings from residents in the top five IP authorities as set out in Table 3, the magnitude of domestic patent work in those countries can be identified. China, Japan and the U.S.A. all generate in the order of 250,000 or more applications per year from residents of those countries. In order to prepare and file that many applications, there must be a body of IP practitioners of sufficient size to handle that activity.

Table 4
Total Number of Non-Resident Patent Filings by Country

Country	2010	2005	Rank
U.S.A.	248,249	182,866	1
China	98,111	79,842	2
EPO	76,562	N/A	3
Japan	54,517	59,118	4
South Korea	38,296	38,733	5
Canada	30,899	34,705	6
India	27,025	19,661	8
Australia	22,478	21,302	7
Brazil	19,981	16,100	9
Russia	13,778	8,609	14
Mexico	13,625	13,851	10
Germany	12,198	11,855	11
UK	6,439	10,155	13
Israel	5,856	4,808	21
Malaysia	5,230	5,764	17
New Zealand	5,051	5,112	19
Ukraine	2,756	2,054	28
France	1,832	2,948	25
Italy	903	N/A	N/A
Thailand	723	5,449	18
Norway	696	4,843	20
Switzerland	547	455	44
Sweden	353	438	46
Netherlands	279	633	36
Austria	249	235	59
Total	686,633	529,536	

The number of non-resident patent filings (that is, filings made by patent applicants from outside the country) is shown in Table 4. It may be seen that both the U.S.A. and EPO have approximately the same number of non-resident filings as resident filings. However, the non-resident filings in China and Japan are much lower and therefore a smaller percentage of the total filings there.

Table 5 shows similar data to Table 3, but for non-resident patent filings, while Table 6 lists the top 16 countries from which foreign patent applications were filed, by the number of foreign patent applications from those countries.

Table 5
Total Number of Non-Resident Patent Filings in Top 5 IP Authorities in 2010

Country	No. of Non-Resident Filings	% of Total
U.S.A.	248,249	36%
China	98,111	14.2%
EPO	76,562	11.1%
Japan	54,517	8%
Korea	38,296	5.6%
Total	515,735	75%

Table 6
Patent Applications Filed Abroad from Top 16 Countries

Country	2006	2007	2008	2009	2010
U.S.A.	185,075	196,573	198,014	173,539	178,355
Japan	171,120	175,371	180,514	168,911	172,945
Germany	88,394	91,040	96,204	89,546	94,515
South Korea	48,170	47,707	46,556	43,070	45,990
France	33,039	35,460	38,491	37,904	39,337
Switzerland	25,262	28,482	29,653	28,293	28,931
UK	25,823	27,841	29,840	27,958	28,621
Netherlands	27,354	27,300	27,520	25,364	23,397
Canada	16,786	17,912	17,301	17,038	19,078
Sweden	13,581	15,367	16,703	15,318	15,565
China	7,015	8,330	9,775	12,450	14,507
Italy	14,045	14,847	15,337	13,869	14,189
Israel	7,206	8,951	9,193	8,391	9,132
Finland	8,863	9,584	9,775	8,172	9,035
Australia	8,625	9,265	9,392	8,193	8,718
Belgium	7,766	9,399	8,874	7,860	8,648

By combining the statistics of resident and non-resident patent filings and the origins of the applications filed abroad, it is possible to determine the approximate workload and mix of patent work of the IP practitioners in a given country.

Taking the U.S.A., for example, IP practitioners there will be required to file approximately 250,000 U.S. patent applications for U.S. applicants, file in the order of 180,000 patent applications corresponding to those residential filings in other countries and receive from outside the U.S. in the order of 250,000 patent applications. As far as patent filings are concerned, the U.S. IP practitioner therefore has a mix of originating work that is split roughly equally in three between originating applications filed in the USPTO, foreign patent applications filed on behalf of domestic applicants, and representation of non-domestic applicants before the USPTO.

A similar analysis can be conducted for other countries and for trade mark and design filings. The results of such an analysis for the top five countries patent filing countries is shown in Table 7.

Table 7
Type of Patent Applications Filed in and from Top 5 Filing Countries

Country	Domestic Applications	Foreign Filings by Domestic Applicants	Incoming Applications
U.S.A.	250,000	180,000	250,000
Europe	75,000*	269,000	76,500
Japan	290,000	173,000	55,000
Korea	132,000	46,000	38,000
China	293,000	14,500	98,000

*In the data in Table 7 Europe has been considered as a "country". The breakdown of originating patent filings by country of residence was obtained from the EPO statistics for 2010 and the foreign patent filings for those individual countries can be found from the WIPO data. The number of incoming cases per country for national filings is included in the WIPO data but the country of representation for EPO applications cannot readily be parsed from the data available. A comparative analysis of the patent prosecution workload between countries in Europe could not be made at the time of compiling the data.

The predominant European countries for originating patent filings are Germany, France, Switzerland, Netherlands, UK and Italy, as shown in Table 8. The table also shows similar data to Table 7 for these European countries.

Table 8
Top Six EPC Countries for Originating Patent Applications in 2010

Country	Domestic Applications	Foreign Filings by Domestic Applicants	Incoming National Applications (no EPO applications included) for Foreign Applicants
Germany	27,237	94,515	12,198
France	9,572	39,377	1,832
Switzerland	6,845	28,931	547
Netherlands	5,977	23,397	N/A
UK	5,382	28,621	6,439
Italy	4,079	14,189	903

Although it was not possible to compare the patent prosecution workload between individual EPC contracting states, it is generally accepted that the patent profession in Germany, France and UK represents the majority of foreign applicants before the EPO, with other countries each having a smaller share. It is evident that some countries in Europe enjoy neither a robust domestic patent practice nor a significant source of patent work from outside Europe. The viability of the patent profession in those countries is accordingly challenged, with significant implications for local industry.

