

WIPO MAGAZINE

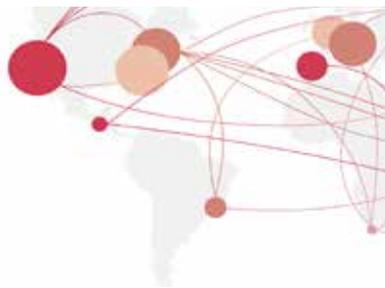
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Editor: **Catherine Jewell**

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The geography of innovation: local hotspots, global networks

By Catherine Jewell, WIPO

The 2019 *World Intellectual Property Report: The Geography of Innovation: Local Hotspots, Global Networks* highlights the increasingly collaborative and international nature of innovation. The report traces the evolution of the geography of innovation over the past few decades and reveals a growing concentration of innovation in a few large clusters located in a small number of countries. WIPO's Chief Economist, Carsten Fink, discusses some of the report's key findings.

What aspect of the geography of innovation does the 2019 report focus on?

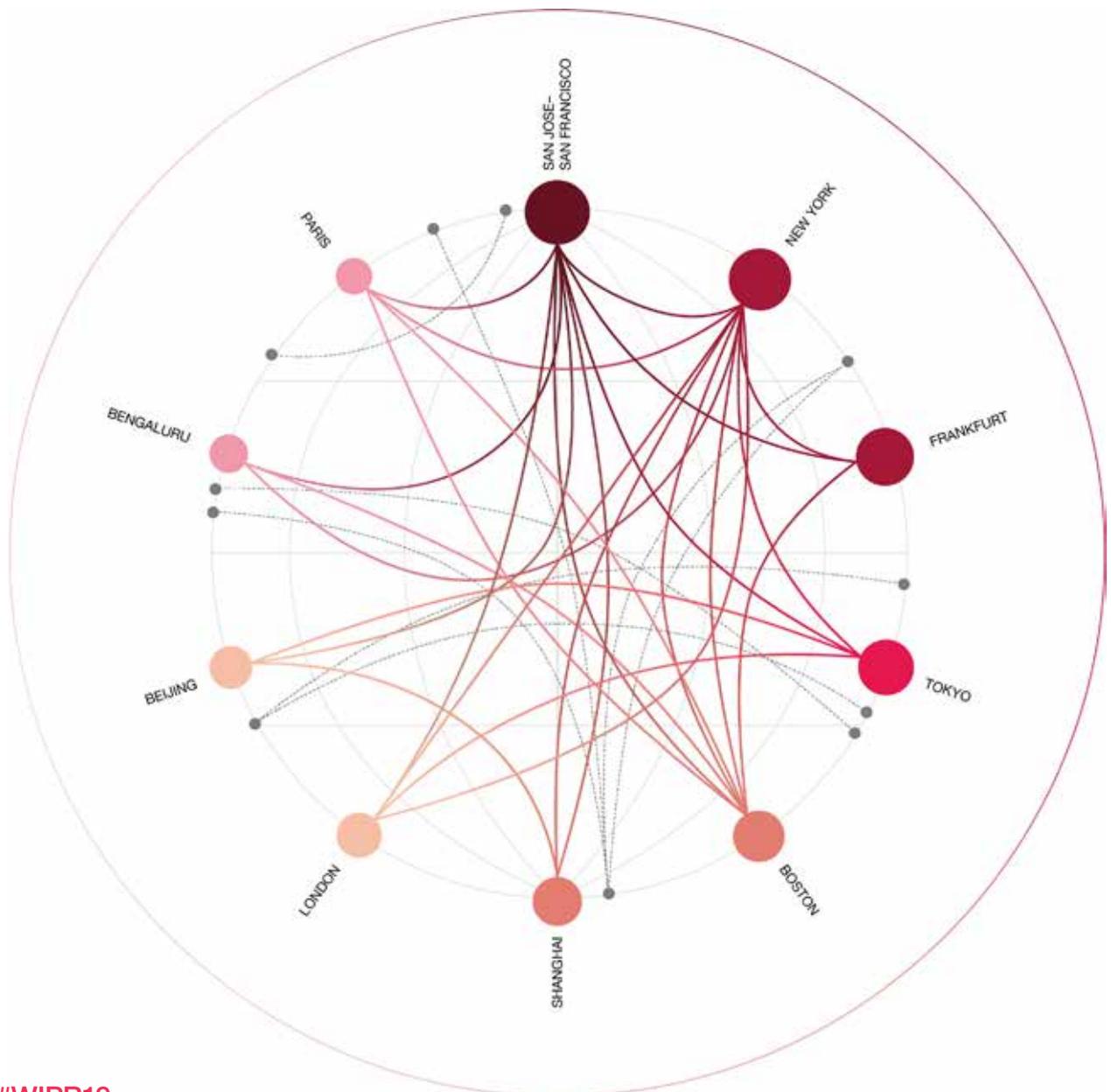
Where the 2011 *World Intellectual Property Report* focuses on the broad geographical shifts that characterize global innovation, the 2019 Report explores why economic activity tends to center around urban agglomerations or cities and how this gives rise to the global innovation networks that generate so much of the world's innovation.

Why is it that so much innovation takes place around cities?

Economists have typically explained the distribution of economic activity across space by focusing on economies of scale and scope, transport costs and savings. Cities are where companies find skilled workers. People move to cities because they value the amenities metropolitan life offers and the well-paying jobs they find there. Cities are also the most fertile places for ideas to flourish, as innovators work in close proximity.

But in the innovation-driven economic models of the 21st century, other forces are also at work. Technology, especially digital technology, has increasingly facilitated knowledge flows over ever-longer distances – there is a long history of scientific collaboration among researchers from different universities and countries. Multinational corporations (MNCs) have also sought to optimize their innovative impact by developing global value chains that disperse their research and development (R&D) activities to different places. These factors, especially, urban agglomeration and dispersion of R&D, have given rise to global innovation networks. The 2019 *World Intellectual Property Report* tracks the evolution of these networks and their make-up.

