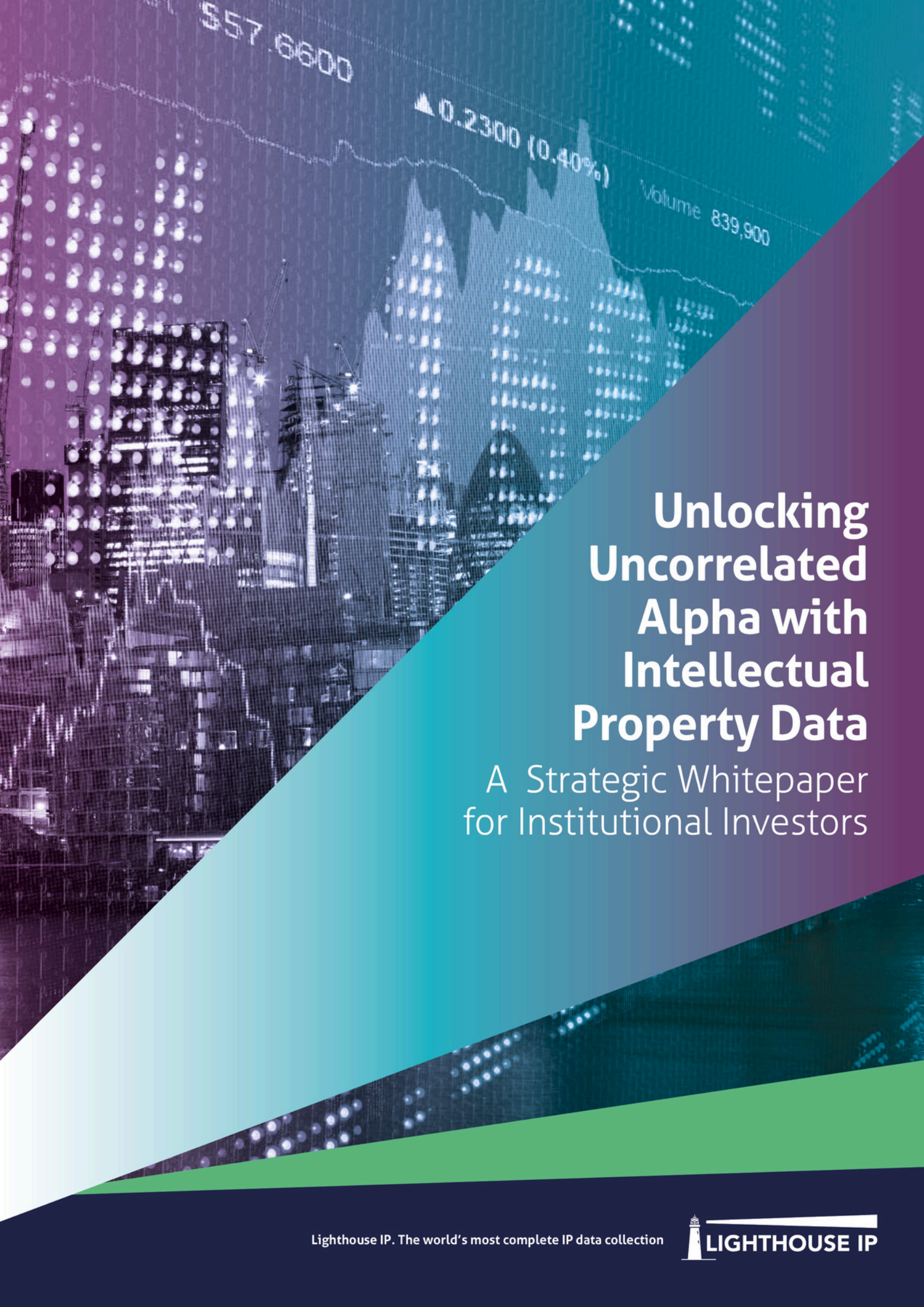




Unlocking Uncorrelated Alpha with Intellectual Property Data

A Strategic Whitepaper
for Institutional Investors



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Introduction

In the relentless search for new sources of investment edge, institutional investors have turned to alternative data (from satellite imagery to social media sentiment) to gain insights not found in financial statements. Yet one rich vein of information remains underexploited: intellectual property (IP) data. Patents, trademarks, and industrial design rights represent formal, publicly available records of innovation and brand strategy, but they are seldom used in quantitative finance models or fundamental analyses. This oversight persists even as research shows that IP activity can predict superior stock performance, implying that markets do not fully price these intangible assets. In other words, IP data offers the enticing possibility of generating uncorrelated alpha (returns not explained by traditional factors) for those able to harness it.

Why has IP data flown under the radar? Unlike earnings or economic indicators, patent and trademark filings are not part of standard financial reporting and require specialized handling. Trademarks, for example, are “the less sexy, and thus more overlooked, cousin of patents,” yet firms with the most trademark filings relative to assets see significantly higher stock returns in the next year. Analysts often ignore such data; one study found that analyst forecast errors were higher for companies with heavy trademark activity, suggesting the market underestimates the signal in these filings. Similarly, patent metrics are not fully reflected in stock prices – portfolios tilted toward patent-rich companies have outperformed benchmarks on a risk-adjusted basis, indicating a source of true alpha that many investors have yet to tap. Even the absence of IP can be telling: for instance, the now infamous fintech company Wirecard had virtually no patent activity (only one known invention) compared to hundreds of patents held by its peers, a red flag that went largely unnoticed by analysts during its rise.

In this whitepaper, we explore how IP data – encompassing patents, trademarks, and design registrations – can be leveraged by hedge funds, quant funds, and asset managers to generate nonobvious, uncorrelated investment signals. We discuss why IP data remains underutilized, the advantages of rich IP metadata over simplistic filing counts, and a range of use cases from timing innovation cycles to mapping competitive “white spaces.” Throughout, the tone is strategic and insightful, geared toward senior investment professionals, with a dedicated breakout for quantitative teams interested in technical implementation. By the end, it will be clear that integrating IP data into your investment process can unlock a new dimension of alpha, one that traditional analysis and widely used datasets are missing.

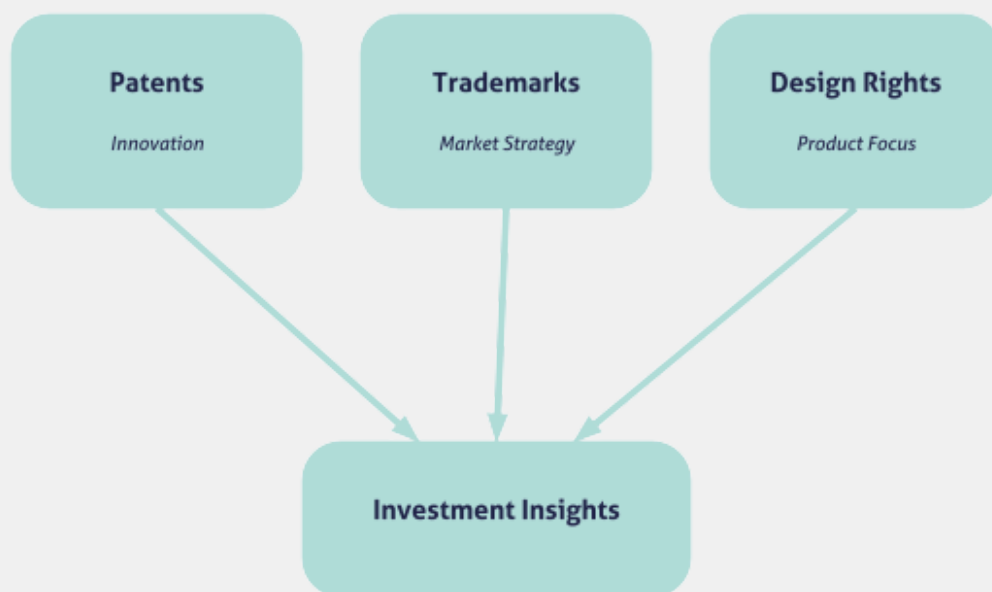


Figure 1: Overview of how IP activity translates into forward-looking investment insights

Why intellectual property data is an untapped alpha source

IP filings are public disclosures of a company's innovation and brand activities, often preceding, or at least coincident with, tangible business outcomes. However, they have historically been difficult to aggregate and interpret, especially across global jurisdictions and in a format usable for financial analysis. This difficulty has created an opportunity: those willing to tackle the complexity can find information advantages that the broader market overlooks.

