Patent **Portfolio** Management

Then and Now



Table of Contents

| Part 1 | 01 |
|---|----|
| Patent Portfolio Management in the Past | 01 |
| Patents as Inventory, Not Assets | 01 |
| The Patent World Needs More "Jack-of-All-Trades" | 02 |
| It Is Not a Singular Action | 03 |
| Some Examples of Successful Patent Portfolio Management from Different Industries | 03 |
| Pharmaceutical Industry | 04 |
| Medical Devices Industry | 05 |
| Standard-Essential Patents (SEPs) | 06 |
| Common Patent Portfolio Management Problems | 07 |
| Part 2 | 10 |
| The Essentials of Patent Portfolio Management | 10 |
| Analysis | 10 |
| Data Grouping | 10 |
| Enter Patent Lifecycle Management (PLCM) | 16 |
| Competitive Analysis Is a Must | 17 |
| Effective Management Tools and Solutions Are Key | 17 |
| Dynamic Adjustments According to Corporate Strategy | 18 |
| How Patentcloud Can Help You with Patent Portfolio Management | 19 |
| Patent Vault: A Collaborative Workspace | 19 |
| The Patent Matrix: Patent Analysis in Multiple Dimensions | 19 |
| The Search Feature: Find What You're Looking for In Seconds | 19 |
| Due Diligence: Quick and Effective Patent Portfolio Evaluation | 20 |
| Quality Insights: Valuable Validity Insughts in One Click | 20 |
| Conclusions | 20 |

Part 1 Patent Portfolio Management in the Past

Patents as Inventory, Not Assets

Those working in the field of financial asset management have long known how to make effective use of their assets, such as stocks, cash, bonds, gold, futures, and options, as well as how to use their portfolios to generate a larger income.

By contrast, those in the IP world have traditionally taken a more conservative approach to effectively monetizing their IP assets, to say nothing of using them to create an even larger benefit.

Look at it this way: an organization that owns a large number of patents but doesn't know how to manage these assets is just like a person who has plenty of money but doesn't understand how to generate even more income by investing it wisely.

To speak plainly, people in the past tended to take a more passive approach to patents. They understood that by owning them, they had the right to exclude others from using, manufacturing, selling, or importing products covered by this protection. This, of course, was correct, but actually a far too limited view.

Several questions could be raised:

Are all of these patented inventions being commercialized? What's the ROI (Return on Investment) of these patents? Do they really exclude, or even stop others

from using, manufacturing, selling, or importing covered products?

If the answers to the above questions are negative, then the patents could be considered to be more like inventory, which only brings expenses (application fees and maintenance fees), without actively generating revenue.

In fact, patents are assets, just like financial assets, and we should actively make the best use of every single asset we have to bring in more income. As Warren Buffett once said:

Life is like a snowball, all you need is wet snow and a really long hill.

- Warren Buffett Chairman and CEO of Berkshire Hathaway

In the same way, patents are like a snowball all you need are quality patents and a really long hill.

To explain, the start of the product or technology development process is just like standing at the top of the hill, and this is when you should begin to think about what your patent portfolio will look like. For example:

- What's the claim scope of the patents?
- Will these patents be commercialized?
- How will the patents be deployed in different countries?
- Should we invest more—or less—in a certain technology?
- Can we claim royalties from others or enforce our rights easily?
- Most important of all, do we have enough high-quality patents?

As time goes by, you can gradually develop your own patent portfolio management approach, in alignment with the overall corporate strategy, and hone it to best fit the market, all the while continuously adjusting it over time.

In this way, in the long run, you will be able to create a very powerful patent portfolio, and one that is able to generate great benefits.

The Patent World Needs More "Jack-of-All-Trades"

In addition, managing patent assets requires the ability to integrate information and knowledge from different domains. For instance, a patent professional should not only be familiar with engineering but also patent law. It could even be said that a combined knowledge of both engineering and law is required.



The patent world needs more "Jack-of-All-Trades".

Unfortunately, in a traditional organization, a patent professional may excel at writing technical documents and applying for patents, but he/she may have little to no domain knowledge about other professions, such as research and development (R&D), manufacturing, sales, marketing, or product management. As a result, this person may not know what kind of benefit these things can bring, or what else might be needed to strengthen the business.

