

How Can an Intellectual Property Budget Be Accurately Estimated?

Challenges Involved in Predicting the Costs of Obtaining and Maintaining an Intellectual Property Portfolio and How Technology Can Aid in Overpowering Such Challenges

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EXECUTIVE SUMMARY

Intellectual Property is the undisputed buzzword in the business world. From being a luxury to a necessity, the manner in which companies view Intellectual Property has witnessed a revolutionary reversal over the last four decades.

However, given the complexities and the uncertainties involved, developing an Intellectual Property strategy for a given budget or estimating a budget for a given Intellectual Property strategy can be a notoriously hard task that is bound to give sleepless nights even to the most seasoned of professionals.

There are four main considerations in budgeting for Intellectual Property: official fees, attorney charges, translation costs, and 'In-House' fees. These, in turn, are spread across the different stages of the Intellectual Property lifecycle: filing, examination, prosecution, grant, and annuities.

Traditional methods of estimating an Intellectual Property budget, which include the "guesstimate" approach and forging partnerships with law firms to offer their services at a capped-fee structure, can result in a high variance of 10% to 20% between the budgeted spend and the actual spend.

Thus, state-of-the-art tools that provide accurate worldwide Intellectual Property costs are the need of the hour. This is precisely where Quantify IP fits in. The company's suite of unique and proprietary software programs has been powering corporations to successfully manage their Intellectual Property budgets. As a result, in-house counsels no longer need to fret about providing a ballpark budget figure to the Chief Financial Officer. The figure can be generated instantly at the click of a mouse. It's as easy as that!

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1. WHY IS AN ACCURATE INTELLECTUAL PROPERTY BUDGET REQUIRED?

In today's knowledge-based global economy, businesses are constantly faced with the challenge of having to think outside the box to be innovative in order to survive. This cycle of constantly innovating and creating new products has resulted in a huge accumulation of intangible assets within businesses, with the last four decades having witnessed a revolutionary reversal in the proportion of tangible to intangible assets that make up the corporate balance sheet. The proportion of intangible assets, which was about 20% on average in the late 1970's, has now risen to meteoric heights and stands at about 80%. A study of the intangible assets of the 'Standard & Poor's 500' companies conducted by an Intellectual Property financial services company in 2015 estimated the proportion of intangible assets to be around 87%.

Though the need for companies to innovate is greater than ever before, shrinking budgets have turned the spotlight to cost-effective innovation and Intellectual Property protection strategies. In fact, as per a survey conducted by a foreign filing service provider, one-third of polled in-house Intellectual Property counsels reported a budget cut in 2016, with a significant reduction of over 30% being reported by approximately 20% of the respondents. Thus, the mandate from the C-Suite seems to be loud and clear: 'Achieve more with less.'

In light of the above, accurate estimation of an Intellectual Property budget for strategic decision-making has become a critical necessity for Intellectual Property law firms and in-house Intellectual Property counsels, especially for those dealing with a large portfolio of Intellectual Property families. However, this is easier said than done. This was proved in a recent Budgeting and Forecasting study conducted among corporate counsels by an Intellectual Property management company, which found Intellectual Property budgeting to be a time-consuming and complex task.

2. WHY IS INTELLECTUAL PROPERTY BUDGETING COMPLEX?

The major complexity in Intellectual Property budgeting stems from the territorial nature of Intellectual Property, which, in turn, makes budgeting an onerous task. Rapid globalization has turned the world into a global village, with many businesses having a pan-global presence.

This, in turn, has led to increased foreign filings. In 2016, the World Intellectual Property Organization, a specialized agency of the United Nations, reported an approximately 7% year-over-year increase in international patent and trademark applications filed under the Patent Cooperation Treaty (PCT) and the Madrid System, respectively. Likewise, the agency also reported a 35% growth in international design applications filed under the Hague System.

Despite the increased foreign filings and the presence of an international body, there is a lack of harmonization among Intellectual Property laws, with the concept of "International Intellectual Property" protection being a myth that, sadly, does not exist. As a result, protecting Intellectual Property in multiple jurisdictions requires skillful navigation through a labyrinth of national and regional legislations, each mandating a unique set of procedures from filing through grant and beyond. Further complexities arise from the specific foreign filing strategies used (e.g. PCT v.

Paris Convention; Madrid System v. Paris Convention; Hague System v. Paris Convention; or Regional Intellectual Property Offices v. National Intellectual Property Offices, to name a few).

3. INTELLECTUAL PROPERTY BUDGETING: KEY CONSIDERATIONS

An Intellectual Property budget is like a complex jigsaw puzzle; fitting the pieces together may be challenging even for the most experienced of professionals. There are four main considerations: official fees, attorney charges, translation costs, and ‘In-House’ fees. These, in turn, are spread across the different stages of the Intellectual Property lifecycle: filing, examination, prosecution, grant, and annuities (also known as annual fees/renewal fees/maintenance fees).

3.1. OFFICIAL FEES

An official fee refers to a prescribed fee that is charged by a National Intellectual Property Office (or a National Patent and Trademark Office) of a particular jurisdiction for one or more services in relation to Intellectual Property filing and registration.