Consider the following evidence:

Patent activity and stock performance

Patents are legal claims on new technological knowledge. A recent analysis ranked U.S. companies by patent intensity and found that firms in the top quartile of patent grants (normalized by size) achieved substantially higher revenue and profit growth over the next five years than those in the bottom quartile. More importantly for investors, patent-heavy firms delivered higher stock returns. In a long-term study from 1990 onward, a portfolio going long patent leaders and short laggards outperformed the market by approximately 4–5% annually, with lower volatility and drawdowns. These results held even after controlling for company size and industry, indicating that patent information carried unique insight. The fact that such a simple patent metric (counts of recent grants) yielded persistent alpha suggests it was not fully absorbed by other investors, an inefficiency waiting to be exploited.

Trademark filings as a leading indicator

Trademarks protect brand names, logos, and slogans – essentially revealing where a company is investing in product names or market expansion. Historically considered less glamorous than patents, trademark data has proven its predictive power. A comprehensive study of 300,000 USPTO trademarks (1976–2014) showed that companies with an explosion of new trademarks (relative to assets) subsequently outperformed in the stock market. A long-short strategy buying firms in the top third of trademark filing activity and shorting those in the bottom third yielded an annualized 5.2% excess return (3.7% after industry adjustment). Notably, the outperformance came mostly from the long side: firms aggressively registering new trademarks tended to enjoy higher sales and earnings in the following year. The effect largely dissipated after 12 months, implying it was an early signal of business momentum that eventually got recognized. Crucially, equity analysts tended to miss this signal: companies with surging trademark activity had significantly larger forecast errors, meaning the Street under-forecasted their results. In short, trademark filings represent a blind spot in market expectations (and thus an opportunity for alpha) precisely because they are public but not part of standard financial disclosures.

Design rights and intangible value

Industrial design registrations (also known as design patents in some jurisdictions) protect the aesthetic or functional design of products. While even more underappreciated than trademarks, design rights also correlate with company success. Recent research using European design registrations found that firms' investments in design have a positive, significant relationship with market value. Adding evidence that design innovation contributes to intangible asset value and is rewarded by investors over time. Design data can highlight product-focused innovation (for example, a consumer electronics firm registering new device designs) that might not register in patent counts alone. In combination with patents and trademarks, design filings complete the picture of a company's innovation strategy, capturing aspects of R&D, branding, and product development.

These findings underscore a central point: IP data remains underutilized, not because it lacks information value, but because of historical barriers to access and analysis. Patents and trademarks are "hiding in plain sight": publicly available yet not easily digestible from a financial perspective. Until recently, investors lacked the tools to efficiently mine global IP databases and integrate them into quantitative models or fundamental research. This is changing with the advent of specialized data providers and growing awareness of intangibles.

Forward-thinking funds have started to incorporate patent metrics into their stock selection models, with impressive results. For instance, Quoniam Asset Management reports that since adding patent value and patent quality factors to its quantitative equity strategies, it has seen about 4–5% per annum in additional alpha, and importantly these factors showed low correlation with traditional alpha signals. In other words, IP-driven signals provided new information that wasn't captured by conventional factors like value, quality, or momentum.

From a strategic perspective, the underexploitation of IP data means it represents a source of true alpha (excess returns) rather than just risk premia. Markets are relatively efficient at pricing in wellknown factors and widely used data (once discovered, many signals get arbitrated away). By contrast, IP data's complexity has kept it off most investors' radar, so any insights derived from it are more likely to be differentiated and sustainable; at least until this corner of alternative data becomes crowded. In the following sections, we delve into how institutional investors can extract these insights, focusing on the richness of IP metadata and concrete use cases that go beyond simplistic signal generation.

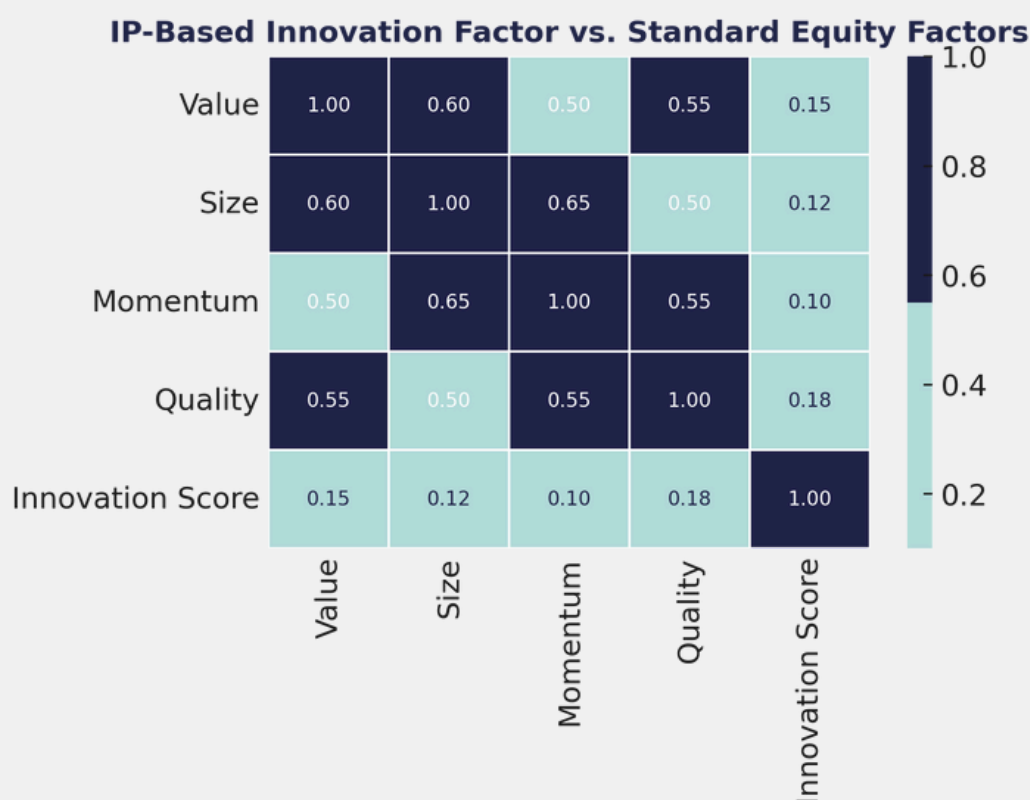


Figure 2: Illustrative example of IP based innovation factors vs standard equity factors

Beyond raw counts: the advantage of metadata-rich IP datasets

Not all IP data approaches are equal. A naive use of IP data might be limited to point-in-time filing counts – e.g., the number of patents a company filed last quarter, or whether they registered a new trademark this month. While even these basic indicators can be informative (as seen, patent counts correlate with growth), they only scratch the surface. The real power of IP data comes from its rich metadata: the extensive information associated with each IP filing and its lifecycle. By exploiting metadata, investors can move from one-dimensional signals to multidimensional insights, gaining context, quality measures, and dynamics over time that greatly enhance predictive power. Below are key metadata elements that give depth to patent, trademark, and design data:

- **Citation velocity (patents):** Patents cite prior patents as prior art. The forward citation count (how many times a patent is cited by later patents) is a well-known proxy for technological impact or quality. But even more informative is the velocity of citations – how quickly after issuance a patent accumulates citations. A patent rapidly accumulating citations within a year or two of publication likely covers a foundational innovation or hot technology area. Citation networks can reveal which companies or inventions are driving innovation, not just by volume but by influence. For investors, a spike in citation velocity for a company's recent patents could signal that the company's R&D is especially impactful, potentially foretelling competitive advantages or future revenue streams (e.g., licensing income) that the market hasn't yet priced in.