The top ten collaborative hotspots of the world account for 33 percent of all international co-inventions.



#WIPR19

Source: World Intellectual Property Report 2019



Previous World Intellectual Property Reports

WIPO produces the *World Intellectual Property Report* every two years. Launched in 2011, the report offers an in-depth analysis of specific trends within different fields of IP, as follows:

- 2019 *The Geography of Innovation: Local Hotspots, Global Networks*
- 2017 *Intangible Capital in Global Value Chains*
- 2015 *Breakthrough Innovation and Economic Growth*
- 2013 *Brand – Reputation and Image in the Global Marketplace*
- 2011 *The Changing Face of Innovation*

What data sources did you use?

From this viewpoint, the report is the most ambitious we have undertaken to date. We used two primary data sources. First, patent data covering the period 1970 to 2017 from 168 patent offices. The rich bibliographic data found in patent documents are a useful window into technological invention across space and time. The data included around 9 million patent families (groups of patents relating to the same underlying invention) listing over 22 million inventors. We geo-coded the addresses of all the inventors cited in these documents at the rooftop, postal code or sub-city levels. Second, we analyzed scientific publications from the website, Web of Science, for the period 1998 to 2017. These data comprise 24 million scientific articles that list more than 62 million authors. Again, we geo-coded all available addresses at the postal code or sub-city levels.

What are the report's key findings?

First, we see that innovation is increasingly local. We determined this by developing an algorithm to identify areas with the greatest concentration of inventors and authors, which we divided into two categories, namely, innovation hotspots and specialized innovation clusters.

We identified 174 hotspots (areas with the greatest density of inventors and authors) worldwide. Silicon Valley, for example, is one of the most prominent global innovation hotspots. We also identified 313 specialized niche clusters where innovation density is high (but lower than in an innovation hotspot) in one or more fields of patenting or scientific publishing. The area covering Neuchâtel, Biel, Bern and Fribourg in Switzerland is such a specialized niche cluster.

Where are these hotspots and niche clusters located?

They are heavily concentrated in North America, Western Europe and East Asia. Aside from China, and to a lesser extent, Brazil and India, there are far fewer hotspots in middle-income economies. While there are no innovation hotspots in Africa, there are a number of specialized niche clusters.

All hotspots and most niche clusters are in highly populated metropolitan areas, although not all metropolitan areas attract innovation hotspots or niche clusters, as we see when we overlay our findings with satellite data on night light. In the United States, for example, we see many hotspots in dense urban areas along the east and west coasts. Many inland urban areas, however, do not show the same innovation density.

How important are these hotspots and clusters?

They are very important. They account for 85 percent of all patents and 81 percent of all scientific activity. In other words, more

than four-fifths of the world's innovation takes place in these areas. Global innovation hotspots, in particular, also play an outsized role in the global innovation landscape. Thirty of the top metropolitan hotspots – most of them are in China, Germany, Japan, the Republic of Korea and the United States – account for 69 percent of all patents and 49 percent of all scientific activity.

How is the nature of innovation changing?

Innovation is becoming more collaborative. From our data, we observe how many innovators and authors contribute to an invention and a scientific article, respectively. The role of single inventors or single scientific authors has diminished over time. Teams, and teams of growing size, are becoming increasingly important. This trend is particularly striking in scientific research where more than one-fifth of scientific publications have six or more authors. There are many explanations for this but growing technological complexity is an important one. It takes more and more researchers with more specialized knowledge to solve increasingly difficult problems.

International collaboration is also on the rise. Comparing the period 1999-2002 with 2011-2015, we see more international co-inventorship and scientific collaboration. Global innovation hotspots are playing an outsized role in driving this. For example, Silicon Valley, New York, Frankfurt, Tokyo, Boston, Shanghai, London, Beijing, Bengaluru and Paris account for 22 percent of international co-inventions. When we look at the top 10 percent of co-invention ties among global innovation hotspots and specialized niche clusters, both domestically and internationally, we find that the innovation network in the United States is far more dense than in other countries.