The filing and prosecution of applications for patents or trade marks is just one facet, albeit a predominant one, of the intellectual property profession. The filing and prosecution of patent and trade mark applications is a direct measure of the rate of procurement of the IP rights that stimulate and support new advanced economies and is a major factor in the cost of procuring those rights.

At the present time we have not yet developed the statistics for trade mark applications. It is noted, however, that over 80% of trade mark applications filed in EUIPO are filed by IP practitioners, notwithstanding the ability of applicants based within the EU to represent themselves before that IP authority.

13. What Does the Intellectual Property Profession Look Like?

There is a basic division in the intellectual property profession between “in-house” practitioners and “private” practitioners. In-house practitioners are those employed by companies to provide intellectual property expertise within the company. Private practitioners are individuals or groups of individuals who are organized into firms and who represent several different applicants. The IP-related skill sets of in-house and private practitioners are essentially the same, although the application of those skill sets may differ. As a generalization, a company employee may be more involved in the strategic development of the company’s intellectual property portfolio and the related commercial objectives of the company, whereas the private practitioner may be more involved in patent or trade mark prosecution and advice as it pertains to the IP authority in his or her country. Many private practice IP practitioners though do act as trusted business advisors to companies with respect to management of the IP assets, and so the difference between in-house and private practitioners is one of nuance rather than a bright line.

Intellectual property practitioners in private practice operate within a free market environment in which they compete with other firms, both within and beyond their own countries or regions, to represent particular clients and meet the needs of those clients. The success of a firm will depend on the needs of the market, the expertise available from the members of the firm and the good management of the firm. They must at all

“It is apparent that private practice IP firms, to a large extent, should be regarded as small and medium enterprises that generate significant employment within a country or region.”

times be cognisant of the potential conflicts that may arise in representing different clients, and this will naturally inhibit the size of the firm. Representing a client in one field of technology will, to some degree, inhibit representation of a competitor of that client in the same field of technology.

To determine the characteristics of the intellectual property profession in private practice, FICPI in 2012 conducted a survey amongst its members. The questions in the survey and the results may be viewed using this link. The results were analysed by Marc Chinoy, the founder and president of the Regis Group³⁴, who also helped prepare the survey questions.

The outcomes of the survey were summarized by him as follows:

- FICPI members are predominantly in IP specialised firms
- The firms are relatively small
- Major work component is of domestic origin
- Growth is envisaged – of the profession and individual firms
- Counselling is likely to increase
- International workflow not as pronounced as expected
- Interactions with IP authorities not diminishing – in number or complexity
- Perceived value of IP is increasing
- Profitability is decreasing
- IP firms do not approach marketing systematically

The results of the survey have been set out on a regional basis so that a comparison may be made from region to region and with the overall norm. It is apparent that private practice IP firms, to a large extent, should be regarded as small and medium enterprises that generate significant employment within a country or region and are market driven to meet the needs of the territory in which they operate.

14. Value of the Intellectual Property Profession

The discussion above is intended to explain the nature of the IP profession and the environment in which it operates. Having defined the nature of the intellectual property profession practice, we have attempted to develop different analytical models to determine the value of the profession. The value of the intellectual property profession can be considered by analysing the benefits the IP practitioner provides to users of the IP system and to IP authorities and the cost of the profession to those users.

i. The Benefit

The benefit afforded by the IP profession may be seen in the economic benefits flowing from an innovative economy, as detailed in the studies^{1,2,3} referred to in Section 2. However, those studies encompass IP rights that are not related to the statutory IP rights with which this report is concerned.

“It is not possible to determine how many times a patent has been reviewed by third parties and found to prohibit direct copying, nor the costs incurred by third parties in attempting to design around the patent.”

A measure of the value of the statutory IP rights may be obtained by considering licensing; some studies have attributed an average value per patent. James Bessen and Michael Meurer³⁵ provide an estimate for 2008 of the average value of a patent as US\$531,000 per year in the chemical and pharmaceutical industries and US\$39,000 per year in other industries.

IBM is reported³⁶ to have upwards of 6,000 patents issued per year and to have generated annual licensing revenues ranging from about US\$700 million to about US\$1.2 billion over the ten years from 2008

(although Bessen and Meurer considered in 2008 that the pure patent licensing revenues are more like \$200 million).

The Association of University Technology Managers (AUTM) conducts an annual survey³⁷ of its members in North America in relation to licensing revenues. For 2011 it reported that its members filed 19,900 U.S. patent applications, of which 13,200 were new applications and 1,193 were patent applications in other countries and regions (and the remainder divisional and/or continuations applications – see Section 7 for an explanation). Of these 4,700 patents were granted. For AUTM, the external legal fees associated with the procurement of IP and licensing of the IP were reported to be US\$330 million, of which approximately half was reimbursed, presumably by licensees. Revenue from licensing programs was reported as US\$2.5 billion, with US\$1.5 billion resulting from running royalties and the balance split between options, termination payments, minimum fees and the like.

These studies allow an average value to be attributed to the IP rights obtained. In determining that value, the quality of the IP right has to be taken in to account. In general, if the quality is perceived as high, the value will increase and vice versa.

