Clarivate™

The future of patent research

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Foreword

As the global innovation landscape changes at a rapid pace, multiple forces are reshaping the consumption and use cases for patent information. New technologies, changing business needs, and evolving talent markets continue to affect the nature, shape, and transformative value of patent data.

In this new landscape, the increasing accessibility and self-service nature of patent intelligence is a notable emerging factor which is redefining the role of the patent information professional ("patent researcher").

The trends occurring in the patent information space mirror those in wider information services, where Gartner is predicting that "the analytics output of business users with selfserve capabilities will surpass that of the professional data scientist."[1]

Five attributes of a patent information department:

Data translation

Building virtual patent search and analytics capabilities

Center of Excellence (COE)

Embracing big data, data science and AI

Corporate integration

So what does self-service mean for the patent researcher? Will this role become obsolete due to the growing presence of easy-to-use and AI-powered patent research solutions? To what extent does this evolution present risks and opportunities to organizations that rely on and leverage patent data to inform critical business decisions?

To thrive in this new paradigm, organizations require specific tools, processes, and frameworks that utilize data effectively to empower both novice and expert users to make better decisions informed by patent research. This paper discusses the rise of self-service patent research and the evolving role of the patent researcher. It also outlines focus areas that should be considered to ensure that the value of patent research is embedded within the fabric of the organization.

To ensure a well-rounded and collective perspective, patent researchers, patent attorneys, and R&D professionals representing several IP-centric industries were interviewed to explain:

- The benefits and risks involved in self-service patent research
- Overcoming the pitfalls of patent research
- Attributes of a modern patent information department

Regardless of their size, this paper will help organizations develop an awareness of the trends in the patent information space and map the specific frameworks needed to benefit from in-house patent research. Larger firms can learn to guide their patent information departments to add value, foster innovation, and drive growth. Smaller firms can also benefit from the best practices described in this paper to either develop in-house patent research or be an effective consumer of its output.

[1] Gartner, Inc. "Gartner Says Self-Service Analytics and BI Users Will Produce More Analysis Than Data Scientists Will by 2019." Press Release, January 25, 2018.

The self-service patent research movement

Patent searching and analytics (patent research) has evolved significantly over the past 20 years. The old model, which focused on siloed departments specializing in patent research, is increasingly being challenged due to its lack of agility and flexibility. The new model is defined by increased access to patent information, more complex business questions, powerful tools leading to more efficient speed-to-insight, and the growth in end-users such as legal, R&D and corporate strategy professionals.

However it is delivered, the importance of patent research remains constant. Sound patent research underpins all aspects of technical innovation. New ideas are stimulated through previous inventions; quality patent applications are built on accurate differentiation from prior art; commercial decisions about where and what to manufacture and market are driven by reliable freedom to operate research; potential roadblocks to operations maybe overcome through exhaustive invalidity studies; and technical/commercial intelligence contained within patents information can be invaluable to inform research, development and business strategies.

Modern organizations tend to prioritize work outcomes and key insights rather than specific workers or processes. Despite an abundance of useful data, a shortage of experienced patent researchers has led to a talent gap within most organizations. After years of dependence on understaffed patent teams for search and analytics, a shift has occurred towards self-service.

Easy-to-use patent research platforms are essential to all businesses that rely on IP for R&D decision-making. A well-designed platform allows experts to focus on strategic work and enables more end-users to access critical data when needed. The proliferation of patent data across the enterprise has opened up new opportunities that were not possible with the traditional model.