It is also rare to find a patent professional who can connect people from different departments and align everyone's work toward one target. Sadly, this can cause siloed communications in an organization, with people from different departments failing to communicate effectively and even, at times, withholding resources or information from one another.

For wise patent portfolio management, patent professionals must not only be familiar with a singular profession but also have a comprehensive understanding of the operations of each department in an organization. Thus, more "jacks-of-all-trades" are needed, since these are the people who are versatile enough and possess the necessary cross-domain knowledge to properly manage a patent portfolio.

What's more, they should be good at applying the MECE (*Mutually Exclusive and Collectively Exhaustive*) principle, and they should be able to transform the symbols, mathematics, and algorithms into words, sentences, and paragraphs utilizing sophisticated skill sets and rigorous logic.

With the help of "jacks-of-all-trades," or with a team of portfolio managers who can work across different departments, the people on a team or in an organization can work together more closely, gain a bigger picture of the importance of a patent portfolio, and create even greater value.

It Is Not a Singular Action

From a patent lifecycle perspective, patent portfolio management doesn't simply end when a patent is granted, nor at any singular point during a prior art search, state-ofthe-art search, patent clearance search, patentability search, or invalidity search, or after enforcing a patent's rights. Many people mistakenly believe that patent portfolio management involves only part of the actions above, or they think that managing the active patents is enough.

The truth is that successful patent portfolio management involves a larger scale of decisions, starting from product research and development, through the patent application, prosecution, enforcement, and until the end of life of the product or until the patent has expired. The decisions made during this period are all part of patent portfolio management, and this cycle will continue as the next generation technology or product carries on from the previous generation.

Indeed, there is never any exact ending nor any definite boundaries when it comes to domain knowledge. In other words, patent portfolio management should always be done with a lifetime concept in mind, on the basis of "patent lifecycle management," and the strategy should be adjusted according to the needs of the organization in the industry.

Some Examples of Successful Patent Portfolio Management from Different Industries

Even though many misconceptions about patent portfolio management do exist, it is still possible to identify some industries in which better patent portfolio practices have been developed. Some examples have been listed below:

Pharmaceutical Industry

The first example is the pharmaceutical industry. This industry is usually highly complicated because of the tremendous time, expense, and human resources needed in the normal decade-long product development process.



Effective patent portfolio management ensures that a return on investment will be realized in the long run, and it is also key in excluding competitors or free-riders from the market.

At each stage in a product's development, a pharmaceutical company should consider patent filings in order to protect their ideas and maximize the potential for commercialization. For example, while a medicine is still under academic research in the *Investigational New Drug* (IND) stage, a pharmaceutical company can start to file provisional applications for its core patents in order to protect these ideas, especially if there will be any opportunities for commercialization in the future.

Yet, it may take ten years for a medicine to go to market. So, even if a patent is granted, the remaining life may end up being limited to less than ten years, and a return on investment may not be fully recouped. As a result, those in the pharmaceutical industry may end up continuously applying for patents for chemical modifiers, pharmaceutical preparations, and analogs in order to protect the core medicine and to extend the lifecycle of the patent portfolio.

The hierarchical structures that are widely found in organizations in the pharmaceutical industry are another factor that make patent portfolio management more complex. An organization, for example, may even have multiple hierarchical structures, extending from its headquarters out to multiple overseas divisions. At the same time, each hierarchical layer of an organization may have its own patent portfolio manager, with each managing his or her own region's patent portfolio.



excludes competitors/free-riders from the market.

However, it should be noted that a single medicine is covered by three patents on average, which is usually quite manageable; even if we include the patent families, the size of the patent portfolio still remains manageable.

Generally speaking, the patent portfolio managers in this industry usually have established knowledge, skills, and experience, but they are often in need of good managerial tools and solutions.

Medical Devices Industry

The second example is the medical devices industry, which has a wide range of products from several companies, such as GE, Philips, Siemens, and Medtronic. In this field, several technologies from different domains are involved, including optics, displays, data, mechanics, semiconductors, bios, and computer sciences, and each product comprises multiple domains of knowledge.

Therefore, it is crucial that patent portfolio managers have a broad knowledge of different domains so that they can discover potential monetization opportunities and align them with the company's long-term business strategies.

For deployment in this patent landscape, consideration cannot only be given to a single domain, but rather the focus must be on integrating with other domains. As a result, at least twenty claims must often be written to cover as many fields of application as possible.