What is not readily apparent from these data is the value of the invisible benefit obtained when a patent deters a potential competitor from entering the market. It is not possible to determine how many times a patent has been reviewed by third parties and found to prohibit direct copying, nor the costs incurred by third parties in attempting to design around the patent.

A further approach that could be taken to determine the value of intellectual property is to look at the claims made against the IP profession for malpractice. The alleged loss sustained is presumably indicative of the perceived value of the IP right that has been lost. A number of publicly available court cases were reviewed, predominantly in the United States. The majority of actions brought before the U.S. courts involved a failure in procedural matters, rather than substantive issues associated with the scope of protection obtained for the applicant.

In those cases, significant awards were made on the basis of a proven loss of revenue resulting from the error made in procedural matters. Five examples are summarised below.

1. *IGEN Inc. v. White* (1998)³⁸

- White failed to file a European patent application by a due date
- IGEN sued White for \$150M
- Case was dismissed (IGEN failed to prove damages resulting from loss of EP patent)
- Litigation lasted five years

2. *Air Measurement Technologies, Inc. v. Akin Gump (et al.) LLP* (2007)³⁹

- Akin were hired by AMT to prepare patent applications for safety device used by safety personnel for breathing apparatus (SCBAs)
- AMT advised Akin of a prototype being marketed since 1989
- First application filed 1991, with four subsequent "continuation" cases
- AMT sued six infringers; settled for \$10M, despite infringing sales of \$100M per year
- AMT sued Akin for malpractice (failure to file on time and failure to disclose prior art)
- AMT wins \$75M verdict; Akin settles for undisclosed amount

3. *Kairos Scientific Inc. v. Fish & Richardson, P.C.* (2003)⁴⁰

- Fish failed to file an international (PCT) application in time to claim priority under the Paris Convention
- Kairos sued Fish for lost royalties from potential licensing agreements
- Fish argued patent would not have been commercially successful
- Kairos awarded \$30M; upheld on appeal

4. *PreMD v. Ogilvy Renault et al.* (2013) (Appeal decision)⁴¹

- 1993: PreMD acquired technology and patent rights for cholesterol measuring method
- 1996: two U.S. patents granted
- 1999: PreMD hired Ogilvy to manage patent portfolio; during transfer of info, two U.S. patents not entered into docket system

- Maintenance fees on the patents were not paid and patents lapsed
- PreMD sued Ogilvy for >\$14M; awarded >\$1M
- Upheld on appeal

5. *Vaxiion Therapeutics Inc. v. Foley & Lardner* (2006)⁴²

- Foley filed 2 provisional patent applications in May 2001 and Feb 2002 (for inventions relating to improved vaccine delivery)
- PCT application filed four days too late to claim priority under the Paris Convention from the May 2001 patent application (despite being reminded by Vaxiion's CEO)
- Vaxiion's competitor, EnGene Inc. filed its first patent application for the same technology in Oct 2001 and filed a PCT application in time to claim priority under the Paris Convention; EnGene therefore had the earlier patent rights to the technology
- Foley represented EnGene as well as Vaxiion
- Vaxiion sued Foley claiming general, special and punitive damages
- Foley settled for undisclosed amount

Whilst these cases support the high value attached to patents in particular, the data are probably not as indicative of value as that of the more general licensing analysis above. Most cases involving negligence claims are settled before coming to court, and the cases pursued through the courts are usually those that have a high proven value in the IP.

ii. The Cost

a. General Considerations

The costs incurred in procuring IP rights are the fees paid to the professional by the user, i.e. the IP practitioner's client (who is often the applicant). For users utilising IP professionals in private practice, these costs are manifested directly as the invoices sent for services rendered. Whilst not usually as transparent, a similar analysis is valid for in-house practitioners since their employer company is essentially incurring similar costs to those of an applicant employing a professional in private practice.

The fees charged by intellectual property professionals are commonly a mix of hourly fees that are calculated on the basis of the professional time spent on behalf of the client and fixed costs associated with particular, predominantly administrative activities. The fixed costs are generally associated with routine activities such as the preparation of filing papers and the payment of fees, whereas the professional time is related to non-routine, “bespoke” work such as the preparation of applications, including drafting patent specifications in the case of patent professionals, the analysis of prior art or prior registrations and the development of detailed technical and legal arguments, evidence and opinions. The typical account rendered to a client is therefore a combination of professional time and fixed charges, although the relative proportions of these will vary according to the task at hand. Some standard charges may include a component of professional time and some billing structures may be a variant of these two basic types of charges.

In order to remain viable as a business, an IP practitioner must generate sufficient revenue to cover the costs of their practice and to provide a living. To determine the profitability of a professional, it is a relatively straightforward matter to consider the number of hours billed by the professional multiplied by the hourly rate of that professional and add the standard fees associated with the work. This would generate the revenue per professional. The hourly rate is a market-driven rate determined by the experience, particular expertise and nature of the work undertaken and will vary from professional to professional and from firm to firm.

The expenses associated with the revenue generation are the cost of providing an office, the salaries of staff, the provisioning of the office, marketing expenditure for developing and maintaining a client base and the substantial working capital that is needed to sustain liquidity in the business.

From the results of the 2012 survey of FICPI members identified in Section 12, it can be seen that the overhead associated with administrative staff is significant. In other words, the ratio of professionals to administrative staff is in the order of two or three to one. This relatively high overhead is caused by the administrative complexity of the IP system and is reflected in the charges made for administrative work and/or the hourly rate charged by the professional.

b. Quantifying the Cost of an Intellectual Property Profession

Generally, data indicating the billings of private practice firms or their profitability are not readily available. We have therefore developed a model using the workload analysis above to attribute, at least to a reasonable approximation, the total revenue per country or region generated by the intellectual property profession in procuring patent rights. A similar analysis can be performed for trade marks.