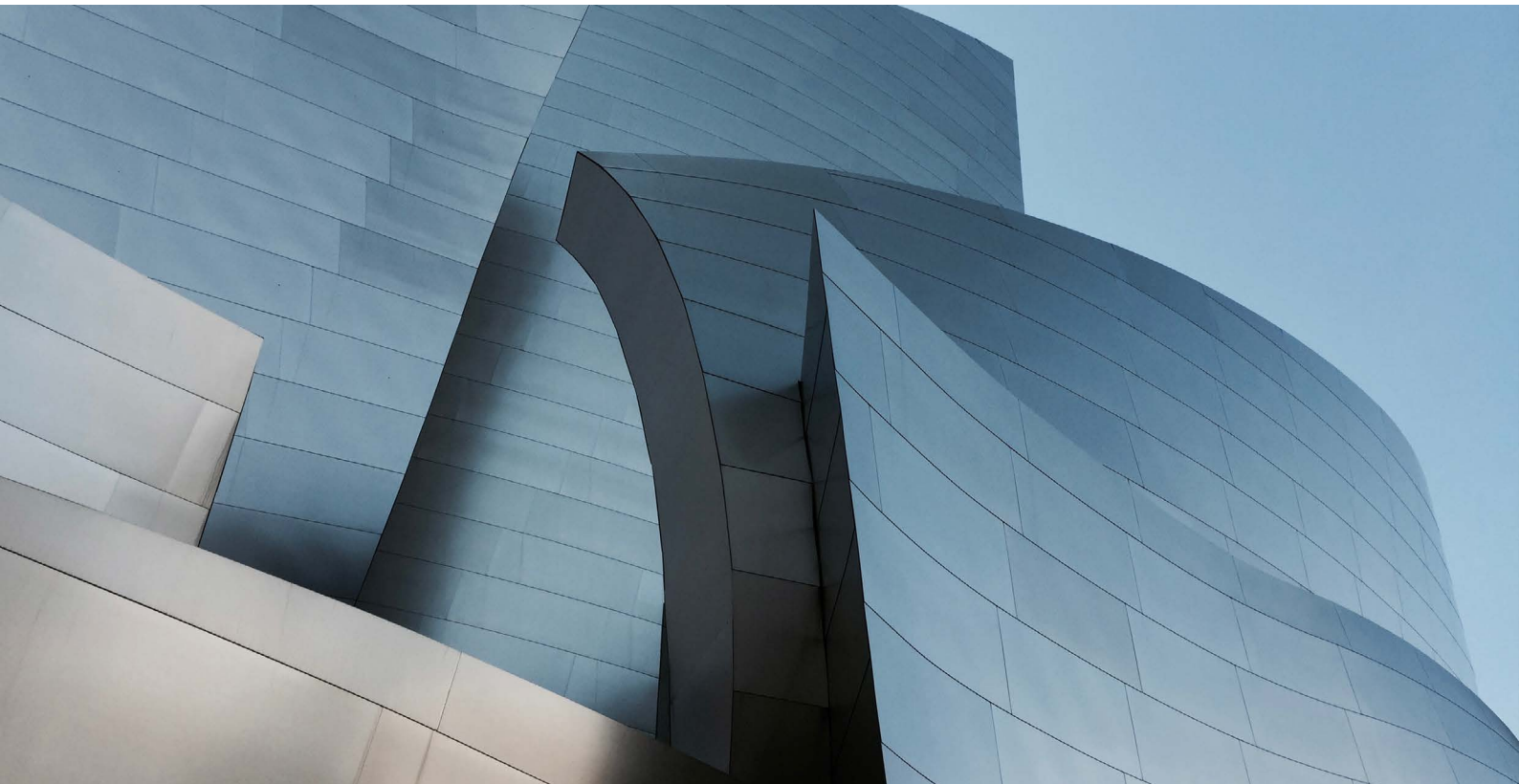
Tasks commonly performed by end-users include:

- Early-stage patentability searches
- High-level patent landscape mapping for technical and competitive intelligence
- Patent intelligence in support of strategic R&D planning
- Patent portfolio assessments conducted by legal departments
- Current awareness through technology and competitor monitoring

In some organizations, prior art searches are now being pushed to R&D teams with professional subject matter experts who are best placed to understand the intricacies of technical concepts. The role of the patent researcher in this process is to advise on data capture and search formulation, along with database and tool selection, with R&D professionals becoming more involved in searching and reviewing patent publications.

With the growth of easy-to-use patent research solutions, end-users now have more information at their fingertips. This trend aligns with the broader data science and business intelligence space, where self-service solutions are becoming more prevalent across all levels of management. Results from a recent Gartner survey of over 3,000 chief information officers from across the world confirm that self-service business intelligence has been embraced to democratize the use of advanced techniques in daily business.[2]

[2] Gartner, Inc. "Gartner Says Self-Service Analytics and BI Users Will Produce More Analysis Than Data Scientists Will by 2019." Press Release, January 25, 2018.



