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Accelerating technologies, patent reform, and the new era of IP

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> COLLAGE BY WAYNE BREZINKA

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It wasn't that long ago that protecting intellectual property or IP (trademarks, trade secrets, and other intangibles afforded legal protection and, in particular, patents) was primarily the purview of technology and pharmaceutical companies. But because of accelerating technological advancement, patent activity and the patent wars are expanding their domain into previously untouched sectors. Industries in the path of these accelerating technologies now find themselves grappling with an urgent need for IP fluency. According to David Kappos of Cravath, Swaine and Moore and an authority on intellectual property management, "IP has become too important to just leave to the lawyers (and I can say that as a lawyer myself). The C-suite needs to have a baseline understanding and at least one senior executive at the CEO's table—a non-lawyer—who must understand it in depth."[1]

In a September 2011 special call with analysts, the newly appointed CEO of MasterCard, Ajay Banga, said that MasterCard "is a technology company that's in the payments space." The assertion surely raised a few eyebrows. After all, MasterCard was broadly considered a B2B payments company or a financial services company, but it was certainly not a technology company in the traditional sense. Banga wanted to establish his vision for electronic payments and a cashless world—one where technology would play the central and pivotal role in payments and commerce and would form the core of MasterCard's business.

From banking to health care to retail, technology is enabling a fundamental change of value propositions, business models, supply chains, and business operations. It has recently become so pervasive across industries that it is barely noteworthy to suggest that almost every company is, to some extent, a technology company.

In this new era, the United States has also experienced a fundamental shift in how IP is managed and monetized. Two landmark pieces of legislation—the America Invents Act and the Innovation Act (the former passed and the latter in Congress as this article goes to press)—will have a dramatic impact on the patent system and companies' behaviors regarding patent management strategies.

The convergence of these two forces—technology acceleration and patent reform—has created an urgent need for business leaders to reassess their IP strategies. This urgency is magnified for sectors that have not traditionally thought of themselves as technology companies and often do not possess the requisite IP knowledge or expertise required to effectively utilize IP in both offensive and defensive strategies.

A CASE IN POINT: THE PAYMENTS INDUSTRY

As an example of how quickly technology is transforming traditional industries and how IP is being utilized, consider consumer banking and payments. With credit cards ubiquitous, it's hard to fathom that the first widespread use of credit cards in North America started only about half a century ago with the introduction of the closed-loop Diners Club Card. The now-infamous story of Frank McNamara's restaurant faux pas of forgetting to bring cash spurred the idea of a general purpose card for travel and entertainment purchases on credit.

Since their introduction in the late 1960s, credit cards exploded onto the scene and took consumer spending with them. American Express helped kick off the expansion with its version of the travel and entertainment charge card in 1958, and many other financial institutions followed suit. The average consumer in the United States now has 5.4 cards in his or her wallet and contributes voraciously to the roughly $4 trillion spent domestically and $8 trillion spent globally on credit and

debit cards annually.[2] Much to the gratification of banks and other issuers, credit and debit cards became their most stable and profitable product in a robust portfolio of consumer and corporate offerings.

The boom and proliferation fueled by consumer appetite and increasing competition spawned more nuanced offerings, with credit cards being packaged finely to the varying tastes of the customer. Every which way, the market has been carved up with value propositions designed to appeal to different segments of consumers. With all this change, however, there was one constant: A simple, thin, cheap, plastic device with a static magnetic stripe was the platform for all of this commerce. For decades, this static platform remained stubbornly resistant to innovation and card issuers, processors, and payment networks controlled and dominated the industry. Then came the Internet, improved microchip technology, and advanced mobile phones: Payment technology innovation was off to the races.

Fast forward to 2013, and retail sales on the Internet accounted for roughly 7.6 percent[3] of all retail sales, and roughly 20 percent of this volume[4] was generated through "alternative payment providers" (for example, Paypal). In the physical retail payments world, the value payments made via near field communication (NFC) or radio frequency identification (RFID) are expected to eclipse the $200 billion mark by 2016.[5] These payments are made by chips embedded in dongles, phones, or stickers that communicate with payment terminals via radio frequency at close distance. Text messaging money has also seen significant traction, much more so in many applications than NFC/RFID. Outside of the United States, a plastic technology with an embedded chip called EMV (an alliance between Europay, MasterCard, and Visa) has taken hold with more than 80 percent of the transaction volume[6] in Europe; instead of swiping, this card is inserted into a reader that reads and decrypts data on the chip. In many parts of Africa, the mobile phone has completely leapfrogged traditional methods of payment. A variety of biometric payment startups want you to be able to pay simply by scanning your eyes or touching your finger to a reader. And there is even innovation on the traditional magnetic stripe—companies such as Dynamics, FiTeq, and Coin have placed entire computing architectures inside of a credit card that can dynamically change the magnetic stripe information.