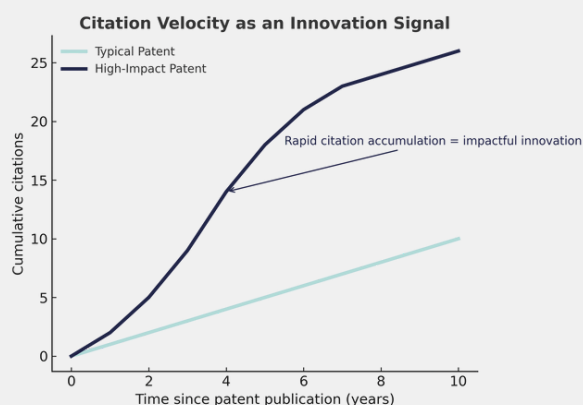


Figure 3: Citation velocity comparison: high-impact patents accumulate citations faster, signaling stronger technological relevance and potential future value

- Examiner and legal status actions (patents): Each patent application goes through an examination process yielding rich metadata: number of office actions (requests for changes or rejections by examiners), time to grant, and eventual grant or abandonment status. For example, a high number of examiner rejections before grant might indicate a very broad or novel claim (hence initially contested), which could mean the final granted patent is quite strong (or that the application was watered down). Conversely, a quick grant with few objections might indicate either a straightforward incremental innovation or simply an efficient prosecution. Patent grant rate (the percentage of applications that get granted) can be tracked by company or jurisdiction as a proxy for R&D effectiveness and patent quality. Post-grant legal events are equally important: is the patent being maintained or allowed to lapse (maintenance fees paid over 5, 10, 15 years indicate the patent is deemed valuable by its owner), has it been litigated or opposed (signifying others also value or fear it), or has it been licensed or reassigned to another entity (possibly hinting at technology transfer or M&A)? Lighthouse IP's dataset, for instance, includes full legal status histories (filings, grants, expirations, litigation, and transfers), enabling investors to track these events. Such metadata moves analysis from mere patent counts to patent quality and actionable events. E.g., spotting that a rival's key patent was just licensed (could boost their royalty income) or that a cluster of a firm's patents quietly expired (potentially eroding their moat).
- Portfolio metadata & valuation metrics (patents): Beyond individual patents, metadata can be aggregated to gauge a firm's IP portfolio quality. Examples include the patent family size (how many jurisdictions each invention is protected in – wide family coverage implies the invention has global commercial potential), citations per patent on average (portfolio impact), and patent age distribution (are patents mostly recent or aging/expiring?). Some data providers compute patent valuation metrics, estimating the economic value of patent portfolios by analyzing factors like citations, legal events, and comparable patent transactions. These valuations can serve as an intangible asset indicator, supplementing traditional balance sheet figures. A metadata-rich dataset enables slicing by technology domain as well. For example, how many AI-related patents does a company have versus its peers, and are those patents highly cited? Such insights can inform sector allocation or stock picking by identifying innovation leaders and laggards within an industry.

- **Filing behavior & metadata (trademarks):** Trademark data comes with its own set of valuable metadata. Each trademark filing includes the classes of goods and services (according to the Nice classification) it covers, which tells you where a company is expanding its brand or product lines. Tracking a firm's trademark classes over time can reveal strategic shifts. E.g. a food company suddenly filing trademarks in class codes related to cosmetics or health products might be diversifying its offerings. Researchers have noted that when companies' new trademarks appear in new categories (ones the firm hasn't operated in before), the market tends to undervalue the significance of that move. Trademark data also records filing vs. registration (not all applications mature to registered trademarks if they are abandoned or opposed), and opposition proceedings: competitors can file oppositions if they believe a pending trademark is too close to theirs. A surge in oppositions against a company's trademarks could signal that the firm is pushing into competitors' turf, potentially a sign of aggressive expansion (or could indicate legal headwinds). Geographic coverage is another metadata angle: is the company filing trademarks only in its home country or internationally? A flurry of international trademark filings could foreshadow global market entry. All these facets – class diversification, success rate, oppositions, and jurisdictional reach – provide a multidimensional view of a company's brand investment and market strategy that simple counts would miss. A comprehensive trademark dataset will include the full textual descriptions, owner identifiers (often normalized to handle naming variations), and status updates, which together allow investors to construct signals like "trademark application growth rate in core vs. new segments" or "breadth of trademark protection by region" as leading indicators.
- **Design registrations & renewals (design rights):** Industrial design rights typically must be renewed periodically (e.g., every five years in the EU, up to 25 years total). The renewal decisions themselves are telling: if a company chooses to renew a design registration at each interval, it implies the underlying product design is still commercially relevant (warrants ongoing protection). Non-renewal might signal a product line being discontinued or a design losing its competitive value. Additionally, design filings include classifications (Locarno classes) that describe the product type (e.g., class 14-03 for mobile phones). Tracking design registrations by class can highlight where firms are focusing their design innovation.

For example, an automotive manufacturer filing numerous designs in classes related to vehicle interiors might indicate a forthcoming model refresh or new concept cars focusing on interior features. Like patents, design rights can be part of families (some designs are filed in multiple jurisdictions), and broader coverage indicates more confidence in global commercialization. While design data is sometimes overlooked due to fewer available analytics, a metadata-rich design dataset can be leveraged for niche insights – especially in consumer goods, fashion, automotive, and hardware technology sectors where aesthetics and user experience drive value. Combined with patent and trademark information, design metadata helps complete the puzzle of a company’s innovation cycle: from R&D (patents) to brand naming/marketing (trademarks) to product look-and-feel (designs).

In summary, moving beyond raw filing counts to embrace IP metadata transforms these datasets from blunt instruments into high-resolution lenses on company behavior. As one IP data provider notes, “by utilizing the information embedded in trademarks and patents, significant information on company strategy, investments and global activities can be obtained”. An investor equipped with metadata rich IP data can discern not just how much a firm is innovating, but how and where and with what impact. The next section will illustrate concrete use cases of these insights – essentially, how to turn the wealth of IP metadata into actionable investment ideas.

Key Metadata Fields by IP Type

Patents	Trademarks	Designs
Citation velocity	Class codes (Nice)	Locarno class
Family size	Goods & services description	Product description
Legal status / grant rate	Filing vs. registration	Renewal status
Technology codes (IPC)	Opposition flag	Jurisdictional coverage
Portfolio valuation metrics	Geographic coverage	Family linkages

Table 1: Representative metadata fields for patents, trademarks, and designs, showing the multidimensional information available for investment analysis

Use cases: from signal generation to strategic insights

How can investors translate IP data into investable insights? The applications go well beyond a simple “buy innovative companies” theme. Because IP data captures the innovation lifecycle and competitive dynamics, it can be used in diverse ways to inform both alpha generation (identifying mispriced opportunities) and risk management. Here we outline several use cases, ranging from generating quant signals to high-level strategic analysis that informs investment theses. Each use case demonstrates a different angle of using patent, trademark, and design data, often in combination, to glean insights that traditional data might miss:

- **Timing the innovation cycle:** Every industry goes through innovation cycles: from research breakthroughs to product development and market adoption. IP filings can act as early markers in these cycles. For example, a surge in patent applications in a particular technology (e.g. battery chemistry or AI algorithms) might indicate that a wave of innovation is building before revenue shows up. An institutional investor can monitor such patent trend data to time sector rotations or thematic plays. On a company level, patent filings coupled with subsequent trademarks and design rights can signal an impending product launch or pivot. A firm that patents a new technology and soon after trademarks a related brand name is likely preparing to commercialize that innovation. By tracking the lag between patents and trademarks, one can infer where each company stands in its R&D-to-market timeline. If Company A’s patent activity has spiked but they haven’t yet moved to secure trademarks or designs, it could mean they are still in R&D (and significant products may be 1-2 years out), or it could mean an opportunity to invest before the new products are announced. Conversely, if a company suddenly files multiple trademarks for new product names, it may be at the cusp of a go-to-market phase, implying nearer-term revenue impact. Investors can use these clues to align their entry and exit points with a firm’s innovation cycle – going long those entering a harvest phase of innovation, or trimming exposure if a once-innovative firm shows dwindling IP activity (a potential sign of stagnation). In essence, IP data allows anticipating inflection points in company growth stories, often before they become obvious in financial results.