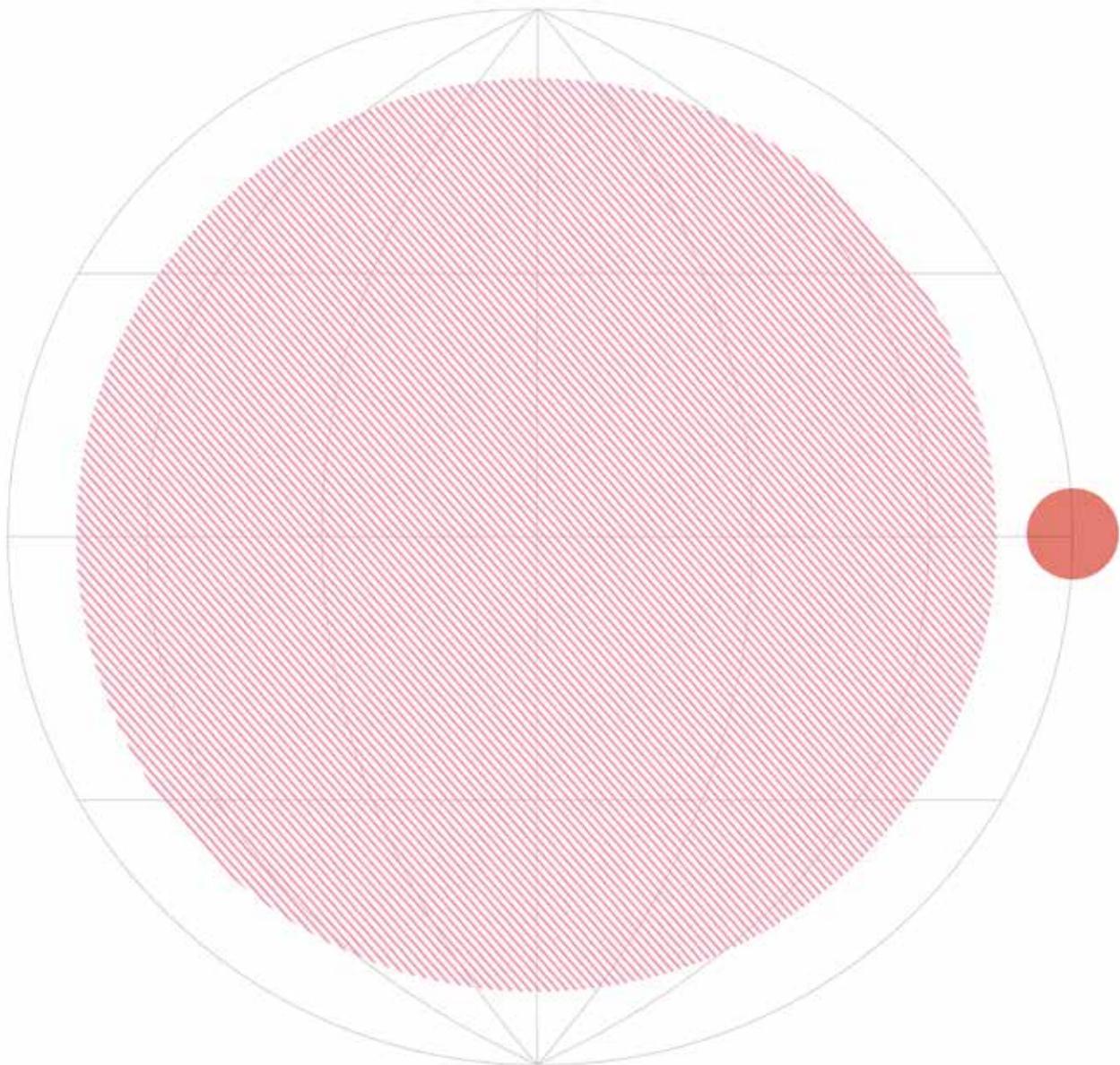
What role do multinational corporations play in the global innovation landscape?

Our findings reveal that multinational corporations (MNCs) lie at the center of global innovation networks. MNCs have spread their global R&D activities across their global value chains as evidenced by our analysis of patent documents, which reveals a rise in what we call international patent sourcing – where a patent applicant in one jurisdiction lists inventors from other countries. In the 1970s and 1980s, international patent sourcing took place predominantly between companies and inventors from high-income economies, but since then MNCs have progressively relied on inventors from middle-income countries and especially from China and India. Interestingly, we also see MNCs from middle-income economies – think Embraer in Brazil and Infosys in India – increasingly relying on the ingenuity of inventors from the United States, Western Europe and China.

The report also includes case studies. What do they reveal?

The report features case studies of two industries that are currently undergoing profound change. The first explores the impact that the emergence of autonomous vehicles is having on the automotive sector in terms of its make-up and the geographical orientation of R&D. Our report reveals that the technological shift towards autonomous vehicles is prompting IT companies to challenge established car manufacturers and their suppliers. However, despite great technological dynamism in this area, full driving automation – where a vehicle can essentially drive anywhere without driver assistance – is still considered to be likely to take many years, if not decades.

The impact of plant biotech innovation reaches far beyond the lab. Innovation produced in a metropolitan hotspot can benefit 75 times its land mass.



 METROPOLITAN HOTSPOT
 AGRICULTURAL LAND

#WIPR19

Source: World Intellectual Property Report 2019

The second case study focuses on agricultural biotechnology (ag-biotech), a field where historically scientific breakthroughs have shaped the direction of applied innovation. We explore the potential of CRISPR, the new tool that has cut the cost of gene editing and promises to unleash new genetic improvements in crops and livestock. The case study highlights the prominent role that universities and public research organizations play in the ag-biotech landscape as primary sources of innovation, especially in developing economies. Collaboration is also key in this sector. Many innovations originate in the science sector but need large-scale private investment for commercialization.

Our findings also reveal a concentration of R&D investment in the seed, chemical and fertilizer industries, due in part to the high cost of R&D and the commercialization of transgenic plants. Because of the need to adapt innovations in this area to local conditions, ag-biotech clusters are relatively more widespread compared to many other technology fields. Our analysis shows that innovation-dense agricultural clusters exist on every continent. However, high-income jurisdictions plus China still account for more than 55 percent of all articles on crop biotech and more than 80 percent of all patents.

What do the report's findings imply for policymakers?

Our data reveal a global innovation landscape that is highly interlinked. While technology is playing a key role in connecting the world's innovation hotspots, it is important to recognize that these links have also relied on a policy environment that has favored openness and international collaboration. However, amid growing skepticism about globalization, such an open environment is not a given. We argue, therefore, that it is more important than ever to maintain openness in the pursuit of innovation. Evidence suggests that it is becoming increasingly more difficult to push the global technology frontier. It takes more and more R&D effort to achieve the same level of technological progress as in the past and that applies to many fields, including health, information and transport technologies.

Openness promotes greater diversity and specialization in innovation and helps form the increasingly large teams required to solve ever-more complex technological challenges. Such collaboration relies crucially on proactive cooperation among governments on policies, such as intellectual property and standardization. It also expands to the joint funding of large-scale scientific research that exceed national budgets and which require technical knowledge available in different countries. There are prominent examples of such arrangements working well, such as CERN (the European Organization for Nuclear Research) or the International Space Station.