Read *Payments News* or other trade journals today and you will come across a multitude of "wizards," those who are innovating and transforming the industry: Bling Nation, Dwolla, Square, LevelUp, and Boku, just to name a few. AT&T, Verizon, and T-Mobile have formed a joint venture, called Isis, which will try to accelerate the adoption of mobile phones as the future of point-of-sale payments. They want to redirect payments through the mobile phone and capture a piece of the transactions pie.[7] Big technology companies like Google, Apple, Ericsson, and

Microsoft, with their own mobile offerings, are competing to promote their own visions and technologies—whether to grab a piece of transactions or to create new revenue streams from new capabilities such as location-based services (think real-time offers on your mobile phone from the store across the street such as those delivered by Apple's patented iBeacon). There are tens of billions of dollars up for grabs. The potential profits have new entrants salivating and the issuing banks, payment networks, and other traditional players in the ecosystem extremely anxious.

Advances in technology continue to drive massive transformation in this industry, and new entrants and technology giants are using their technical know-how as well as patents to compete aggressively. Apple, Google, and Microsoft have all filed several patents in payments. Dynamics, one of the more aggressive start-ups with regard to patent filing, has more than 60 issued patents in just the past few years.[8] There are hundreds of patents in the payments space. There is an epic battle being waged through technology and intellectual property, and if you're a traditional player in the payments ecosystem, not only are you faced with the prospect of obsolescence from competitors you didn't anticipate, but you're also faced with the prospect of not being able to effectively respond because patents have completely blocked you out of the game. And perhaps you'll find yourself the unwitting recipient of an infringement lawsuit, which will cost you (where $1 million to $25 million is at risk) $1.6 million through the end of discovery and $2.8 million through final disposition, according to the American Intellectual Property Association.[9]

A similar story is unfolding across many sectors: rapid onset technology-driven transformation with heavy encroachment from new technology entrants and technology giants, followed by aggressive IP protection and litigation.

TAKEN FOR A RIDE: TAXI AND LIMOUSINE INDUSTRY

Historically the $10 billion domestic taxi and limousine industry has been virtually immune to competition and has enjoyed monopolistic conditions. The industry has been anything but innovative with in-car credit card acceptance and television monitors counting as its most ambitious innovations in recent memory—not exactly transformational. Introduce GPS, advanced mobile phones, and the Internet, and we know what follows, the wizards: Uber, Lyft, Sidecar, Ridecharge, and several other ride-sharing providers have swept in to fill the innovation vacuum and have begun to completely upend the traditional industry. According to VentureBeat, in 2013 Uber was on a pace for $210 million in revenue on more than $1 billion in rides—the company was only founded in 2009.[10]

These new entrants, as well as a few companies that hold broad patents strictly for the purpose of extracting value through licensing or litigation—non-practicing

entities (NPEs) sometimes referred to as "trolls"—hold several patents in this space and have blocked the ability of the taxi and limousine industry to respond effectively with mobile offerings of its own. Trolls have initiated lawsuits resulting in heated patent battles, in some cases suing any incumbents with deep pockets that may be within the sphere of their patent claims.

The taxi and limousine industry now finds itself reeling. An innovation that they did not foresee, from nontraditional competitors they did not anticipate, has been increasingly stealing market share, and the space has been locked up with patents. The industry has been making its plea to legislators to regulate and thereby perhaps stem the onslaught of the wizards.

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CASE STUDY: TRAVEL BOOKING INDUSTRY

As a final example, consider the travel booking industry, a slightly older but no less instructive a case about technological transformation and IP activity. SABRE, the reservation system jointly developed by American Airlines and IBM, was first opened up to travel agents in the late 1970s and by 1978 the system could store up to 1 million fares. In the 1980s, SABRE expanded globally and the capability was enhanced to allow for 36 million fares and up to 1 billion combinations. Until this time, electronic travel booking was done almost exclusively through this closed proprietary network and the travel agent was the de facto channel for the consumer.[11]

In the 1980s, with the introduction of Eaasy SABRE, consumers subscribing to CompuServe and AOL could begin to directly access the reservation system.

Eaasy SABRE was rebranded as Travelocity in 1996. From its modest beginning as a dial-up service available to only certain online subscribers, the industry became a behemoth in a very short time. Expedia, Orbitz, Priceline, Yahoo Travel, and a variety of other online players transformed the industry and shifted significant travel reservation volume away from the travel agent and onto the Internet.