Several technologies from different domains are involved in the medical devices industry, such as optics, displays, data, mechanics, semiconductors, bios, and computer sciences.

Since the patent landscape in this industry is broad and deep and requires a lot of research, the organization usually needs a large team to manage the whole patent portfolio.

The primary goal of these patent portfolio managers is to beat the competition by using various patent filing and litigation strategies. If they cannot lead the market, it will be hard for them to sustain long-term revenues and higher margins. As a result, patent licensing is not common in this industry, and patent enforcement is more often used to exclude competitors.

Standard-Essential Patents (SEPs)

The companies and organizations that develop standard-essential patents have strong foundations in research and development and in the creation of standard and non-standard patents.

For these entities, patent licensing is the fundamental business model for creating revenue, rather than commercializing their own products or services. The standardsetting organizations such as 3GPP and IEEE build technical specifications (TS) to enable follow-up for the participants. For these participants, building a team of patent portfolio managers who are capable of complicated patent portfolio management is necessary to ensure the long-term sustainability of the patent licensing business model. Since this type of business heavily relies on royalties, it is crucial to spec-in patents to technical specifications, thus forming standard-essential patents that can claim royalties from others who manufacture or use the technology involved.

A well-known example of this kind of company is Qualcomm, which receives US\$1.15 billion quarterly from its technology licensing business. The San Diego-based telecommunication standard solutions provider and chipmaker dropped all of its patent lawsuits with Apple in April 2019. It is believed that the termination of these litigations will bring Qualcomm's revenue back to normal—or even increase it—as the emerging 5G technology is going to be deployed widely across the world in 2020.

Another good example is the Scandinavian giant in the telecommunications industry— Nokia. Although the company has lost its market share in mobile devices with the rise of Apple's iPhone, it still receives considerable revenue via its patent licensing business from networks, software, IoT, and consumer electronics.

In the official financial report for Q3 and January-September 2019, Nokia's CEO Rajiv Suri stated:

We have a large patent licensing business that is sustainable and cash generative over time, with opportunities to enter new growth segments.



Regarding the patent numbers, the report also states:

Shortly after the quarter ended, Nokia announced it has declared more than 2,000 patent families to the European Telecommunications Standards Institute (ETSI) as essential for the 5G standard, reflecting its continuing leadership in cellular technology R&D and standardization.

NOKIA

The Scandinavian telecommunications giant still receives considerable revenue via its patent licensing business from networks, software, IoT, and consumer electronics.

Common Patent Portfolio Management Problems

Despite the fact that patent portfolio management has been conducted successfully in some industries (as seen above), there are still several other industries in which the rules for patent portfolio management have yet to be well established.

Why is this so?

Starting from an understanding of how the old patent world worked, we can dig out and highlight some of the problems we have observed, which are summarized below:

- 1. There is no practical or even theoretical basis for patent portfolio management — For the entire 545 years of patent history, a comprehensive theory about effective patent portfolio management has been lacking. What's more, the proper methodology for patent portfolio management has not yet been created, and every organization has ended up doing it in its own way.
- 2. There is no well-established environment for patent

Cuality Value

The average percentage of highquality and high-value patents owned by companies, resulting in a tough situation for patent portfolio managers.

Source: Patentcloud's Quality and Value Ranking

professionals to work and collaborate closely with each

other — Traditionally, people haven't worked together on product or technology development. Instead, the process was divided into smaller phases, with each person starting his or her own tasks based on the previous results. Working in such a siloed environment causes wasted resources, repeated communication, and interrupted management.

3. There are no adequate patent portfolio management tools or solutions that enable people to conduct effective patent portfolio management and collaborate with others — This may have originated from the traditional "waterfall-like" work environment that separates people away from one other and makes it less likely for them to communicate effectively with their colleagues. Unfortunately, because no adequate theory, methodology, tools, or solutions have been developed, and because a "quantity over quality" approach to patent applications has been widely adopted, too many low-quality, low-value patents have been generated in the IP industry.



Most industries do not have well-established practices for patent portfolio management.

According to *Patentcloud's* data, the amount of high-quality and high-value patents that most companies have is less than 10%. The result? Wasted resources and unnecessary investment. These worthless patents also make it difficult for companies to effectively manage their patent portfolios, since these low-rated patents cause extra expense and extra human resources to be allocated.