Another important element in making openness work is the need to address growing regional divergences in income within countries. Take the case of Israel, whose vibrant innovation economy has earned it the nickname "Startup Nation". A closer look at innovative activity in that country reveals that the Tel Aviv Metropolitan Region stands out as the clear champion. It accounts for 77 percent of all startups and 60 percent of high-tech jobs; wages are around 35 percent higher than in peripheral regions. Interestingly, Israel has recently developed policies to address income disparities in peripheral areas. This prominent example highlights the fact that while the world's most vibrant innovation hotspots are embedded in innovation networks, there is a need for policies that promote innovation-driven growth for the benefit of economies as a whole.

The Artificial Inventor Project

By **Ryan Abbott** MD, JD, MTOM, Professor of Law and Health Sciences at University of Surrey, UK, and Adjunct Assistant Professor of Medicine at UCLA, California, USA

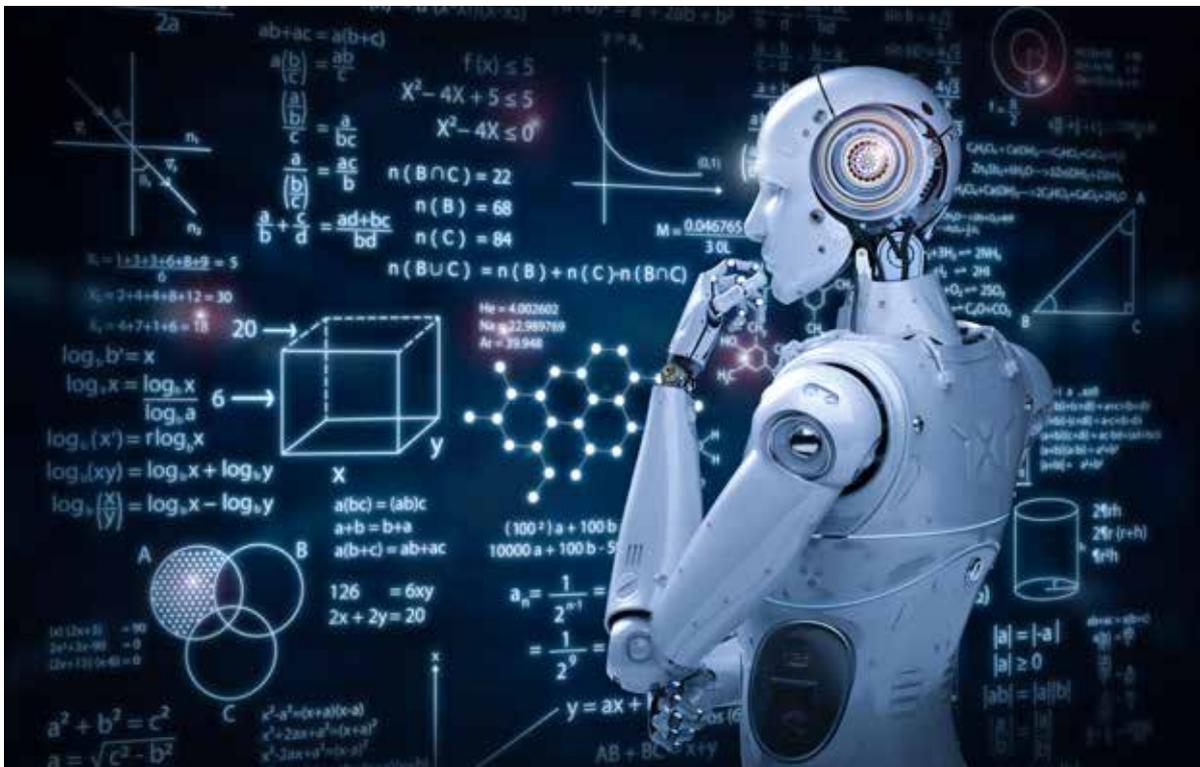


Photo: PhonlamaiPhoto / iStock / Getty Images Plus

In 2019, the Artificial Inventor Project team submitted patent applications listing DABUS (a type of AI-based “creativity machine”) as the inventor. This is notable because most jurisdictions only recognize humans as inventors. Their aim? To challenge established norms around inventorship.

In August 2019, our team (see below) announced two international patent filings for “AI-generated inventions.” That is to say, inventions generated autonomously by an artificial intelligence (AI) under circumstances in which we believe that no natural person, as traditionally defined, qualifies as an inventor. These applications list the AI as the inventor and the AI’s owner as the patent applicant and the prospective owner of any issued patents. The European Patent Office (EPO) and United Kingdom

Intellectual Property Office (UKIPO) have already evaluated these applications on their merits. Both offices found that the applications meet the requirements of patentability to the extent possible prior to the publication of the applications. The applications have also been filed under the Patent Cooperation Treaty – which facilitates the process of obtaining patent protection in over 150 countries – and are currently pending examination in a growing number of patent offices.

THE STATE OF PLAY

People have claimed to have secured patents for AI-generated inventions since at least the 1980s, but no one has ever disclosed an AI's role in such a patent application. Patent offices will not generally object to self-reported inventorship; some of the earliest applicants for AI-generated inventions say their attorneys advised them to list themselves as inventors.

There is almost no law on AI-generated inventions. Most jurisdictions require patent applications to disclose an inventor who is a natural person. This requirement is designed to protect and acknowledge the rights of human inventors. Yet, inventors do not necessarily own their patents; in fact, most patents are owned by businesses. Ownership rights can pass from an individual to a company by contractual assignment or otherwise by virtue of law. For example, in many jurisdictions, ownership passes automatically to an employer if an invention is created within the scope of employment. Even when an inventor does not own a patent, laws requiring a natural person to be listed as an inventor ensure that people receive due credit. However, these laws were created without regard to the future possibility of inventive activity by machines.