- **Competitive saturation and white space mapping:** Patents provide a window into competitive intensity in a given technological domain. By analyzing the universe of patent filings in a sector, investors can gauge whether a space is crowded or open. For instance, if dozens of companies large and small are all patenting in quantum computing, that might signal a very competitive race (or an overheating area where many are chasing the same opportunity). On the other hand, if one firm holds a dense thicket of patents around a crucial technology (and few others do), that company might enjoy a quasi-monopoly or at least a strong moat. Patent metadata like citation networks can map these competitive landscapes: who is citing whose patents? Are there clusters of innovation around certain sub-technologies? A high level of crosscitation among competitors might indicate a tight race where everyone builds on similar ideas, whereas a company whose patents are heavily cited by others (but that company doesn't cite much from peers) could be a true innovator leading the pack. Trademarks too can reveal competitive positioning: multiple companies filing similar-sounding trademarks in a new product category could presage a crowded market entry (for example, many startups all trademarking names ending in "AI" during an AI boom). An investor can use IP data to create a "competitive saturation index". For example, the number of distinct companies filing patents in a given technology space year over year. A rising number indicates fragmentation (lots of entrants), which might imply lower future margins for incumbents, while a stable low number might indicate a comfortable oligopoly of a few patent holders. White space analysis is the flip side: identifying areas with little patent activity relative to potential demand, suggesting an opportunity for disruption. If a high-growth new field (say, a type of renewable energy) shows surprisingly few patent filings, it could mean the field is nascent and open – a savvy VC or longterm investor might look for the one or two players quietly filing the first patents there, as they could become tomorrow's leaders. For public equity investors, understanding competitive IP positions can refine security selection: favor companies with strong, defensible patent portfolios in critical domains, and be cautious on those whose IP shows they're lagging or entering a shark tank of competitors.
- **Forecasting brand investment and consumer demand:** Trademarks offer a unique lens on a company's marketing and expansion plans. Unlike patents (which are inward-facing, about R&D), trademarks are outward-facing, often correlating with new product launches, brand campaigns, or entry into new markets. By tracking a firm's trademark applications and registrations, investors can forecast brand and product strategy.

For example, consider a large apparel company that traditionally sells sportswear under one brand, suddenly filing multiple new trademarks for what look like footwear lines or a luxury sub-brand. This could indicate an upcoming brand extension or a diversification into new market segments (which might drive growth if executed well). In another scenario, a consumer tech company might trademark a range of catchy names or slogans before a big product event, tipping off the breadth of products or services to be unveiled. Such information can be gleaned weeks or months before official product announcements, giving event-driven traders an edge. Trademark filing trends can also serve as a proxy for a company's confidence in future products: companies typically do not invest in trademarking names for products they don't intend to market seriously. Therefore, a steady increase in trademark filings could predict higher marketing spend and product launch activity, which in turn could translate to revenue growth. On a macro level, aggregated trademark data by sector can signal consumer demand trends. If the number of new trademarks in, say, the electric vehicle (EV) space is skyrocketing, it suggests many companies are gearing up EV-related offerings (from cars to charging services to accessories), potentially aligning with rising demand. Trademark activity in certain classes (like Class 5 for pharmaceuticals or Class 30 for foods) could be correlated with where companies see consumer appetite growing. These insights allow sector rotation or thematic plays – for instance, an uptick in trademarks related to health and wellness products might presage a growth wave in that industry. Moreover, trademarks, being less reported, provide a less “noisy” dataset than social media mentions or web traffic: they reflect considered business decisions rather than consumer chatter. This makes them a potent leading indicator when interpreted in context.

- Sector momentum and thematic investing: IP data can be aggregated to generate sector or theme-level indicators. For example, an “innovation momentum index” for each industry could be constructed from the growth rate of patent filings in that industry combined with the average citation impact. If the biotech sector's patent activity is climbing at an accelerating pace (especially in certain therapeutic areas), it may signal that the sector is entering a phase of rapid innovation. Historically a precursor to productivity gains or breakthrough products, which could justify higher valuations. Likewise, low or declining patent activity in a traditionally R&D-heavy sector might be a warning sign of stagnation or disruption risk (if, say, innovation is shifting to a different paradigm or region).

Trademarks and design rights also feed into thematic signals: rising design registrations in the automotive sector could indicate a focus on new model designs (perhaps the EV transition prompting fresh vehicle designs), which might correlate with an oncoming product cycle upswing for auto manufacturers. By combining patent and trademark trends, investors can gauge sectoral sentiment from an innovation standpoint, essentially, how much companies in a given sector are investing in future products and brands. This can complement traditional momentum indicators (price or earnings momentum) by adding a forward-looking, fundamental component. For instance, a fund could overweight sectors where IP momentum is strong but stock prices haven't yet reflected the potential (indicative of latent alpha). An example use case: in the early 2010s, a surge in battery technology patents and "smart" appliance patents, alongside related trademarks for home IoT products, could have signaled the coming wave of smart home and EV growth, even before those businesses became material in financial results. Those who read the IP tea leaves would have been early in those themes. Today, one could monitor areas like renewable energy storage, fintech, or biotechnology subfields via their patent/trademark momentum to position accordingly. Momentum in IP output often precedes momentum in financial performance, as companies that innovate faster eventually distance themselves from competitors.

- Event-driven signals and risk indicators: Beyond growth opportunities, IP data can also inform risk management and event-driven trades. Corporate events such as M&A, litigation, or regulatory changes often have IP footprints. For example, patent reassignments (transfers of patent ownership) can hint at mergers & acquisitions or asset sales before they're public. If a cluster of patents from a smaller biotech gets reassigned to a big pharmaceutical company, it might indicate an acquisition of that biotech or a licensing deal. This is actionable information for event-driven hedge funds. Trademark filings can flag product launches that might impact competitors (e.g., if Amazon secretly files trademarks for a new service category, it could pose a risk to incumbents in that space once launched). Patent litigation data is a valuable risk indicator: if a company is becoming embroiled in patent lawsuits (either as plaintiff or defendant), that can affect its stock (think of high-profile cases in tech and pharma). IP data feeds that include litigation events allow investors to monitor such developments in real time. For instance, knowing that a competitor's critical patent is under legal challenge or nearing expiration can inform a short strategy or a hedge on the affected company.

Similarly, tracking patent expirations in drug companies is key for anticipating revenue cliffs; an investor using IP data would be well aware of when blockbuster drug patents expire and perhaps see in the data whether the company has follow-on patents or not (signaling how prepared they are to replace that revenue). Another event angle: standard-setting and patent pools: if a group of companies are all citing certain patents heavily, those might be core to an emerging standard (e.g., 5G technology); the owners of those patents could gain outsize royalties (or be acquisition targets). Overall, by incorporating IP events (filings, grants, legal disputes, transfers) into their surveillance, asset managers can catch early warnings of events that move markets, often before traditional news sources pick them up.

These use cases demonstrate that IP data is not just one monolithic signal, but a versatile dataset enabling multiple levels of insight. From macro-level trend investing (sector innovation momentum) to micro-level stock picking (finding underappreciated innovators or sniffing out hidden risks), the possibilities are rich. Importantly, the combination of different IP types (patents, trademarks, designs) often yields the most powerful signals. A company simultaneously ramping up patent filings (technical innovation) and trademark registrations (product branding) is painting a fuller picture of future growth than either alone would. As we explore next, combining these disparate data sources is key to uncovering latent signals that a siloed analysis would overlook.

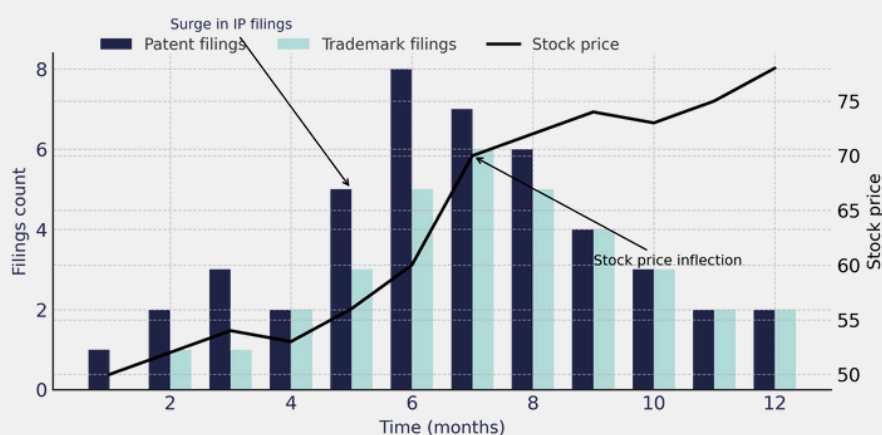


Figure 4: Example use cases demonstrating how IP data can inform investment decisions—from timing innovation cycles to identifying competitive white spaces

The synergy of patents, trademarks, and designs: uncovering latent signals

A core theme of this whitepaper is that the whole is greater than the sum of the parts when it comes to IP data. While each type of IP record offers unique insights, it's at the intersection of patents, trademarks, and designs that some of the most potent, latent signals emerge. Many investors who dabble in IP data may focus on just patents (the most studied), or occasionally trademarks, but rarely do they integrate all three. By combining these datasets, institutional investors can observe patterns that would remain invisible in a siloed view.