For patents, the official fees to be paid to a National Patent Office for a patent application depend on a myriad of variables, such as the:

- Mode of filing (electronic v. paper) (Figure 1);
- Type of applicant;
- Number of pages and the number of claims/independent claims in the specification (Figure 2);
- Number of pages of sequence listings (for biotechnology inventions);
- Number of countries designated;
- Number of priorities claimed; and
- Chosen International Searching Authority and the International Preliminary Examining Authority (if examination is opted for) under the PCT.

The mode of filing can have a profound impact on the total filing fees, with many National Patent Offices offering incentives to file electronic applications (‘Go Green’ initiatives). For instance, the Japan Patent Office charges a basic fee of 1,200 Japanese Yen (~11 U.S. Dollars) for rewriting data into electronic format, along with an additional fee of 700 Yen per sheet (~6.5 U.S. Dollars).

Among the top jurisdictions, the State Intellectual Property Office (China), the Indian Patent Office, and the European Patent Office charge fees for excess claims and excess pages (beyond 30 pages and 10 claims in both China and India, and beyond 35 pages and 15 claims in Europe).

Likewise, in addition to the mode of filing, the type of applicant, the number of priorities claimed, and the number of countries designated, the official fees to be paid to a National Trademark Office also depend on the number of classes of goods and services that have been specified in the application. As per the Nice Classification (‘International Classification of Goods and Services’), there are 34 classes for goods and 11 classes for services. Usually, corporations try to protect their trademarks in as many related classes as possible, and, thus, the costs go up accordingly.

3.2. ATTORNEY/ASSOCIATE CHARGES

An attorney charge refers to a charge levied by a legal representative handling an Intellectual Property application in a particular country. Most attorneys/patent agents/trademark agents work on an hourly basis, and their fee schedules may not be readily available.

Further, the fee schedules of attorneys are usually structured along the lines of the official fees' schedules of National Intellectual Property Offices, which is why attorneys often charge for handling additional claims and additional pages beyond the limit that is covered under the basic filing fee. These charges can be quite high and may constitute a significant proportion (50% to 75%) of the total filing costs in jurisdictions, such as China and India.

3.3. TRANSLATION COSTS

Translation costs may be incurred in several circumstances. The first is when filing a patent (Figure 3)/trademark application (i.e. the description of goods and services) or prosecuting a patent application (Figure 4) in a jurisdiction in which English is not an official language.

The second instance is at the time of grant of a European Patent (Figure 5). The European Patent Office has three official languages (English, French, and German), and the European Patent Convention mandates a translation of the claims at the time of grant into two of the official languages (other than the language in which the proceedings for the patent application took place).

The third instance in which translation costs may be incurred is at the time of validating a European Patent, which is a bundle of "individual National Patents" in member states of interest. This process may involve translation of only the claims or the entire specification (Figure 6). Ever since the London Agreement came into force, eight member states have entirely dispensed with their translation requirements at the time of validation: France; Germany; Ireland; Liechtenstein; Luxembourg; Monaco; Switzerland; and the United Kingdom.

Translation costs incurred on patents may constitute a huge proportion of the total costs; the estimated costs of translating a patent application into Chinese, Japanese, Korean, and Russian may constitute approximately 65% to 80% of the total filing costs (Figure 3). Likewise, the estimated translation costs at the time of prosecuting a patent application may constitute 40% or more of the total prosecution costs in some jurisdictions (e.g. Japan, China, Ukraine, and Kazakhstan).

Like the fee schedules of attorneys, the fee schedules of translators, who usually work either on a "per word" basis or on a "per page" basis, may also not be readily available.

3.4. IN-HOUSE FEES

An In-House fee refers to a fee charged by an attorney in an applicant's 'Home Country' and is generally applicable to foreign filings outside the applicant's Home Country.

3.5. EXAMINATION

Examination is an integral part of the process of obtaining or registering Intellectual Property and involves a formal examination and a substantive examination (where applicable).

There are two types of patent examination systems across the world: automatic examination and deferred examination. In the former, as the name implies, a patent application is automatically taken up for examination based on the date of publication, which, in turn, depends on the date of filing or the priority date. Israel and the U.S. are examples of jurisdictions with automatic examination. In deferred examination, on the other hand, a patent application is generally taken up for examination on the basis of the date on which an examination request is filed. Many jurisdictions, including the European Patent Office, China, Japan, and South Korea, mandate the deferred system of examination, in which an explicit deadline is specified for filing the examination request. This deadline is often in the range of three to five years from the date of filing, the date of priority, or the international filing date (as the case may be).

It is also pertinent to note that the number of claims (Japan and South Korea) or the number of independent claims (Russia) in a patent specification may have a notable impact on the fee to be paid at the time of requesting an examination.

Trademarks and designs are normally taken up for examination on an automatic basis, with a few jurisdictions following a deferred system of examination for designs.

In jurisdictions with a deferred system of examination, an attorney charge will be incurred for filing the request for examination; this charge may be waived if this request is filed at the time of filing an application.

3.6. PROSECUTION

The term “prosecution” refers to the interactions between an applicant and a National Intellectual Property Office with regards to either an Intellectual Property application (pre-grant prosecution) or a granted Intellectual Property (post-grant prosecution).