Inherent risks of the self-service model

Despite its usefulness, the self-service model can also create risk that needs to be understood and mitigated:

- Failure to identify valuable insights from the available data
- Misinterpretation of results
- Ineffective application of insights

Self-service can either lead research down the wrong path or create an environment where high-value opportunities are missed altogether. Both outcomes can have severe implications for the company's bottom line and reputation. There are basic challenges that should be considered when implementing a self-service patent research solution across an organization:

- The sheer volume of information
- Inaccessibility of information through language translation issues
- The complexity and obscurity of patent information
- Conversion of technical concepts into a comprehensive search query

Patent documents are designed to reveal the absolute minimum, with brevity and legal language often leading to misinterpretation. In addition, the original patent holder may understand and describe the invention in a unique way that's difficult to interpret. These challenges create multiple barriers for end-users and professionals alike.

Overcoming the challenges of patent research

To create real value, patent researchers need the knowledge to navigate the nuances of patent data, and the experience to align insights with legal, technical, and business knowledge. It is rare for this blend of skills to reside within the average patent attorney or R&D professional. In many situations, endusers will turn to patent researchers for help.

Collectively, the partnership between end-users and patent researchers can produce powerful results. This is best achieved with a patent research solution that meets the needs of both end-users and professionals and allows a seamless workflow between the two. A diverse and agile approach is required to improve outcomes for patent researchers, enhance accessibility for novice end-users, and improve workflows between experienced patent researchers and end-users.

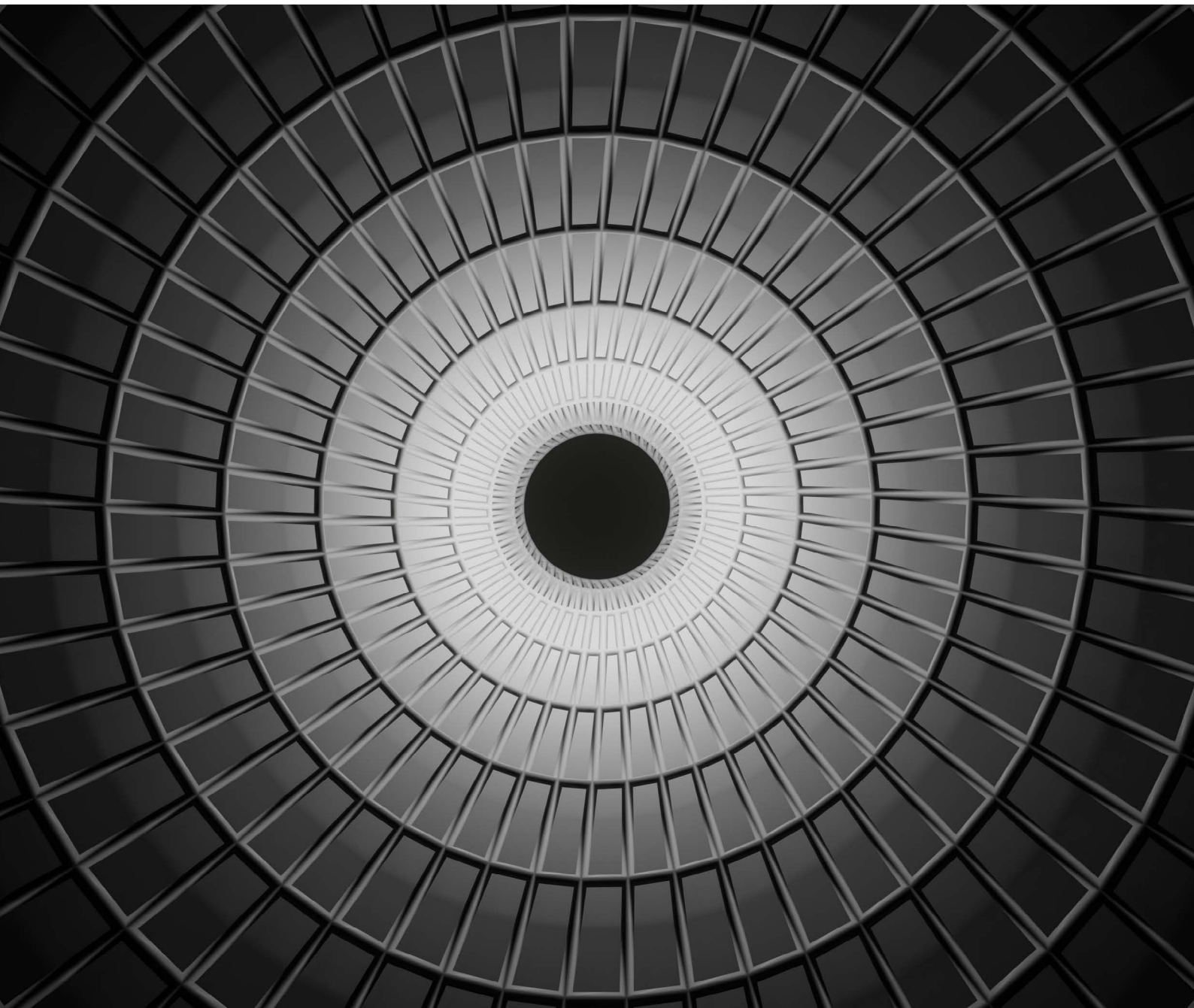
There is also a greater need to empower both the end-user and patent researcher with powerful and accessible patent analytics and visualization tools. The use of patent information for strategic planning and business intelligence purposes depends on an ability to easily identify and present trends in technologies, markets, and key players. The patent research solution should allow for data mining and filtration, along with the instinctive and customizable visualization of data sets.