This situation also occurs in research institutes and academies, patent firms, law firms, and patent offices, causing each to have to invest extra resources in patent prosecution and litigation.

Worst of all, these low-quality, low-value patents increase the amount of noise in patent databases, which, as a result, affects the efficiency of patent portfolio management.

How can these common patent portfolio management issues be fixed? In the second part of this white paper, we will look in detail at:

- The essentials of patent portfolio management
- How the new concept of Patent Lifecycle Management (PLCM) can be of assistance
- Why competitive analysis is important
- What solutions and tools you can use to get started

Part 2 The Essentials of Patent Portfolio Management

Analysis

It's now time to define what "patent portfolio management" really is. When it comes to the concept of patent portfolio management, knowing how to analyze patent assets is essential. take a closer look at each independent claim. Since an independent claim itself represents a target field of application, this kind of examination can assist in finding out the technical solutions of each invention and



First, "technology structure," "product structure," and "field of application" form the core of patent portfolio management analysis. Specifically, any analytics should be based on these three dimensions in order to obtain comprehensive results.

Generally speaking, when a technology is developed, it aims to cover a number of target fields of application. As a result, when a patent application is filed, it is necessary to consider how to protect the invention and its fields of application through patent specification and claims.

A patent is a combination of claims—so, when conducting any analysis, we should

discovering the biggest benefit it brings. Is it the most cost-effective solution? Is it the top-performance method? Does it result in a higher yield rate?

By understanding the essentials of the patent via a thorough claims analysis, we can start to see patent portfolio management from a larger perspective.

Data Grouping

In order to expand a patent portfolio analysis based on the three-pillar structure seen above, we need to categorize the patents into different technologies, products, or fields of application. To illustrate this point, we can examine a few of the analyses that have been conducted by our partner WISPRO. The first focuses on electric bicycle patents filed at the EPO.



In this specific analysis, the patents are grouped by both product structure and technology structure. From a product perspective, WISPRO's experts virtually tore down this product and divided it into smaller subsystems, such as the electric system, the computing system, the brake system, the suspension system, and so on.



As for the technology structure, the patents were categorized according to the technologies that they present or disclose, such as the technology behind the batteries, motors, sensors, materials, interfaces, among many others. By analyzing these patents through different perspectives, the overall evaluation of the patent portfolio can become much easier.



As mentioned earlier, analyzing the patents by taking a thorough look at their independent claims is highly suggested. In fact, while doing so, we may discover that a claim contributes to more than one category in the product structure or technology structure, which is actually quite common in this kind of analysis.

Another important aspect that should be mentioned is that by operating in this way, it will be easier to confirm the patent's subject matter, which may be a method of manufacture or an object.

After the categorization has been completed, it can be visualized by utilizing the Patent Matrix dashboard. The visualization options available for this specific case are as follows:

Product vs. Technology

By reviewing the Product vs. Technology Patent Matrix, we can observe the distribution of the patents in this industry. We can also see what kind of product is protected with the largest amount of patents.