Prosecution is especially applicable to patents and to jurisdictions that conduct a substantive patent examination. While both pre-grant and post-grant prosecution for patents may involve oppositions and amendments, pre-grant prosecution also involves office actions (or examination reports) issued by a National Patent Office, subsequent responses filed by an applicant, and examiner interviews or hearings (where applicable).

Estimating patent pre-grant prosecution costs can be a Herculean task. These costs may vary depending on the number of office actions, which, in turn, generally depend on the complexity of the disclosed invention and the clarity with which it has been drafted. Further, while some jurisdictions, such as India, Australia, Pakistan, and the United Kingdom have definite timelines in place for putting an application in order for grant (from the date of filing, the date of priority or the date of the first office action, as the case may be), such timelines do not exist in many jurisdictions.

3.7. GRANT/REGISTRATION/ISSUE/ALLOWANCE

An Intellectual Property is said to be “ready for grant” once a National Intellectual Property Office is convinced that there are no outstanding objections to the grant/issue/allowance of a patent or the registration of a trademark/industrial design. At this stage, some Intellectual Property Offices invite an applicant to pay a prescribed official fee within a given period of time.

For patents, as is the case with examination, the total number of claims may have an impact on the fee to be paid. Both Japan and South Korea charge grant fees on a “per claim” basis, while Australia and Singapore charge for claims beyond 20 claims.

3.8. ANNUITIES AND TIME-TO-GRANT

The term “annuity” (also known as a renewal fee/maintenance fee/annual fee) refers to an official fee that is to be paid in advance to a National Intellectual Property Office to keep an Intellectual Property application or a granted Intellectual Property in force for the subsequent year/s.

While the term of a patent is normally 20 years from the date of filing, the international filing date, or the date of priority (as the case may be), the term of an industrial design may vary between 10 years to 25 years, depending on the jurisdiction. Trademarks, on the other hand, do not have a definite term and can be renewed indefinitely, with each renewal term usually lasting between 7 years to 10 years. There may also be additional maintenance costs associated with trademarks, such as the filing of a declaration of use.

The annuities to be paid in respect of a patent application (pre-grant annuities) can be broadly categorized into two types of systems. In the first type, an annuity is to be paid irrespective of whether the patent application is pending or a notice of allowance has been issued. In the second type, on the other hand, annuities are to be retrospectively paid at the time of grant, along with the patent grant/registration/issue fees (if applicable). The latter, referred to as “accumulated annuities” or “back taxes” in patent lingo, is advantageous for an applicant since the annuities need to be paid only if a patent is granted.

Patent annuities have a steep price tag associated with them and can account for a significant portion of the total costs incurred on a patent over its 20-year lifecycle (Figure 7). Thus, it is advisable to estimate or model these costs beforehand. However, this can be challenging as the pre-grant annuities depend on the time taken to grant, which varies from one jurisdiction to another. Further, even within a particular jurisdiction, the time taken to grant may be dependent on the complexity of an invention and the field of the invention. Brazil and Thailand, for instance, take an extremely long time to examine patent applications in the pharmaceutical sciences.

3.9. THERE IS MORE TO PATENT RENEWALS THAN MEETS THE EYE

Last, but not least, it is vital to know whether a firm that has been entrusted with handling Intellectual Property renewal payments on behalf of a company is charging the right amounts or if

there are discrepancies in the provided invoices. Though this seems obvious, it is an often overlooked aspect that is not given due consideration.

Many patent holders, especially those with large patent portfolios, utilize the services of either specialized patent renewal firms or Intellectual Property law firms to manage their renewal payments. Even in the case of the latter, the work may be outsourced to a patent renewal firm, with or without the knowledge of the patent holder.

Such patent renewal firms may utilize opaque billing practices to systematically overcharge their clients, as CPA Global, the world's largest Intellectual Property management company, was alleged to have done in a U.S. class action lawsuit. The company took the Intellectual Property community by storm by agreeing to pay \$5.6 million to settle the lawsuit out of court (Peter Rouse; 2017).

This incident has brought to the limelight the significance of accurately estimating or modeling the costs for a patent portfolio beforehand.

4. TRADITIONAL METHODS OF INTELLECTUAL PROPERTY BUDGETING

Traditionally, in-house counsels have relied on a “guesstimate” approach to estimate or model the current and future costs of a company's Intellectual Property portfolio. Such an approach is a time-consuming process that is prone to errors and is fraught with dangers and difficulties. Moreover, this approach, which may not be the most-effective use of the time of an in-house counsel or Intellectual Property Manager, may work to an extent only for smaller portfolios. An example of such an approach is manually collating average data from an electronic invoicing system and a docketing system into an Excel spreadsheet.

Another approach followed by in-house counsels is to forge partnerships with domestic and foreign law firms to offer their services at a capped-fee structure.

Despite following such approaches, the variance between the budgeted spend and the actual spend can still be quite high (between 10% and 20%), which can translate to a fairly high amount of money for corporations with a multi-million dollar budget.

5. STATE-OF-THE-ART TOOLS FOR INTELLECTUAL PROPERTY BUDGETING

Quantify IP, a company founded in 1984, offers smart, robust, and state-of-the art Intellectual Property cost estimation solutions which greatly simplify Intellectual Property budgeting.