Importantly, it should enable the ability to communicate patent information swiftly. At their core, patent research tools need to provide access to comprehensive and high-quality patent data collections. Conducting research with patchy and incomplete data sets is inefficient and risky. The difficulties of working with patents were first recognized in the early 1950s by Monty Hyams, a founder of the patent information market and the

creator of the Derwent World Patent Index. Patents are published in original language and are often couched in obscure legal terminology, making them difficult to search and understand.

Hyams established a system for abstracting and indexing patent documents that simultaneously allowed more precise retrieval and easier understanding of search results. He also addressed the inefficiency of viewing the same invention multiple times through publication in different countries by creating the patent family. Those innovations paved the way for the modernization of patent data and patent research tools.

To this day, Derwent continues to provide editorially-enhanced and easy-to-read patent records that make it easier for experts and novices alike to navigate the complexities of patent information. The creation of Derwent over 50 years ago by Monty Hyams can truly be said to have improved how patent information is consumed.



The evolving role of the patent researcher

Each organization needs to make key decisions regarding the location and application of the patent information department. Patent research is most effective when it is cross-functional, accessible enterprise-wide, and integrated with wider business structures.

The location of the patent information department is critical because it has a flow-on effect within the organization. The specific focus of the department is largely dependent on its position and stature within the organization. Structural elements are largely contextual, dependent both on the innovation strategy and patent maturity of the organization, and the competitive landscape of the surrounding industry.

Organizations need to align their patent focus and data needs with the demands of their specific industry sector.

Working with the legal department

For example, companies in highly litigious or competitive spaces, such as telecommunications, have a greater need for patent researchers to work closely with the legal department. Close integration with the legal division is typically aligned with a greater focus on tactical patent searches – prior art, freedom to operate (FTO), invalidity, etc. – where search requests come directly from patent attorneys working with R&D or scientists.

Working with the research division

Patent researchers who sit with the R&D division are often better equipped to support the innovation process through a mix of patent searches and analytics to ensure the organization stays abreast of new technologies and competitors. The role of the patent researcher can range from simply providing direction for where research could go and what can be learned from what has already been done, through to engaging in more complex prescriptive analytics to support R&D strategy. It is also common to see the patent information department situated within a central corporate library or knowledge center of subject matter experts who specialize in various information sources.

