



# THE FUTURE OF IP

DR. CORNELIA PEUSER

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# Foreword

**Dr. Dominique Christ**

*Managing Director, Dennemeyer IP Consulting*

2021 is nothing like 2017. This is stating the obvious, yet in the same vein, our new study, *The Future of IP*, is (almost) nothing like its acclaimed predecessor, which we published back then. Today I am excited to present you with not only an update, but a complete revamp of *The Future of IP*.

A lot has happened in the four years since we last queried a panel of distinguished experts on their views, perceptions and anticipations regarding the prevailing trends that shape IP practices, frameworks and appreciation. In the light of political, economic and societal ruptures, not to mention a pandemic that is still sending shockwaves around the world, we felt that our partners, clients and peers deserved this major recasting of *The Future of IP*.

We tripled the size of our panel, which now comprises almost 60 experts with a wide variety of backgrounds and experiences and hail from around the world. We are grateful for the precious time and invaluable insights from leading IP managers, IP lawyers and counsels, lawmakers, government officials, IP office representatives and academics from all continents. Their extensive experience and comprehensive expertise – and above all, their willingness to share their musings with us – enabled us to derive a rich and multi-faceted picture of *The Future of IP* and the forces that are shaping it.

Our passionate team at Dennemeyer IP Consulting endeavors continuously to future-proof our clients through empowering IP before the pandemic hit and during the crisis. We have witnessed the need our clients experience to transform their IP departments while mitigating existing and emerging risks and maintaining sustainable cost structures. Increasingly, top management is asking for the value IP contributes to the overall business success, while increasing innovative performance and output. Strong IP departments that are robustly embedded in organizational structures can not only support, but strategically lead the way to greater innovativeness. We support our clients in all of these areas by acting as a thought partner more than anything else. We listen to them closely and treat them as partners throughout – just as we did when compiling our experts' views on *The Future of IP*.

At this point, I would like to express my gratitude to our panel of experts, our partners within and out with the Dennemeyer network, and to the Consulting team. I am happy to present to you *The Future of IP*.

# At a glance

Since we last investigated The Future of Intellectual Property in 2017, the world has undergone massive changes, more than we anticipated back then, and faster. Having expanded our panel of experts significantly, we have taken a fresh look at the major trends affecting and forming IP practices.

None of our experts' expectations from 2017 has failed to materialize. If anything, the major global trends of the last decade or so have accelerated, being driven by, and in turn driving, new ways of doing business. The advent of COVID-19 and the resulting crisis, much deeper than the Global Financial Crisis of a little more than a decade ago, are proving to be a catalyst for a global and almost universal upheaval, driving and deepening four major trends:

- The decades-long trend of globalization has been curtailed in the last five years, with the Trump presidency and Brexit being only the most noteworthy examples.
- The digital revolution has been sped and scaled up decisively.
- China's growth, both in economic and geopolitical terms, has continued unabated, putting it on a collision course with America, thus heating up the rivalry between the two superpowers.
- Lastly, the problem of global inequality, within and between societies, has been exacerbated by the three trends above.

The reverberations of the current crisis will be felt for some time to come and inform all aspects of life, including the focal point of this study: How does all this affect Intellectual Property (IP), its importance, its governance, management practices and the people who deal with it?

The importance of IP for companies continues to grow undiminished, and with it comes an increased appreciation for, and sophistication of, IP management practices along the whole IP life cycle. For instance, this is evidenced by the ever-growing number of patent applications and the continuing fragmentation of individual patents' coverage. This fragmentation occurs for several interconnected reasons, not least their growing strategic importance as "real" assets in an entity's portfolio and an increasingly strategic approach to filing them.

Mirroring IP's growing importance in firms' strategic considerations is the expanding significance of IP in policy considerations at all levels of government. Intellectual Property rights (IPRs), in particular, count for being sophisticated carriers of multi-dimensional information that influence business as much as government strategy.

As modes of advancing innovation and creating sustained modernization in stable ecosystems, we investigate the as-of-yet underappreciated function of IP as a central foundation of innovation systems, rather than as an

external factor, for in this regard, IP regimes have not kept up with transforming business practices.

Accordingly, we reflect on whether the above global trends will render the current IP regimes obsolete, finding that while international harmonization efforts have all but stopped at the top level, the regimes' constituents find ways of driving such endeavors forward from the ground up. Somewhat counterintuitively, we find that a stronger emphasis on regional IP needs drives greater international cooperation and collaboration.

Evolving systems naturally impact their constituent actors, be they companies, law firms or research institutions. And, while the appreciation of IP among these actors is growing steadily, the pace and levels of awareness still vary widely across industries and organizations. Nevertheless, it must be stressed that despite this non-uniform rate of adoption, IP strategies are becoming more formalized and embedded in organizations' overall strategic setup, reflecting their overall growth in importance. Quantifying IP's contribution to company success is key to the formulation of ever more sophisticated IP strategies, and the effort is worthwhile.

As IP management continues to become more professionalized, outsourcing has developed into a

significant industry. Simultaneously, service provision is becoming more standardized and more fragmented, with digital technology creating confidence in interactions that were hitherto difficult to establish.

Digitalization is still one of the global trends that drives change in IP management. However, it should never be seen as an end in itself, but as an enabler: digital tools will not replace the human component any time soon. While computers are essential to collect, process and systematize ever-increasing amounts of data, a human mind is still required to check, understand and interpret data – and derive decisions from it. Consequently, the role of the IP manager is changing: data- and business-savvy, the IP manager becomes an asset manager, communicator and holistic adviser.

And while all these trends and developments would probably have happened of their own accord, COVID-19 and the ensuing crisis have deepened the necessity not only to plan, but embrace change. The pandemic has accelerated the implementation of digital modes of working, increased interaction with IP offices and rewarded those who were prepared for change. Simultaneously, the search for vaccines has presented the opportunity to look at the IP regime with a critical eye.



Since we published the first study *The Future of IP* in 2017, much has changed, often at a rapid pace. This has made an update of our work not only opportune, but by 2021, desirable. We have witnessed much international discord over the last three years, a great deal of purely transactional politics on the global stage, increased questioning of international cooperation and not least a global pandemic and resultant economic crisis. To capture these trends and their impact more comprehensively, we have significantly broadened our panel of experts, both in geographic and occupational scope, with many returning and quite a few new experts joining us. We are grateful for their insights and knowledgeable contributions, and feel confident that we have been able to broaden the resulting insights by reflecting the truly international challenges facing us today. COVID-19 has emerged as not only a major public health

crisis, but the subsequent economic crisis is continuing to reshape the way we work by exerting influence on the direction of the three major forces shaping the modern world. That is to say, globalization has been curbed, the digital revolution has accelerated decisively, and the geopolitical rivalry between America and China has intensified. Concurrently, one of the greatest global problems, that of inequality, has been exacerbated by the pandemic. All of these major factors touch on IP matters, and will be addressed in turn. While this study was never originally intended to deal with the COVID-19 crisis, the majority of our panelists were interviewed in the second and third quarters of 2020, so the pandemic did feature prominently in our conversations, as was to be expected. And while it is the general view that IP is “slower” than other



business cycles, in that the economic consequences are felt and addressed less pressingly, there will be challenges and opportunities that COVID-19 raises, as already evidenced through increasing cost pressure on IP departments and debates about private versus public benefits with regard to patent protection.

Accordingly, quite a few of our conversations covered a wider situation than a standard IP management discussion would do. Many of our panelists pondered the environment in which IP management happens, and how this wider environment – political, economic, legal and societal – impacts on IP management practices and influences current convictions and attitudes. To reflect this breadth of investigation, our study comprises five parts.

In the first, our panelists discuss and reflect on the broad trends they observed with respect to IP in general. There is no denying that IP has been, and will be, heightening in its collect and trace these overall trends to build a basis onto

which to apply our subsequent considerations.

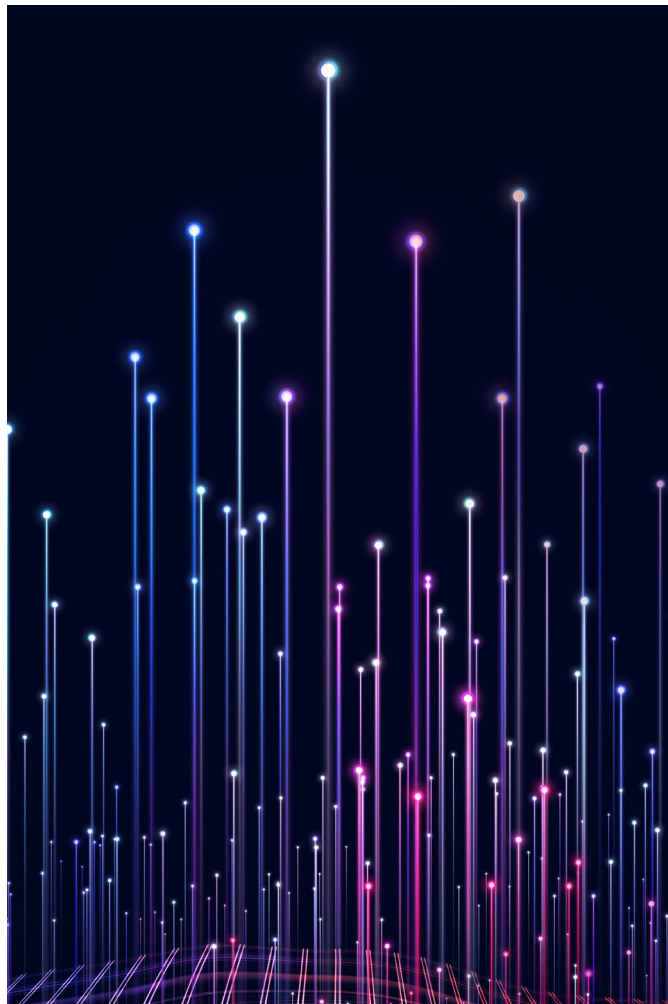
From there, we discuss the influences that drive these IP trends – mainly new and steadily evolving forms of innovation. Building sustainable innovation systems requires more than innovative firms; thus we discuss how a new understanding of, and emphasis on, innovative success shapes the needs of IP. Interestingly, IP has featured in these broader debates on innovation systems relatively little thus far – we consider it a central driver of innovative performance.

Having examined the interplay between innovation and IP, we turn to the IP systems themselves in Section 4. There is a common feeling in the panel that today's IP systems, whether regional, national or international, have not picked up on changing demand, consequently lagging the developments made in the business and innovation contexts. This observation is particularly marked when we consider the first and third global trends mentioned above: a slowing down of globalization in tandem with increasing geopolitical rivalries. We discuss the challenges that have emerged in the last few years and present thoughts on how to evaluate international cooperation and harmonization in the IP sphere.

Armed with an understanding of the most significant trends, we turn to the actual impact these global developments have on business and IP practices, specifically. We shed light on the issues faced by today's IP managers, their challenges and opportunities, and elaborate on accelerated digitalization, the importance of what is often called "big data" and the implications these have on day-to-day work in IP.

Lastly, we address the ongoing impacts of COVID-19.

Following the documentation of our findings, we present the methodology of this project and the exclusive panel of experts whose invaluable expertise we relied upon.



# 'Intangibles are the new oil'

With the advent of a research focus on innovation as a driver for business and economic growth in the last decades of the 20th century (see Nelson, 2000 for an overview of the topic's evolution), the role of IP and the management thereof has changed accordingly. Rather than "only" focusing on protecting their technology or safeguarding their freedom to operate, firms increasingly manage their IPRs with a strategic view to securing inbound and outbound markets, drive innovation, "outwit" competitors and increase their innovative performance.

This development can be traced back to the rapid growth of patent applications worldwide from the mid-1980s, as seen below.

This steady growth in global patent applications can be attributed to a number of factors.

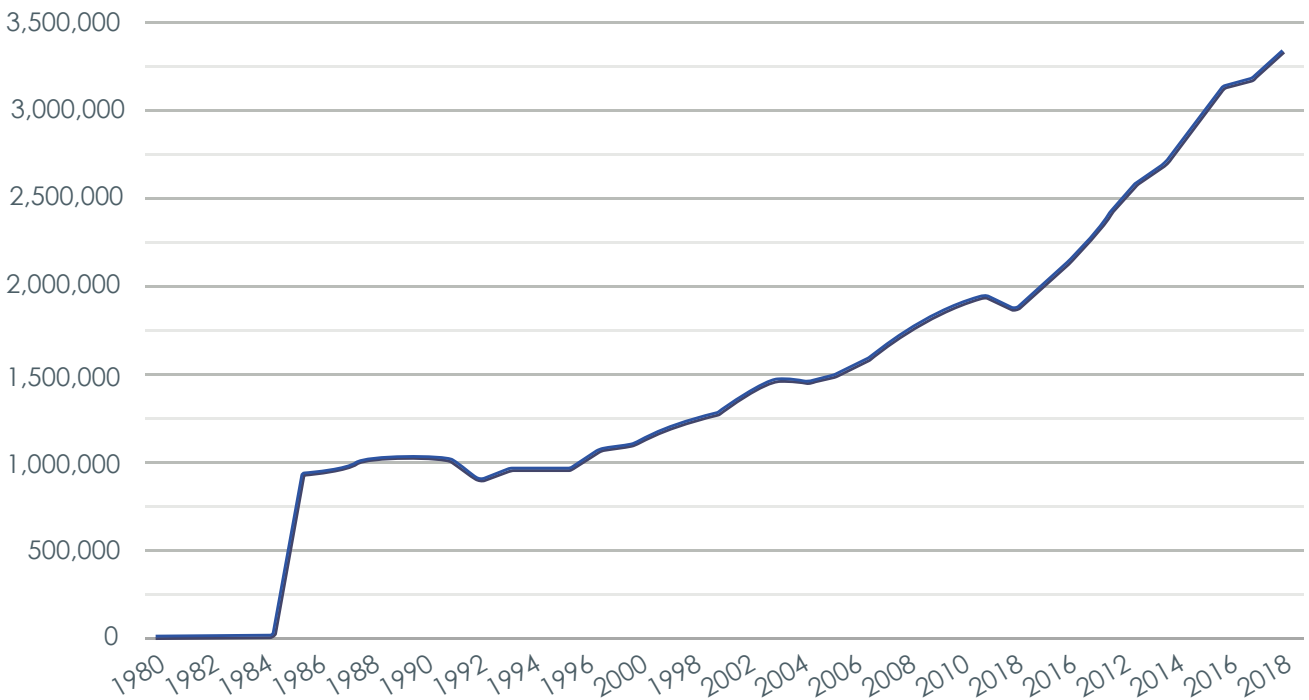


Figure 1: Growth of patent applications worldwide

(WIPO 2020)



# Smoke and mirrors: More does not mean better

Ch. 2

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The first reason for the proliferation of patents is that they have tended to become narrower in scope in recent years for several reasons.