These solutions facilitate the accurate estimation or modeling of Intellectual Property costs in more than 150 jurisdictions at the click of a mouse. Since the global Intellectual Property legislative landscape is dynamic, the company's research team is constantly reviewing legislations, costs, and timelines; the software is frequently updated to reflect any changes or amendments in legislations that they may have found.

Fee schedules from a worldwide network of Intellectual Property law firms have been used to build a highly advanced model, which is used in the calculation of cost estimates. The cost estimates also include Value Added Tax (where applicable). The 75th percentile of the values found within the fee schedules supplied by at least five independent associates is used for most jurisdictions.

5.1. THE GLOBAL IP ESTIMATOR

The Global IP Estimator, the first product to be launched from the stables of Quantify IP, predicts the costs for a single patent (including PCT applications, PCT National Phase applications, EPO applications, and EPO validations), trademark, utility model, and design family. In other words, the product is a four-in-one cost calculator (i.e. it can function as a patent cost calculator; a trademark cost calculator; a utility model cost calculator; and/or a design cost calculator). It is currently available in two modes: a desktop version and an online version.

This flagship software generates meticulous cost estimates that are split up by stage (an additional search stage is included for trademarks). The year in which each stage is likely to occur is also displayed. Four different types of costs are contained within each stage: official government fees; associate (attorney) charges; translation costs; and in-house/miscellaneous costs.

The prosecution costs are estimated based on research of the average number of prosecution actions in each jurisdiction.

While calculating annuities, the system takes into account the varying rules by country. Patent annuities differ from one jurisdiction to another, not only in terms of the fee to be paid, but also the time and frequency of payment. For instance, some countries may require an annuity fee to be paid from the first year onwards, whereas the application fee may also include the annuity fee for a limited number of years in some other jurisdictions.

In jurisdictions where the annuities are accumulated until grant, the annuities to be paid at the time of grant are estimated based on research of the average ‘time taken to grant’ in each jurisdiction.

Three types of reports can be generated using the Global IP Estimator: a condensed summary report that provides a quick snapshot of total costs (official, associate, In-House, and annuities) per country; a summary report (condensed summary report further broken down into totals by stages); and a detailed report.

An array of customizable features makes the Global IP Estimator user-friendly and easy to use. These features include:

- Setting the values for the above-mentioned cost-influencing variables;
- Estimating translation costs based on number of pages or number of words;
- Defining associate charges;
- Defining a prosecution multiplier to reflect any anticipated difficulty in prosecuting a patent application (initially set to a value of one);
- Including or excluding specific stages of the Intellectual Property lifecycle;
- Including or excluding specific categories of costs; and

- Setting the Receiving Office, Search Authority, Supplementary Search Authority, and Examining Authority for a PCT application.

5.2. THE PORTFOLIO ESTIMATOR - PATENTS

The savvy Portfolio Estimator - Patents helps take the guesswork out of patent portfolio cost estimation. Sophisticated algorithms facilitate importation of docketing data from almost any docketing system. Portfolio data can also be manually entered. Customization with user-defined groups is an added feature. For example, a report could be summarized by business unit and then by technology within each business unit.

In addition to the features contained in the Global IP Estimator, the Portfolio Estimator - Patents generates a wide variety of advanced reports for maximum flexibility. These detailed reports include: costs for each patent family by country by year; costs by country by year; costs by patent family by year; costs by stage in each country by year; and costs by category in each country by year.

The reports from the Portfolio Estimator - Patents can be used to gain precious insights into possible cost-cutting avenues. For example, a “Detail Cost Analysis” report may prove to be vital in exploring cutting future costs. It provides a patent/country analysis that details future costs by year for each patent in each country for the next 20 years.

An “Ungranted Aging” report, which summarizes and details the patent applications that are still pending beyond a certain number of years after the average time taken to grant for each country, may assist with the identification of applications that can be abandoned, either because there is a possibility that they may never be granted or because the disclosed technology has become obsolete. Strategically abandoning these aging applications can create tremendous cost savings.

An “Expiring Patents” report lists the patent applications that will expire in the next five years, along with the remaining maintenance costs.

An added feature of the Portfolio Estimator - Patents is ‘Projected Filings’, through which filing patterns that complement the international filings of Intellectual Property families that have begun, but are yet to be completed, can be set up, and the costs can be predicted for these probable future filings.

5.3. THE PORTFOLIO ESTIMATOR - TRADEMARKS

The versatile Portfolio Estimator - Trademarks is the latest, ground-breaking product to be launched from the stables of Quantify IP and is a powerful tool that precisely predicts the costs of an entire trademark portfolio.

Like its counterpart for patents (the Portfolio Estimator - Patents), the Portfolio Estimator - Trademarks also generates a wide variety of advanced reports in both Word and Excel. For maximum flexibility, these detailed reports include various viewing options: costs for each trademark family by country by year; costs by country by year; costs by trademark family by year;

costs by stage in each country by year; costs by category in each country by year; and costs by class.

While calculating the renewal costs and dates, the system takes into account the varying rules and regulations for trademarks around the globe. For instance, in some countries, the renewal date is based on the registration date, while in some other countries, it is based on the filing date. Renewal timings also vary by country.