RECENT DEVELOPMENTS IN COPYRIGHT LAW WITH RESPECT TO AI

There has been more discussion about AI-generated works and copyright law. In 1988, the United Kingdom became the first country to provide explicit copyright protection for AI or "computer-generated" works. In circumstances where an otherwise copyrightable work is created but no natural person qualifies as an author, the "producer" of the work is deemed to be the author.

The United States Copyright Office has taken the opposite approach. Since at least 1973, it has applied a "human authorship policy" that prohibits copyright protection of works that are not generated by a human author. That makes it very tempting to take credit for an AI-generated work, such as a song or an artwork, that you think has commercial value – the AI is unlikely to complain!

“It is important that appropriate policies are put in place to deal with AI-generated works.”

“In IP as well as many other areas of the law, the phenomenon of AI stepping into the shoes of people promises to be profoundly disruptive.”

The human authorship policy came into public view with the “Monkey selfies” case, which involved a series of images taken by an Indonesian crested macaque named Naruto. People for the Ethical Treatment of Animals (PETA) sued on Naruto’s behalf, arguing he should own the copyright in the photographs. However, the case was dismissed because the United States Congress had not authorized animals to sue under the Copyright Act. As a result, the merits of the human authorship requirement have never been tested in court.

WHY PATENT PROTECTION FOR AI-GENERATED INVENTIONS IS NECESSARY

Patent protection should be available for AI-generated works because it will incentivize innovation. The prospect of holding a patent will not directly motivate an AI, but it will encourage some of the people who develop, own, and use AI. Allowing patents on AI-generated works, therefore, will promote the development of inventive AI, which will ultimately result in more innovation for society.

Also, patents can promote disclosure of information and the commercialization of socially valuable products. Patents for AI-generated works will accomplish these goals as well as any other patents. By contrast, failing to allow protection for inventions generated by AI would mean that, in the future, businesses may not be able to use AI to invent, even when it becomes more effective than people in solving certain problems. Such a scenario would also encourage gamesmanship with patent offices by failing to declare a filing is based on an AI-generated invention.

Beyond providing protection for AI-generated inventions, AI should be listed as an inventor when it is functionally inventing because this will protect the rights of human inventors. Allowing a person to be listed as an inventor for an AI-generated invention would not be unfair to an AI, which has no interest in being acknowledged, but allowing people to take credit for work they have not done would devalue human inventorship. It would put the work of someone who merely asks an AI to solve a problem on an equal footing with someone who is legitimately inventing something new.

Of course, an AI would not own a patent. We have never suggested this, and I am not aware of anyone seriously

making such an argument. AI systems lack both legal and moral rights and thus the ability to own property. Moreover, there would be significant costs and no obvious benefits to changing laws to allow AI ownership. Nevertheless, many of the objections to the Artificial Inventor Project have unfortunately focused on AI ownership.

Again, listing an AI as an inventor is not a matter of providing rights to machines, but it would protect the moral rights of traditional human inventors and the integrity of the patent system. As discussed earlier, it is frequently the case that the inventor of a patent is not its owner. We also believe that an AI's owner should own any patents on AI-generated inventions, in line with general principles of property ownership as well as rules that apply to other areas of intellectual property (IP) law such as trade secret protections.

NATURAL PERSONS, AI AND INVENTORSHIP

The argument has been made that for any AI-generated work there is a natural person that qualifies as an inventor. That argument is not persuasive. When someone instructs an AI to solve a problem, that person may qualify as an inventor if he or she formulates or structures a problem in a manner that requires inventive skill but not where a problem is obvious or already understood.

Similarly, a programmer or AI developer might qualify as an inventor where he or she has designed an AI to solve a specific problem or where he or she has been required to skillfully select training or input data. But a programmer is probably not an inventor where he or she has merely contributed to an AI's general problem-solving capabilities without being aware of the specific problem the AI is being applied to or its ultimate output. The connection is even more tenuous where many programmers spread over time and space are involved in developing an AI.

Finally, the person who recognizes the relevance of an AI's output may also qualify as an inventor, particularly if the AI suggests many possible options and a person has to use inventive skill to select an optimal solution. However, that does not seem appropriate where the importance of an AI's output is obvious and no further human activity is necessary.

Call for comments: impact of AI on IP policy

WIPO:

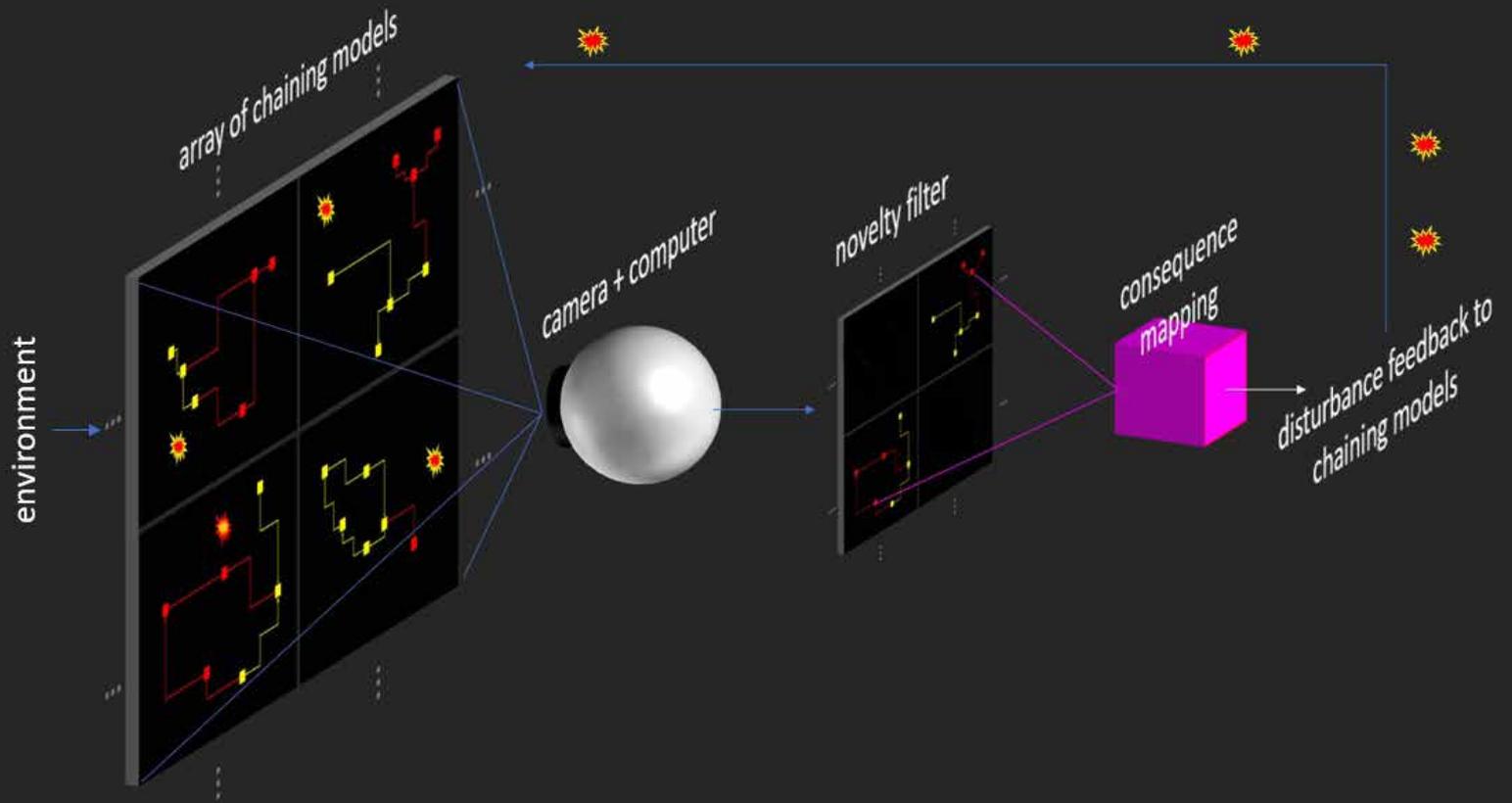
WIPO is seeking to develop, through an open process, a list of issues concerning the impact of AI on IP policy that might form the basis of future structured discussions.

Member states and all other interested parties are invited to provide comments and suggestions on a Draft Issues Paper. Comments are welcome on any aspect of the IP system affected by AI. Make your comments at: www.wipo.int/about-ip/en/artificial_intelligence/call_for_comments.

United States Patent and Trademark Office:

In late 2019, the United States Patent and Trademark Office (USPTO) also announced a request for public comments with respect to both patent and copyright protection for AI-generated works to inform policymaking in these areas.

DABUS: EMBODIMENT 1



The creativity machine, DABUS (outlined above) was responsible for generating two inventions, which are the subject of patent applications: a plastic food container based on fractal geometry; and a flashing light (or “neural flame”) to alert emergencies.

“Listing an AI as an inventor is not a matter of providing rights to machines, but it would protect the moral rights of traditional human inventors and the integrity of the patent system.”

THE NEED FOR APPROPRIATE POLICIES TO ADDRESS IP CHALLENGES

It is important that appropriate policies are put in place to deal with AI-generated works. Today, inventive AI may be a relatively insignificant part of innovation in economic terms. But AI is improving exponentially, and human researchers are not. Even in the short-to-medium term, this means that inventive AI may become a significant part of research and development. When it does, it will be seriously problematic if we lack clear rules on whether AI-generated inventions can be protected, who, or what, should be listed as an inventor, and who owns these inventions and related patents.

Inventive AI presents novel challenges to other areas of IP law, such as the standard of the “person skilled in the art” used to evaluate inventive step, a key measure of the patentability of an invention. More on this in *Everything Is Obvious* (Ryan Abbott, 66 UCLA L. REV. 2, 23-28 (2019)). That test essentially asks whether an average researcher would find a patent application obvious in light of existing relevant information, and if so, the application will be denied. As AI increasingly augments the capabilities of average workers, they will become more sophisticated and knowledgeable. This evolution of the skilled person, in turn, should raise the bar for patentability similar to how, in Europe, the concept has evolved to include skilled *persons* where team-based approaches to research are the norm.

At some point in the future, when AI transitions from automating human researchers to automating inventive activity on a broad scale, inventive AI might even *represent* the skilled person. AI capable of routinely automating research will likely find more that is obvious than today’s skilled person. It may be difficult, however, to reason cognitively about what an AI would find obvious. This may require changing the test for inventive step to focus on economic rather than cognitive factors such as long-felt but unsolved needs, concurrent invention, professional skepticism, and so forth. It may even require focusing on the ability of AI to reproduce the subject matter of a patent application. Moving further forward in time, with no obvious limit to the future intelligence of machines, someday everything may be obvious to a super-intelligent AI.

In IP as well as many other areas of the law, the phenomenon of AI stepping into the shoes of people promises to be profoundly disruptive. In my forthcoming book, *The Reasonable Robot: Artificial Intelligence and the Law* (mid-2020, Cambridge University Press), I consider more broadly how AI behaving in human-like ways will challenge existing legal standards designed to regulate the behavior of people. I argue that a principle of AI legal neutrality, by which the law does not discriminate between people and AI when they are performing the same activities, will tend to improve human well-being.

In addition to myself, the Artificial Inventor Project team includes Robert Jehan at Williams Powell, Malte Koellner at Dennemeyer, Reuven Mouallem at Flashpoint IP, Markus Rieck at Fuchs IP, and Peggy Wu at Top Team. The artificial inventor for these applications, DABUS, was developed by Dr. Stephen Thaler and it is described in detail at www.imagination-engines.com.