One central phenomenon highlighted in our interviews and occasionally lamented by our panelists is an uneven understanding of the nature and appreciation of IPRs within the same company. On the one hand, our panelists, without exception, acknowledge both the growing importance of IP for business success and the ever-increasing appreciation of IP by the relevant decision-makers, owing to the fact that as intangibles become a larger part of the overall company value, they are afforded more attention, thus gaining visibility. On the other hand, this trend is all but uniform, with the depth of understanding varying across industries, firm sizes, regions and, most significantly in this context, functions and roles within any one company. As understanding deepens, the evaluation of IP-related key performance indicators (KPIs) evolves to become more refined and gradated. For years, decision-makers in business and politics alike have viewed straightforward patent counts as a measure of innovative capacity at the firm and aggregate levels; and while the

total numbers of patents or their applications can indeed be understood as one proxy for innovative output, it remains a rather crude measure.

Nevertheless, the oft-stated strategic aim for both governments and firms to “increase the number of patents” is evident from the positive correlation between the total number of patents, performance and value. We observe this tendency, especially when talking with government spokespeople or the representatives of those IP offices echoing government policies and initiatives. As most of our firm-level panelists are IP professionals, they offer a more nuanced perspective in this regard. While they often acknowledge that to aim for as many patents as possible is a valid strategy, as it sends a strong signal of innovative and financial prowess to competitors, business partners and investors, they simultaneously reserve harsh criticism for that very strategy.



The grounds for this are that an ever-growing number of ever-narrower patents causes information fragmentation, which may, in turn, make it harder to identify potential infringements. The same phenomenon applies to employing patent data to guide R&D efforts, whereby an increasing number of patent documents needs to be vetted through progressively more complex and, consequently, expensive tools. We will return to this issue when discussing the concrete implications this has for IP management practices.

All that being said, it is not only the simplistic “more is better” attitude that fosters patent fragmentation and the resulting inflation of patent applications as there are strategic patenting considerations that contribute to it, too. Whereas the traditional view sees a patent as a purely protective mechanism, patents are also employed to deter possible competition. We are repeatedly told that when a technical solution is patented, possible circumventions of that said solution are explored and, if feasible, protected. Erecting patent thickets to block related, complementary or alternative technologies has become much more common in recent years, especially since some of these blocking patents may be used for licensing or coexistence negotiations. With the acknowledgment of the strategic value these patents have, “war chests” and “patent arsenals” are frequently built up by those players who have the necessary means, resulting in both arms races and entrenched rivalries that favor large players over smaller ones, skewing competition and thus stifling innovation. Smaller players quickly learn to be wary of more prominent players, especially in jurisdictions where aggressive litigation is the norm, such as the United States.

A third factor that promotes patent fragmentation is the complexity of patent proceedings and the highly technical nature of patents themselves, which has resulted in the commensurately specialized profession of the patent attorney. Depending on the jurisdiction, most patent applications are filed by patent attorneys external to the assignee, with assignee size correlating negatively with the degree of reliance on external providers (Frietsch et al.,

2015). This reliance on external advice and representation creates a classical principal-agent situation wherein the patent – or more generally IP – attorney is more knowledgeable about the intricacies of patent processes than their client, which puts the service provider in a position of power vis-à-vis the assignee on account of the information asymmetry. While the attorney obviously represents the client faithfully and has an interest in their success and retaining their trust, they also have legitimate non-fiduciary objectives that are not always completely congruent with those of the client. To illustrate, we examine a straightforward example: to secure their income, the attorney needs to satisfy the client's demands, and in order to achieve this, they need to represent the client successfully. In a best-case scenario, to secure a sustainable income, they have to retain the client, i.e., create repeat custom, all of which may be achieved in an ideal situation by faithfully and, above all, successfully advising the client and representing their interests. However, due to the persistent information asymmetry, the client is not always in the position to judge the attorney's success, and as such, some actions might seem counterintuitive or even counterproductive, although they are not. So, to forestall doubts or misunderstandings, the attorney needs to be not only successful, but be perceived as successful; and focusing on relatively easy to attain patent grants is one way of demonstrating success. Furthermore, in most jurisdictions, it is narrower patents that are – on average – the easier to achieve. Over time, this incentivization leads to a preference for narrow patents over broad ones and additional patent inflation. In the same vein, we hear the sentiment expressed that external patent attorneys rarely discourage the filing of a patent application. While these shortcomings in the principal-agent relationship can be remedied relatively quickly, all measures, be they signaling or expert checks, have costs attached, which can be prohibitive for smaller entities in need of attorney services. We will return to considerations on in- and outsourcing of IP services in Section 5.3.

# IP is worth picking a fight over

IP litigation has not only grown in the number of cases, but also in its visibility in recent years. The recent phenomenon of high profile infringement cases illustrates that IP has evolved from a purely protective instrument to a power and reputation signal. However, it is somewhat troublesome to come by consistent and complete data on infringement, as jurisdictions have varying setups, procedures and reporting standards that make data normalization and comparison exceedingly tricky. Notwithstanding, to give an impression of recent patterns, the figure below tracks the number of patent infringement cases filed in US district courts in the years to 2016; this particular dataset was selected as the United States generally provides the most complete data to researchers. Studies on other jurisdictions exist, and they mirror this trend.

It should be noted from the graph, as was also pointed out in a couple of interviews, that the peak in 2013, and slight decrease after, are to a certain extent misleading.

The introduction of the inter partes review procedure in 2012 induced a shift of procedures, and while the growth of infringement cases seems to stall shortly after that, inter partes review procedures are growing at a much quicker pace (Rosenbaum IP, no date). In fact, the point in time at which a patent infringement case will be submitted to legal proceedings has shifted forward.

At the same time, with the onset of the COVID-19 crisis, we have witnessed a recent uptick in patent litigation, partly due to the financial pressures caused by the economic difficulties experienced by many. Firstly, budget shortfalls force firms to look to litigation as a means of securing extra revenue, and thus, once again, patents are shifting from being a protective instrument to an asset that is supposed to generate income actively. Interestingly, the number of filings also appears to be on the rise, as firms try to turn innovations into marketable, defensible patents to

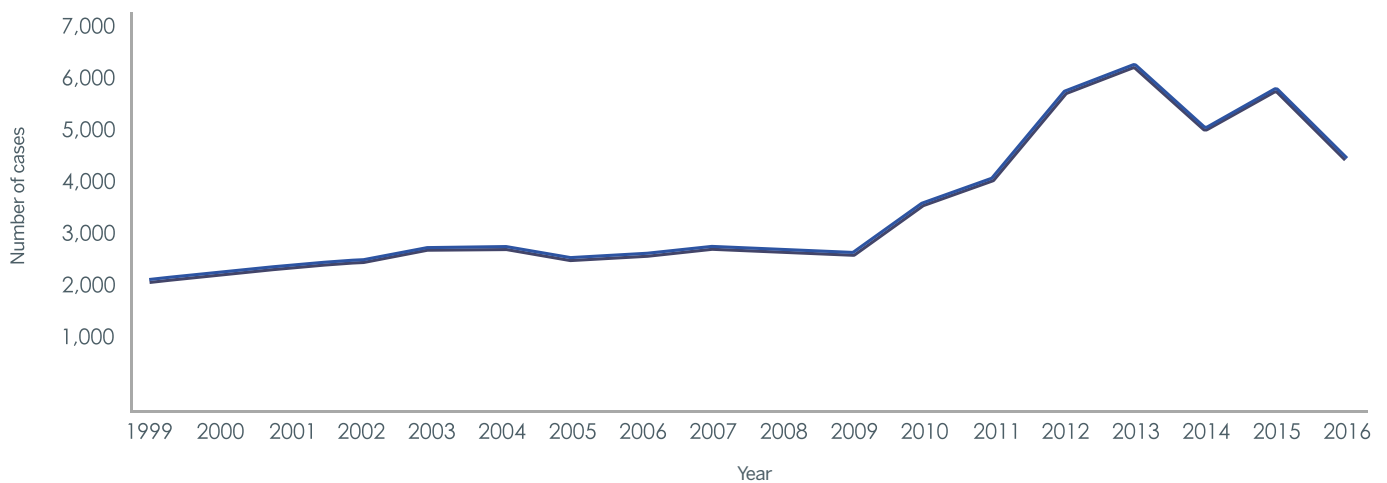


Figure 2: Number of patent infringement cases filed in the US district courts, 1999 - 2016

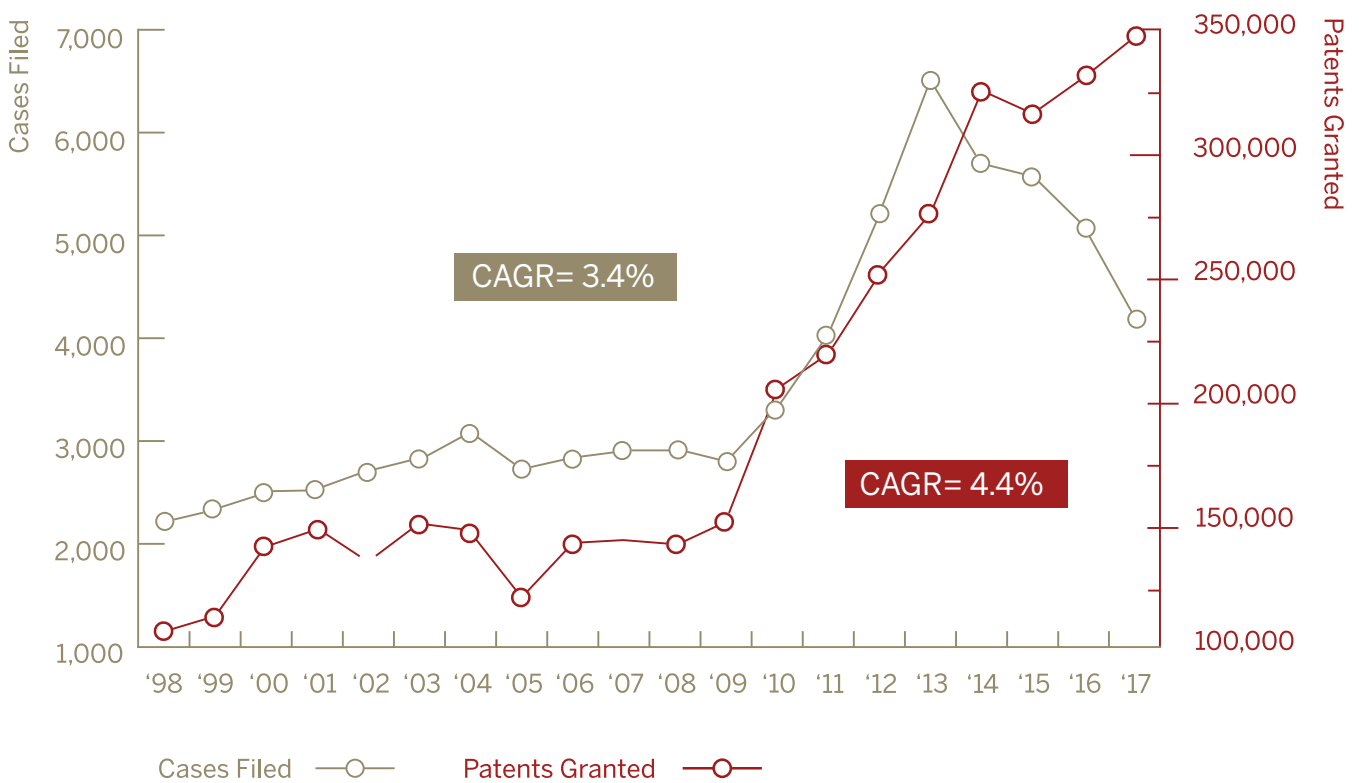
(USPTO, 2018)

bolster revenue. A possible second explanation for increased patent litigation is that, owing to the same financial pressures, the increased number of bankruptcies has put more patents on the market recently, as failing companies, or their liquidators, attempt to turn any asset into funds. These discounted portfolios, particularly those that are internet- or digitalization-related (viewed as more valuable in lockdown conditions), are often picked up by buyers willing and able to enforce their IPRs or contest any dispute arising therefrom.

Several further reasons for the increase in filed cases were discussed in the interviews, most notably that patents are slowly becoming a “real” asset, in that they are seen as worth fighting over. When companies used to be brick and mortar above all else, sophisticated security systems were developed – in conjunction with accompanying technology – to prevent trespassing, squatting and outright theft. The irony is that now intangible assets are taking the place of

physical and pecuniary ones in the minds of managers, and with this shift, the sophistication of protection and defense is growing accordingly. This redistribution of value is also reflected in the rise of non-practicing entities and patent investment companies filing patent cases, where it is particularly high-volume plaintiffs that drive the trend, emphasizing that IPRs are now seen as a strong asset in their own right.

Just as with the evolution of the brick-and-mortar behemoths of a century ago, the development of “intangible giants” is not progressing uniformly. In the pharmaceutical industry, for instance, roughly three-quarters of C-level managers’ time is spent on considering IP matters, whereas the opposite is true in manufacturing, where, even in technology-driven sectors, comparatively little attention is paid to IP by board members.