The costs are calculated based on particular attributes of a trademark (such as the number of classes) that are entered into the system. Analysis can be performed either across an entire trademark portfolio, or a selected set of trademark families. Further, the defaults can be adjusted to customize the analysis. Additionally, the costs can be viewed and analyzed by one or more user-defined groups.

5.4. THE GLOBAL IP STRATEGIZER

The Global IP Strategizer facilitates the modeling of future filing strategy costs of patents, thereby empowering in-house counsels and Patent Managers to make informed foreign filing decisions.

Specifically, it allows the modeling of costs for planned patent filings that do not have a record in a docketing system. The invaluable insight gained from the Global IP Strategizer can save time and money by helping businesses cherry-pick the best filing scenarios.

This tool is especially of use to companies that have an intricate business structure consisting of various business divisions, with each business division having its own subdivisions. An example of such a business structure would be a company having two different “Cost Centers” (“Center for Disruptive Technologies”, and “Center for Incremental Innovations”, for instance) and three different “Country Groups” (such as “Broadest Coverage”, “Intermediate Coverage”, and “Minimum Coverage”). In such a situation, six different Cost Center/Country Group combinations are possible, and each combination could have its own frequency of future filings.

The salient features of the Global IP Strategizer are:

- Estimate the precise costs for any number of ‘what-if’ filing scenarios’;
- Set the frequency of future filings within each scenario;
- Include or exclude PCT Chapter II Demand phase;
- Set the Receiving Office, Search, and Examination Authorities for a PCT application; and
- Combine multiple scenarios to create a strategy and include abandonment rates within each strategy.

6. HOW CHEVRON PHILLIPS WON THE BATTLE: A CASE STUDY

6.1. THE COMPANY

Chevron Phillips (referred to as "client" hereinafter) is a 50/50 joint venture between Chevron and Phillips 66. The Texas-headquartered client possesses a varied product portfolio and is "one of the world's top producers of olefins and polyolefins and a leading supplier of aromatics, alpha olefins, styrenics, specialty chemicals, piping, and proprietary plastics" (<http://www.cpchem.com/en-us/company/pages/default.aspx>; accessed October 2017)

6.2. THE CHALLENGES

The major challenge faced by the client was the inability to estimate patent costs with precision and efficiency (the client forecasts its budgets four years in advance). There are many different business units within the client, each with its own unique needs and filing patterns. For instance, one business division may file new patent applications every year, while another may file a patent application every five years.

Further, the estimation of foreign portfolio costs was complicated by the two different systems of annuities (i.e. pre-grant annuities and annuities accumulated until grant). The latter need not be paid until the patent is granted, which may occur within four years, or take a much longer time. There was also a need to factor in exchange rates and possible rate increases over time.

6.3. THE SOLUTION

The Portfolio Estimator - Patents has played a key role in reducing the variance between the budgeted spend and the actual spend to within 1%. The client praised the software, first and foremost, for meshing well with its current system, thereby enabling the client to estimate costs with a high degree of accuracy over the lifecycle of its entire global portfolio (including both pending patent applications and granted patents). Further, the software has also allowed the client to make assumptions about how many applications it is going to file every year and forecast the future costs for the yet-to-be filed applications.

Through free and frequent updates to its substantial database that is based on extensive research, the Portfolio Estimator has also taken care of the client's varied concerns, such as fluctuation in exchange rates and possible rate increases over time. Further, the tool's 'time-to-grant' feature has allowed the client to approximate when the accumulated annuity costs may be incurred.

Thus, from uncertainty over patent budgets to certainty and confidence, Chevron Phillip's budget estimating capabilities underwent a radical transformation since the addition of the Portfolio Estimator - Patents to its toolbox.

7. CONCLUSION

“Smart” is the current business mantra. A plethora of new technologies are emerging to make anything and everything “smart,” from electronic devices to buildings and even cities. However, the legal industry, including in-house Intellectual Property teams, is traditionally known for its reluctance in embracing new technologies. While this approach may have worked in the past, it might no longer be sustainable in an era in which the demands from the C-Suite have increased and more is expected to be done with less.

Quantify IP’s tried and tested Intellectual Property cost estimation tools provide instant and accurate estimates of Intellectual Property costs and can help with the ‘smartening’ of the Intellectual Property budgeting process. Decision-makers, such as Chief Legal Officers and Chief Innovation Officers, can confidently make strategic decisions and forecast future budgets without worrying about the possibility of a high variance between the budgeted spend and the actual spend, which, in the past, would have forced their teams to scramble back to the drawing board to determine cost-cutting avenues.

The Intellectual Property budgeting capabilities of many law firms and *Fortune 500* companies have undergone a significant transformation since the addition of Quantify IP’s international Intellectual Property cost calculators to their toolbox. Don’t you want to stay ahead of the curve? Save time and money with Quantify IP’s suite of products.

8. FIGURES

Jurisdictions Considered: Canada (CA), China (CN), European Patent Office (EP), Israel (IL), India (IN), Japan (JP), South Korea (KR), Russia (RU), and the United States (US)

Priority Jurisdiction: U.S.