Creating clear roles and responsibilities

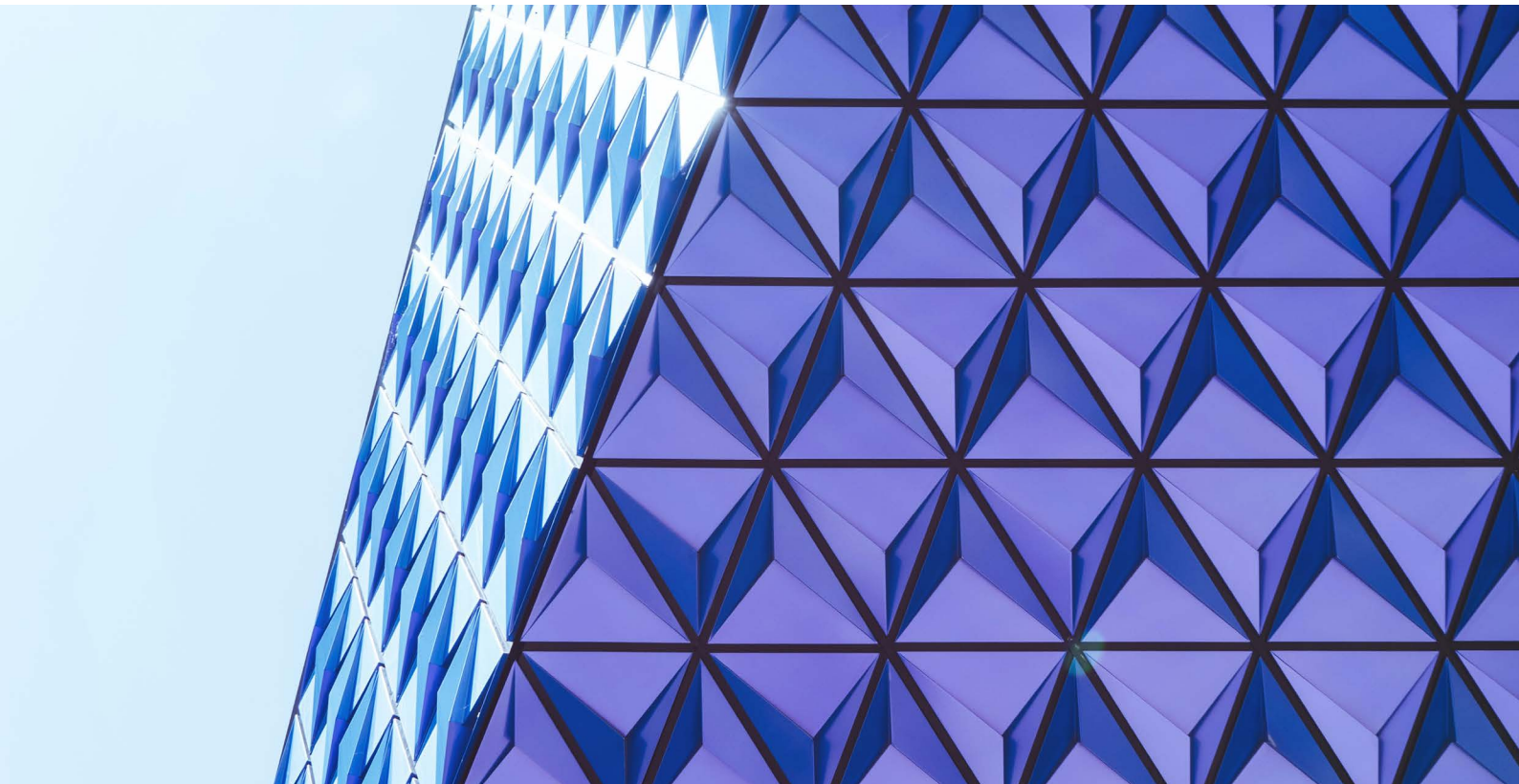
Irrespective of whether the information department sits in legal or research, there is the additional question of how centralized the unit should be. While large organizations often have separate divisions, smaller entities rely on integration and internal communication. This is a question for patent departments in general.
The options include:

- A centralized model where the information department stands alone and supports the various business units.
- A decentralized department where patent experts are embedded in the business.
- A hybrid approach combining a centralized team with experts embedded in some units.

Large, patent-mature organizations with an appreciation for patent information often divide their patent research capabilities into different functional units. Whilst all roles require a deep understanding of patent information, there are different skill sets that align best with certain activities and roles. For example, there may be teams focusing on legal searches whilst other teams focus on analytics to support research and strategic decision making.

At one large multinational conglomerate in the consumer goods sector, the information department has separate roles for patent search and analytics. The searcher works with the technical leads to create the data sets which is subsequently passed to the analyst who utilize specialist tools to clean, analyze and visualize the data. The analyst would also be involved in working with the business leaders to ensure the insights are fully understood.

Creating clearly-defined roles or divisions across the patent research workflow not only provides greater operational efficiencies but also separate career paths for upcoming patent researchers based on their strengths. This also provides an opportunity to attract and recruit the right talent into the department.