Years are based on September year-end  
Sources: Performance & Accountability Report (USPTO) and Judicial Facts and Figures (US Courts)

Figure 3: Patent case filing and grants (Ansell et al., 2018)

While court cases are a visible indicator of the recent appreciation of the importance IP has for business, IPRs are, in fact, moving away from their roots as purely legal rights to what can be characterized as “horizontal enablers,” that is to say, as the impetus for R&D and innovation, and not only as the end product. The various functions of IP will be discussed in the chapter on the future of IP management.

Given the changing understanding among business and government operators and the consequent evolution of IP functions, it is not surprising how dominant intangible assets have become over the last few decades for large companies, as is illustrated below for the United States.

However, it is not only the ratio of intangible to tangible assets that has shifted, as the composition of the intangible share has changed alongside. Thus we observe that in tandem with a new appreciation of IP and other intangible

assets comes a move to more diversified IPR portfolios, with the result that, while still forming a majority among many portfolios, patents and trademarks are ceasing to be the main go-to IPRs, or are at least shifting in their relative weight within any portfolio.

To illustrate this model, let us take the example of Apple. The technologies so successfully employed by the company are the result of long-running, mission-oriented investment programs and were first and foremost protected by patents. However, the enduring appeal of the products developed from those in-house technologies derives just as much from the trademark, the designs and the creation of durable, standard-creating platforms that in turn foster reputation, loyalty and network externalities. As such, the function of the different IPRs and IP in general changes for Apple; namely, brand and marketability become as relevant as proprietary technology – with substantial implications for the management of their assets.

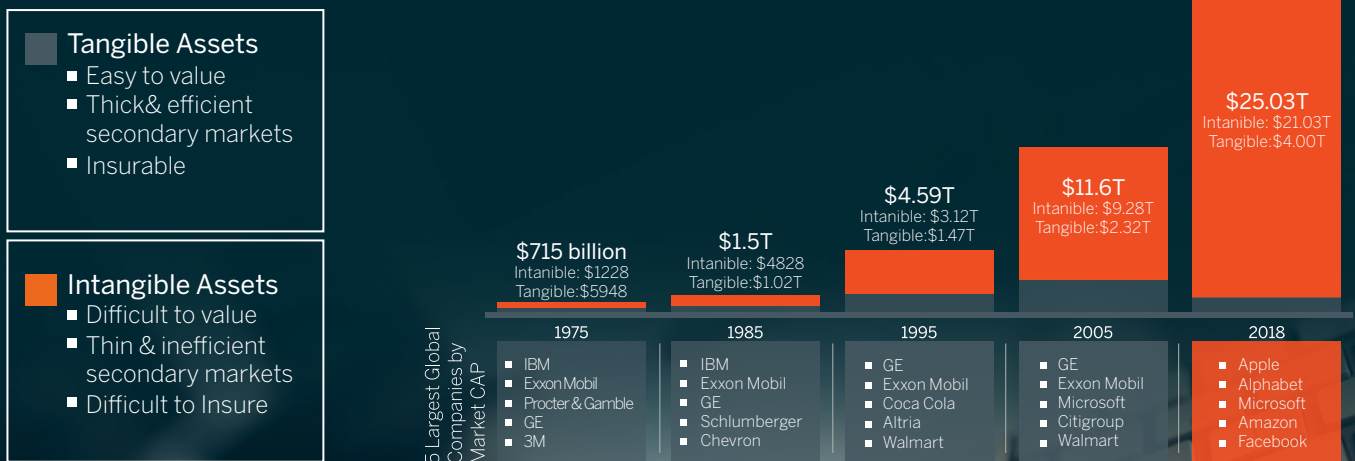


Figure 4: Tangible assets vs. intangible assets for S&P 500 companies, 1975 - 2018 (Financial Statement Impact of Intellectual Property & Cyber Assets: 2020 Aon-Ponemon Global report)

# Governments are picking up the scent of innovation

It is not only companies that have begun to treat IP as assets that need to be consciously managed; governments around the world have focused efforts on innovation. As companies become increasingly aware of the value contribution of IP to their business, policymakers accordingly recognize innovation as the main driver of economic growth. However, while the literature emphasizing the importance of innovation has grown enormously over the last two decades, the topic of IP has been insufficiently addressed. For a long time, IPRs have been mainly regarded as a proxy for innovative output, rather than as an active driver of innovation, or indeed, an input thereof. And so, while in recent years governments have begun to support patenting, IP is still very much

considered as an end result of innovation. As our panel acknowledges, this is slowly changing, particularly with the European Union establishing education and support measures like the Horizon Europe program to increase the awareness of IP's importance across the region. Furthermore, the European Union actively investigates issues like IP in open innovation settings and attempts to support small- to medium-sized enterprises (SMEs) in collaborative settings to leverage existing and new IP. Still, it is only a relatively recent phenomenon — and one not fully reflected in funding initiatives — which mainly supports innovation efforts only to the point at which an IPR registration becomes relevant, disregarding the prosecution and maintenance processes. It is somewhat interesting to

note, as some of our panelists indeed do, that the growing importance of IP in policy considerations mirrors that in firms' strategic concerns, though IP assumes its importance relatively late in the overall process. The private sector often overhauls and redesigns product development and innovation processes before IP is explicitly addressed. In other words, IP has been regarded, to a certain extent, as an almost external issue, governed by factors the individual organization has no power over. Likewise, mission-oriented innovation policies have been around for decades, often with little consideration of IP. Indeed, many high-tech products would not have seen the light of day without targeted and robust government support, be it outright project funding or providing the "right" ecosystem in which developments could take place. Another similarity between government and corporate attitudes is that both the private and the public sectors seem to have shared the "more is better" output perspective with regard to IPRs that has only more recently morphed into a more sophisticated view, as described above. It has come to be recognized that IPRs provide a lot more information than simple counts of patents, as they offer a wealth of information about emerging technologies, trends, opportunities and risks and inform strategy-formulation both by governments and the private sector.



In 2017, The Future of IP boldly announced “the death of plagiarism” to be on the cards. Widening the group of experts we spoke to for this report, we had to revisit and re-evaluate that claim as the issue is more complicated than previously stated.

To begin with, modes of collaboration have changed, partly through new technologies, partly through political fostering, leading to open innovation becoming a buzzword in the last decade to describe a new and a viable means of cooperation – within limits. These limitations are imposed by the fact that a changing environment does not immediately change human nature:

**“Children love to share their ideas with others – provided they are credited for the idea in the first place”**

Beat Weibel

On the contrary, the idea of monopoly as being important will not go away. If investments in R&D do not pay off, there is no incentive to invest; and though what shape this return on investment should take is debatable, its necessity is not. Accordingly, it is difficult to imagine the complete abolition of industrial property rights or the associated prohibition rights. However, if these rights are not enforceable, they no longer protect Intellectual Property. The following chapter will discuss the implications this has on the patent system.

For the moment, we will focus on the interdependencies between forms of innovation and IP needs.

The simplest illustrative case is where a firm conducts R&D,

realizes an invention and proceeds to patent it. However, even in this supposedly straightforward case, the nature of property rights comes into play. Many organizations reward their inventors, either because local law requires it or because it boosts morale; and even if an organization were “only” to submit the inventor’s name on the patent certificate, it remains the legal deed that conveys the right to its owner, thereby crediting the idea. If there is more than one inventor, their employer will usually need a way of apportioning reward; again, without a formal property right as this would not be feasible.

Evidently, the picture becomes more complicated when more than one player is involved. Staying in the business realm for the moment, the intensity of the interaction between organizations weighs heavily on their eventual motives and needs when it comes to IP, and the following figure illustrates the various degrees of complexity these innovative interactions can take.

We can identify several layers of interaction between players:

- Business networks encompass all possible interactions between different firms — sellers and buyers, competitors or potential allies. They will usually not interact with respect to IP creation, only concerning potential conflicts regarding their respective IP, i.e., litigation of any kind. In the changing environment outlined in the previous chapter, comprehensive risk and conflict management will be required of the IP management, including IP intelligence and thorough monitoring. That said, IP management will be mostly reactive and defensively motivated.

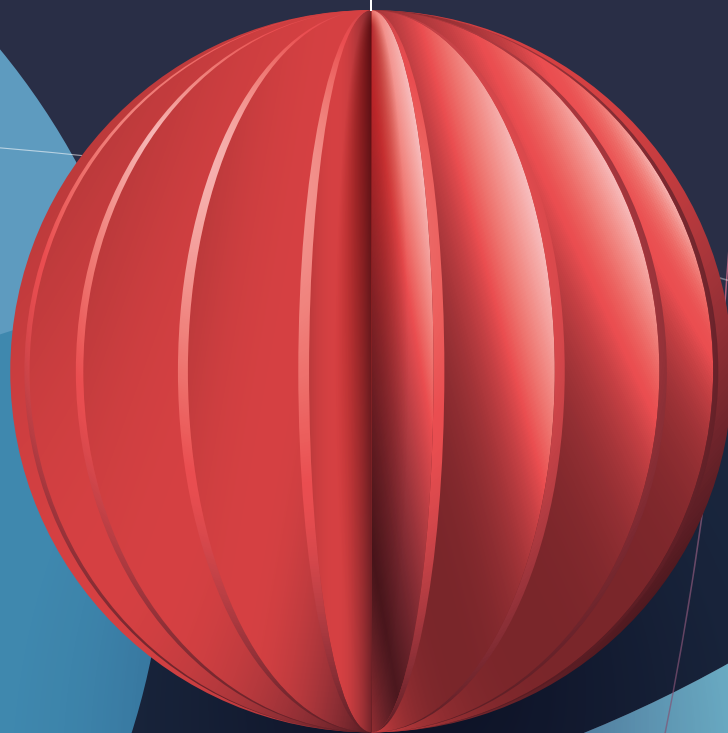


*"Children love to share their ideas with others – provided they are credited for the idea in the first place"*

Ch. 3 Quote 1

**BEAT  
Weibel**

Siemens



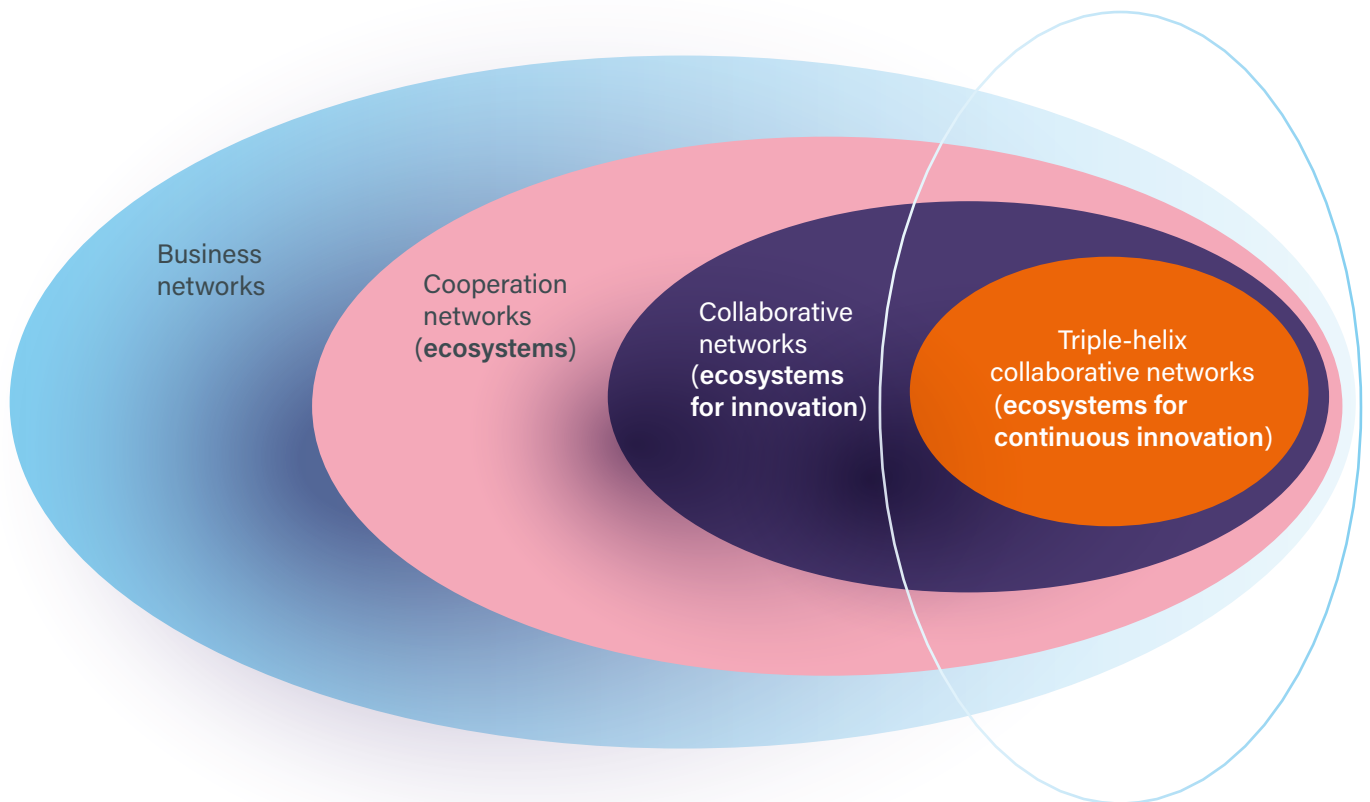
- Circumstances change when cooperation networks are formed. In these, the organizations involved are pursuing various, mostly unaligned goals, but find it profitable to coordinate their activities to achieve them with other players. This is the moment that ecosystems form, as cooperation creates interdependencies, which, when established, influence the individual organization's IP objectives to be adapted. As the various firms' goals are still unaligned at this time, outright ownership of any IPR will still dominate strategies. Ownership attributes control, and as other organizations do not necessarily have the same motivations, trust levels are low and direct control is preferred.
- Collaborative and, therefore, innovation ecosystems develop when various firms' objectives are at least overlapping, if not necessarily fully aligned. Collaborative networks can be joint academic and business-driven research projects or new product development collaborations along the supply chain.