Type of Application Filed in the Other Jurisdictions: PCT National Phase

Exchange Rates: 1 U.S. Dollar = 1.26 Canadian Dollars, 6.65 Chinese Renminbi, 0.85 Euros, 3.52 Israeli Shekels, 65.19 Indian Rupees, 112.79 Japanese Yen, 1,141.84 Korean Won, and 57.61 Russian Rubles

Application Parameters Used (except for Scenario 2 in Figure 2):

International Searching Authority: U.S.; PCT Chapter II Entry: No; Number of Pages: 40, including five pages of drawings; Number of Pages of Translation: 35; Number of Pages in PCT Request Form: 6; Number of Claims: 15; Number of Independent Claims: 3; Type of Applicant: Large Entity; Application Filed Electronically: Yes; Number of Pages of Translation per Prosecution Action: 10

Note: The cost estimates illustrated in the figures are as per the respective Official Fee Schedules as on September 30, 2017.

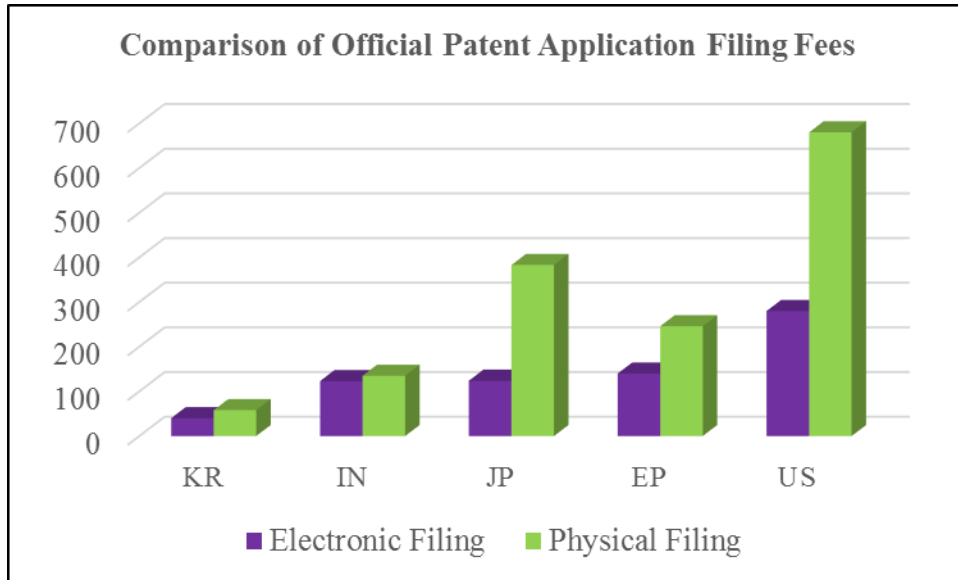


Figure 1: Official Patent Filing Fees; there is no difference between the electronic filing fee and the physical filing fee in Russia, China, Canada, and Israel

On the other hand, the difference between the electronic filing fee and the physical filing fee is quite substantial in Japan, the European Patent Office, and the U.S.

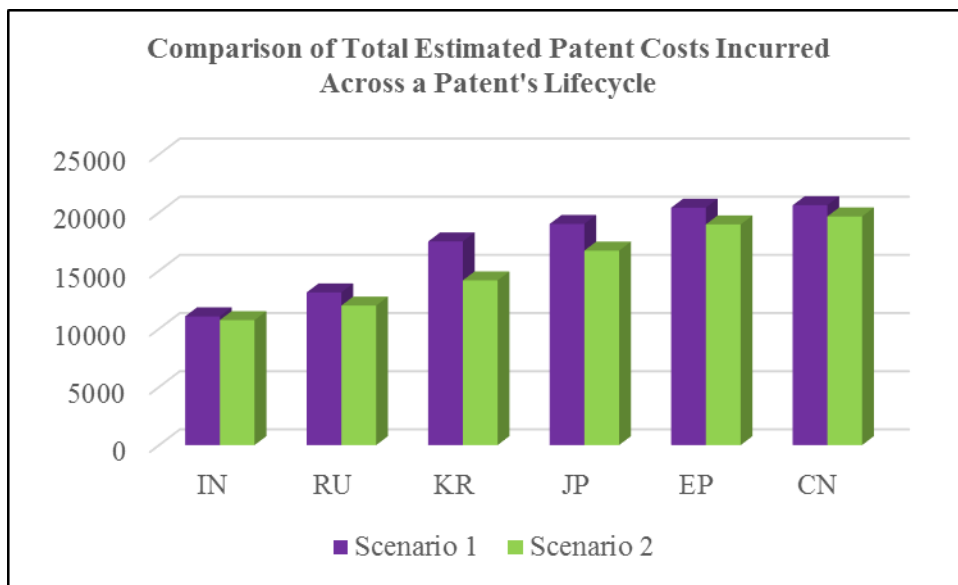


Figure 2: Total Estimated Patent Costs Across the Lifecycle of a Patent; Scenario 1 is for a 40-page patent with: 15 pages of claims, 5 pages of drawings, 15 claims, and 3 independent claims; Scenario 2 is for a 30-page patent with: 10 pages of claims, 5 pages of drawings, 10 claims, and one independent claim

There is no difference in the costs between the two scenarios in the U.S., Canada, and Israel.