This model uses the numbers set out in Tables 7 and 8 developed from WIPO’s statistics showing the makeup of the major categories of patent prosecution work per country (i.e. the number of domestic filings, overseas filings and incoming filings) and attributes a value to each of the major stages involved in those categories. The values will vary widely from case to case depending upon the nature of the invention, the complexity of the prosecution and the procedural issues that may arise. Two sources available to the authors in 2014 have been used to arrive at a reasonable average value. The first of these is the Global IP Estimator database⁴³, a commercially available database that provides an estimation of the cost of filing in each country based on fee schedules collected and compiled. The other basis is an amalgamation of fee scales established by larger filers for work outsourced to private practitioners. The estimated values for the IP profession in the U.S.A. are set out in Table 9.

Table 9
Estimated Typical Patent Filing, Prosecution and Grant Charges, Excluding Government Fees, Foreign Associate Charges and Renewal Costs (US\$)

	Filing Application*	1 st Office Action	2 nd Office Action	Grant**	Total Cost (\$)
Domestic Filing***	\$10,000.00	\$5,000.00	\$2,000.00	\$500.00	\$17,500.00
Foreign Filing (outgoing)	\$1,000.00	\$3,000.00	\$2,000.00	\$500.00	\$6,500.00
Agency Filing (incoming)	\$1,675.00	\$2,500.00	\$1,500.00	\$700.00	\$6,375.00

*includes cost of filing application and associated formalities, e.g. filing of assignment, preparation of an information disclosure statement and, where applicable, filing a request for examination

**includes cost of reporting allowance, and reviewing and reporting patent grant

***includes cost of drafting patent specification

The fees in Table 9 exclude government fees, foreign practitioner (local counsel) charges and renewal costs because the analysis is focused on the costs resulting from the IP profession in a particular country procuring the IP rights.

By applying the average fees in Table 9 to the filing numbers in Tables 7 and 8, it is possible to obtain an approximation of the cost to the applicants of the intellectual property profession in the filing and prosecution of patent applications – as set out in Table 10. The analysis at this time is restricted to North America as fee scales were not obtained for other regions. It would seem, however, that similar costs would be incurred for applications originating in Europe and other countries with a significant domestic user base.

Table 10
Approximate Service Charges of the U.S. IP Profession to File Patent Applications and Prosecute them to Grant

	Domestic Filing	Foreign filing	Incoming	Total
# per Table 7	250,000	180,000	250,000	
Cost/application (US\$) per Table 9	17,500	6,500	6,400	
Revenue (US\$)	4,375 million	1,170 million	1,600 million	7,145 million (US\$7.145 billion)

The total of US\$7.145 billion can only be regarded as a first approximation because a number of factors have not been taken in to account. For example, it (i) assumes that all applications proceed to grant, (ii) does not take in to account extended prosecution resulting from appeals and the like, and (iii) does not allow for continuation and divisional applications (see Section 7 for an explanation of these applications).

As a cross check, this same protocol was applied to the AUTM figures for new filings and foreign filings outlined in Sub-section 14.1 (13,200 and 1193, respectively). Figures of US\$231 million and \$7.7 million respectively were obtained for a total cost of US\$239 million. This is within the same order as the reported legal expenses also outlined in Sub-section 14.1 (US\$330 million) for procuring and licensing and indicates some validity to the analysis.

Using this methodology, the cost of the U.S. IP profession in supporting the U.S.-based

innovator community for procuring patent rights can be estimated (from the Domestic Filing and Foreign Filing columns in Table 10 using the fee data available in 2014) to be in the order of US\$5.5 billion. The inevitable question arises as to whether this cost is a burden on the innovator community or is justified by an increase in the value attributed to those patents? This question is considered in Section 15 below. These costs are of course only part of the costs incurred. An intellectual property professional will provide numerous services beyond the prosecution and drafting of patent applications, as discussed in Sections 10 and 11. Costs of enforcement, that is litigation and licencing, are not included in these figures, but they have a cost-benefit analysis of their own. That is, is it worth litigating and is a licence reasonable? As noted above, government fees are not included in the figures of Tables 9 and 10 because the focus is on professional costs. Government fees would be incurred whether or not the applicant used an intellectual property professional.

An interesting analysis may be made of the government fees incurred over the life of a patent, including renewal fees, and those costs added to or compared to the cost of the intellectual property professional, but this is beyond the scope of the present analysis.

It is also apparent from Table 10 that significant revenue is generated from foreign applicants using the IP profession to represent them in the country of interest — in the order of \$1.6 billion in the U.S.A. in this case.

The relative value of the different categories of work in Table 10 will vary from country to country, as in some countries there is a

stronger demand of the IP profession for incoming work than for domestic work. In Canada, for example, approximately 90% of patent applications originate from overseas, so the proportion of revenue to the Canadian IP profession from foreign applicants is greater than the corresponding figure of about 14% in Table 10 for the U.S. IP profession.

The model that has been developed may also be considered as providing an indication of the contribution of the IP profession to the overall economy, in the order of \$7 billion to the U.S. economy for patent prosecution alone by the U.S. IP profession based on the fee data available in 2014.