- The closest, most deeply aligned and structured ecosystem is when the players, be they private or public, form long-lasting, stable and coordinated networks that include all stakeholders. This furthers the collaborative network where private firms and the government take an active role in shaping a favorable environment in which private enterprise and public research institutions complement each other. Borrowed from biology, this "triple helix" is understood to form the DNA of sustained, systemic innovation.

In a setting of (comparatively) open platform innovation, IP considerations necessarily change as access to technology trumps ownership:

**“Depending on the type of collaboration, sometimes we only need access to the IP, we don’t need to own it”**

Rebecca McCrackan



Complexity of interaction patterns

Figure 5: Innovation ecosystems and business networks (adapted from Russell and Smorodinskaya 2018)



Figure 6: Triple helix of innovation

In a triple helix innovation system, the government plays a decisive role: allocating funding and creating an environment conducive to innovation sets and maintains the foundation for sustained innovative – and thus patenting – activity. Sustainable and long-lived triple helix systems are surprisingly rare, with the most prominent example being Silicon Valley.

While the triple helix concept – and its extensions, which include the consumer or environmental considerations – is widely accepted as one foundation for fostering innovation,

relatively little material exists concerning the triple helix's implications for IP management. Where IP is discussed, the current IP system is mostly taken as a given, and the discussion focuses on negotiation efforts between innovating partners in the system regarding the ownership of emerging IP. However, this only partially reflects the issue at hand, as the ownership aspect is only one among many, including the generation of, access to and benefits from IP. In the following section, we will present some thoughts on how the IP system can foster sustained innovation.

*"Depending on the type of collaboration, sometimes we only need access to the IP, we don't need to own it"*

Ch 3, Quote 2

REBECCA  
McCrackan

RioTinto

As IP systems have evolved over the last two centuries, they have become more complex and inert when adaptation is needed. And while we discuss systemic and topical challenges that today's IP regimes face, we do not get the impression from our panel that the different legal systems governing IP have outlived their applicability or are in danger of doing so. As such, what is needed is a creative approach by law- and policymakers to adapt the application of existing rules to their constituents' changing demands.

Despite the challenges discussed in the following sections, we do not believe that the legal frameworks are becoming irrelevant. These frameworks are constructed and maintained by the state, which we identify as a key player in designing and supporting a sustainably innovative ecosystem. The government sets and polices the rules by which the participants play; it is also the government that can support and maintain the infrastructure – physical, institutional and monetary – that enables sustained innovative structures to evolve. And while particularly regional or sectoral policymakers cannot upend pre-existing legal structures like an internationally accepted IP system, they can re-interpret its role to suit their constituents' needs better. This way, IP – its governance, ownership and access – can become an enabler not only at the firm level, but at the systemic level, too.

Examples exist, but do not abound. In our discussions on the (intended) benefits and beneficiaries of innovation, the United Nations-backed Medicines Patent Pool (MPP) was brought up repeatedly as an illustration of using IP rules

– in this case, patenting rules – to foster innovation and expand the population that benefits without disowning the principal innovators of their return on investment. Established in 2010 to tackle and eventually end HIV / AIDS, it does not aim to change patent laws to weaken patent holders' property rights, but use them to reward innovators for their efforts and make their technology more widely available. Through licenses, the MPP negotiates access to patented technology for lower-cost manufacturers to accelerate the distribution of medicines to society while still recognizing the patent holders' right to generate income with their inventions. By acting as the go-between for originator companies, generic manufacturers, biotech, global health organizations, governments and other new actors, the MPP can coordinate strategic investment and collaboration to benefit both the corporate and societal partners, accelerate the pace of innovation and diffusion and create societal benefits of inventions that are greater than the revenue those inventions would make on their own. These benefits are achieved by fully implementing the extant mechanisms of the patent regime and coordinating the various players and their interests. Having originated from the global debates about access to patented and expensive HIV / AIDS medication for middle-income countries, the MPP's remit has since expanded to cover viral hepatitis, tuberculosis and, from 2020, COVID-19 research and patents, and continues to align with the WHO on other emerging disease areas.



The MPP case emphasizes that the wheel does not have to be reinvented when it comes to IP regimes. Simultaneously, shifting the focus from generating IPRs through innovation to making IP a central enabler of systemic innovation efforts can make the difference to regional innovation policy. Thus it has been demonstrated that determined government or organizational use of existing IP rules to cover the needs of innovation ecosystems, be they regional, sectoral or even both, brings structure to knowledge exchange and dissemination and can have lasting success on innovation systems.

# If the system is not relevant to you - are you relevant to the system?



Reflecting emerging management discussions, debates on innovation often still treat IP matters as a secondary thought. However, in designing IP systems, governments acknowledge the importance of assigning property rights comparable to those protecting material possessions to immaterial goods, namely ideas and their application. Recognizing the importance of innovation as a driver of economic growth and the need for pecuniary incentives for innovators resulted in patent systems as we know them today. Yet while economies, businesses and societies have undergone fundamental changes in recent decades, the principles of IP systems have remained mostly untouched; though to some extent, increasing degrees of globalization were matched by integrating existing national IP systems through treaties. The disparity of pace and degree that exists between the ever-faster evolution of new business models, products, services and markets and the change in the running of IP systems has failed to shrink because the systemic development of IP has, for the most part, not accelerated.

**“Not sure if the [patent] system is fit for purpose,  
it’s a dinosaur that serves dinosaur corporates”**

anonymous panelist

IP systems are largely backward-looking and thus reflect business and innovation practices from the past; having been built to accommodate slower business cycles, they struggle to keep up with the very innovation they are ostensibly tasked to promote. The Patent Cooperation Treaty (PCT) emerged mainly due to efforts to harmonize and, to a certain extent, integrate national patent systems.

However, though the global economy has continued to integrate from the 1970s, there is still no actual “world patent,” affording truly worldwide protection for multinational players or those aiming to become one. Both the delays in grants and the duration of protection of patents reflect the needs of “traditional” manufacturing corporations, rather than those of nimble newcomers in digital industries.

Furthermore, applying sophisticated IP strategies to a mostly inert IP system results in the same inflation of applications for narrowing IPRs described above, not to mention IP offices working at or above capacity. Compounding this is the vested interest created by the funding of many IP offices – encouraging many discrete filings to the exclusion of more comprehensive, and therefore, “valuable” patent applications.

**“We cannot escape historical constraints”**

Denis Dambois

Confronted with a slow and cumbersome patent system, and faced with extortionate costs for prosecution or litigation, our expert panel observes a tendency among stakeholders to bypass the system itself. The increasing importance of trade secrets and first-mover advantages is but one indicator of this inclination, and represents tactics favored especially by smaller and cost-sensitive players. This is not to say that these players no longer acknowledge patents to fulfill the critical function of diffusing knowledge by disclosure.

Ch. 4 Quote 1

*"Not sure if the [patent] system is fit for purpose, it's a dinosaur that serves dinosaur corporates"*

Ch. 4 Quote 2

**DENIS  
Dambois**

EU Commission

*"We cannot escape historical constraints"*



*"Without patents, we  
wouldn't have  
companies at all"*

*"The question if the patent  
system can cope with new  
technology is as old as new  
technology"*

**JAY  
Erstling**

**“Without patents, we wouldn’t have companies at all”**

anonymous panelist

As patents are published and disclose the knowledge contained in them, others can use and build on them. For more than 20 years, small companies have been spun out of the patented intelligence generated by university research. The patents protect these derived companies and their business and permit them to grow, which stimulates innovation in their competitors, big and small.

Interviewees report that developments are assessed more critically in academia, with a view to only filing for a patent for an incremental solution if the area of operation is deemed strategically significant. If this criterion is not met, a much cheaper publication becomes a realistic option. Indeed, several respondents emphasize that the process of assessing inventions and developments before the decision to file for a patent has become more sophisticated and strategy-driven in response to ever-increasing prosecution costs.

**“The question if the patent system can cope with new technology is as old as new technology”**

Jay Erstling

At the other end of the spectrum, high litigation costs encourage the establishment of “gentlemen’s agreements” between established competitors, particularly in oligopolistically structured industries. If competitors have a stable relationship, i.e., they know each other and each other’s technology, they will be inclined to form tacit agreements that would ignore minor collisions for the sake of long-term and stable cohabitation.

Both trends emphasize a misalignment between innovators’ needs and the system setup, which naturally leads to the question of whether a system that cannot serve its constituents’ demands will run the risk of eventually becoming irrelevant or detrimental to those very stakeholders. Therefore, given that important players are finding ways to circumvent part of the established IP regimes and that 2020 has brought upheavals to economies and societies around the globe, it might just be the right time to look at the IP regime with a critical eye.



# The end of the road for the international patent system?

One accusation leveled at today's IP regime, and specifically, its patent component, is that despite the PCT and other regional treaties and conventions, the system is essentially still an array of many national structures. When firms became increasingly internationalized in the second half of the twentieth century, legal systems followed suit only to a limited extent. In a similar vein, while IP regimes are being harmonized across borders today, they remain national regimes. Concurrent with this slow performance is the ever more pressing question of globalization slowing down and occasionally even stalling. We raised this issue with our panel, and some interesting thoughts and views emerged.

Recent years have witnessed increasing nationalist tendencies in many countries and regions; our panel not only recognizes this trend, but identifies it as a challenge to be dealt with. Brexit and the final separation of the United Kingdom from the European Union, as well as the United States' withdrawal from several international organizations and treaties during the Trump administration, are only the most notable examples. And while most headlines of increased unilateralism do not feature IP matters prominently, they impact IP management. As trade agreements are eroded or rewritten, organizations need to adapt to ensure their IP assets' ongoing protection and identify ways to continue securing protection in a changing environment. This trend is observed and addressed almost throughout our interviews.



Interestingly though, the phenomenon was also questioned several times. A number of our experts concur that, while it certainly seems that nationalism is on the rise, its impact on long-running trends in IPR systems is much less pronounced than many observers think; in fact, they might not even be affected at all. To shed light on this seemingly counterintuitive observation, one needs to separate the two main driving forces behind international harmonization, be it in the patent systems, trade or any other sphere.

On the one hand, there is the political driver: governments that aim to enable their subjects to benefit from increasing globalization, access larger and more varied markets and consequently contribute to the sustained growth of national economies. As multilateral trade agreements reflect this effort to smooth firms' internationalization, so do patent cooperation agreements. Efforts to at least mutually recognize national IPRs have been ongoing for close to 150 years, and in the second half of the 20th century, they accelerated in tandem with the opening and integration of national economies for goods and services. Rapid integration and harmonization in the decades following World War II saw the emergence of trade blocs, regional political and economic integration and the design of patent and other IPR systems across regions and nation-states. The PCT and European Patent Convention (EPC) are an obvious case in point: preceded by the General Agreement on Tariffs and Trade

(GATT) and the creation of the European Economic Community and European Free Trade Association, these treaties were signed and ratified before the GATT morphed into the World Trade Organization and the European Union's single market and currency came into being, reflecting the growing need to account for the exchange of intangibles in addition to physical goods.

One point – admittedly very rough and incomplete – stands out prominently from this outline of international integration efforts: it is a list of treaties. Achieving harmonization across IP systems was usually marked by the signature and ratification of treaties, the abovementioned ones among them. In that vein, we have grown accustomed to equating harmonization with treaties; however, as was pointed out in several interviews, treaties are just one measure of success – there are other ways of bringing people together, as one panelist told us.

The alternative measure could be termed as “de facto” harmonization by cooperation not driven by political impetus. This harmonization, which is usually more of a bottom-up trend, has been illustrated repeatedly by our panel when discussing the apparent lull in harmonization and integration drives at government level. A number of these phenomena were pointed out.

One example is the Global Dossier service, introduced by the IP5 offices in 2014. A standardized file wrapper data format results from increased cooperation and supports IP professionals across jurisdictions. While the format’s development has not always been smooth or even helpful, it is evidence that harmonization efforts are not always the result of multinational treaties, but can materialize out of day-to-day interactions.

Another instance of bottom-up harmonization can be found in Malaysia, where the patent office offers its applicants the modified substantive examination service. In case a patent application to the Intellectual Property Corporation of Malaysia (MyIPO) is based on a corresponding patent granted by the European Patent Office, in Australia, the United Kingdom, Japan, Korea or the United States, the application is submitted to a simplified examination process. In that instance, it is not examined for its inventive step, rather the grant standards of the foreign patent are accepted. In other words, as the application has already passed a rigorous examination elsewhere, it is almost guaranteed to pass the simplified examination in Malaysia, provided it fulfills the requirement of novelty.

There is no formal agreement in existence that covers this practice; the MyIPO has decided to smoothen procedures by accepting the standards of other offices, thereby, in effect, harmonizing them. So even without the formal step of agreements at government level, the unilateral and pragmatic acceptance of perceived best practice from elsewhere drives the convergence of grant practice. It is interesting to note that while the laws covering specifics such as novelty still vary, the difference is shrinking in reality through adoption and de facto cross-application. So, there are indeed other ways of bringing people, and systems, together.

Related to the Malaysian example, if of a slightly different nature, is the expanding practice of relying on International Search Authorities (ISAs) instead of building up the resources of providing those searches at every national IP office individually. Over time, this essentially leads to a convergence of both search practice and output, as in order to attract paying clients, a certain level of information must be provided by each ISA. Developing countries and those catching up with established procedures have repeatedly made use of best practice from early adopters like Malaysia, or refer their applicants to a specific, preferred ISA, thus implementing and adopting standards below the government level.

It should also be noted that while the Patent Prosecution Highway (PPH) has evolved in leaps and bounds over recent years and has indeed been regarded skeptically by quite a few of our panelists, it is still evolving further. New PPH agreements are being established, notably between the French and Japanese Intellectual Property Offices in 2021, signaling that they are still an accepted way forward despite occasional difficulties.