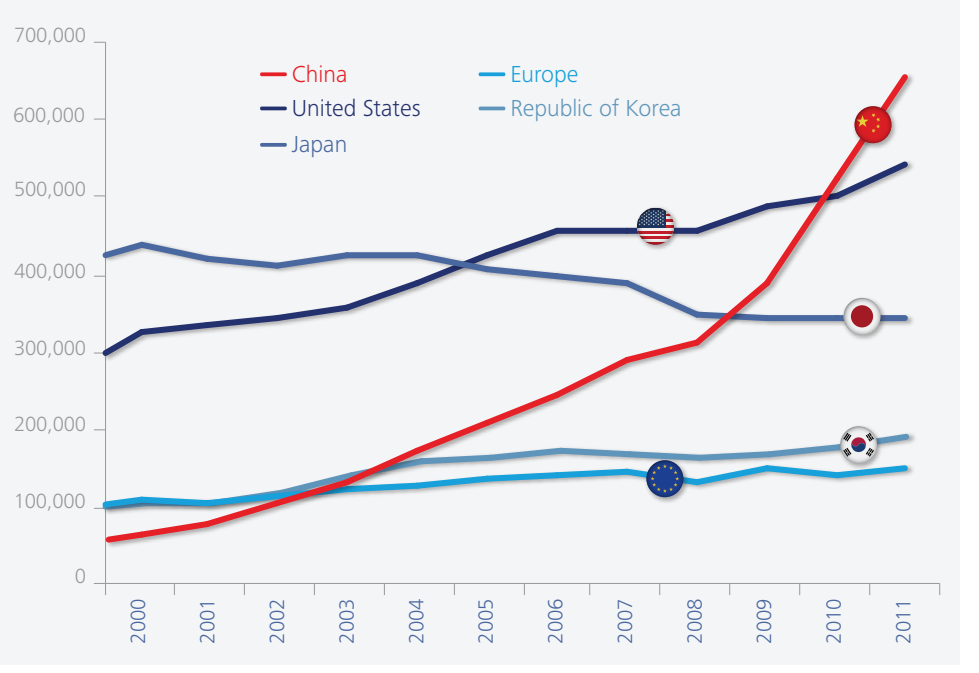
From 1999 to 2011, according to the Travel Industry Association of America, online bookings jumped from roughly 15 million per year to nearly 70 million. There has been a flurry of innovation in the travel booking space, from the giants to start-ups creating new offerings, and today roughly 50 percent of all travel is researched and booked online.[12] And with any technological disruption of an industry, there is often an important patents storyline—in this case numerous patent disputes, many initiated by trolls. Industry associations, such as the American Society of Travel Agents, which represent travel agents, have been pleading with legislators to help curtail frivolous infringement suits.

What's remarkable is not only the extent of the transformation and patent activity, but the speed with which it has happened.

US PATENT REFORM AND IMPACT

This pattern of technology encroachment followed by heavy IP activity has been repeating itself. According to the World Intellectual Property

Figure 1. Trend in patent applications for the top five offices



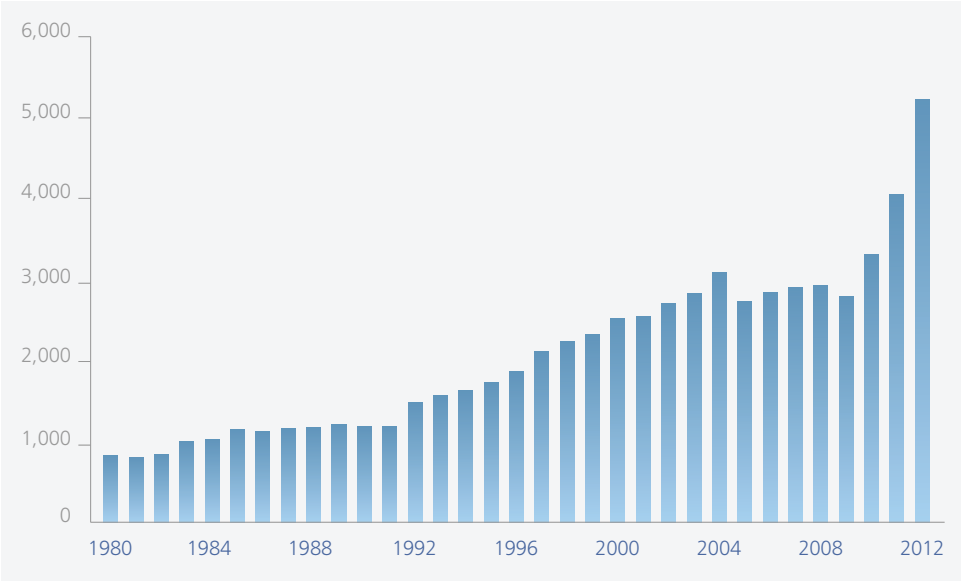
Source: WIPO statistics database, October 2013.
Graphic: Deloitte University Press | DUPress.com

Organization (WIPO), total worldwide patent filings eclipsed the 2 million mark for the first time in 2011. WIPO's 2012 report showed the strongest year-over-year patent filing growth in two decades, with applications reaching 2.35 million and 9.2 percent growth over the prior year. For the first time in history, China surpassed the United States in total patent filings. According to Scott Frank, president and CEO of AT&T Intellectual Property, "This is just the tip of the iceberg—technology is evolving faster than ever and there's more invention and patenting than ever before. Companies are becoming increasingly sophisticated in their IP strategies. IP management is going to become more and more important in our society."