Five attributes of a modern patent information department

Top-performing organizations in patent research are enabled by deep functional expertise, strategic partnerships, and a clear center of gravity for organizing patent research talent. Five focus areas have been identified across best practice performers in the profession and should be considered to adapt and evolve the traditional model:

1

Data translation

The proliferation of information does not necessarily lead to real-world value. Now more than ever, there is a growing need for "translators" to bridge the gap between the world of data intelligence and corporate strategy. Despite key advancements in patent research tools and other technology, success is increasingly defined by understanding and implementation rather than data itself.

The McKinsey Global Institute estimates that by 2026, the demand for data translators in the United States alone may reach two to four million.[3]

Patent intelligence outputs are overwhelmingly complex, full of legal and technical jargon, and not necessarily aligned with business interests. This often leads to unclear business messages and a failure to understand or act upon findings. While jargon is inevitable in any profession, it's particularly acute in patent research due to a high dependency on technical methods.

For anyone involved in analyzing and presenting data, this represents a hidden pitfall. The skill required to work with complex data sets, the experience of creating advanced statistical models, and the effort involved in charting results, often lead to complicated output. Sometimes the patent researcher creates overly complex work, either due to a lack of translation skills or a deep-seated desire to communicate the difficulty and effort of their role.

[3] McKinsey & Company. "Analytics translator: The new must-have role." Article, February 2018.

The patent researcher is needed to bridge the gap between legal/technical expertise and corporate strategy to ensure that all deep insights generated translate into business value. This process involves asking questions tailored to the needs of the business, ensuring the data and insights are focused on answering those questions, and potentially raising relevant questions and data points to support the business decision.

Effective data translation presents its own challenges, however, with inward-looking technical professionals needing to add communication, project management, and business skills to their repertoire.

2

Building virtual patent search and analytics capabilities

Growth in knowledge process outsourcing (KPO) is another key factor that continues to shape the IP industry as a whole. Patent research skills are rare, and the demand for talent is high. Understaffed organizations often work with professional partners to augment patent researchers or cover projects entirely.

Organizations can avoid the continuous cycle of recruiting and training by taking advantage of outside resources. Businesses benefit from enduring relationships with external partners, with service providers able to add value and eliminate coverage gaps. It is essential for organizations to develop and maintain a relationship with a trusted IP services partner while staying in control of key business processes.

Internal information professionals are ultimately responsible for selecting appropriate external partners and overseeing outsourced service. Those with a deep understanding of the organization are best placed to support critical business questions and review the knowledge, strengths, and weaknesses of external firms. An in-house patent information department can utilize a trusted IP services partner to add scale, scope, and professional integrity.

3

Center of Excellence (COE)

A COE is designed to bring people together. When people from different disciplines are given an opportunity to share facilities and resources, expertise is concentrated, and cohesion is heightened. When patent information departments function as a COE, they can ensure company-wide standards, promote best practices, and ensure oversight regarding tools and data quality.

The rise of separate departments and selfservice patent research among end-users has the potential to increase exposure to risk. A best-practice COE can counteract these tendencies by empowering a business with speed, self-sufficiency, and more effective control. As an organization develops, there is a growing opportunity to create best-practice models among users.

The COE provides an opportunity to identify and cultivate a network of influential supporters to further promote best practices, share ideas, and collaborate to create value. Over time, this group can act as a forum in which to share success stories, building an appetite for more patent research activity. A COE helps to correct processes, empower end-users, and promote guidelines around patent research.