15. Is the Cost Justified by the Benefit?

Even though the cost can be rationalised in terms of the revenue generated from IP rights, it still begs the question as to whether the cost is justified; that is, what added value does the IP profession bring to the IP system? One of the criticisms frequently heard is that the cost of IP protection is too high, and it is probably little solace for the university researcher to be told that overall the cost is not unreasonable given the typical returns. To try and assess the value that the IP practitioner brings to the IP system, a number of different approaches have been considered.

i. Cost vs Benefit

Using the figures developed in Section 14, while the costs are not insignificant, they do appear to be proportionate to the average benefit obtained from the patent rights that result. Thus, using the AUTM figures of US\$2.5 billion for licensing revenue and US\$330 million in procurement costs for simplicity, the cost of procurement is approximately 10% of the licensing revenues generated.

Alternatively, the figures of Bessen and Meurer³⁵ outlined in Section 14 suggest a value per patent for non-pharma technologies of US\$39,000 per year. If the total procurement cost is US\$17,500, as set out in Table 9, there is an immediate return on the investment.

ii. The Hoisl-Wagner Report

The Hoisl-Wagner Report¹⁰ commissioned by FICPI in 2013 to consider the value added to the IP process by the IP profession is limited to patents. However, it is the first quantification of the involvement of IP attorneys in the patent filing process and, in the introduction, there is an acknowledgement of the importance of IP lawyers and patent attorneys in the patenting process.

The report is restricted to data available through the EPO database and so may not apply directly to other jurisdictions. However, to the extent that the operations of the EPO correspond to a large extent to those of the major IP offices of the world, it is believed that the report is a reasonable reflection of experiences in other countries.

a. Findings

The Hoisl-Wagner report segregates applicants into three basic categories: those represented by the profession in private practice, those represented by the profession within an industrial department and those who are unrepresented. As noted in Section 8 above, the vast majority of applicants are represented before the EPO by either an in-house practitioner within the industrial department of the applicant or by an IP professional in private practice. There was a concern that the relatively small

sample of unrepresented applicants would not be statistically significant. However, the authors have confirmed their confidence that despite the relatively small sample there was a sufficient sample size to draw conclusions, and that the analysis was therefore valid.

The methodology used to analyse the data is set out extensively in Section C of the report. For the sake of completeness, it is noted that the labels on some of the Figures have been added by FICPI.

The conclusions of the report are set out in the Executive Summary on page 3, but are repeated here for convenience.

The report concludes that the data analysis shows that:

- *80% of the patent applications at the EPO are represented by independent patent attorneys*
- *The importance of representation by independent patent attorneys varies between industries, and increases over time*
- *Small corporate applicants rely on independent patent attorneys more frequently than their larger counterparts*
- *Non-European applicants rely on independent attorneys more frequently than their European counterparts*
- *Applications represented by independent patent attorneys are granted at a much higher rate than unrepresented filings but only marginally more frequently than applications represented by IP departments*
- *Opposition proceedings of patents which are filed by an independent patent attorney (compared to a patent department or no representation) are more likely to be rejected and result less likely in a revocation of the patent.*

b. Commentary

The Hoisl-Wagner report largely speaks for itself and it would be inappropriate to reproduce parts of it selectively. However, it does appear to confirm quantitatively many of the intuitions that exist with respect to the IP profession.

1. The vast majority (99%) of applications in the EPO are filed utilising a professional representative.
2. At the date of the data used, there was a discernible trend for a greater proportion of applications to be represented by attorneys in private practice (pages 12 and 13; Tables 4 and 5).

3. The majority of unrepresented applicants are from member states of the EPC (Table 1; page 14).
4. Larger filers have their own patent departments (Table 3; page 15).
5. Table 5, page 17 gives a breakdown by technology for the type of representation. A comparatively large percentage of unrepresented applicants are in the biotech area, perhaps indicative of university research with limited resources for patenting.
6. A greater percentage of self-represented applications is treated by the EPO as withdrawn than is the case for represented applications (Table 6; page 18), perhaps indicating a realistic evaluation of viability compared to cost.
7. About 50% of the applications proceed to grant (Table 8; page 19) but the percentage is lower for smaller users of the system, that is for those applicants with fewer than 10 EP patent applications.
8. The proficiency of in-house and private attorneys appears to be similar (Table 10; page 19) with the slightly lower percentage of applications that are represented by private practice attorneys and proceed to grant being influenced by the lower success rate of small filers. Small filers are represented typically by private practice attorneys (per Table 8 and Table 3).

There are two areas on which further commentary is appropriate.

The first area concerns self-representation by applicants. Table 16 on page 23 of the Hoisl-Wagner report identifies the duration of the application: in years, by type of representative and by type of applicant. It is noted from Table 16 that the applications in which there was no representation had a shorter pendency than those where there was representation, and that the individual with no representation had a markedly shorter pendency than individuals who were represented. At first sight, this would suggest that the lack of representation led to an increase in efficiency, but experience suggests otherwise. We therefore extracted from the data, at random, 50 applications that used English as the working language and in which there was no representation. The online file history of each was analysed to determine why there was a reduced pendency and it was immediately noted that all 50 of these randomly selected EP applications were treated as “withdrawn” by the EPO. The results of the analysis are summarized in Table 11.