But quantity does not always equate to quality. Ericsson's chief intellectual property officer, Kasim Alfalahi, has emphasized that what's important is quality and not quantity: "Many companies hold large patent portfolios but many of the assets in their portfolio may have little to no value. Quality is the key and that is why Ericsson has focused on building a high quality portfolio."[13]

An index produced by IEEE Spectrum, called the Patent Power Scorecard, ranks companies on the quality of their patent portfolio, measuring on dimensions such as generality, originality, and growth. These types of indices give some insight into factors beyond just the size of the portfolio and reinforce the importance of patent quality.

Figure 2. Patent cases commenced, 1980–2012



Source: IPWatchdog

Graphic: Deloitte University Press | DUPress.com

Patent quality has another dimension beyond the value of the underlying asset. The understandability, validity, enforceability, and the scope can all impact value of the patent and the potential for infringement and IP litigation. According to IPWatchdog.com, there has been a sharp increase in the number of patent infringement cases being initiated over the past few years in the United States leading up to the implementation of patent reform.[14] Much of this increase has been attributable to the trolls and there are many who feel that poor patent quality is a key contributing factor.

The United States has responded with a sweeping overhaul of its legislative framework on patents. Central provisions of the Leahy–Smith America Invents Act (AIA) went into effect on March 16, 2013. The law, designed to adopt global best practices, represents the most significant change to the US patent system since 1952. It brings the United States into alignment with the rest of the world on a "first-inventor-to-file" system instead of a "first-to-invent" system. In the first-to-invent system, an inventor who could demonstrate that she was the first to invent would be awarded the patent, regardless of whether or not she was the first to file for the patent. In this system, an original inventor could pursue an "interference proceeding" to demonstrate proof that she was the first to invent. The new system eliminates interference proceedings as it requires that the inventor be the first to file. So long as the inventor is the first to file, she is the rightful owner of that invention.

The AIA includes several key provisions:

- Trolls/NPEs cannot file infringement suits against dozens of defendants in a single action.
- A third party can take control of a transferred patent (for example, inventor sells his/her patent to third party) as it goes through the application process.
- Proceedings in the US Patent Office make it more efficient to challenge issued patents.
- The "micro entities" filing fee is substantially lower than fees for larger entities.

The principal justification for the AIA reforms is that they will promote innovation and technological progress in the United States. But there are many points of view, including vocal dissension, about whether the reforms will achieve the desired ends. For example, many feel that the first-to-file system favors companies with substantial resources to allocate to filing patents. However, Kappos states "while there are those who expound that the first-to-file system hurts the small guy, I have not seen small inventors losing rights to their inventions to due to large parties filing faster."[15]

There are also bills that have recently passed Congress (for example, the Innovation Act in December 2013) and others currently making their way through Congress that are designed to create further reforms in the patent system. These bills target the misuse of patents as a business strategy—buying and selling patents strictly for the purpose of identifying infringement opportunities and litigating. President Obama addressed patent reform and trolling directly in his 2014 State of the Union speech:

> *We know that the nation that goes all in on innovation today will own the global economy tomorrow. This is an edge America cannot surrender. The tens of billions of dollars spent on settlements and litigation expenses associated with abusive patent suits represent truly wasted capital. The patent system was never intended to be a playground for litigation extortion and frivolous claims.*

There's a common theme in the provisions of the Innovation Act (IA) that are currently being reviewed in Congress, which is to discourage abuses of the system:

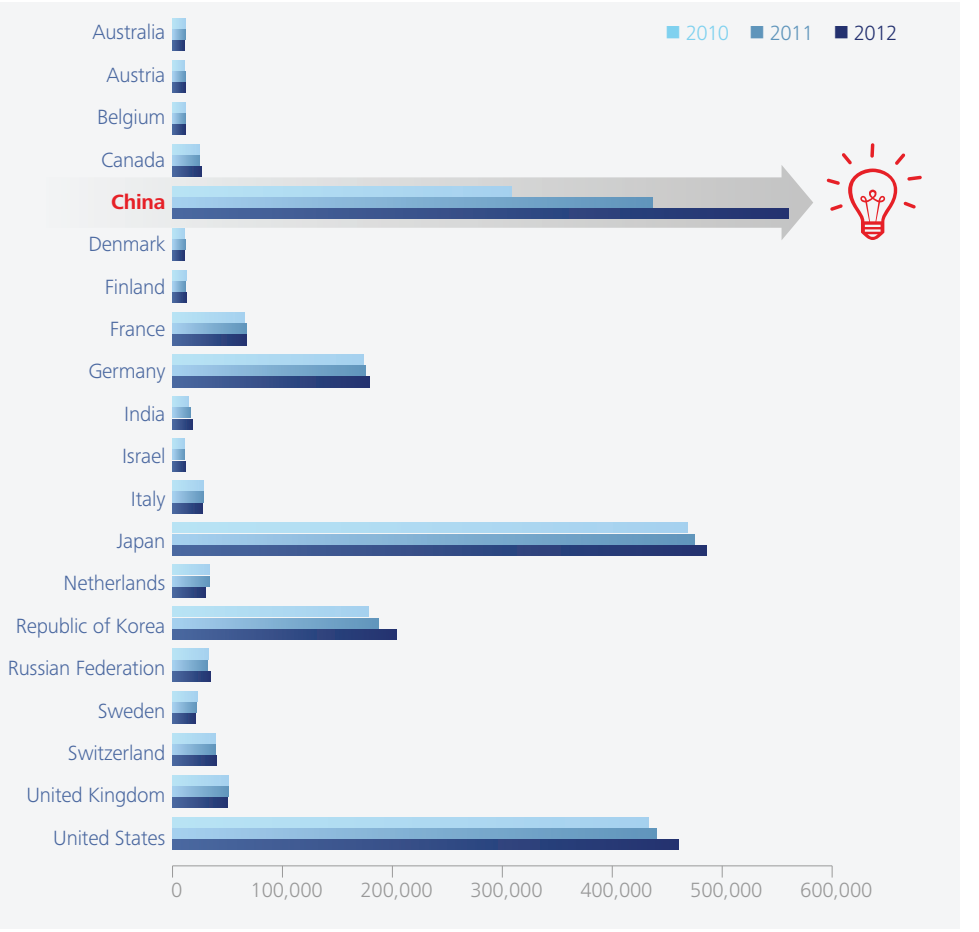
- They require greater specificity in the claim on the alleged infringement; previously, vague claims were not uncommon.
- They foster greater transparency on patent ownership by requiring patent plaintiffs to list names of anyone with a financial interest in the litigation. This is designed to discourage the use of shell companies to obfuscate ownership.
- They pass the cost of litigation onto the losing plaintiff, making it easier for the winning defendant to recover the cost of a lawsuit.
- They delay discovery to keep costs down. Plaintiffs often force defendants to produce millions of pages of emails and other documents to help build their case, creating significant legal costs. The IA delays this portion of the litigation process until after the courts have had an opportunity to address legal questions on the meaning of the claims.
- They protect end users. Trolls often go after the end user of the technology as well as the technology vendor. The provisions allow the primary defendant to hold harmless the end users.

It's important to note that not all companies agree with all of the reforms being contemplated—a consortium of companies (including Apple, Dupont, Ford, GE, IBM, Microsoft, and Pfizer) have formed a lobbying group called the "Partnership for American Innovation," which is cautioning Congress to take a balanced and measured approach so as not to adversely impact the truly innovative companies. A press release issued by this coalition in April 2014 states: "To date, the conversation

around patents has been dominated by those seeking to curtail America's strong system for narrow, short-term gains. Companies like those in the PAI support a strong, balanced system and are working together to make sure the conversation is driven by facts, not rhetoric, and reason rather than emotion."[16]

Given the IP regulatory changes in the AIA and the subsequent "trolling" provisions that will make it more onerous for a litigator to file a suit, it is not surprising that both patent filings and patent lawsuits spiked in the period before full implementation of the legislation. Since the AIA went into full effect, there have been material changes to the patent management behaviors of companies across industries. For instance, patent litigation has shown a sharp decrease in 2014. According to Inside Council (IC), infringement cases in 2014 are down roughly 34 percent relative to 2013.[17] The reforms are having effect.

Figure 3. Top 20 patent filing countries



Source: WIPO statistics database (last updated, January 2014).