For example, imagine analyzing a major consumer electronics company. A patent-only analysis might tell you that the company has filed a new set of patents on, say, augmented reality display technology. That's interesting, but patents alone don't tell you if or when a product will reach market. Now add trademarks: you discover the company has also filed trademarks for what sound like AR glasses product names and related software services. This is a much stronger signal – it suggests the company is not just experimenting in the lab, but actively preparing a product launch (because they're securing brand names for it). Layer on design rights: you find design registrations for sleek wearable devices (which could very well be AR glasses frames). Now you have the full triad: technical invention, branding, and product design; all aligning towards a likely AR device introduction. An investor armed with this mosaic of evidence has a high conviction insight that the market may not yet appreciate: a new product line (and possibly a new revenue stream) is imminent. Only by looking at all three types of IP could this insight be so evident.

In practice, correlating multiple IP data sources can validate and reinforce a signal, improving signal to-noise ratio. A spike in patent filings alone might sometimes be noise (companies file patents for many reasons, not all leading to successful products). But a concurrent spike in trademarks or design filings is rarely a coincidence, it usually means real business plans are afoot. Conversely, divergence between IP types can be insightful too. If a company files many patents but no trademarks follow, perhaps the innovation is being licensed out or will remain behind the scenes (like process improvements rather than consumer products).

If a firm files new trademarks but has no patent activity, maybe they are entering a business that is not technology-driven (or they are outsourcing the tech). Such a case might warrant asking whether the company's move is more superficial branding or a serious innovation.

Another area where combining sources helps is uncovering hidden relationships and strategies. IP data, when unified, can be tied back to corporate structures. Lighthouse IP, for instance, emphasizes linking patents and trademarks to the ultimate parent company, translating assignee names (to address subsidiaries and naming variations). This is crucial when combining datasets: a company might file patents under a research subsidiary, trademarks under a marketing subsidiary, and designs under yet another entity. Without integration, an analyst could fail to connect the dots. A harmonized IP data feed allows one to group all IP assets by corporate owner and then detect synergies.

Jurisdictional coverage is another dimension where a multi-faceted IP view pays off. A company's strategy can often be inferred by where it files for protection. For instance, a tech firm filing patents only in the U.S. and Europe but not in China might be less focused on the Chinese market. Or conversely, filing in dozens of countries (via Patent Cooperation Treaty routes, etc.) suggests a global play. Similarly, registering a trademark in many countries (or via international Madrid System filings) signals an intended global brand rollout. If one sees patents in multiple jurisdictions and matching trademarks in those jurisdictions, it's a solid indicator of global expansion plans. Such insight could inform an investor's estimates of international growth for that company. On the flip side, if a competitor only files patents in their home country while others file globally, that competitor might be at a disadvantage or vulnerable if its technology spreads internationally. Thus, combining patent family data with trademark registration data can highlight geographical strategic positioning.

Finally, multi-source IP analysis can highlight latent signals in market sentiment. Consider the concept of "innovation buzz": if an industry has many startups and incumbents filing IP around a theme (patents for tech, trademarks for product names in that theme, designs for related products), it suggests a buzz or momentum of innovation in that area. Alone, each data source might show some pick-up, but together they paint a more compelling narrative of an innovation wave. An investor might use this to get ahead of a trend or to differentiate between hype vs. substance in emerging themes.

For instance, the cryptocurrency/blockchain boom saw many trademark filings (new coin names, exchange names) and some patents (for blockchain tech) – analyzing both could help distinguish which companies were serious about technology (filing patents) versus those mostly creating brands to ride hype (filing trademarks only).

In summary, integrating patents, trademarks, and designs provides a 360° view of innovation and brand strategy. It uncovers relationships (e.g., which patent goes with which product launch) and filters noise (requiring corroboration across datasets for a strong signal). This synergy is what turns IP data from a set of disparate indicators into a holistic strategic tool. It's also an approach that very few investors are currently leveraging, due to the data integration challenge – which brings us to the question of data solutions. In the next section, we address how institutional investors can practically obtain and integrate this data, and we highlight the role of providers like Lighthouse IP in making comprehensive IP data accessible for quantitative analysis.

Synergy of Patents, Trademarks, and Designs

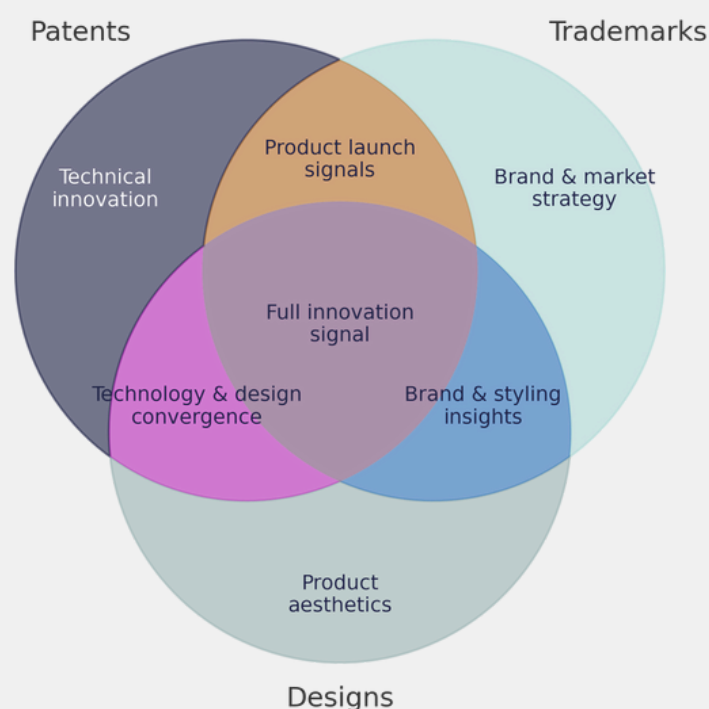


Figure 5: Synergy of patents, trademarks, and designs: combining multiple IP data types reveals signals that remain hidden in siloed analyses

Data integration and delivery: enabling IP data in investment workflows

For investors ready to exploit IP data, one of the practical challenges is obtaining a high-quality, comprehensive dataset and integrating it into their research or trading systems. Unlike market data, IP data is not centralized: patents are filed across dozens of national offices, trademarks across even more jurisdictions, each with their own databases, formats, and languages. The effort to gather and clean this data internally is prohibitive for most funds. This is where specialized data providers come in, and where Lighthouse IP's offering is subtly but significantly differentiated.

Global coverage and completeness: To avoid missing critical information, coverage must be broad. Many commonly available patent databases might focus only on the major jurisdictions (USA, Europe, Japan, China) and miss smaller or emerging markets. But innovation and brand expansion today are global: a breakthrough in The Netherlands or a trend in South Korea could be highly relevant. Lighthouse IP addresses this by providing "the largest collection of IP data worldwide": over 176 million patent records across 170 authorities, plus 198 trademark registers and 101 design registers. In practical terms, this means an investor doesn't have blind spots. The data feed captures not only USPTO and European Patent Office filings, but also things like Indian patents, Brazilian trademarks, South African design registrations, etc. This is a key advantage because uncorrelated alpha often lies in overlooked regions. For example, a Chinese tech company might file a trove of patents and designs domestically that signal its future products, long before any filings in the West. An investor with global IP data can catch that, whereas one relying only on U.S./EU data could be late. Lighthouse IP explicitly contrasts its comprehensiveness with "typical providers" that might omit Asia or other regions, but with their data, "no region or emerging market is overlooked".