| | ► TECHNOLOGY STRUCTURE | ►Driveline technology | ► Motor design | ►Powertrain design | ►Component design | ►Battery module design | ►Sensor technology | ►Sensor's location | ►Sensor's target | ►Human | ►Bike | ►Environment | Sensor design | ►Control technology | ►Control method | ►Drive control method | Motor control method | ►Driveline control method | ►Power-management method | ►Safety control method | Brake control method | ■Transmission control method | Frame design | ►UI design | ►Material design | ►Others |
|---------------------------|------------------------|-----------------------|----------------|--------------------|-------------------|------------------------|--------------------|--------------------|------------------|--------|-------|--------------|---------------|---------------------|-----------------|-----------------------|----------------------|---------------------------|--------------------------|------------------------|----------------------|------------------------------|--------------|------------|------------------|---------|
| ▼PRODUCT STRUCTURE | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ▼Electric bike | | 3 | 16 | 48 | 18 | 22 | 2 | 24 | | 61 | 66 | 10 | 4 | | 7 | 41 | 50 | 3 | 8 | | 2 | 7 | 25 | 5 | | 4 |
| ▼Electromechanics system | | | 1 | 4 | 3 | 4 | | 2 | | 4 | 12 | 2 | | | | 3 | 6 | | 6 | | | 3 | | | | |
| ▼Driveline module | | 12 | 25 | 39 | 9 | 1 | | 10 | | 16 | 29 | 1 | | | 2 | 10 | 19 | 3 | 1 | 2 | | 5 | | | 1 | |
| ►Sensors | | 1 | | 2 | | | 1 | 11 | | 7 | 9 | | 34 | | | 2 | 4 | | | | | | | 1 | 1 | |
| Connectors | | | | | 3 | | | | | | | | | | | | | | | 1 | | | | | | |
| Controllers | | 1 | | 3 | | | 2 | 6 | | 21 | 36 | 2 | | | 3 | 11 | 24 | 5 | 2 | | | 3 | | 1 | | |
| Motors | | | 28 | 1 | | | | 1 | | | 2 | | | | | 1 | 1 | 1 | 1 | | | | | | | |
| ►Powertrain | | | 4 | 63 | 6 | | | 6 | | 3 | 5 | | 1 | | 1 | | | 4 | | | | 3 | 1 | 1 | 1 | |
| Housing | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | |
| ►Battery module | | | | | 4 | 31 | | 3 | | | 5 | | | | | | | | 8 | | | | | | 1 | 1 |
| ►Electric control unit | | | | | | | | 2 | 1 | 1 | 14 | 5 | 2 | | 8 | 3 | 2 | | 6 | 1 | 1 | 4 | | 15 | | 2 |
| Transmission system | | 2 | | 7 | 4 | 1 | | 1 | | 5 | 10 | 1 | | | | | | | | | | 34 | 1 | 1 | | |
| Brake system | | | | 1 | 1 | | | | | | 3 | | | | | | 1 | | 2 | | 7 | 1 | | | | |
| Suspension system | | | | 1 | 9 | | 1 | 2 | | | 5 | | | 1 | 9 | | | | | | | 1 | 2 | | | 4 |
| ►Anatomy | | 2 | 10 | 11 | 36 | 3 | 2 | 3 | | | 6 | | 1 | 1 | 2 | 1 | 1 | | | 1 | | | 35 | 1 | 3 | 5 |
| Methods | | | 1 | 4 | 9 | 2 | | 13 | | 27 | 63 | 6 | 2 | 1 | 7 | 15 | 27 | 3 | 10 | 2 | 3 | 18 | 5 | 1 | | 1 |

Technology vs. Technology

By reviewing the Technology vs. Technology Patent Matrix, we can identify which technology

| | ►Sensor technology | ►Sensor's location | Axles | Pedals | Crankshafts | Batteries | Motors | ►Sensor's target | ►Human | Torque | Cadence | ▼Bike | Speed | Angles and directions | Brake | Temperature | Pressure | Number of teeth | ►RPM | Wheel RPM | Engine RPM | Crankshaft RPM | ►Torque | Chain force | Crankshaft force | Engine force | ►Energy | Output power | Electric energy | ►Environment | Slope | Slip | Distance | Wind resistance | Sensor design |
|------------------------------|--------------------|--------------------|-------|--------|-------------|-----------|--------|------------------|--------|--------|---------|-------|-------|-----------------------|-------|-------------|----------|-----------------|------|-----------|------------|----------------|---------|-------------|------------------|--------------|---------|--------------|-----------------|--------------|-------|------|----------|-----------------|---------------|
| ▼Control technology | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| ▼Control method | 2 | 3 | | 1 | | | | | 1 | 1 | | 4 | 3 | 1 | 1 | | | | | 1 | | | | | | | | | | 2 | | | 1 | | |
| ▼Driveline control method | 1 | | 3 | 4 | 3 | | 3 | | 2 | 32 | 4 | 5 | 9 | 11 | 1 | 1 | 2 | | | 3 | 4 | 2 | | | 3 | з | | 1 | 1 | 3 | 4 | 1 | 1 | | 2 |
| Motor control | 1 | 1 | 1 | 4 | 2 | 2 | 7 | | 7 | 41 | 7 | 9 | 21 | 10 | 4 | 2 | 4 | 1 | | 5 | 10 | 7 | | | 4 | 5 | | 5 | 3 | | 1 | | | | 1 |
| Driveline control | | | | | | | | | | 3 | | 2 | 1 | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | | |
| Power-management method | | | | | 1 | з | | | 1 | 1 | | 1 | 1 | 1 | 2 | | | | | 1 | | | | | | 1 | | 1 | 11 | 2 | | | 1 | 1 | |
| Safety control method | | | | | 1 | | | | | | | | 1 | 2 | | | | | | | | | | 1 | | | | | | | | | 1 | | |
| Brake control method | | | | | | | | | | | | | 1 | | 2 | | | | | | | | | | | 1 | | | | | | | | | |
| Transmission control method | | | | 2 | 1 | | | | 2 | 5 | 5 | 5 | 8 | 7 | | | | 1 | | 5 | | 2 | | | | 1 | | 3 | | | 3 | | | | 1 |