Graphic: Deloitte University Press | DUPress.com

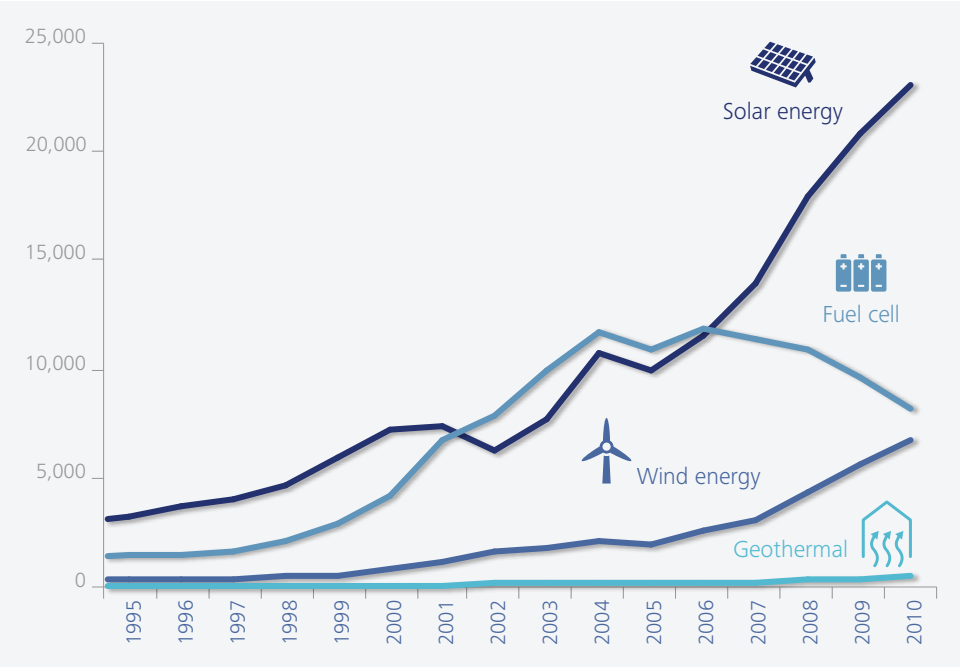
PATENT ACTIVITY ACROSS GEOGRAPHY AND INDUSTRY

A look at both the geography and technology category and class where the applications are being filed reveals a compelling narrative about the landscape of technology-led innovation and where tomorrow's battles will be fought.

On the geographic front it has primarily been a five horse race since 2010, in terms of sheer volume of filings, with China making the most dramatic year-over-year increases. However, where the next big transformative innovation will come from is notoriously difficult to forecast and the smaller players are often the ones to dream them up. Israel has become an oasis of technological innovation and has more start-ups per capita than any other country in the world. To glean greater meaning, we must also look at the relative specialization of the countries—for instance, Japan has a huge lead in optics and China and the United States have a big lead in digital communications (detailed statistics are available on WIPO's website). What we can see from the data is the geographic footprint of patent activity and how this may translate into regional or global IP battles.

We can also look at technology class- and/or industry-level filings to gain deeper insight into the patterns of activity and where the future bets are being placed. As an example, consider energy-related technologies. The filing activity and trend line show that the wizards are placing an increasing bet on solar and wind and that the enthusiasm for fuel cells is diminishing.

Figure 4. Patent applications in energy-related technologies



Source: WIPO statistics and EPO PATSTAT datasets, October 2013.
Graphic: Deloitte University Press | DUPress.com

The twin currents of patent law change and accelerating technological transformation and disruption have made it essential for business leaders to master the dimensions of IP management through a contemporary lens.

Deeper analysis of this filing activity and data can reveal insights into where wizards are innovating and where tomorrow's most important innovations may come from as well as where tomorrow's IP battles will be fought. Business leaders can use patent filing activity as an important tool to understand both where the markets and innovators are going and where their competition may be headed and that's what makes a disciplined program monitoring this activity important.

IN THE PATH OF ACCELERATING TECHNOLOGIES

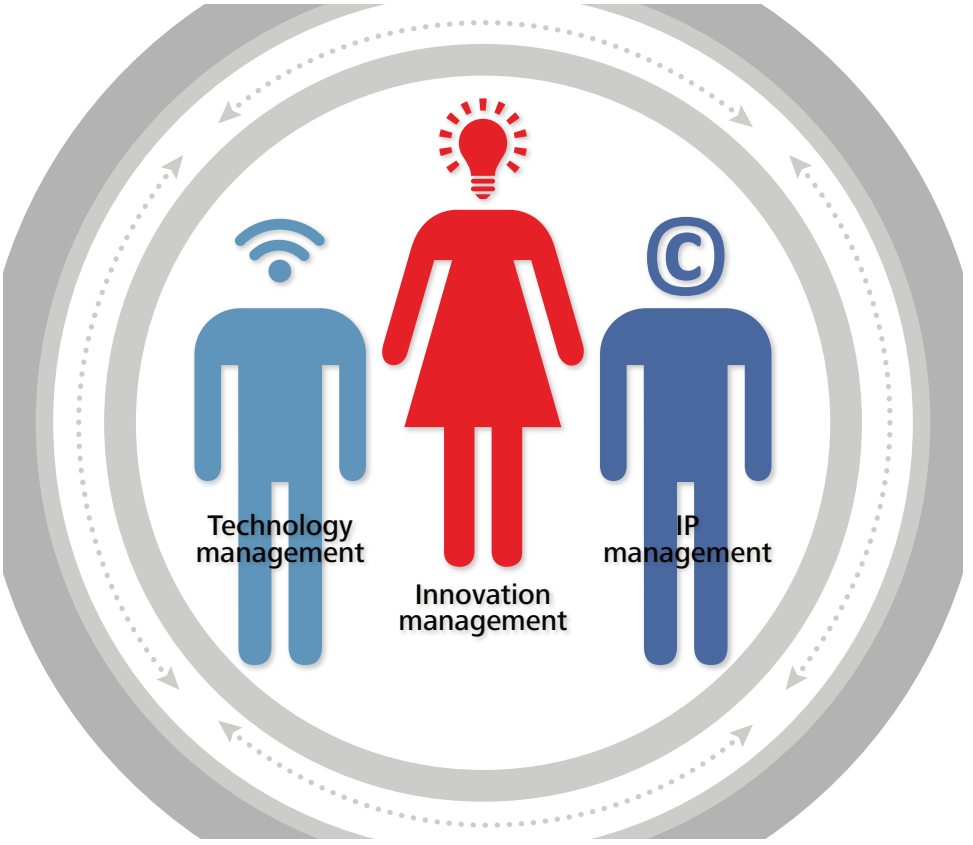
Given the pace of technological change and impact across industries and sectors many companies are turning to new paradigms and models of innovation such as open and collaborative innovation. Whether it's generating and capturing ideas from external sources or innovating with partners, boundaries are becoming more permeable. These new models, where they are employed, will challenge the "protection" mindset and could give rise to new thinking and practices on IP ownership, sharing, and licensing. A case in point is the 10-year-long broad patent cross-licensing deal recently signed between Google and Samsung.[18] Patents may continue to increase, but the manner in which they are utilized and deployed are likely evolve to accommodate the dynamism of the marketplace.