More information on the project and updates are available at www.artificialinventor.com.

Recalibrating innovation: science at the center of Africa's development*

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* This article was first published in the Special Issue of the *WIPO Magazine* for the Conference on Intellectual Property, Innovation and Value Addition for Business Competitiveness and Sustainable Development in Harare, Zimbabwe in November 2019.

** The Next Einstein Forum is an initiative of the African Institute for Mathematical Sciences (AIMS) that seeks to propel Africa onto the global scientific stage and make science relevant and cool for all ages. AIMS believes that the next Einstein will come from Africa.



“The digital economy is the single largest driver of innovation in Africa.”

If you stop a young girl or boy in any African city and ask them to name a famous African, the answer will vary from Sadio Mané or Mo Salah to Wizkid. The eyes of some may glaze over as they dream of starring in the next Black Panther movie or of creating a real Wakanda, (Black Panther’s fictional homeland). If you ask the same girl or boy what they want to be when they grow up, they will likely enthuse about becoming a singer, an athlete, or following in the footsteps of Aliko Dangote, Africa’s wealthiest entrepreneur, or Mark Zuckerberg. We want to be what we value. Most will not mention scientists or inventors. Why? Because science or “sciencepreneurship” is not cool. It is not a first choice career. This is what the Next Einstein Forum (NEF) is working to change.

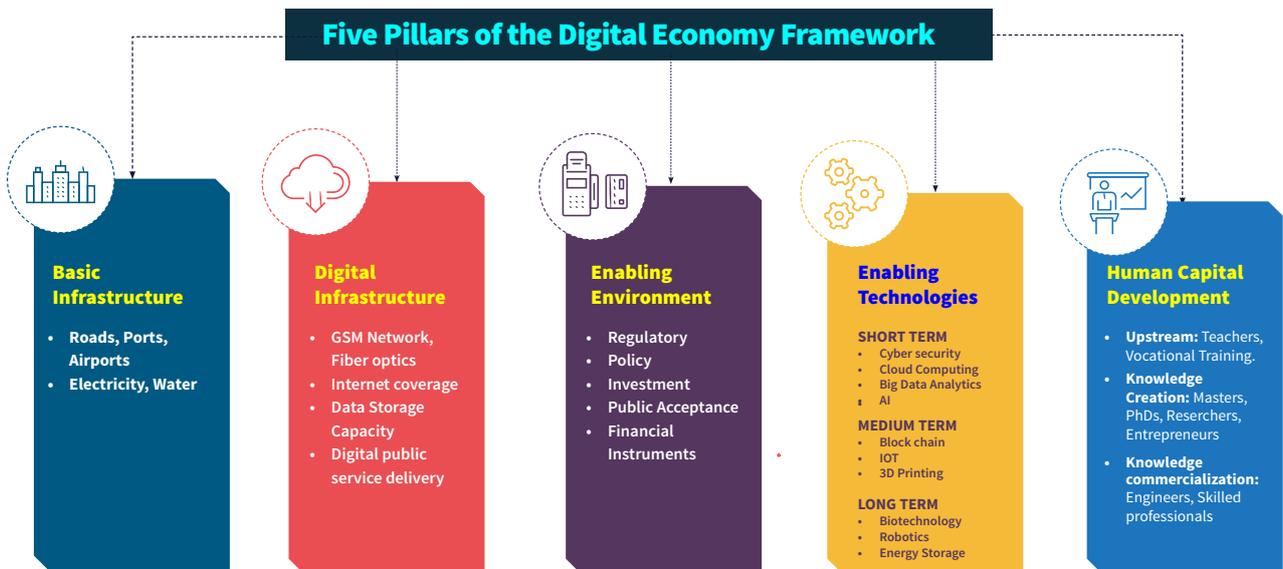
So why is it important that we change this narrative? Every year, around 11 million young people enter the labor market in Africa. We are graduating more people than we are creating jobs. New jobs require new industries. Africa is quickly becoming the startup continent and that is a good thing, but it is not enough. Africa needs unicorns, companies that create industries and jobs and that have a transformative impact on African economies. How does this happen?

A PAN-AFRICAN VISION FOR THE DIGITAL ECONOMY

For the last 18 months, we have been working on a Pan-African vision and roadmap for the digital economy. We believe the digital economy is the single largest driver of innovation in Africa. What we have discovered in our roundtables with public and private sector actors is that Africa lacks a collaborative innovation framework to accelerate the digital economy and the gains that can flow from it. We need to redefine what innovation is and how innovation can transform our economies and societies.

Our message is simple. If we want to benefit from the digital economy, we need to view education as a value chain that requires different interventions at each level. At NEF, we have defined five pillars to accelerate the transformative impact of the digital economy or, in other words, to speed up the process of taking ideas from the lab and scaling them for the market.

The first and second pillars (see right) relate to the need for basic and digital infrastructure. For many, it may seem that digital infrastructure (including last mile efforts) somehow removes the need to improve basic infrastructure. This is a shortsighted assumption. Africa needs to accelerate efforts to build and improve infrastructure. The ability to buy raw product online from farmers 500 kilometers away in another country may seem like the perfect solution, but a good road network and efficient custom services are still required to take possession of that product in an affordable way and to accelerate business growth.



Key Enabling Technologies for the Digital Economy



- **Big Data Analytics**
- **Cyber Security**
- **Machine Learning/AI**
- **Cloud Computing**

Provides the infrastructure, computing, analytics, security



- **Blockchain**
- **Internet of Things**
- **3D Printing and Additive Manufacturing**

Transparency, access to instruments and data



- **Biotech**
- **Robotics**
- **Energy Storage**

Breakthrough techs



Photos: Courtesy of The Next Einstein Forum



“Like the rest of the world, we need to improve the way we learn so that we empower African children and give them opportunities to acquire the multidisciplinary skills that will allow them to be both great employees and employers,” says Nathalie Munyampenda, Managing Director of the Next Einstein Forum.