Table 11
Analysis of Outcomes for 50 Randomly Selected Self-Represented English-Language EP Patent Applications

Filing fees paid	50/50
Examination fee paid	20/50
Response to first examination report filed	5/50
Response to second examination report filed	1/50
Participation in oral hearing	1/50
Appeal Initiated	1/50
Applications allowed	2/50
Grant formalities completed	0/50
First maintenance fee paid	19/50
Second maintenance fee paid	13/50
Third maintenance fee paid	7/50
Fourth maintenance fee paid	5/50
Fifth maintenance fee paid	2/50
Sixth maintenance fee paid	2/50

Filing fees were paid for all 50 of the applications, but at the first subsequent interaction with the EPO, 29 out of the 50 applications, or approximately 60%, became abandoned for the applicant not responding to correspondence from the EPO. Of the applications that were still alive the first renewal fee at the third year was paid on only 19. Two of the applications were allowed, but none proceeded to grant.

The indications from this analysis are that the unrepresented applicant is likely to lose rights simply by failing to understand the procedure or that a response is required. This is supported by correspondence in a number of the file histories in which the applicant subsequently argued that the case should not be abandoned because they had tried to respond but failed to do so in a proper manner or, for example, they did not understand that an “invitation” was, in fact, a requirement to reply. The files indicate that the EPO made efforts to guide and assist the applicants throughout the process. It can be assumed that this is time consuming for the EPO, but it is noted that the EPO is placed in a clear conflict of interest if it tries to represent the interests of such applicants. In some instances, the EPO recommended that the applicant seek the services of a professional representative and advised that an applicant who does not have solid knowledge of the EPC should consult a European patent attorney. From this it may be concluded that the expertise provided by the intellectual property professional in procedural matters has a direct benefit to the applicant in that it avoids loss of rights that result from a failure to understand or respond appropriately to what may be

essentially routine matters. As an aside, it also suggests that the lack of an IP practitioner results in additional costs for the IP authority.

The second issue on which further comment is appropriate is patent oppositions in the EPO. The discussion on oppositions in the Hoisl-Wagner Report begins at page 24 and focuses on representation of the patentee. The patentee representation in the data is determined by the representation at the time of filing the patent application. We have tried to determine whether there is a change of representation when an opposition is received, possibly indicating a preference for specialized representation, but the data is not readily available. A further analysis of the role of patent attorneys in the opposition procedure might look also at representation of the opponent given there are usually two representatives in an opposition and a “win” for one side, whether the patentee or the opponent, is a “loss” for the other.

iii. Subjective Analysis of the Role of the IP Profession

The discussion above has tried to quantify the benefit and cost of the involvement of the IP profession in the IP process, and it demonstrates the efficacy of using a professional to navigate the complex procedures that exist before IP authorities. However, it still does not address the question as to what is the intrinsic value added by the IP profession to the innovation process that justifies the costs incurred. It is tempting to resort to an existentialist argument “We exist, therefore we are valuable” or to project the trials and

tribulations of Charles Dickens' *Poor Man*²⁶ to the present as justification for the profession. It is believed however that the real value added may be ascertained readily. The values attributed to the IP rights are based in part on the confidence that the right is of high-quality and is defensible. We have therefore considered below the different stages of procurement of IP rights and the expertise used at each stage.

“Asking the question why the innovation has advantages over the prior art can produce a surprising insight in to the merits of the innovation and be of invaluable help in defining an inventive step for the innovation that can greatly improve the applicant’s chances of securing a granted patent.”

The first task of the IP practitioner is to identify the IP rights that may potentially exist. Whilst this may be relatively straightforward for a simple device such as the screwdriver exemplified in Section 6, in more complex technologies, such as the cell phone also exemplified in Section 6, it is often the recognition of the ability to protect an innovation in a particular way that is the key to realizing its value. The following discussion focuses on patent rights for inventions in the screwdriver example, but a corresponding analysis may be performed for inventions in more complex innovations and for trade mark rights and design rights. One of the key skills that the IP practitioner brings to the innovator is the training to abstract the concrete embodiment proposed to more general principles. For example, can the screwdriver only be used with screws, or are there other fastening devices that use different formats for essentially the same function, and could the principle of the multiple blades be used for such situations?

Another skill found in an experienced practitioner is the familiarity with a wide range of technologies. In fact, the breadth of knowledge that the IP practitioner acquires from his or her involvement in different fields

of technology over time is extraordinary. Even when conducting a patent search for a particular innovation, the IP practitioner is exposed to many different solutions to the same problem or even a similar related problem, offering insights to different variants of the innovation. This accumulated experience is used in the initial consideration of the innovation to determine what features might be protectable, what the limits might be, and how best to protect those features.

A search will usually be conducted prior to preparation of a patent specification describing and defining the innovation. Although search engines are publicly available, the manner in which the search is conducted and the interpretation of the results is an area where the IP practitioner adds substantial value. The innovator may not recognise the pertinence to the screwdriver of a locking device used on a Swiss Army knife for example, or how such a reference might be cited by an examiner during examination of the patent application.

Quite often the prior art located by a search is relevant, but asking the question why the innovation has advantages over the prior art can produce a surprising insight in to the merits of the innovation and be of invaluable help in defining an inventive step for the innovation that can greatly improve the applicant’s chances of securing a granted patent. A properly structured and interpreted search will avoid filing a patent application for an invention that is unpatentable, and conversely ensure the application properly emphasises the innovation.

Once the type of IP has been determined, an application to protect that IP must be prepared. Much has been written about the required skill of the patent draftsman, including the observation of the U.S. Supreme Court in 1892 in hearing a petition to re-issue a patent that

“the specification and claims of a patent, particularly if the invention is at all complicated, constitutes one of the most difficult legal instruments to draw with accuracy” (Topliff v. Topliff 145 U.S. 156 (1892)).”