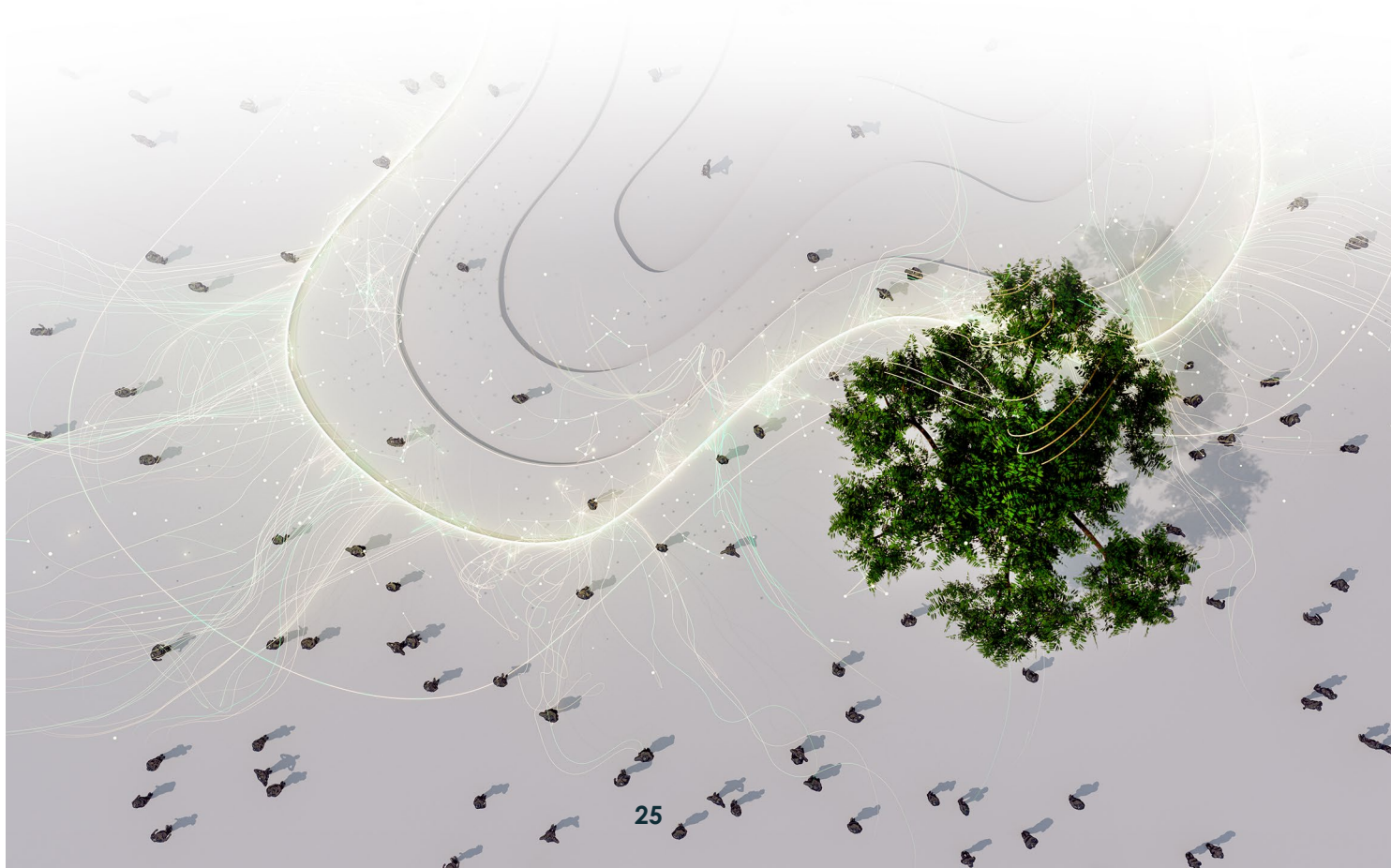


In summary, the views of our panel of experts are mixed and diverse, with varying degrees of optimism regarding the future.

There is an agreement that the system is challenged and does not reflect current globalized business needs concerning IP, as it remains relatively inert and expensive. However, there is also the feeling that it is far from obsolete, as it still creates incentives to innovate and rewards investment. The question is: is it fair to its constituents, or does it perpetuates inequalities between the various players? In theory, an IPR should have the same power to protect irrespective of its owner, yet big players use their market and financial strength routinely to intimidate weaker players since the same rules that govern industries and markets pertain to the field of IP. As such, the system is not inherently unfair, yet at the same time,

there is the sentiment that now is also an excellent time to have a closer look at what can be improved. The COVID-19-related questions that have arisen regarding the balance of the public benefit versus the private benefit stemming from innovation put us in a unique position to re-evaluate certain aspects of the system.

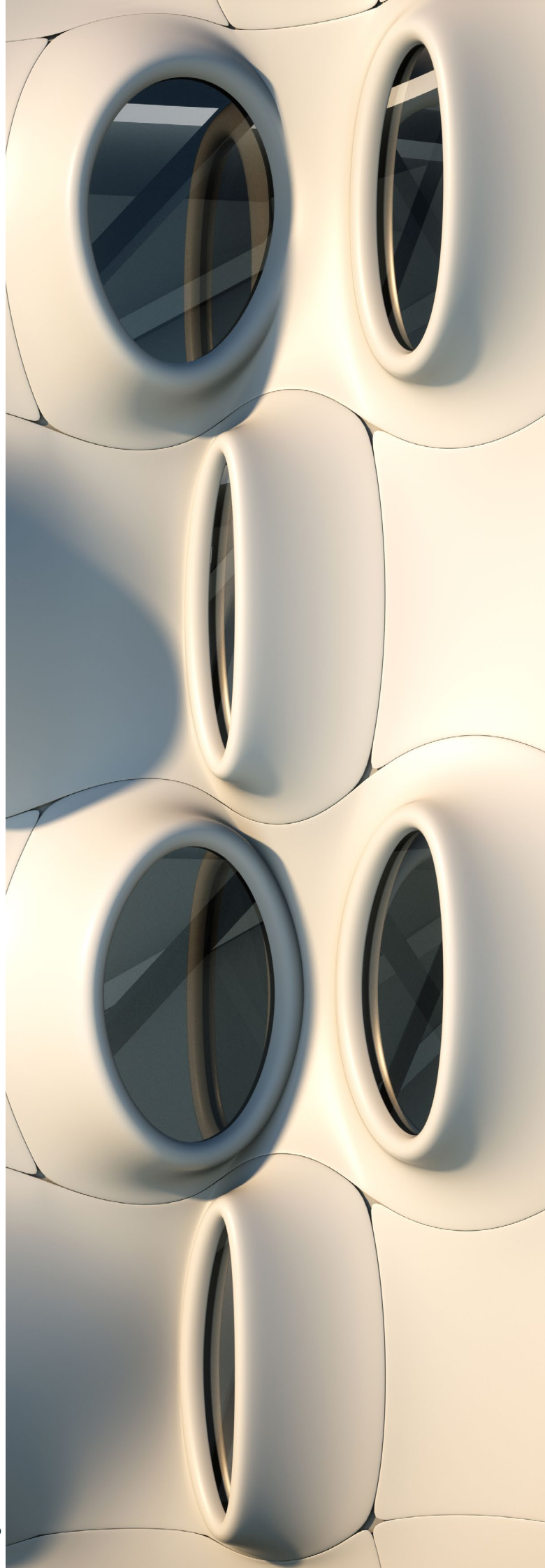
One of these repeated questions is whether we need a truly global IPR system at all, the issue being the “one-size-fits-all” approach. As with individual IPR portfolios, different kinds of IPRs assume varying importance across the world, and here we use the examples of Vietnam and Peru. Vietnam is catching up fast to its neighbors with reference to technology, and several panelists point out that it will become a force to be reckoned with, meaning patent protection and harmonization with existing patent

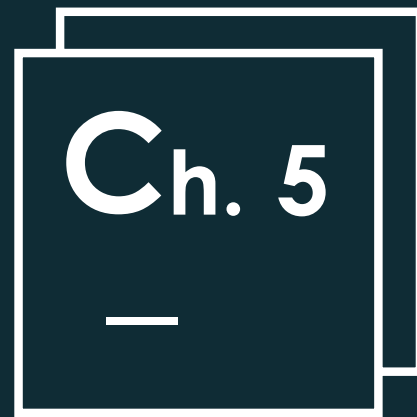




systems will become more critical. On the other hand, Peru has been relying increasingly on designations of geographical origin to protect and promote its unique cultural and historical assets. Both countries are forging their way ahead, and their governments will need to prioritize investment to help their indigenous industries along. Simply transferring existing systems from other developed countries might not be the right way ahead. Instead, tailoring best practice from elsewhere to foster the most promising or fastest-growing industries while securing access to the other parts of the system by following, for instance, Malaysia's example above, might be the right way to channel scarce resources in a meaningful way. In the same way that many policymakers today acknowledge that regions are important drivers of economic growth, they can also be drivers of legal developments according to their strengths.

We have argued that establishing the infrastructure to induce and accelerate innovation – including IP rules and access – is the primary function that governments should be performing to support innovative performance. Establishing and maintaining technology clusters according to regional technological specializations is one way that several regional and national governments have elected to proceed, as may be seen in Estonia, California, Bavaria, Malaysia or China. Also, allowing specialized regions to shape reasonably the IP ecosystem they inhabit could be the means to gradually introduce the changes that the overall system needs.





## The future of IP management

A pervading sentiment within the panel was the recognition of the significant growth in the importance of intangibles in general, and IP assets in particular, as a contributor to company success. With a greater complexity of portfolios deriving from this burgeoning of intangibles' influence, the need arises for holistic management approaches.

It was pointed out several times that, as is the case with other balance sheet items like labor costs, there is a noticeable trend to shift the perception of IP from a pure cost factor to being an active contributor to sales. Not surprisingly, the adoption of this view still varies widely between industries. Nevertheless, by tying IPRs to concrete products and assessing the share they contribute to revenue, it becomes possible to evaluate their relative value; this then allows for the focusing of R&D activities onto promising fields and optimal use of resources. Likewise, by realizing the direct impact IP has on revenues, senior managers have begun to see the risks associated with IP, whether through inadequate protection of products and technologies or infringement cases.

Several of our conversation partners highlight internal marketing campaigns they have run, sometimes repeatedly, for IP at a senior management level or throughout their organization. And while many lament that IP awareness levels still leave something to be desired, there is a general acknowledgment that a strong buy-in, particularly from the C-suite, is almost guaranteed once understanding is achieved. So far as the wider organization is concerned, this C-level buy-in is essential, as IP

awareness is more often a “trickle-down” process than a “trickle-up” one. Recent and current marketing efforts usually either focus on IP in general or on the heightened need for confidentiality, be it in the context of trade secrets or the inadvertent creation of the state-of-the-art. As one interviewee put it succinctly, “companies are beginning to do their homework” when it comes to the handling of non-disclosure agreements (NDAs).

The described awareness campaigns can take many forms, which highly depend on the audience and the circumstances; what matters most for their effectiveness is that they are tailored. As IP is still largely a legal matter and needs to be explained in legal terms to unveil its strategic importance and pecuniary value, it is of paramount importance that it is communicated according to the target audience's needs. The introduction of dedicated intranet pages or similar on-demand material can be just as practical as mandatory induction sessions for new joiners or specialized workshops for managers. What is generally seen as important and effective is attaching the, by definition, intangible IP to tangible company successes, for instance, by pointing out the specific IPRs embodied in a new product whose launch gets celebrated company-wide. It is not sufficient only to make colleagues aware of the importance of IP for their company's success; instead, the goal must be to generate buy-in, identification and pride.

# IP strategy: a rallying cry

While IP strategies are not new, they have garnered more attention and grown more formalized and detailed, becoming more intertwined with global and business unit strategies to reflect the gradual change in importance the topic has undergone. Advancing digitalization allows for more sophisticated forecasting and analyses, which in turn inform strategy formulation.

Increasing cost pressure since the Global Financial Crisis in 2008 has forced IP departments everywhere to develop the capability to evaluate their efficiency and effectiveness and accordingly justify their (planned) expenses. That means the strategic focus has become sharper, delineating fields of different strategic importance such as technology and acting appropriately: discoveries in identified important fields will still be protected, while publications might be considered as an alternative to cover those in nonessential fields. Defining the rules and deciding when and where an IPR is to be sought has become a sophisticated exercise as separate business units within one organization often vary significantly and have different tactics reflected in their respective IP strategies.

Overall, our panelists report that more effort is going into their respective IP and IPR strategies, which have become standardized across the organization, more formalized and more binding. Their enactment has also made them more visible across the board, but there is still some way to go. As with most instances the panel observes, this trend is not a uniform one. The buy-in, or even the appreciation, by senior management is not always guaranteed even though it is crucial this be established. Clear and concise strategy



documents are required to communicate IP matters, needs and objectives, make them tangible and measurable and help broadcast the importance of the strategic management of IP assets from their generation to their enforcement – and eventual abandonment.

Quantifying IP's value contribution to any business's success has become essential to formulating IP strategies: what to file and where, how aggressively to pursue conflicts and which part of the portfolio to maintain. As is observed repeatedly, this not only enables the IP department to have a clear course of action for the majority of anticipated situations, but it also facilitates a stronger identification with a common cause both within the IP department and with their partners within the organization. As it was put to us, an IP strategy has become much more than a guideline for actions to achieve specific goals; it has turned into a rallying cry within the company.

The ongoing professionalization of IP management that most of our panelists remark upon has also helped create new solutions for organizing work. Outsourcing parts of IP tasks that are highly standardized, such as annuities for patents, has been around for a long time, with the motives for outsourcing hardly changing, as many smaller companies do not find it profitable to employ in-house attorneys. These highly standardized tasks are followed in order of importance by “classic” attorney work such as drafting and filing as well as prosecution and litigation. For these smaller companies, outsourcing means securing efficiency gains by allowing the buyer to focus on core competencies – realizing cost savings and achieving a uniform quality of service.