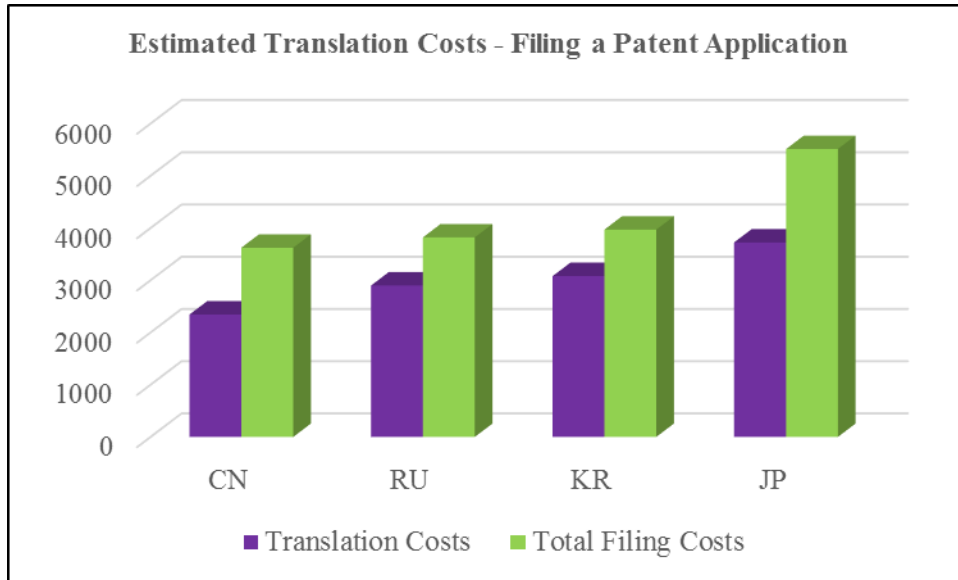


Figure 3: Estimated Costs of Translating a Patent Application Filed in English into Chinese, Russian, Korean, and Japanese; the translation costs constitute 65% to 77% of the total estimated patent filing costs

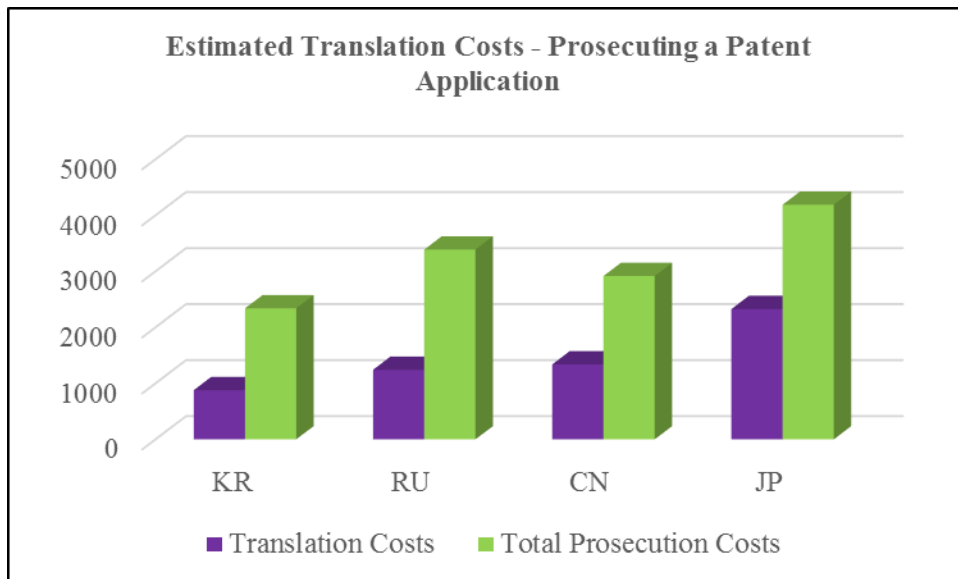


Figure 4: Estimated Costs of Translation at the Patent Prosecution Stage; the translation costs constitute 37% to 55% of the total estimated patent prosecution costs