That oft-quoted passage goes on to say

“and in view of the fact that valuable inventions are often placed in the hands of inexperienced persons to prepare such specifications and claims, it is no matter of surprise that the latter frequently fail to

describe with requisite certainty the exact invention of the patentee, and err either in claiming that which the patentee had not in fact invented, or in omitting some element which was a valuable or essential part of his actual invention.” [emphasis added]

As long ago as 1892, the need for skilled specialists to describe and define inventions was recognized. That need is recognised even today as an essential part of a properly functioning IP system. The issue is perhaps encapsulated in a discussion in WIPO’s annual *World Intellectual Property Report for 2011*⁶ at section 2.3.1 entitled “What makes for sound patent institutions” reproduced in part below:

“The IP practitioner cannot know about the invention before it is introduced to them and they therefore have to have the skill and aptitude to understand the new technology, extrapolate the potential use of that technology over the foreseeable future and then describe it in a manner that is readily understood.”

“Patent institutions best serve innovation when they promote two broad principles: rigorous examination leading to the grant of quality patents and balanced dispute resolution.

Promoting the first principle has two important elements. First, patent offices should grant patents only for those inventions that strictly meet the standards of patentability — namely, novelty, inventive step and industrial applicability. This sounds straightforward, but for patent offices it is not: the complexity of technology is constantly on the rise and many entities in different parts of the world create new knowledge that may be relevant prior art. Second, patent documents should clearly delineate the patent’s inventive claims and describe the invention in a

transparent way. Patents granted which meet both criteria can be considered quality patents.”

This passage raises two challenges that are equally applicable to the IP profession: the ever-increasing complexity of the technology and the ability to differentiate that technology from what has been done before. By definition, the IP practitioner cannot know about the invention before it is introduced to them and they therefore have to have the skill and aptitude to understand the new technology, extrapolate the potential use of that technology over the foreseeable future and then describe it in a manner that is readily understood. The practitioner must also have the ability to assess whether the differentiating features are sufficient to meet the standard of patentability and to withstand subsequent attacks by interested third parties, who are equipped with the magnifying spectacles of 20/20 hindsight. This is a skill that is essential to securing a quality IP right and one not easily acquired.

Describing an invention in a patent application in a transparent way is at the heart of the patent system. In return for a monopoly, the inventor discloses the invention to the public in sufficient detail that it can be used by the public after the monopoly has expired. Failure to do that is a fundamental breach of the relationship between inventor and state. Such failure is a ground for attacking the validity of a patent in most countries and is frequently used.

The proper delineation of the scope of protection afforded by the patent, that is the monopoly defined by the patent claims, is also a fundamental requirement of the modern patent system. To maintain a balance in the IP system, the public must know what is covered and what is not. This consideration was succinctly summarized by the Supreme Court of Canada in *FreeWorld Trust v. Electro Sante Inc.* ([2000] 2 S.C.R. 1024)

42. The patent system is designed to advance research and development and to encourage broader economic activity. Achievement of these objectives is undermined however if competitors fear to tread in the vicinity of the patent because its scope lacks a reasonable measure of precision and certainty. A patent of uncertain scope becomes “a public nuisance” (R.C.A. Photophone, Ld. v. Gaumont-British Picture Corp. (1936), 53 R.P.C. 167 (Eng. C.A.), at p. 195). Potential competitors are deterred

from working in areas that are not in fact covered by the patent even though costly and protracted litigation (which in the case of patent disputes can be very costly and protracted indeed) might confirm that what the competitors propose to do is entirely lawful. Potential investment is lost or otherwise directed. Competition is “chilled”. The patent owner is getting more of a monopoly than the public bargained for. There is a high economic cost attached to uncertainty and it is the proper policy of patent law to keep it to a minimum.

43. The patent owner, competitors, potential infringers and the public generally are thus entitled to clear and definite rules as to the extent of the monopoly conferred. This in turn requires that the subjective or discretionary element of claims interpretation (e.g., the elusive quest for “the spirit of the invention”) be kept to the minimum, consistent with giving “the inventor protection for that which he has actually in good faith invented”

“The draftsman also has to consider whether the claim will be effective in preventing infringement in different jurisdictions because of the nature of the invention and the manner in which it will be deployed.”

In the patent context, the proper drafting of the patent specification is at the heart of the value brought to the IP system by the IP profession. For those countries and regions that require a professional qualification for an IP practitioner, the drafting of a specification and delineation of the claims is a core skill where competency has to be demonstrated. It is also a skill that can only be acquired through experience and mentoring, and hence the emphasis on a practical work component in achieving the professional qualification in many countries.

There are numerous notorious patent cases that demonstrate how difficult it is to properly attain the correct balance between properly defining the invention and having adequate scope to provide value to the inventor. The fate of valuable innovations

can turn on the use of seemingly innocuous words such as “vertically extending” (*Catnic*⁴⁴) and “workbench” (*Hickman*⁴⁵) and the patent draftsman chooses such words with extreme care. It has to be recognised that the choice of language in the description and claims is chosen before the invention has been placed in the market, before there is any practical assessment as to what the commercially important features are and certainly before potential infringements are known.

In the same way that rapidly advancing technology poses a challenge for the IP practitioner to remain current, the practitioner also has to consider how that technology might evolve over the next 20 years in order to ensure the scope of protection is appropriate for providing the reward to which the inventor is entitled. At the same time that language cannot be so broad that it can be considered to cover something that was done 50, 20 or five years ago, or even yesterday. The challenge is daunting.