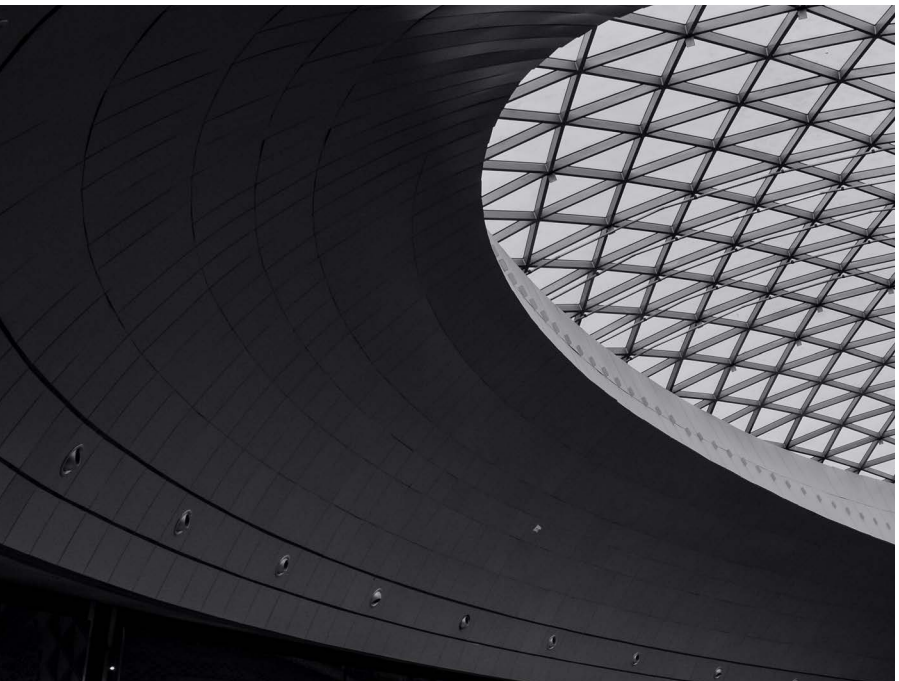
Effective COEs foster communication between people in order to drive innovation. While a top-down approach is needed to enable effective planning and an efficient executive buy-in, the final outcome is designed to enable resource sharing and effective procedural flows. A COE can be incredibly beneficial in the patent space by helping to foster data transparency, translation excellence, and organizational alignment.

4

Embracing big data, data science, and AI

With the rise of big data, patent researchers need to collaborate better with other data experts and data scientists through cross-organizational initiatives. Patent information alone is often insufficient, with business leaders needing to aggregate and converge data sets to support more complex business questions. Along with the vertical translation of critical data, the horizontal integration of data sets helps people to make better decisions. For example, in the pharmaceutical space it is commonplace to integrate patent information with scientific literature, drug pipeline and market data.

As businesses integrate patent information, enterprise-class discovery systems will enable the rapid and intuitive exploration and analysis of data structures. The role of the patent information professional is to support by helping the broader organization ask the right questions, build the right search strings, and translate the data effectively to create business value.



AI and machine learning are common terms in the modern business environment and are also making inroads into intellectual property and patent research. These technologies are changing the traditional model of Boolean and proximity search and are improving both retrieval efficiency and accuracy.

Natural language processing and machine learning can help mine through a large amount of patent data within a short time frame in order to recognize patterns and derive recommendations for action. However, valuable answers depend on people asking the right questions first. When organizations focus on developing enterprise level AI data solutions, expert patent researchers have an opportunity to influence the underlying algorithms and help train the AI system to understand and analyze complex patent datasets.

Derwent's Smart Search, for example, uses an AI driven, proprietary algorithm to model the expert search flow using editorial enhanced patent content from DWPI.

Some of the underlying concepts are described in patent number US 9971771B2 for a "Method, system and software for searching, identifying, retrieving and presenting electronic documents".

A well-known German pharmaceutical company has not only recognized this dynamic but embraced it by creating a newly formed "Digital Technologies" group. They saw that technologies such as text mining and machine learning are so universal in nature that they should become part of a central function for the enterprise. The patent field is in a unique place to benefit from big data, not through accumulation alone but also through intelligent extraction and synthesis using AI and machine learning.

5

Corporate integration

Executive-level sponsorship, corporate awareness, and departmental integration form part of the evolving patent environment. The patent researcher needs to work alongside business leaders to ensure that value is embedded within the fabric of the research and IP departments. The lack of management understanding often leads to the lack of clear questions to answer and patent research not being used by decision makers. Patent information departments are affected by restructuring, offshoring, and outsourcing, just to name a few challenges. Cost considerations are also having an impact, with professional roles and responsibilities demanding agility and flexibility at every turn. It's more important than ever for patent information departments to demonstrate their value to senior decision-makers and their contribution to the overall economic growth of the organization. The integration of self-service intelligence and outsourcing allows patent researchers to focus on more complex and critical tasks to support corporate decision making. When skilled people are given the opportunity to engage in valueadded work that supports broader mission objectives, better decision making and a stronger competitive position are almost guaranteed.

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