is more relevant to another technology, which may be the core competence in this field.

Technology vs. Field of Application

The second report features patents related to high-entropy alloys (HEAs), which are a type of alloy formed by mixing equal or relatively large proportions of (usually) five or more elements. As a side note, even though they have been studied since the 1980s, they really only began to be developed substantially over the last decade.



After making a categorization in a similar manner as above for the technologies involved in this field and the possible fields of application of the final products, we can transfer this data into a Technology vs. Fields of Application Patent Matrix dashboard.

| | ► Processing technology | ►Casting | ► Molding | Mold | ▼ Mold | Sand-mold manufacturing | ►Modern processing | Metallic mold manufacturing | Diecasting | Centrifugal molding | Continuous-casting molding | Vacuum-casting molding | ►Investment casting | Semi-solid forming | Squeeze casting | ►Smelting | Vacuum arc remelting | Vacuum induction melting | Directional solidification | Pouring | Cooling and solidifying | ►Stirring | Segregation | Fluidity | ►Mechanical alloying | High-energy ball milling | ► Coatinging | Magnetron sputtering | Laser cladding | Spraying | Others | 3DP |
|--|-------------------------|----------|-----------|------|--------|-------------------------|--------------------|-----------------------------|------------|---------------------|----------------------------|------------------------|---------------------|--------------------|-----------------|-----------|----------------------|--------------------------|----------------------------|---------|-------------------------|-----------|-------------|----------|----------------------|--------------------------|--------------|----------------------|----------------|----------|--------|-----|
| ▼Sandblaster blades; engines | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sand-blasting machine blade, engine | | | | | | | | 1 | 1 | | | 1 | | 1 | 1 | 1 | 1 | | | 1 | 1 | | | | 1 | | | 1 | 1 | 1 | | |
| Heat processing machine rollers and furnace tubes; sintering furnace heating coils; airplane engine blades | | | | | | | | 1 | | | | 4 | | | | 4 | 4 | | | 1 | 1 | | | | 5 | 2 | | 1 | 2 | | | 4 |
| Acid pickling tanks; pumps; chemistry pipelines and valve bodies | | | | | | | | | | | | | | | | | 1 | | | | | | | | | 2 | | 2 | | 1 | | |
| Tooling, tools, and cutters | | | | | | | | 2 | | | | 3 | | | | 5 | 6 | 3 | | 1 | 3 | 1 | | | 9 | 5 | | 2 | 1 | 4 | | |
| Turbine blades; welding materials, heat exchange, and muffle furnace materials | | | | | | | | | | | | 2 | | | | 5 | 4 | | | | 2 | | | | 6 | 2 | | 2 | 4 | | | 4 |
| Refractory materials for skyscrapers | | | | | | | | 1 | | | | 3 | | | | 3 | 1 | | | 1 | 1 | | | | | | | | | | | 2 |
| Nuclear power plants | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| Thin films for chip-manufacturing processing | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| Thin films for electric battery, photoelectric, or solar power | | | | | | | | | | | | | | | | | | 1 | | 1 | 1 | | | | 1 | | | 1 | | | 1 | |
| High voltage inverters; motor cores; magnetic shielding; high- frequency, soft magnetic thin films | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | 1 | |
| Liquefied petroleum gas; low-temperature, high- performance gas, like hydrogen and oxygen | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| Coating and alloy coating | | | | | | 3 | | 1 | | | | 1 | | | | 3 | 3 | 4 | | 2 | 1 | 2 | 2 | | 4 | 7 | | 5 | 16 | 13 | 4 | 1 |
| Biomedical devices | | | | | | | | 1 | | | | 2 | | | | | 2 | | | 1 | | | | | | | | | | | | |
| Alloy materials | | | | | | | | | | | | | | | | | | 1 | | | 2 | | | | | | | | | | | |
| Other industrial purposes (sewage treatment, conductors, macromolecule) | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |

This type of data visualization enables us to identify which applications might have been overlooked for a given technology, thereby highlighting and opening up potentially profitable opportunities.