Standardized and structured format: Even if you have all the data, the next challenge is format. Patent offices publish data in various forms (XML, PDFs, etc., often in local languages and inconsistent coding). For quant usage, you want a single, unified format that can be ingested directly into databases or algorithms. This is another area of differentiation.

Lighthouse IP delivers all data in a uniform structure (XML or CSV) following common standards, and even provides English translations of titles/abstracts for non-English documents. Additionally, they put considerable effort into normalizing entity names (so that, say, “IBM” and “International Business Machines Corp.” and its Japanese subsidiary all map to the same assignee). One client case noted “the standardized and uniform supply of all authorities in one format is a tremendous benefit” for integration. This means quant teams can save weeks or months of data engineering – instead of writing custom parsers for each country’s data and reconciling differences, they get a plug-and-play dataset. The ability to join patent, trademark, and design records by common company identifiers or Lighthouse’s own unique IDs (such as a Lighthouse Invention ID that groups patent families, or normalized owner IDs) makes cross-dataset analysis feasible for the first time at scale.

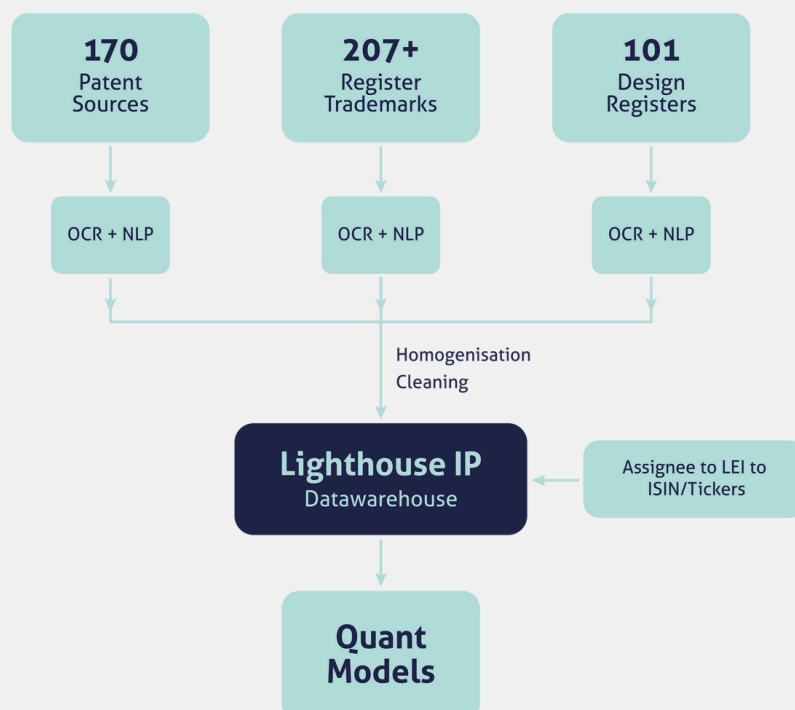
Timeliness and updates: In fast-moving markets, data latency can kill alpha. If IP data is only updated infrequently, one might miss the window of opportunity (for example, a patent published this week that could be traded on). Recognizing this, Lighthouse IP provides weekly updates (and some data daily) so that their clients are “always working with the most up-to-date information, eliminating blind spots and stale data”. Traditional sources might lag by months in consolidating global filings. A weekly feed ensures that when, say, a new patent application of interest publishes (most patent apps are published 18 months after filing), an investor knows about it within days. This timely delivery is crucial for event-driven strategies and for maintaining a current factor in quant models. For instance, an IP momentum factor might look at the last 3-month rolling counts of filings – that factor would only be effective if your data is refreshed promptly as new filings occur. The Lighthouse feed’s frequency is designed for such use.

One-stop shop for all IP types: A particularly unique aspect is having patents, trademarks, and designs all from one provider in one integrated feed. Typically, an investor might have had to contract with separate sources or government databases for each type of IP or use patchy datasets. Lighthouse IP positions itself as the only provider offering all three data types globally in a standardized way. Their tagline refers to “the world’s most complete patent, trademark, and design data collection”, and they emphasize that they source data directly from official gazettes around the world, even in challenging jurisdictions, to ensure nothing is missing.

This comprehensive approach is invaluable for the reasons discussed: signals are stronger when you combine IP types. It’s also cost efficient for the consumer: instead of managing multiple data feeds and contracts, a fund can rely on one partner for all IP content. Moreover, having the data pre-integrated means that, for example, patent-to-trademark linkages by company are already easier to make, since the provider likely standardizes the owner names across all datasets.

Flexible delivery and access: Depending on a fund’s infrastructure, data might be consumed via batch files, APIs, or cloud databases. The Lighthouse IP data can be delivered as bulk files (for backhistory) and incremental updates, or accessed via API for specific queries (they mention platforms like PatentWarehouse API). This flexibility means both quant teams (who may ingest data into internal pipelines) and fundamental analysts (who might use front-end tools or BI dashboards) can utilize the data seamlessly. Some use cases might even involve connecting IP data to existing internal datasets (e.g., linking patents to companies in a financial database). Having consistent identifiers and documentation from the provider facilitates these joins.

In summary, to truly capitalize on IP data, investors should seek a data solution that removes the heavy lifting of sourcing, cleaning, and updating this complex information. The difference between trying to piece together partial data from public sources versus leveraging a ready-made feed is enormous in terms of time-to-value. As noted in a Lighthouse IP overview, asset managers can “forget about cleaning or normalizing data from multiple sources; [Lighthouse IP’s] uniformly formatted feed plugs directly into your quant models”. That means quants can focus on modeling and backtesting signals rather than data wrangling. It also means fundamental teams can get curated insights (like company IP portfolios, valuation metrics) without needing a staff of patent attorneys. The Lighthouse IP advantage lies in offering this comprehensive, one-stop dataset with global reach, which is exactly what institutional investors need to fully exploit IP as an alternative data class.



(Figure 6: Data architecture of Lighthouse IP: from global IP sources through cleaning and normalization to unified data delivery for quant and fundamental use cases)

Quantitative spotlight: constructing IP-driven alpha signals (breakout section)

For quantitative analysts and data scientists on the team, this section provides a deeper dive into building and backtesting trading signals derived from IP data. We outline example factor constructions using patent, trademark, and design metadata, and then discuss practical considerations to ensure robust backtests (e.g., avoiding lookahead bias and handling data quirks). Even if the main text convinced portfolio managers of IP data's promise, the quant team will want to know the nuts and bolts; here we deliver those technical insights.

Sample IP-derived factors and variables

Constructing meaningful variables from IP data often involves aggregating or transforming raw metadata into company- or industry-level indicators. Below are several examples of IP-based features that quant models could incorporate:

- **Patent citation impact score:** For each company, calculate the average number of forward citations per patent for patents filed in the last N years (with an appropriate lag to account for publication). This score proxies the quality of innovation: higher values mean a company's inventions are influencing others more, which has been linked to better future performance. One can refine this by weighting citations by the prestige of citing entities (citations from top companies or from patents that themselves get many citations might count extra). Empirical research suggests such patent quality metrics predict higher growth and returns. In backtests, you'd form portfolios long the high citation-impact firms and short the low (or zero patent) firms.
- **Innovation intensity (patents per revenue):** Measure the number of patents granted to a company in the past year divided by its current revenue or assets. This normalizes innovation output by size (smaller firms can't file as many, but if they file a lot relative to their size it's notable).

Studies have shown that firms with higher patent-to-size ratios subsequently experience faster growth. This factor identifies companies punching above their weight in R&D. It may capture emerging innovators that traditional metrics (like R&D spend to sales) might miss if accounting data is not granular.