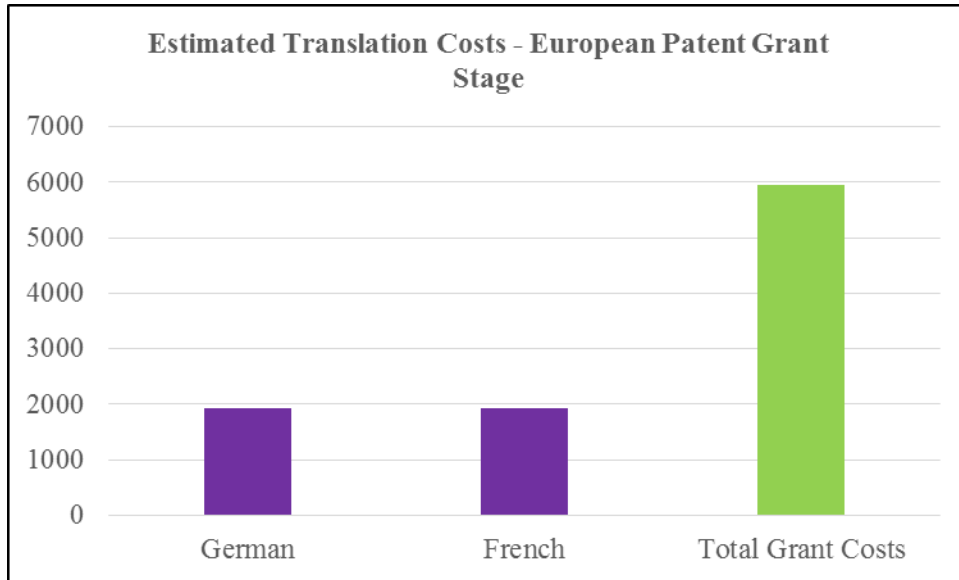


Figure 5: Estimated Costs of Translating a European Patent Granted in English into German and French; the cumulative translation costs constitute around 65% of the total estimated grant costs

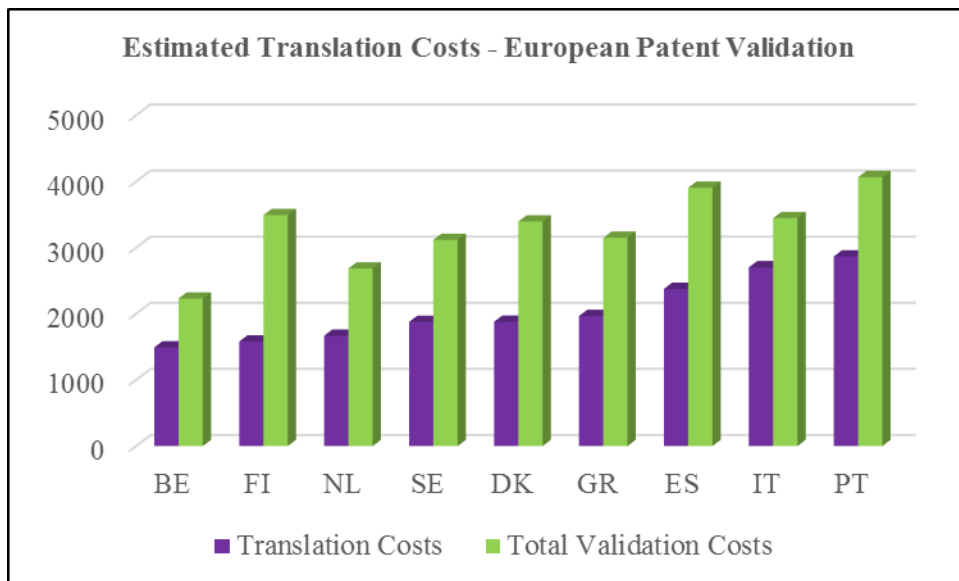


Figure 6: Estimated Translation Costs at the Validation Stage of a Granted European Patent in Select European Countries; the translation costs constitute between 45% and 78% of the total validation costs.

No translation is required in France, Germany, Ireland, Liechtenstein, Luxembourg, Monaco, Switzerland, and the United Kingdom

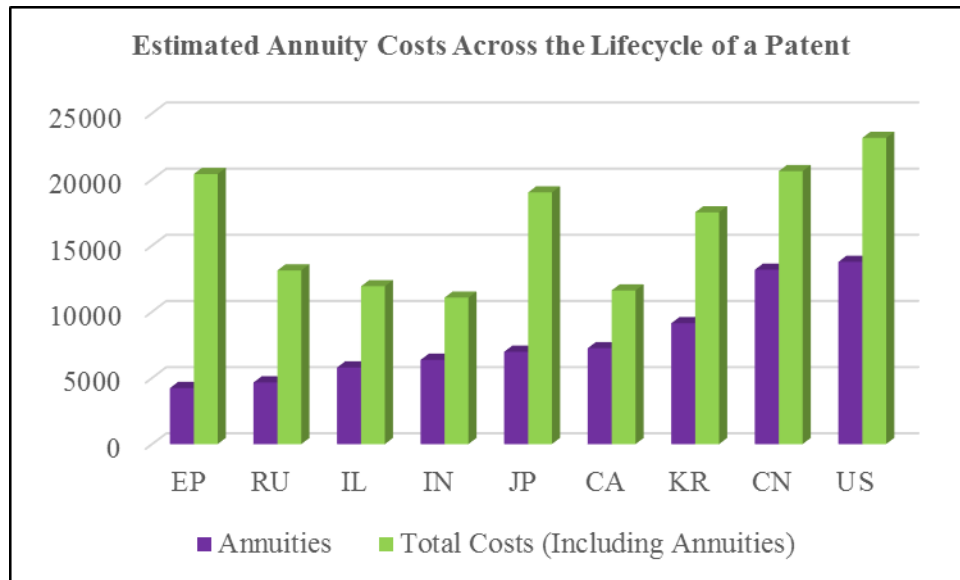


Figure 7: Estimated Costs of Maintaining/Renewing a Patent Application/Granted Patent; annuities constitute 20% to 64% of the total estimated costs across the lifecycle of a patent.

The costs in EP are based on 2023 being the year of grant for a National Phase application filed in 2019.

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