Beyond these new models, however, the new IP landscape in the United States points to the need for a coordinated internal approach to innovation management and technology management. Moreover, effective IP strategy and IP management are emerging as imperatives for any company innovating on the rapidly spreading boundaries of technology. They are inclusive and cannot exist effectively without the others being in lock step. For example, an innovation program that is charting

a course for a company to enter the domain of technology will have little value unless the company can effectively manage the technology and navigate the IP waters.

Additionally, these IP-focused imperatives should match and enhance the overall business strategy of the entity. For example, an IP lens should be utilized when evaluating adjacencies and white spaces—there is little point in contemplating an entry without fully assessing the IP landscape and whether one can compete effectively through compelling IP and both offensive and defensive IP maneuvers. Each one of these mutually dependent and complementary functions requires unique expertise and understanding. An innovation expert, who understands the theories, processes, habits, and systems of innovation, does not necessarily know all of the nuances of technology management (that is, all of the complexities and language of technology and how to effectively manage it through its full lifecycle). Similarly, a technology manager does not necessarily understand all of the strategies and tactics of effective IP management. These domain experts must work in tandem and be conversant in each other's disciplines.

Figure 5. Complementary and reinforcing disciplines: Innovation, technology, and IP management

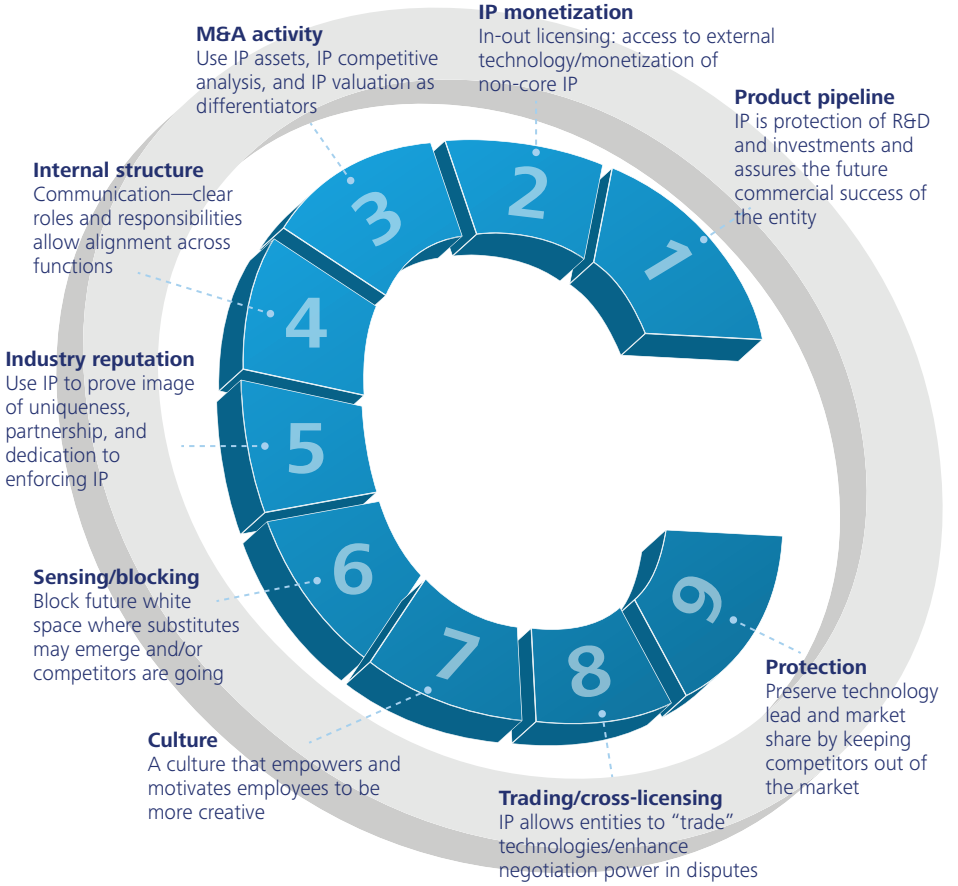


Graphic: Deloitte University Press | DUPress.com

Many companies are beginning to raise the urgency of innovation management, and they are beginning to mobilize innovation programs. However, much work remains on both the technology management front as well as the IP management front, particularly for traditionally non-technology industries that are most vulnerable to technology encroachment.