Of the most standardized services that are outsourced, the majority compete mainly on price so long as an acceptable quality is provided. However, more tailored services like attorney services are often outsourced on more complex grounds; capacity and capability are more prevalent motives in smaller companies where the volume of attorney work does not justify establishing permanent in-house facilities. Although an in-house IP department becomes more feasible with growing firm size, and given knowledge management consideration is often also desirable, even large organizations often rely on external service providers, be it to alleviate periodic capacity constraints or to depend on “fringe” expertise that is not the buyer’s core competence. Generally, our panel reports a tendency to either have as much IP work as possible in-house or to retain as little as possible without relinquishing control.

A further trend that some of our panelists observe is the

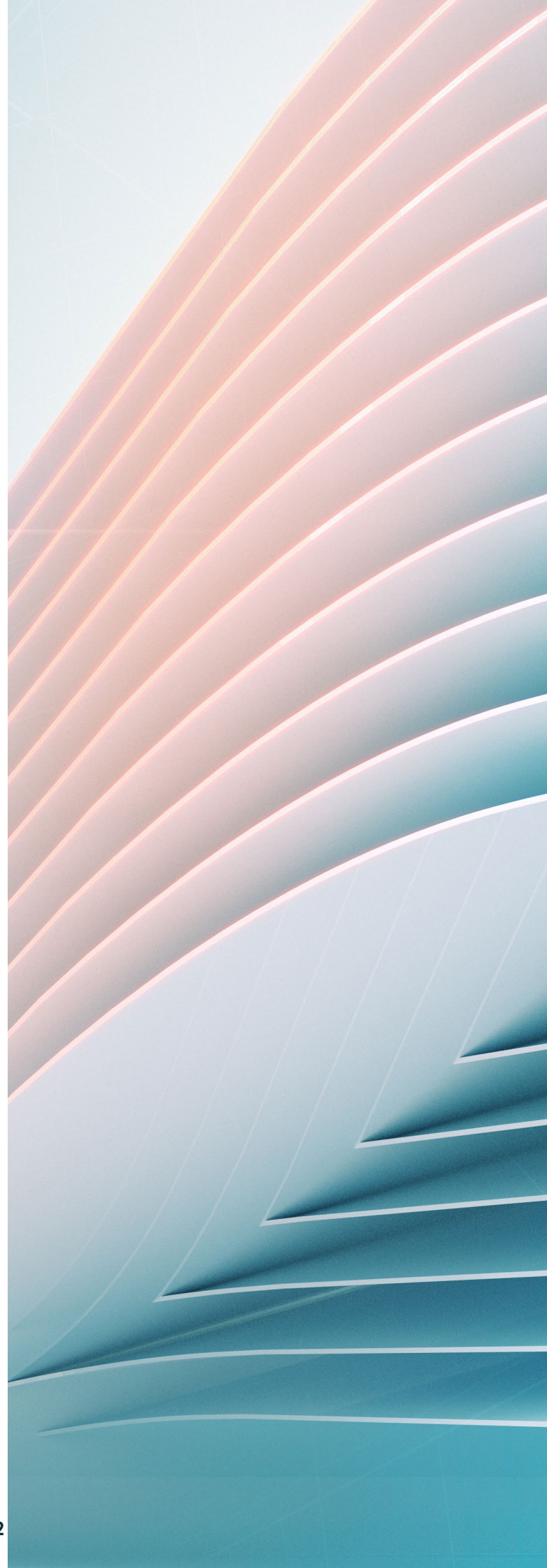
continuing fragmentation of service offerings. Where there used to be, say, one IP law firm that would execute all or nearly all services needed along the IPR life cycle for their client, the services are now procured from a variety of suppliers according to different purchasing rationales, be they price, trust, location or something else. This, in turn, has several effects on the suppliers, as our panel observes, in that they tend to become more specialized in their offerings to be able to compete on quality rather than just price, while, conversely, the fragmentation into many smaller offerings diminishes their power to set prices at all. The buyer’s net result is that the overall price paid for IP services of all kinds tends to increase, as they are faced with a smorgasbord of service providers that each try to cover their own costs and cannot benefit from synergies or economies of scale.

Our panel voices a certain ambivalence about the topic of outsourcing in general. While outsourcing standardized services like payments or searches is fairly commonplace and rarely discussed beyond stating that it is done – although search capacity is often retained for knowledge management reasons – the debate becomes much more contested when the tailored services are discussed.

Particularly when patents, and therefore technology, are concerned, the best confidentiality regulations cannot deter our panelists from weighing principal-agent issues – interestingly, the attorneys on our panel no less than the buyers of attorney services. As principal-agent problems usually deal with information asymmetries, it is knowledge loss or deficiencies that figure prominently in the discussions.

The most commonly cited barrier to outsourcing highly specialized tasks is the perceived risk of losing knowledge by the actual technology being disclosed to an external party or the loss of practice in handling this knowledge in an IP context. Secondly, the service provider may experience moral hazard once a contract is signed, especially if it is a retainer or similar agreement, as the incentive to cut corners or skimp on effort to increase margins grows significantly once the source of income is secured, with this hazard intensifying when fixed or flat service fees are involved. Depending on the scope of the work contracted, the client might lose a degree of control over processes or planning when assigning a certain autonomy, say over prosecution decisions. With respect to deciding on one service provider over another, costs structures that inform the pricing may not be entirely transparent and lead to later moral hazard, while possible conflicts of interests may not be declared. All these reasons contribute to the experience that, in the field of IP, smaller-scale outsourcing partnerships are often long-term, and therefore built on accumulated trust between the parties. At the same time, larger service buyers rely on several providers to retain a certain amount of bargaining power. There is the additional observation that suppliers have moved to putting confidentiality rather than their particular competence in IP at the center of their unique selling proposition.

And while patent attorneys have much wider tasks than filing, prosecuting and litigating patents for their clients, and act as IPR life cycle-accompanying consultants, the question of how much control to relinquish and to whom is a vexing one for all those that need external support. For this reason, the jury is still out on the future of IP outsourcing; though advancing digitalization and even more sophisticated interfaces between buyers and sellers of IP services might accelerate trusted interaction in the future.



# The digital age is not coming – it has arrived

Denemeyer's IP Trend Monitor identified digitalization in the broadest sense as the single biggest game-changer in IP management. Not surprisingly, our expert panel essentially shares this perception, although attitudes are mixed when analyzed in detail.

In the following, we will highlight the main aspects that were broached.

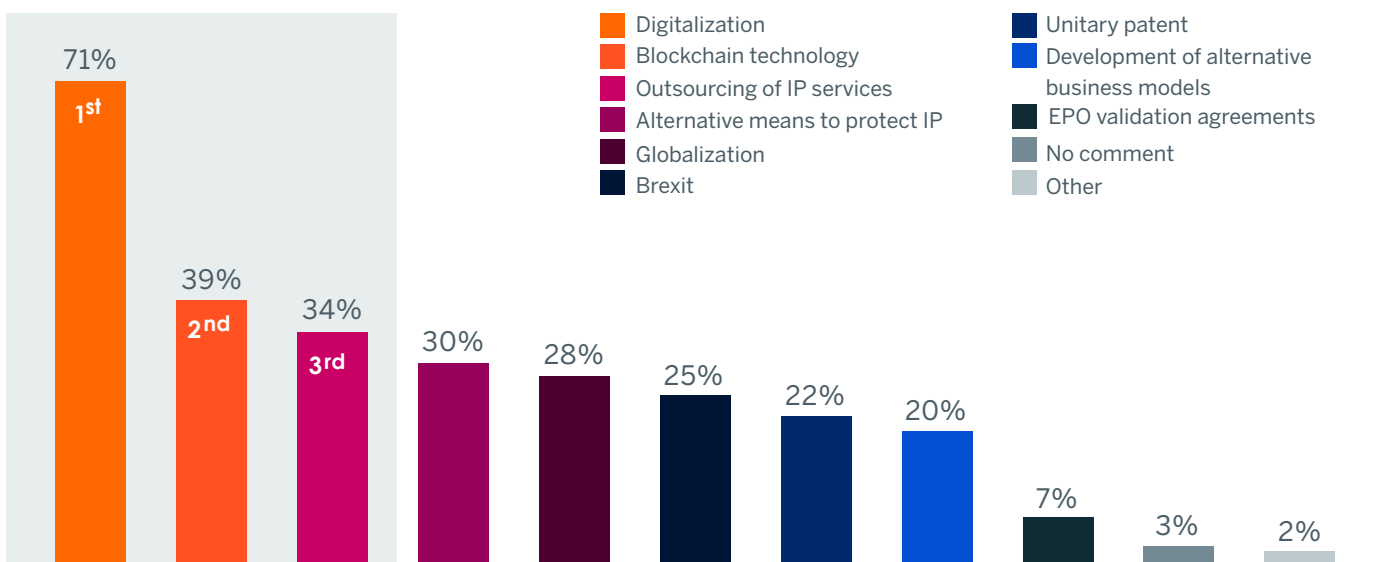


Figure 7: The impact of digitalization on the management of IP, IP Trend Monitor, 2018

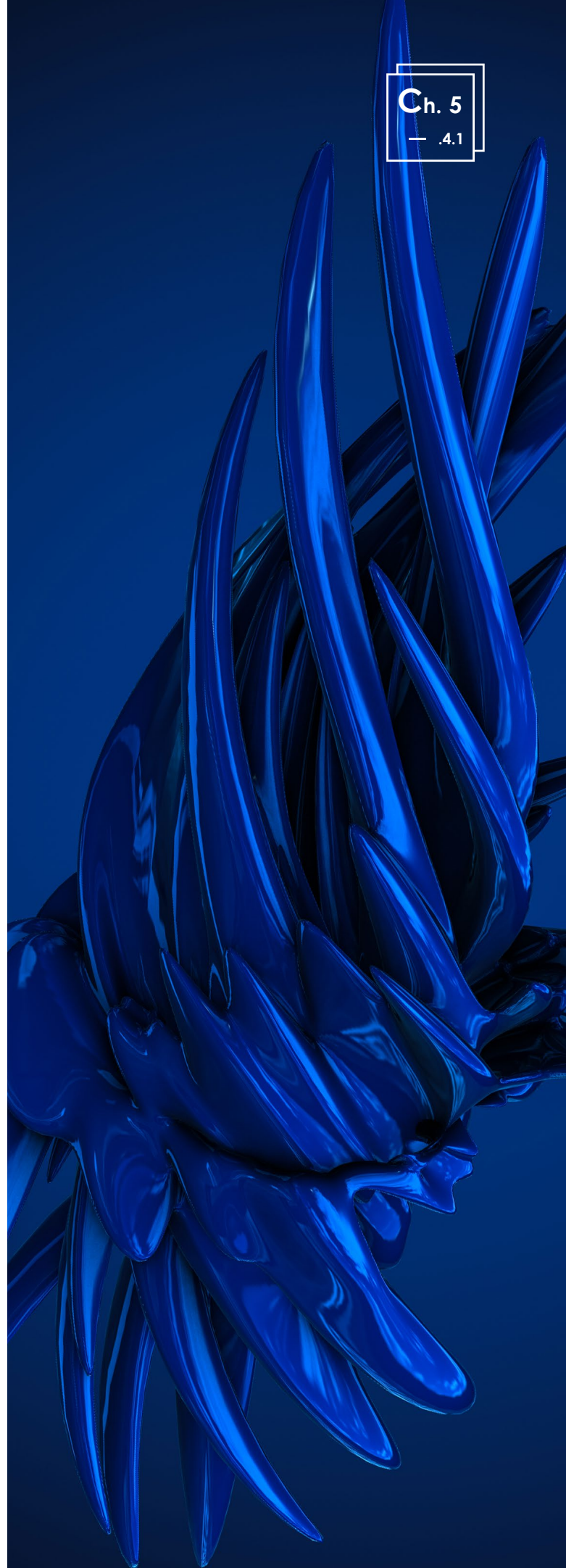


# Change or be changed – IP management in the “digital age”

Most IP managers on our panel emphasize that an IPMS is to be understood as infrastructure that, together with analytics tools, enables holistic IP management. Some of our respondents have invested strongly in recent years to implement these support systems in their organizations.

However, even the best tool can only do so much if it is not fully embedded and accepted within the organization. Several of our experts who have gone through the experience emphasize the absolute imperative of understanding digitalization in general and the digitalization of IP management, particularly as a transformative process. In that, switching to a digital foundation, including e-files and digital interfaces to IP offices, changes IP work fundamentally. Workflows are becoming more standardized, with the room for individual routines diminishing, making it extremely important to carefully steer digitalization. Taking the time to review existing practices regarding efficiency and effectiveness, identifying and preserving best practices, and eliminating waste is vital; meanwhile, implementing systems and tools requires building understanding, new skills, and acceptance within IP departments and their surroundings. Only then can the full power of digital tools be fully harnessed.

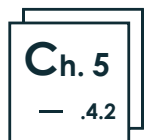
Several of our experts relate that comprehensive change management was more critical for ensuring success than finding the optimal software in their digitalization efforts,



which in any case does not exist. At the end of the day, the general view is that software and digital work will always remain enablers for people. Bringing the individuals within and surrounding the IP department on board is much more

important for efficient, digitally-driven IP management than “just” having the digital tools themselves. Thus, digitalization should never be seen as an end to itself, but as an enabler of further progress.

## Number-crunching for beginners or experts



Likewise, while the majority of the panel acknowledges the rapid improvement and increasing power of digital tools, they are also somewhat wary about what quite a few of them perceive as hype. When it comes to data analytics especially, be they for prior art searches, technology and competitive landscape exercises or any other activity involving combing through vast amounts of IPR data, the human factor is essential for making sense of it all, and – more importantly – will remain so for a long time. This is because though algorithms, further enhanced by machine learning, are improving continuously and can provide impressive pre-filtering and basic analytics, human input is necessary to interpret and extrapolate this collated data.