Having chosen claim language that properly defines the invention, the draftsman has to then consider other factors that might affect the rights obtained. At an elementary level, will those words have a different meaning, or be interpreted differently in different jurisdictions? “Means” (as in “means for braking” or “heating means” etc.) is a particularly useful functional noun for catching all variants that do the same thing, except it is accorded a special meaning in the U.S. and is restrictive. “Comprising” and “consisting” are likewise words that are commonly used but may be handled differently by different courts. Even a patent granted by a central authority can be interpreted differently by different national courts, as evidenced by the “*Epilady*” cases⁴⁶ in Europe and elsewhere.

The draftsman also has to consider whether the claim will be effective in preventing infringement in different jurisdictions because of the nature of the invention and the manner in which it will be deployed. Some countries have provisions for contributory patent infringement (infringement by exploiting only part of a patented invention) while others do not, and some inventions can be practised, at least in part, from outside the territorial boundaries of the patent, as with Internet-related and telecommunications inventions, for example. Information and data do not respect borders, and in the era of the 4th Industrial Revolution, in which products are increasingly

differentiated by software rather than new hardware, this poses a particular challenge for the IP practitioner. The practitioner must consider these and numerous other factors when preparing the patent specification.

So, whilst the cost of using IP practitioners is significant, US\$5.5 billion in the case of U.S. applicants based on fee data available in 2014 (see Table 10), the cost of uncertainty and mischief brought about by patent specifications not addressing these issues cannot be ignored.

The concerns are not merely theoretical. If it becomes necessary to assert the patent rights obtained, the challenges to the patent will invariably include:

- non-infringement assertions because the claims are too restricted to cover what is being done
- invalidity assertions because the claims are too broad and encompass what has been done before or are obvious over what has been done before
- insufficiency of disclosure assertions because the specification does not adequately describe what is being claimed and

for some technologies, assertions that:

- i. the specification includes embodiments that are mere speculation whose efficacy could not be soundly predicted, and
- ii. the claims define non-patentable subject matter.

In the patent context, the IP practitioner therefore walks a fine line in meeting the basic needs of the patent system and obtaining the protection to which the innovator is entitled.

To put this role in context, we refer again to the screwdriver exemplified in Section 6. As noted above, the first value the IP practitioner provides to the innovator is to explore the different types of protection available, as well as the cost and benefit of each, and then develop a strategy that meets the client's immediate interests and those in the foreseeable future. Having developed that strategy, the practitioner has to execute it.

When it comes to the patent specification, what does the practitioner claim? The client's development is clearly directed to a screwdriver, but would a claim limited to that cover a device that is sold with sockets

to tighten nuts on to bolts? Maybe the claim should be to a locking arrangement, but then this requires the claim to be new and non-obvious over all types of locks that have similar components but are in fact totally unsuitable for the problem at hand. If suitable claim language is found, is there sufficient description to support a claim whose scope is broader than a screwdriver and, if so, could it reasonably be predicted that those other embodiments would work?

Even for such a simple device as the screwdriver, the issues are significant and (recalling again the passage quoted above from *Topliff v. Topliff*) "*placed in the hands of inexperienced persons it is no matter of surprise that the latter frequently fail to describe with requisite certainty the exact invention of the patentee, and err either in claiming that which the patentee had not in fact invented, or in omitting some element which was a valuable or essential part of his actual invention.*"

The corollary of acquiring quality IP rights is of course the avoidance of IP rights owned by others. Many of the skills used in the drafting of a patent specification are used in interpreting the patents of others and advising whether or not a proposed development is covered by any third-party patents. The appreciation of the distinctions between a third party's patent claim and the manner in which the proposed development functions will enable a proper determination of infringement to be made and possibly a suggestion for changes in design that will avoid infringement.

A further approach to evaluating the contribution of the IP practitioner would be to consider the probable state of an IP system without the clear delineation and transparency of description that is required of a patent application. In the patent context, the uncertainty created would ensure that the "public nuisance" alluded to in *FreeWorld Trust v. Electro Sante Inc.* ([2000] 2 S.C.R. 1024) quoted above would become the order of the day, with a resulting loss of confidence in the IP system, an increase in risk and a reduction in perceived value of innovation to the innovator.

16. Conclusions

As noted in the Background discussion of Section 2, the purpose of this report is not to provide a definitive answer to the question of what value the IP profession brings to the IP system, but rather to demonstrate ways in which the influence of the profession on the IP system might be evaluated quantitatively and subjectively, with an appreciation of what the profession does and how it is organised. In many ways, the mere fact that the IP profession continues to exist and indeed flourishes in some areas is indicative of its value.

To avoid the mischief and nuisance of unfettered IP rights, a robust examination of the innovators' contribution is needed, which inevitably introduces an adversarial system between the innovator and the relevant IP authority. The data examined support the view that the contribution provided by the IP profession helps the owners of and applicants for IP rights realise the full value of those rights in such an adversarial system, but with an attendant cost. The analyses in this report conclude that the costs associated with the use of the IP profession are reasonable given the value attributed to IP rights and the certainty for others in assessing those rights.

The Background discussion also identifies support for the view that the IP system is a net benefit to the economy.

The process of qualification to be an IP professional in the many countries and regions requiring a qualification appears to be reflective of the knowledge and experience expected of the IP professional. Furthermore, the trend is to expand the number of countries in which qualifications are required.

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