Contrary to its traditional handling, IP is no longer just a legal conversation. It is a core business conversation where IP strategy and corporate strategy are aligned and mutually reinforcing. A successful IP strategy and IP management program in this new context and new era has nine core dimensions:

Figure 6. Dimensions of IP management



Graphic: Deloitte University Press | DUPress.com

Product pipeline and protecting one's inventions is the starting point, and the internal culture that supports this activity is critical. How does one incent innovation and IP behaviors to effectively capture and protect important new inventions? According to Marian Croak, AT&T's senior vice president of Domain 2.0 Architecture and Advanced Services Development, responsible for a team of more than 2,000 developers, engineers, and program managers, "AT&T goes out of its way to

make those who patent heroes. It's an important and very aspirational part of our culture—you get recognized greatly for patenting and we see the impact this has on motivation and behavior across groups."[19]

IP management now goes well beyond protecting one's inventions. For instance, patent filings can be used as a very important sensing mechanism. A disciplined program of monitoring and reviewing filings that have the potential to be relevant to one's space enables companies to stay on top of emerging threats and identify trends. This can feed into effective blocking strategies, whereby companies pursue IP in white spaces where substitutes may emerge or where the competition may be going. We are seeing an increase in IP management focus areas and new areas of IP concentration by our clients and industry participants. IP-related activities were historically used for protecting your own products and services; now IP is being used to drive M&A activities, to block out current and future competition, to establish and implement a culture of innovation and entrepreneurial mindset, and to create new business structures and partnerships. The importance of proper IP management strategies cuts across all industries and geographies.

Internal structure is critical. There are compelling reasons for the chief intellectual property officer to have a seat at the CEO's table as one of his direct reports (as is the case at Ericsson), and for IP management to be a regular item on the CEO's agenda. On the building block of internal alignment and structure, Scott Frank of AT&T states: "IP management today requires more centralized control and alignment with the lines of business. Everyone needs to be on the same page with respect to strategies, trends, and laws."

The confluence of AIA and technological acceleration forces companies to be more agile and efficient with their IP programs. A dynamic, rapidly changing marketplace and more aggressive filing timelines in the first-to-file system means companies must be fast—with their invention disclosures, with prior art discovery, with decisions and patentability, with processes, and with deployment of budgets. Patents are now being written and filed within days of original conception, rather than months, and the time horizon in which companies are peering into the future for white spaces and opportunities is longer.

And in the cyber age and with more open models of innovation, one must anticipate and protect against potential misappropriation. As Kappos states, "Business leaders need to be very aware and vigilant of the potential threat of the misappropriation of their trade secrets by foreign operatives, as we're seeing this happen quite often—they need to have a plan in place so that if it does happen, they're ready with a swift response."[20]

For those with established IP departments and programs, the changes warrant an audit to identify the opportunities for agility and efficiency. For those without

established programs, the marketplace dynamics and new laws warrant serious consideration on the threat of technological disruption and the need for a sophisticated IP program, which views IP through a multidimensional framework.

THE BOTTOM LINE

The twin currents of patent law change and accelerating technological transformation and disruption have made it essential for business leaders to master the dimensions of IP management through a contemporary lens. While the experience and perhaps the edge in this case may lie with companies that have been steeped in technology for years or decades, it is increasingly clear that these tides are affecting sectors—remember our taxi and limousine example—that will find IP to be a completely new challenge.

For companies without robust IP management programs who are caught in these new currents, there are immediate actions that can be taken. First and foremost, the importance of effective IP management must be given visibility and a good way to do that is to invite or hire an IP leader into the C-suite as the CEO's direct report. This can send a powerful message and begin the first step into the cultural transformation ahead. Second, the C-suite can immediately begin its educational journey and path to baseline fluency by inviting subject matter experts to provide lessons on trends, laws, and best practices—this will likely ignite understanding and a needed sense of urgency. Finally, because IP management is multidimensional, the IP leaders should be given the necessary budget and resources to be effective—and this is perhaps where senior leadership will feel the greatest angst as IP management has a substantial sticker price. Budgets will be needed for staff, incentives, education, patenting, litigation, and other activities. But the benefits and payback cannot be underestimated. DR

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