**“We can’t rely 100% on the tools, the result is not perfect, as of today”**

Olivier Gicquel

There is broad agreement in our panel that, for the foreseeable future, the human factor is not to be discounted, and most panelists relate that their specific organization is attempting to get the most of both worlds by employing highly skilled data specialists that work with sophisticated software packages. This is because not only have the individual tools become more powerful, the skills to use them and work with their output have grown with them. With increasing software sophistication, it becomes more difficult to assess the actual benefit they deliver, as not every organization’s needs are the same.

Still, there exists general optimism and even excitement with regards to future developments. While nobody hazards a guess as to what will become possible in the future, the general agreement is that we are far from having reached any conceivable peak yet.

*"We can't rely 100% on  
the tools, the result is not  
perfect, as of today"*

Ch. 5 Quote 1

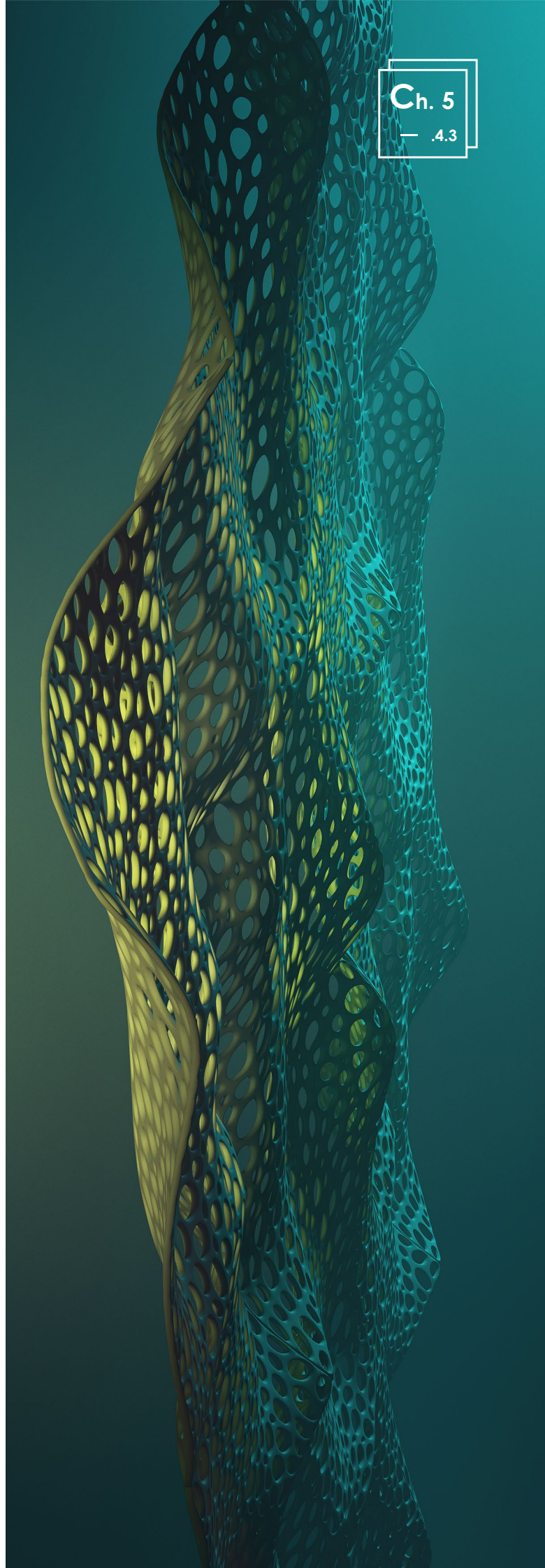
OLIVIER  
Gicquel

AIRBUS

With the advent of “big data” and the processing power to utilize it, new questions regarding the data itself, its use and its relationship to more “traditional” IP arise in our panel.

The panel broadly acknowledges that data and access to data are gaining importance for firms. Depending on the industry, data informs new business models and increasingly drives strategic decisions and the development of products and services. While data is broadly seen as an enabler, opinion is somewhat divided as to its nature as IP, or rather, when exactly it becomes IP. Although the law is clear that data itself is considered fact and therefore not protectable, its collection, processing, analysis and interpretation have become major drivers for innovation and informers of business decisions – as holds true for patent, user and environmental data. Therefore, it is then not “only” innovation, but IP and IPRs that result from being able to manage data. As such, our panel feels that data has become a crucial catalyst for an innovative effort that informs most management decisions along the IP life cycle.

Furthermore, the availability of big data has led to a shift in innovation patterns. Being able to process data and use it to develop new business models is not the domain of the biggest firms alone anymore. Data drives the sharing of at least partially open innovation and the emergence of platform economy models.



**“It is not only the biggest companies that are the drivers of innovation anymore“**

anonymous panelist

Yet, it is still often the major players that are in the position to collect and organize relevant data, with the main question then becoming the mode of sharing it. Designing platforms on which to share and process data and analytics results, giving access to collaborators in a way that does not compromise data security, and defining the eventual ownership of research outcomes may just lead to the stable innovation ecosystems discussed in Section 4 above.

Ch. 5 Quote 2

*“It is not only the biggest companies that are the drivers of innovation anymore“*

**“My role has evolved from being focused mainly on IP rights protection to being more strongly involved in the business as business partners and providing legal advice at all stages of the IP lifecycle. In this, we strive to anticipate trends and issues that our company might face”**

Myrtha Hurtado Rivas

As noted above, the appreciation of IP and intangible assets more generally has not grown uniformly in recent years. Depending on the industry, business model, the size and age of the company in question, corporate managers assign varying levels of importance to IP management. Even within companies, there are often areas and IPR types that are valued differently. Yet, with the overall growing importance of IP and its emerging functions, the nature of the IP managers' work also evolves.

**“There is a greater appreciation about IP by many in business, but I suggest that we still have a long way to go to properly educate all business people about IP, and about the value and risks associated with IP”**

Donal O'Connell

In businesses that have reached a certain degree of maturity in their IP practices, managing IP has already evolved from a mostly legal and administrative role to fully-fledged asset management, driven by carefully calibrated strategies that go beyond securing and defending IPRs; and so many of our panelists point out the need for tailored approaches in their IP management. Products that are predominantly targeted toward the end customer usually rely more on branding, and thus trademarks, to secure customer loyalty and market share. In other words, more often than not, the actual product constitution, while important to be protected, is not necessarily the primary driver of market success. On another note, industrial and intermediate goods benefit from strong patent protection, in that the exclusivity of the technology involved allows for stable inter-company relationships and joint product development. IP managers need to be aware of these varying needs and, consequently, the requirement of being “business-savvy” and mindful of the technology in

Ch. 5 Quote 3

MYRTHA  
Hurtado  
RIVAS

NOVARTIS

*"My role has evolved from being focused mainly on IP rights protection to being more strongly involved in the business as business partners and providing legal advice at all stages of the IP life cycle. In this, we strive to anticipate trends and issues that our company might face."*

*"There is a greater appreciation about IP by many in business, but I suggest that we still have a long way to go to properly educate all business people about IP, and about the value and risks associated with IP"*

Ch. 5 Quote 4

DONAL  
O'Connell

Chawton IP Solutions

question together with the inbound and outbound market conditions becomes ever more prevalent. Thus they become consultants and advisers, rather than dealing mostly with the legal aspects of IP. What is more, to legal expertise and technical proficiency in their field, IP managers need to add a thorough grounding in business and finance, whether on top of their own experience or by building dedicated teams that pool knowledge.

We observe that in order to be able to advise on and accompany R&D efforts, today's IP manager needs to fully grasp the ins and outs of product or service development by fostering close interaction with the relevant departments, which in turn entails an understanding of innovation processes and the contributions IP knowledge delivers to that same process. Thus, an IP manager needs to be deeply embedded in innovation processes from the very beginning, as this enables them to steer the whole course.

Therefore, the IP manager's challenge is to improve their communication skills, needing to be proficient in their own field of work while also being able almost seamlessly to integrate with their business partners. As obvious as it may sound, there is some agreement that this might be one of the fundamental challenges: IP is a highly specialized field, with its vocabulary and language, even with its own mindset, meaning mutual exchange is often perceived as complex, even if it is acknowledged as being essential. As several interviewees only half-jokingly attest, attorneys, in particular, are often perceived as nerdy and see themselves as nerdy and cultivate this nerdiness.

**“Patent attorneys can't even communicate with each other!”**

anonymous panelist

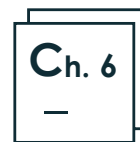
Just as the accompanying technological fields and businesses evolve constantly, IP managers need to adopt a philosophy of lifelong learning, for this would create a much-needed open-mindedness and the ability to change perspective occasionally when dealing with business partners.



Ch. 5 Quote 5

*"Patent attorneys  
can't even  
communicate with  
each other!"*

# COVID-19: Opportunity for a rethink



The bulk of the interviews with our panel was conducted during the second and third quarters of 2020, when the Corona crisis was still in its infancy, but rapidly evolving. As it moved to the forefront of the news, and government lockdowns and the resulting economic impacts became more severe over the months, our panelists were able to reflect on the effects the altered environment has on their field.

Again, two major trains of thought emerged, owing to our panel's composition: how COVID-19 affects IP management in its day-to-day operations and how the race for a vaccine is supported or hindered by the patent system. We will start with the first argument.

As workers were forced from their physical offices into new work arrangements, firms scrambled to move most, if not all, of their processes into the virtual sphere, with this move – as testified to by our panelists – working more smoothly if the digital infrastructure was already in place, tried and tested. Where an Intellectual Property Management System (IPMS) had been fully implemented and in use for at least a full year, the routines and workflows were sufficiently ingrained to allow for a smooth transition into a home office setting. While this is hardly surprising, it emphasizes the importance of carefully managing the digitalization process. It was pointed out that without having taken the necessary time to implement a digital infrastructure – which in the case of one panelist was almost three years – the subsequent lockdowns would have been more challenging to navigate. This way, the IP team could hit the ground running and continue their work with little friction.

Where the infrastructure was not entirely in place, the COVID-19 situation acted as an accelerator, with as many processes as possible going virtual in the shortest possible time. In brief, the pressure to evolve reached a point where it outweighed organizational inertia. However, as quick changes toward digital work practices often simply moved online formerly “offline” tasks, the workflows themselves have remained largely untouched and will have to be reviewed at some point. This is commonly acknowledged as a future challenge, but one that is thought to be manageable, as the proof of concept was established in 2020.

In fact, the rush toward remote and digital models of work may also explain, at least to some extent, the increase in litigation commented on above. Moving business operations online during lockdowns has only strengthened the technology sector further, making the technology that enables online work more valuable; and resultingly, investors and the companies themselves have an interest in expanding portfolios associated with this shift and monetizing existing portfolios. The technology industry's enhanced strength has created the resources and capacity to enforce patents vigorously.

IP offices around the globe reacted swiftly to the unfolding crisis, an effort that most panelists commended. As physical offices were shuttered, communication moved online, all while physical mailboxes still ensured a

*"Patent systems  
were not designed  
to make the  
inventors rich, but  
to improve  
people's lives"*

Ch. 6 Quote 2

DAMIANO  
Porcari

USPTO



certain measure of accessibility. Periods and deadlines for correspondence, and often payments, were either suspended or handled more forgivingly through a generous interpretation of existing law in the case of exceedance. This afforded applicants and IPR holders a degree of flexibility that enabled them to adapt to using the online communication channels exclusively. Importantly, it was repeatedly noted that, in essence, these channels were not new, but they were expanded, and their use encouraged — a noteworthy example of flexibility being the introduction of online hearings. It is commonly thought that most of these changes will be here for good, even if they become just one option to choose.

The second big theme that has emerged during the crisis and hotly discussed by our panel is the path toward a COVID-19 vaccine. The tension between public and private interests has come once again to the forefront of the debate over the course of the pandemic, and has been aggravated by political tensions, a general public mistrust of “big pharma” and a rapidly deepening health and economic crisis that is training a spotlight on societal inequality. The imperative to find an effective and safe vaccine or vaccines in order to stop the downward spiral by distributing it as widely as possible highlights the weaknesses of the private R&D system we operate in: pharmaceutical companies correctly argue that the temporary monopoly a patent affords them is the incentive for sustained R&D efforts. Why invest at all when one cannot reap the benefits? Furthermore, it has so far been privately developed treatments that are being tested for application against COVID-19. One can argue that, without the incentive of obtaining patents and the associated monopoly, far fewer of these promising treatments would have been available so quickly. To continue this research and invest in the necessary equipment for doing so, the IPRs have to be honored, and reliably so, as the (perceived) threat that suspending or canceling particular patents connected to a treatment or vaccine has led to vigorous arguments.

On the other hand, to produce enormous numbers of doses and distribute them worldwide necessitates greater capacity than any one producer can muster, given the urgency with which this needs to be done. Accordingly, governments are considering mandatory licensing despite the threat it poses to the integrity of their IP systems.

This debate returns to the questions posed earlier in this study – the purpose of the IP system itself. And while most people will agree that patent systems are designed to foster innovation, it is not necessarily that straightforward. Innovation is a concept often separate from the players involved; hence, we need to draw a sharper distinction and maybe ask who is supposed to be the actual beneficiary of this fostered innovation.

**“Patent systems were not designed to make the inventors rich, but to improve people’s lives”**

Damiano Procarì

In this vein, it seems evident that public interest trumps private interest. The patent system is designed to attribute characteristics of private goods to immaterial goods and thus remove inherent market failures like non-excludability and rivalry. For this reason, removing otherwise guaranteed property rights under the pretext of a pandemic emergency carries the risk of undermining the trust invested in the system. As the conditions for canceling IPRs are by their very nature not clearly definable, but depend on the circumstances, confidence in the rule of law is undermined as a consequence, resulting in the very erosion of the patent system’s relevance discussed in Section 4.1 above.

However, “canceling” whole patents is an equally extreme notion, especially when viewed in the light of Covid-19, which has proved itself to be an accelerator of existing mechanisms aimed at improving innovative capacity.