- Patent grant/approval rate: Compute the ratio of patents granted to patents applied for (with a suitable lag for outcomes) for each firm. A higher grant rate could indicate a company's patent filings are of high quality (or that they navigate the patent process efficiently). A declining grant rate might signal the company is attempting more speculative patents that aren't succeeding, potentially a negative signal. This metric can also be aggregated by country (e.g., Chinese firms' grant rates as a quality gauge, since some jurisdictions have lower bar to application volumes). It's a proxy for R&D efficiency and quality focus.
- Patent family breadth Index: For each company, average number of countries/authorities in which its patents are filed (i.e., family size). A high value means the company tends to seek protection widely, suggesting its innovations have global market potential and the company is willing to invest in broad protection (a sign of confidence in the commercial prospects). This factor might favor large multinational businesses, so it could correlate with size unless size normalized. However, changes in it (e.g., a mid-cap suddenly expanding patent family breadth) could be a strong forward-looking signal of globalization strategy.
- Trademark application growth: Year-over-year growth in number of trademark applications filed by a company. A surge in trademark filings could signal new product launches or brand campaigns in the works. As discussed, a strategy long companies with high trademark activity and short those with low has shown outperformance. One could refine this by focusing on new trademarks that represent new brands (excluding renewals of existing marks). Additionally, separating by Nice classes – e.g., count how many distinct classes a company filed in this year vs last year as a measure of brand diversification. If a firm expands the breadth of classes, it suggests entry into new business lines, which could lead to new revenue streams (and possibly be undervalued initially).

- Trademark intensity (marks per product/revenue): Similar to patents per revenue, trademarks per revenue or per product line might indicate how heavily a company is investing in branding relative to its operations. Consumer-focused sectors might naturally have higher counts, so it's best used within industry comparisons. A high trademark-to-sales ratio might forecast future advertising or product intro booms (the company is laying brand groundwork), whereas a low or declining ratio might indicate a stagnant product pipeline.
- Design renewal rate: For companies with registered designs, calculate the percentage of their designs that are renewed at least once (i.e., remain in force beyond the initial term). A high renewal rate implies the company's product designs have lasting marketplace value (they keep protecting them) – think of it as a product longevity indicator. A low rate could indicate a strategy of short-lived designs or perhaps less success in the product sticking around. Though design data is a niche, in industries like fashion, automotive, or tech hardware, this could differentiate firms who churn out many trial designs (but few hits) versus those who create enduring designs (e.g., a classic car model shape that gets renewed protection).
- Combined IP momentum factor: Create a composite that combines recent changes in patent counts, trademark counts, and design counts (appropriately weighted) for each company or sector. For instance, a z-score of change in patent filings + change in trademark filings forms an "innovation momentum" score. This could be used long/short to capture companies with rapidly accelerating IP activity (on the premise that such acceleration presages growth or strategic shifts that the market hasn't priced). It's crucial to lag appropriately (e.g., only use patent data up to dates that would have been public at the time to avoid lookahead).
- IP-Based sector exposure metrics: At a portfolio level, one can derive factors like "Portfolio exposure to AI patents" by summing how many AI-related patents (via keyword or classification filter) the companies in the portfolio have, weighted by their portfolio weight. This can help in risk management or theme tilts. For example, if you want to tilt toward innovation, you could construct an overlay that overweights companies with high exposure to desired patent themes (say, renewable energy patents) and underweights those without, ensuring that the signal is orthogonal to other factors.

(These are just a sample – the space for creativity in IP factors is large. For instance, text analysis on patent abstracts could yield sentiment or similarity scores; trademark name linguistics might reveal interesting patterns (e.g., many trademarks including “nano” might indicate a nanotech trend). The key is these features should be tested for predictive power and ideally be grounded in economic rationale.)

Sample IP-derived factors and variables

Building IP-based strategies requires careful attention to data handling to ensure that backtest results are valid and achievable in live trading. Here are some essential considerations and caveats for quant teams:

- **Point-in-time data and publication lags:** Perhaps the most critical issue: avoid lookahead bias. Patents and designs are typically published with a delay (often 18 months after the initial filing). Trademarks can also take time from filing to publication/registration. A backtest must simulate what information was actually available at a given historical date. For example, if a patent was filed by a company in January 2023 but only published in June 2024, an investor as of 2023 could not have known about it. Therefore, any strategy using patent counts or similar must only count patents once they become public. Quality data providers will timestamp each record with publication dates, so quants should filter or lag accordingly. Similarly, if constructing a quarterly factor, one might use patents published up to that quarter (not filed, unless you have access to application data via gazettes). This ensures your model isn't trading on "future" information unknowable at the time. The good news is providers like Lighthouse IP maintain historical records in a way that supports point-in-time analysis (some even offer "snapshot" datasets as of each date); taking advantage of that is crucial for an honest backtest.
- **Mapping IP to companies (entity resolution):** Public IP data doesn't come neatly tagged with a stock ticker. A patent is filed by "XYZ Innovations LLC", a trademark by "X Y Z Corp", etc., which may be subsidiaries or variants of a public company's name. A significant effort in using IP data is mapping these to the investable entity (the company's stock). Data vendors help by providing normalized names and group structures, but it's important to verify and possibly augment this mapping. Corporate actions like acquisitions can complicate things: if Company A acquired Company B, you might need to decide whether to roll B's prior IP data into A's history in your model. Generally, one should attribute IP to whoever owned it at the time for predictive modeling. If using a dataset like Lighthouse IP's, leverage their "ultimate owner" fields to consolidate IP under parent companies.

And always double-check big outliers: if your factor shows a spike for a company, ensure it's not due to, say, a subsidiary patent you mis-linked or a generic name confusion (e.g., "Apple" could map to Apple Inc. or a common word that might appear in some unrelated entity name). Robust mapping is foundational to avoid garbage-in results.

- Sector and size Effects: IP activity varies widely by sector. Tech and pharma firms will naturally have more patents than banks or retailers; consumer brands will have more trademarks. Likewise, larger companies file more simply because of resources. When backtesting, it's wise to neutralize or control for sector and size to isolate the true alpha. For example, you might form patent-based quintile portfolios within each industry to avoid just picking all tech firms (which would bias results by sector performance). You could consider scaling metrics (like patents per \$B of market cap) or including size as a control in multi-factor regressions. The Quoniam example noted that patent factors remained effective even after adjusting for company size, but you'll want to validate that in your universe. If not neutralized, an IP factor might inadvertently load on Growth or Tech, etc., which could either help or hurt for the wrong reasons.
- Statistical significance and coverage bias: IP data coverage improves by year (older records may be spottier internationally, and some countries had fewer filings historically). When backtesting long histories, be mindful of whether the data in earlier years is complete. If a provider's global patent data really became comprehensive after, say, 1995, then testing a factor from 1980 might be using incomplete info (biasing results). Most studies we cited focus on the 1990s onward for that reason. Also, patent issuance can be cyclical (e.g., some years USPTO had backlogs). Use sufficiently long periods and multiple cycles to gauge robustness. Check t-stats of your factor's performance and use techniques like decile analysis and IC (information coefficient) over time. A factor like "trademark intensity" might have worked great in one regime and not another. Try to understand why (was it arbitrated away? Or did it depend on something like rising intangibles not being priced, which could be a persistent inefficiency?). Conduct out of-sample tests if possible, like using one period to build the model and another to verify performance, to ensure the factor isn't a fluke.

- **Combination and overfitting:** Given the plethora of potential IP features, quants might be tempted to combine many into a complex multi-factor model. Caution is warranted: more degrees of freedom increase overfitting risk, especially since IP signals can be correlated (a company that files many patents often also files many trademarks if it's active overall). Simplicity can aid robustness. That said, combining complementary metrics (like one for quantity, one for quality) might enhance results; e.g., a composite score that ranks companies high if they have both above-median patent count growth and above-median citation impact. Just ensure the combination is economically justified and not just data-mined. Use cross validation or other techniques to guard against models that fit past noise.
- **Execution and capacity:** Some IP signals lend themselves to low-frequency strategies. Patents and trademarks evolve relatively slowly; a portfolio rebalanced quarterly or annually may be sufficient to capture the alpha. High turnover strategies are generally unnecessary here and can eat alpha with costs. Also consider capacity: many IP signals will favor larger innovative firms (mega-cap tech, etc.), meaning capacity is high but alpha per trade might be lower. Conversely, if you find an IP metric that highlights small-cap gems (perhaps a small-cap with a key patent), remember that trading those at scale can move prices. Assess capacity by seeing how concentrated your top picks tend to be and the average market cap. If needed, impose liquidity constraints or hold a broader basket. Slippage likely won't be as big an issue if signals are slow and you can spread trades, but be mindful if doing long-short that borrow cost for some small IP-rich firms (like biotech with patents but no profits yet) could be high or stocks hard to short.
- **Integration with other data:** Finally, consider how to integrate IP factors with your existing alpha models. Since IP factors often have low correlation with traditional factors, adding them can improve a model's breadth and information ratio. You might start by introducing an IP factor as an overlay or in a multi-factor optimizer and check its marginal contribution. Monitor if relationships change over time – e.g., does the "innovation factor" become more widely followed and thus less effective?