Enter Patent Lifecycle Management (PLCM)

It's now time to introduce the concept of *Patent Lifecycle Management* (PLCM.) As we mentioned before, patent portfolio management is not a one-off business, but instead a series of actions that follow one after another on a long-term basis.

The totality of the operations carried out across the lifespan of a patent, from preparation to filing, patent prosecution, office actions, issuance, maintenance, and post-grant monetization, are collectively called "patent lifecycle management." stages of the patent lifecycle, help us to establish the whole patent portfolio picture, enabling us to examine an entity's action at a specific point in time, together with its current patent landscape.

Most importantly, we can form our own business strategy—as well as our product strategy— right at the beginning of the lifecycle; we can prioritize the resources needed for the research and development stage and target the right market segment before product development even starts.



Besides the three dimensions shown in the image above, we should further observe patent deployment from different viewpoints, with other factors like production, sales, competitors, legal status, application year, and deployed countries taken into account. Furthermore, we can think about a patent filing strategy alongside product development, and we can even consider how to commercialize and/or monetize the patent portfolio after the patents have been granted.

These factors, combined with the different

Competitive Analysis Is a Must

A good strategy also includes the observation of competitors' patent portfolios in order to assess the level and number of quality patents they have, which, in turn, enables a better understanding of their—and perhaps even more importantly, one's own company's position within the global landscape.

Without this comparison, it would be difficult to ascertain the true strength or weakness of a company's patent portfolio, which could contribute to the risk of potential decisionmaking opportunities for the organization being overlooked.

- Here are a couple of tips to assist in conducting an effective competitive analysis:
 - Monitor the patent portfolios of all the players in the market— With this information, you will be able to distinguish who the major competitors are and who possible partners might be. Besides business decisions, you can also decide what kind of product or technology strategy to adopt, such as whether to increase investment in R&D or simply avoid such competition;
 - Closely follow any updates—
 Since strategies are dynamic,

everything can change over time. For example, your competitors may introduce new inventions from time to time, or perhaps some of their patents might be abandoned during prosecution. Whatever the case may be, you should stay abreast of these changes on a constant basis in order to be able to respond accordingly.

Effective Management Tools and Solutions Are Key

Without the appropriate tools or solutions, patent portfolio management and even patent competitive intelligence will likely be inefficient. Unfortunately, the most common *Intellectual Property Management Systems* (IPMSs) today fail at addressing the above mentioned key points, mainly due to two critical factors: non-searchable data and a lack of competitive analysis data.

Therefore, in order to effectively manage a patent portfolio or conduct a competitive analysis, we should take the following factors into consideration when selecting a tool or solution:

It should let stakeholders share their ideas and collaborate with others in one space. This is important in eliminating the friction that results from switching from one tool to another and in enhancing communication within the company;

It should be able to digitize all data fields and documents. For example, file wrappers are usually not searchable, making it difficult and timeconsuming for patent professionals to extract useful information from them. With the help of technologies such as *Optical Character Recognition* (OCR), however, this information can become searchable, and large amounts of patent data can be handled more efficiently;

It should give users the option to conduct instant—and in-depth analysis. As patent data continues to become easier to manage, it will also become increasingly common for key insights to become available in just seconds. With the help of artificial intelligence (AI) and the accumulated experience of patent professionals in relevant industries, obtaining instant, in-depth analyses from large amounts of patent data should soon become the standard for patent tools and solutions.

Dynamic Adjustments According to Corporate Strategy

It should be noted that patent portfolio management isn't an absolute concept, nor is it a standard process with predefined steps to follow. Instead, it's a series of actions that heavily depends on the true needs of a business.

After conducting a competitive analysis, you may find out that your portfolio is missing something and, consequently, activate different operations, such as buying or selling, pledging, licensing, commercialization, investment, M&A, or enforcement.

You may also change your strategy as time goes by or as the business direction changes. For example, if you notice that a company has suddenly stopped applying for patents in a specific technology, possible commercialization issues with the technology may start to be investigated, and the company's development strategy may be adjusted accordingly.