As we have seen, a lot has changed since 2017; most significantly, the pace of transformation. While the trends we identified in the first installment of *The Future of IP* are still there, their nature and our understanding of them have evolved. The year 2020 – and with it our study – was dominated by COVID-19 and its fallout: societal, economic, financial, personal. Not surprisingly, many of our conversations, influenced by the crisis at hand, turned away from day-to-day IP business and toward “bigger” questions.

In contrast, COVID-19 has worked to draw greater public attention to the fundamental purposes of IP. Whereas IP rarely makes headlines, the race for a vaccine brought questions seldom discussed in the wider public to the fore: those of public vs. private benefit of innovation, and how these benefits should be weighed against each other. As such, the debate brought into stark relief the more systemic issues: What is the purpose of the IP system? Who should be its beneficiaries, and why? How is benefit distributed, and according to what criteria?

None of these questions are new; they are as old as the IP regime itself, but as we were told more than once, now might be the time to ask them. As such, this study probably raises more questions than it provides answers or advice.

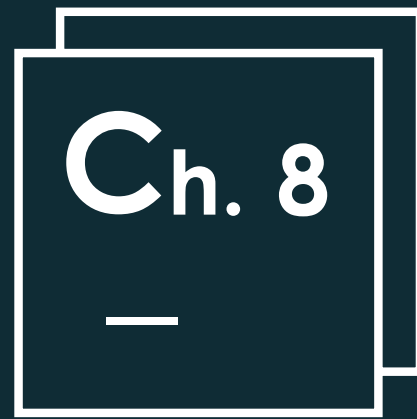
That said, we do come away with a few conclusions:

**Embrace change.** Those who started their digital transformation when it was not urgent and introduced digital platforms and workflows carefully and diligently reported to be well prepared for national lockdowns.

**Foster flexibility.** Life and IP are not static; continuous improvement is more than a buzzword because IP management is evolving, and so are those that handle it. The more IP is integrated and embedded in business, the more its contribution to business success is acknowledged and understood, the better its value can be realized.

**Do not change for the sake of change.** Big data and the powerful tools to work it are important to leverage IP to its fullest extent, but the human mind will be needed for quite some time to make sense of the results the tools extract from the data. It will be a long time before artificial intelligence (AI) makes any decisions without human oversight.

As is so often the case, there is no absolute right or wrong, and in the current circumstances, too much is uncertain to determine the best practice going forward. Once the dust settles and recovery begins, it will be interesting to see how things play out — until then, weathering the storm takes center stage.



## Methodology






Photo	Name	Position	Affiliation
	<b>Hesham Alarifi</b>	Executive Director of IP Policies	Saudi Authority for IP
	<b>Robert Alizon</b>	Patent Director	JTI
	<b>Brett Alten</b>	Senior Vice President and Deputy General Counsel	Hewlett Packard
	<b>Dr. Mahalaxmi Andheria</b>	Head-IPR	Anjanta Pharma
	<b>Prof. Dr. Christoph Ann</b>	Full Professor of Law (Ordinarius)	Technical University of Munich, School of Management









Photo	Name	Position	Affiliation
	<b>Marco Barulli</b>	Founder	Berstein.io
	<b>Daniel Bauer</b>	Head of Patent Department	RWE
	<b>Peter Berg</b>	VP Intellectual Property	Infineon Technologies
	<b>Peter Bittner</b>	Chairman of the Advisory Board	I3PM International Institute for IP Management
	<b>Stuart Bradshaw</b>	Global Counsel – IP	Nufarm Ltd
	<b>Olga Capasso</b>	Head of Patent Department	De Simone & Partners
	<b>Patrick Clerens</b>	Managing Director	CLERENS
	<b>Delphine de Chalvron</b>	General Counsel IP	L'Oréal








Photo	Name	Position	Affiliation
	<b>Denis Dambois</b>	Policy officer in the "Intellectual property and Fight against Counterfeiting" unit (DG GROW)	European Commission
	<b>Barry Dove</b>	In-House Counsel	Hitachi ABB Power Grids
	<b>Clive Erasmus</b>	Lead IP Legal Counsel	Sasol
	<b>Matthias Erdmann</b>		Braun-Dullaeus Pannen Emmerling (BDPE)
	<b>Jay Erstling</b>	Of Counsel, International Intellectual Property Counsel	Patterson Thunete Pedersen
	<b>Dr. Jörg Friedhofen</b>	Patentanwalt	Vorwerk & Co. Interholding GmbH
	<b>Naoise Gaffney</b>	Head of Patent Development	Intellectual Ventures






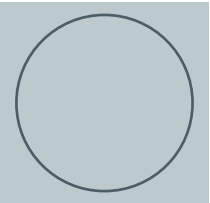

Photo	Name	Position	Affiliation
	<b>Olivier Gicquel</b>	Head of IP	Airbus
	<b>Prof. Dr. Dietmar Harhoff</b>	Director	Max Planck Institute for Innovation and Competition
	<b>Raymond Hegarty</b>	IP Coach, Author	Billion Dollar IP Strategy
	<b>Markus Heinen</b>	Leader People Advisory Services in Germany, Switzerland and Austria	EY
	<b>Mathias Hellmann</b>	VP IPR Strategy & Portfolio Management	Ericsson
	<b>Daniel Hermele</b>	Independent Consultant	DSH Consulting
	<b>Clemens Heusch</b>	Vice President, Head of Global Litigation and Disputes	Nokia









Photo	Name	Position	Affiliation
	<b>Brian Hinman</b>	Chief Innovation Officer	Aon Intellectual Property Solutions
	<b>Heiner Hoppmann</b>	Founding Partner	Fidelio Healthcare Partners
	<b>Myrtha Hurtado Rivas</b>	Global Head Legal Brand Protection	Novartis International AG
	<b>Stephen Key</b>	Entrepreneur (Product Licensing, Open Innovation, Entrepreneurship)	inventRight, LLC.
	<b>Dr. Dinesh Kumar</b>	Head - Global Intellectual Property & Litigation	Dr. Reddy's Laboratories
	<b>Ramachandran Lakshminarayanan</b>	Director & Head – Intellectual Property & Innovation Management	Samsung Electronics
	<b>Robert Langer, ScD</b>		MIT Department of Chemical Engineering
	<b>Charlotta Ljungdahl</b>	Head of IP, Group Senior Vice President	ABB








Photo	Name	Position	Affiliation
	<b>Satoshi Matsuo</b>	General Manager, IP Business Platform Dept.	Hitachi
	<b>Greg Mayer</b>	Chief IP Counsel	Hollister
	<b>Oliver Mayer</b>	Leader Section Energy	Bayern Innovativ GmbH
	<b>Rebecca McCrackan</b>	Principal Advisor - Technical IP, Patents and Trademarks Attorney	Rio Tinto
	<b>Prof. Dr. Matthias Menter</b>	Professor of Business Dynamics, Innovation and Economic Change	Friedrich-Schiller- Universität Jena
	<b>Irfan Modi</b>	IP Attorney	UAE
	<b>Sunjay Mohan</b>	Vice President, Global Head of Patents & Trademarks	SAP






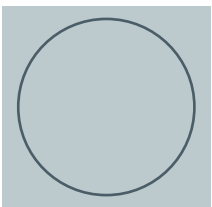

Photo	Name	Position	Affiliation
	<b>Donal O'Connell</b>	Managing Director	Chawton Innovation Services Ltd
	<b>Dr. Uwe Over</b>	CVP, Head of IP	Henkel AG&Co KGaA
	<b>Damiano Porcari</b>	Director of the Elijah J. McCoy Midwest Regional United States Patent and Trademark Office	USPTO
	<b>Dr. Marco Rau</b>	Head of Legal Strategy & Transformation	Merck KGaA
	<b>Christian Reinders</b>	Chief IP Counsel	Dräxlmaier Group
	<b>Dr. Karl-Heinz Rimböck</b>	Leiter IP	Wacker Chemie
	<b>Medha Rolvering</b>	Global Head of IP	Software AG









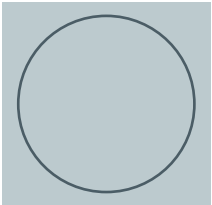


Photo	Name	Position	Affiliation
	<b>Iain Schick, PhD, Esq.</b>	Co-Founder & CEO	Specifio
	<b>Matthias Schneider</b>	Chief Licensing Officer	AUDI AG
	<b>Marcus Schwarzhaupt</b>	VP, Head of IP Digital and Devices	Sanofi
	<b>Dr. Jörg Thomaier</b>	CEO Bayer Intellectual Property GmbH and Head of IP Bayer Group	Bayer
	<b>Christopher Turoski</b>	Director of Patent Programs, Professor of Law	University of Minnesota Law School
	<b>Ronald van Tuijl</b>	Intellectual Property Director Trademarks	JTI
	<b>Dr. Georg von Graevenitz</b>	Senior Lecturer Quantitative Methods	Queen Mary University of London

Photo	Name	Position	Affiliation
	<b>Beat Weibel</b>	Chief IP Counsel and Group Senior Vice President	Siemens
	<b>Uwe Wiesner</b>	Chief IP Counsel	Volkswagen AG
	<b>Joff Wild</b>	Editor in Chief, IP and Data	Law Business Research
	<b>Stephan Wolke</b>	Head of Corporate Intellectual Property	ThyssenKrupp

Just as with the first installment of *The Future of IP*, we decided early on that this study would not be a synthesis of various statistical publications nor a fairly standardized survey. However, both of these approaches have their definite merits, and we relied on them to underscore or verify the impressions and personal views of the members of our expert panel. Rather, this project's express purpose is to collect and aggregate the views of practitioners firsthand in a qualitative study. It has no aspiration to be thoroughly representative; therefore, no quantitative analysis of the panel answers is presented.

The value and contribution of this study lie in the firsthand insights that our highly experienced panelists provided in extensive and wide-ranging conversations.

This project was conducted throughout the course of 2020, with preparatory work beginning in late 2019, when it was decided that revisiting the 2017 "Future of IP" had become not only opportune, but desirable. The team developed research hypotheses to be tested, based on current literature, debate and our own extensive and multi-faceted experience in the field of IP. Using a consultation-heavy approach, and involving the entire Denhemeyer organization, a comprehensive list of topics was collated, which was then condensed into a layered question pool, which would guide the interviews. The reliance on a pool of questions rather than a semi-structured interview guideline helped to accommodate the wide variety of backgrounds, experiences and specializations that our panel exhibits and thus enabled us to tailor the interviews to the individual conversation partner and tap into their

specific expertise, while still following the red thread our hypotheses provided.

The question pool consisted of five thematic sections, each divided into high-level and concrete questions and propositions. Additionally, it contained a block of generic questions to create a basis common to all conversations. These six sections were organized as follows:

- Generic section: In this section, the aim was to create common ground and set the scene for the subsequent conversation by gauging the topics our panelists wanted to prioritize. Covered were:
  - General observed trends: What is it that strikes our panelists as mentionable / discussion-worthy? What changes in the field of IP have they observed in the last five to 10 years? What do they think will change in the near- to medium-term future?
  - Specific developments affecting either the interviewee or their organization: Are there specific topics that have become more or less important, or are there shifts in importance? What are developments that affect you in your work and outlook?
- Changing forms of innovation and their impact on IP: Here, we discussed emerging and evolving forms of innovation and their impact on IP practices in general and again, how it affected the interviewees' work. Covered were:
  - New forms of innovation: open innovation, the platform economy, systemic considerations, internationalization of innovative effort



- Innovation systems: roles and responsibilities of different actors, success factors and hindrances, the role of IP in collaborative arrangements

- The value of IP in changing systems and the varying pace of change and adaptation / adoption

- IP management: This section was mainly targeted at the IP managers and, to some extent, attorneys in our panel, while it was usually only used in passing for the IP office and government side. Covered were:

- Measures to achieve efficiency and efficacy of IP management

- Intra-organizational collaboration and the embeddedness of IP in development processes

- Digitalization and changing workflows

- Efficient portfolios under increasing cost pressure

- Invention evaluation methods and strategies

- Technology and digitalization: In this section, we put current buzzwords to a reality check and had the panel discuss the impact of digitalization, blockchain, big data and AI on their work and IP in general. Covered were:

- Use of advanced analytic tools and the impact on innovation and IP management

- Replacement of humans by AI for certain tasks in patent research, examination, translation, drafting, etc.

- Evolution of data-driven business models and the general value of data

- Opportunities for cost reduction through automation

- Risk and conflict management: Here, we discussed the changing perception and utilization of IP under strategic instead of operational considerations. Covered were:

- Defensive vs. aggressive IP strategies, infringement and litigation risks and management thereof, preparedness to enter into conflict and covered:

- Non-practicing entities and the risk they are posing

- Proactive use of IP data to identify opportunities

- Proactive HR and competence-building: Given the trends, risks and opportunities discussed in the previous sections, we explored the profile of the future IP manager and covered:

- The skills needed: communication, flexibility, tool proficiency, etc.

- The demands made of the employer

- The mindset and culture geared toward innovation and constant improvement

During the development of the question pool, the COVID-19 crisis was still unforeseen; naturally, when it emerged, it dominated our conversations regularly and became a common theme for many interviews.

Throughout 2020, we conducted 62 interviews in total, which each lasted from 50 to 90 minutes, with our panelists being identified through the Dennemeyer network, personal contacts or recommendations from partners. The panelists come from various backgrounds: private businesses, patent attorneys, IP offices and government bodies.

With the interview phase finished, the interviews were first clustered by focus topic(s), and then their content was analyzed along the clusters established by the question pool. It was decided to present our findings in a narrative to accommodate the large variety of views while still presenting a consistent discussion and representation of the topics raised.

In this way, we were able to present our findings in a comprehensive and nuanced discussion, while refraining from representing any point raised as overly controversial, unresolved or unfounded.

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Author:

**Dr. Cornelia Peuser,**

Senior Consultant

[dennemeyer.com/consulting](https://dennemeyer.com/consulting)