As more investors wake up to intangible assets, some convergence might happen, but given the complexity of IP data, it's likely to remain a rich alpha source for some time. Keep an eye on new research (academic and industry) to refine your approach. For instance, using NLP on patent text is an emerging technique that could enhance the basic citation metrics, or network science approaches on patent citation graphs could identify key innovation brokers.

In summary, building quant strategies with IP data is entirely feasible and has been proven fruitful, but it requires careful handling of data nuances. The combination of a good data provider (to handle the heavy data prep) and solid quant rigor (to avoid pitfalls like lookahead) can unlock the full potential of IP-driven alpha. Many funds that have done this report that not only do these factors deliver returns, they also provide diversification against crowded trades, given their unique nature. With the right approach, IP data can become a staple in the quant toolkit, much as fundamental data and price technicals are.

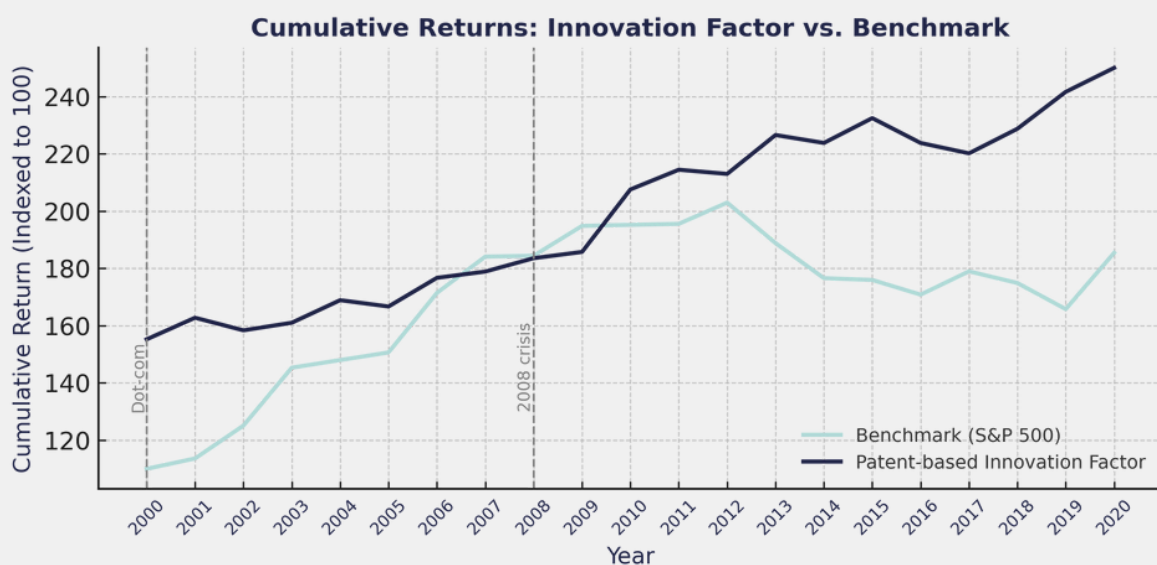


Figure 7: Backtest results comparing the cumulative returns of an IP-driven innovation factor versus a market benchmark, showing persistent outperformance and resilience

Conclusion: integrating IP intelligence for a competitive edge

Intellectual property data represents a frontier of alternative data that is just beginning to be charted by investors. As we have discussed, patents, trademarks, and design rights contain a trove of insights from gauging a firm's innovation quality and growth prospects to foreshadowing product launches, competitive dynamics, and even M&A events. Crucially, these insights are often orthogonal to traditional financial metrics, offering sources of alpha that can enhance portfolio returns without simply piggybacking on well-known factors or trends. In an era where many quant signals are quickly arbitrated, the complexity and effort required to harness IP data act as a natural barrier, preserving its inefficiencies for those willing to commit to it.

For institutional investors – whether quantitatively driven hedge funds or fundamentally oriented asset managers – the message is clear: IP data should become a strategic component of your research process. It is underexploited not due to lack of value, but due to lack of awareness and difficulties in access. Both of those hurdles are now diminishing. We have more evidence than ever (from academic studies and real-world fund results) that IP-based strategies can outperform, and we have specialist data providers like Lighthouse IP offering turnkey solutions to obtain high-quality global IP data. The timing is ripe to move ahead of the pack and start mining this information advantage.

To practically implement IP data insights, we recommend the following steps:

- Start with a pilot study: Identify a few use cases most relevant to your investment style (e.g., enhancing a growth equity model with innovation factors, or improving risk analysis with patent litigation flags). Using a dataset from a provider, conduct pilot backtests and case studies to build internal confidence and know-how.
- Leverage provider expertise: Work with data partners (like Lighthouse IP) not just as raw data sources but as collaborators.

They often have domain experts who can help interpret fields (e.g., understanding legal status codes) and suggest data enrichments (such as patent portfolio valuation scores or normalized owner mappings). This can accelerate your learning curve and ensure you're capturing the most value from the data.

- **Integrate into investment decision making:** Make IP analysis a regular part of company research and monitoring. For quant funds, this means integrating IP factors into the alpha model and risk model (perhaps as part of an "intangibles" composite factor). For fundamental funds, this could mean adding an "IP Intelligence" section to analyst company reports. For instance, every time your team evaluates a stock, they consider: What do this company's recent patent/ trademark activities say about its future? Are there any red flags or hidden gems? This kind of systematic incorporation will over time surface information that others miss. As one business insight from IP puts it, a collection of easily searchable global IP data is a "real intelligence treasure" for company strategy analysis.
- **Monitor and refine:** As with any strategy, keep tracking the performance of IP-based signals and refine them. Perhaps combine multiple signals for stability, or adapt to changes (if, say, patent publication processes speed up or laws change, adjust accordingly). Also, be open to new IP data types; for instance, trade secrets aren't public like patents, but if ever datasets emerge (or proxies like employee technical experience via resumes), those could complement the IP picture. The field of IP analytics is evolving with AI and big data techniques, so stay engaged with the community (conferences, papers, etc.) to stay on the cutting edge.

In conclusion, intellectual property data offers a compelling proposition: uncorrelated alpha through insight into companies' invisible assets and future plans. It enriches the understanding of businesses beyond what financial statements and price trends can tell us. By combining the strategic perspective (knowing why IP matters) with the technical capability (knowing how to incorporate it), institutional investors can gain a differentiated edge. Those who move early in embracing IP data will be positioned as innovators in the investment community – much like the companies they invest in – able to reap rewards from knowledge that others have yet to fully appreciate.

As a final note, the only thing more powerful than having data is having the right data. In that spirit, solutions like Lighthouse IP's comprehensive global patent-trademark-design dataset can be the linchpin that makes this entire approach feasible. With the data challenge addressed, all that remains is to apply insight and creativity – something investment professionals have in abundance. The opportunity is there to seize: to turn the world's sprawling intellectual property records into a map for finding alpha in unexplored territories.

About Lighthouse IP

Lighthouse IP is the world's leading provider of intellectual property content. We specialize in sourcing and creating unique data collections for patents, trademarks, and design information. Our processes cover every step: from acquiring original documents (in some countries still starting from paper) to delivering complete, uniformly formatted, and digitally accessible datasets.

With coverage of more than 170 countries and a global team of experts, we provide one of the most comprehensive and reliable bibliographic and legal IP data collections available.

Based in The Netherlands, Lighthouse IP was founded in 2006, with the same professionals who had previously successfully run Univentio. Key employees at Lighthouse IP have been in the industry for over 20 years. Our mission is to be the superior IP content provider in the world. Our data must be recognized as the most complete (largest backfile, number of content fields) and extensive (most countries) IP data collection, with the highest accuracy level. Our objective is to set the industry standard. As we source the data directly ourselves, we have several offices abroad, amongst others in Poland, China, Egypt, Indonesia, Thailand, the USA and Vietnam.

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