How Patentcloud Can Help You with Patent Portfolio Management



Patent Vault: A Collaborative Workspace

Patent Vault is a collaborative workspace that enables patent professionals and inventors to work together. Its **project-based**, **customizable folder system** enables both parties to effectively manage and categorize patent portfolios according to their preferences, which is something that is necessary for effective patent portfolio management.

What's more, *Patent Vault*'s **auto-monitoring feature** allows all involved stakeholders to receive alerts whenever the patent's legal status changes or the search results of a given query change, enabling real-time monitoring.

In addition, *Patent Vault's* wide range of other features enables users to work with others and share ideas seamlessly, breaking down the siloed communications practices of the past.

The Patent Matrix: Patent Analysis in Multiple Dimensions

Besides cross-domain knowledge and the PLCM concept, a robust, specialized tool like the **Patent Matrix** is also a must. *Patent Vault's* **Patent Matrix** dashboard is designed to enable patent professionals to analyze patent portfolios from a broad perspective by tackling the complexity of analyses involving technology, products, and fields of application structures.

With the **Patent Matrix**, patents' product-totechnology structure relationship, technologyto-field of application relationship, and field of application-to-product structure relationship can be analyzed within customizable twolevel matrices.

The Search Feature: Quickly Find What You're Looking For

With so much data available to be added into an analysis, it only makes sense that a **search feature** should be embedded into the product as well. All of the data collected in *Patentcloud* is searchable, ranging from bibliographic data to file wrapper documents. The aim is to streamline the patent data processing stage, making it easier for patent professionals to organize, manage, and analyze patent portfolios.

In addition to this, we have also made **project folders** customizable, enabling patent professionals to categorize and manage patent lists according to their needs at any stage in the patent lifecycle management process.

DD

Due Diligence: Effective Patent Portfolio Evaluation

With *Due Diligence*, you can access a variety of dashboards to dig out validity issues or monetization opportunities, all while conducting a competitive analysis. This solution not only benefits those who work in patent portfolio management, but also those who operate in patent transaction, licensing, and pledging.

In particular, the **Quality Highlights** dashboard can highlight all potential patentability, novelty, non-obviousness, and indefiniteness issues in a portfolio. This is useful for both patent sellers—to examine their own assets and evaluate which patents should be put into the market first—and patent buyers, who can use this dashboard to uncover potential issues for future enforcement.

Quality Insights: Valuable Validity Insights in One Click

If you require a deeper analysis of the patents in the portfolio, a simple click will lead you to *Quality Insights*, where you can view organized prior art summaries, the prosecution history timelines, and specific IPR event details.

Conclusion

It should be clear by now that the traditional way of dealing with patents—that is, regarding them as inventory instead of as a revenue opportunity—simply isn't sufficient in today's patent ecosystem.

What is needed are patent professionals with knowledge from a wide array of domains, a solid background in patent law, and the ability to bring together talents from different departments of a company. This would help in tackling one of the biggest problems in traditional patent portfolio management: siloed departments.

We have also seen that patent portfolio management doesn't end up with the granting of a patent, or with any of the individual steps leading to it. To successfully manage—and ultimately monetize patent assets—what is needed are flexible systems and approaches, such as *Patent Lifecycle Management* (PLCM.)

This approach to patent management and monetization takes into account all of the stages of a patent's lifecycle, and even goes well beyond this. In fact, PLCM also takes into consideration the position of the company within the market and in comparison to competitors, providing a snapshot of the current situation, including both its issues and opportunities.

A strong emphasis on competitive analysis

allows stakeholders to align the portfolio strategy to the changes in the market in a timely and effective manner, enabling the efficient allocation of resources while avoiding wasted time.

Even the best management system, however, won't deliver the desired results if it is not coupled with robust tools. That's why we have introduced *Patentcloud*, an IP intelligence platform that handles every aspect of PLCM while bringing together all of the stakeholders involved.

To learn more about *Patentcloud*, visit **www.inquartik.com/patentcloud/** and get ready to start improving your patent strategy today!



About InQuartik

InQuartik is an IP intelligence company dedicated to converting patent data into actionable insights and delivering AI-driven solutions. From firsttier companies and law firms to SMEs, InQuartik supports IP professionals throughout the entire patent lifecycle so that they can work smarter, live better, and gain more success.

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