FUNDING INNOVATION

The third pillar focuses on factors that support an enabling environment or ecosystem. Without a sound policy and regulatory environment that actively brings the public and private sectors and civil society together at an early stage, we will continue to advance at a snail's pace. How then can we speed up the process?

First, we need to explore what types of new financing instruments and partnerships are required to support the lab to market process at a Pan-African level. Until now – although this is likely to change soon – no mechanisms have been in place to finance pilot and demonstration projects in Africa in a systematic way. No comprehensive research and innovation fund exists in Africa.

Second, we need to improve awareness about the way in which intellectual property (IP) rights can add value to innovation and creativity and foster business growth. A recent study by WIPO covering the 19 African countries that make up the African Regional Intellectual Property Organization (ARIPO) shows that IP awareness on the continent is very low. We need to turn this around.

And third, we need to establish an open innovation framework and within that, develop strong technology transfer mechanisms in our universities and colleges, to help ensure that the new knowledge they create translates into the products and services required to address local challenges. If we are to harness the full benefit of IP, we need to tackle the barriers to greater IP awareness, and we need to address the need to establish and adequately fund effective technology transfer offices in a systematic way.

The Next Einstein Forum is developing a continent-wide state of science and innovation index to explore what it takes to be successful in innovation and to use that knowledge to recalibrate how we define innovation and how we ensure it is transformative. The role that IP plays in leveraging the value of innovation is one important aspect that will be reviewed in this exercise. We will be launching the first edition of the index in March 2020 at the NEF Global Gathering in Nairobi, Kenya.

CHANGING THE WAY WE LEARN

The last two pillars of our innovation framework focus on technology and talent. Like the rest of the world, we need to improve the way we learn so that we empower African children and give them opportunities to acquire the multidisciplinary skills that will allow them to be both great employees and employers. And of course, we need to make a deliberate effort to ensure girls remain in the science and technology pipeline. This doesn't just mean that going to university is an end goal. We need to anticipate our future needs – bearing in mind the impact that greater automation will have on our lives – and we need to invest in making sure we have the talent to create new value chains and industries.

“There must be a deliberate effort and cultural shift across Africa to commit to scientific research and technology.”

At the tertiary level, we need to prepare students for the world of work and ensure they are employable, but we also need to make sure we keep some of our best minds in research. Without good researchers and engineers, we will always be subject to technology created for others and by others. There must be a deliberate effort and cultural shift across Africa to commit to scientific research and technology. Research must become the “it” profession.

At the post-graduate level, we need to partner with the private sector or find other innovative ways to fund research in priority areas. Developing new funding instruments is one of the continent’s most urgent needs. This is even more critical in the commercialization phase, where millions of dollars are often needed to prove a concept, roll out a product and scale up production.

So what should be our priority areas? At NEF, we encourage governments to look at their competitive advantage, particularly now that the African Continental Free Trade Area is taking shape. We need to get better at pooling resources and focusing on key enabling technologies, particularly the immediate needs of cybersecurity, Big Data, artificial intelligence and machine learning, cloud computing and 5G. This should not be done in a vacuum. Again, national priorities and those involved in strengthening value chains must look at all aspects of the innovation framework and how it is to be funded. All the actors involved must be on the same page and need to ensure their respective contributions are geared to harnessing the social and economic benefits of these technologies.

MAKING SCIENCE COOL

Where does NEF fit in? An initiative of the African Institute for Mathematical Sciences (AIMS), NEF has a bold ambition – that the next Einstein will be from Africa. As our President and CEO Thierry Zomahoun likes to say, “this isn’t a motivational speech, it is our blueprint.”

AIMS is training Africa's top scientific talent, graduating Africans from 43 countries with master's degrees in mathematical sciences or machine intelligence. We also recruit brilliant young researchers from across the world, bringing them back to Africa to work on real world problems using mathematics. And we train secondary school teachers to enable them to teach mathematics in a more interesting and compelling way so we keep girls and boys in the science, technology, engineering, mathematics (STEM) pipeline.

With more than 1,900 AIMS alumni applying mathematics to agriculture, health, trade and logistics, fintech, the circular economy, energy and power, and more, we have high hopes that Africa will soon move from a startup continent to the home of transformative innovation. The question of leveraging IP remains a critical challenge, one for which we must develop a clear plan that has strong public support.

At NEF, we are already seeing the fruits of our public engagement activities to make science cool. Our programs, particularly our NEF Fellows Programme, which recognizes top scientists in their field who serve as invaluable role models, and our hands-on Africa Science Week, organized in over 30 African countries, are shifting the tide by demonstrating the impact that scientists can have on the development of Africa and the rest of the world. Young people are often surprised that an industrial chemist like Professor Peter Ngene, a Nigerian based in the Netherlands, can come up with a hydrogen-based eye sensor to detect lactose intolerance, or that a geneticist like Dr. Vinet Coetzee from South Africa, could create a non-invasive, low-cost way to detect malaria. We need to change the stories we tell around scientists, and these stories need to be grounded in fact and impact.

Africa Science Week will be held in over 35 countries this year. We will use interactive science activities as well as industry-scientist meetups, to put a human face on scientists and the important work they do in our countries.

This program is led by our local STEM champions, NEF Ambassadors, young scientists, technologists and entrepreneurs, making every science week unique and contextually grounded.

Finally, to make important scientific work accessible, we run an online magazine, *Scientific African Magazine*, which makes research published in our journal, *Scientific African*, understandable for policymakers and the public. The articles are written by science journalists who are gifted in simplifying the very complex.

WORKING TOGETHER AND BETTER

Our work in developing the innovation framework has shown us a number of things. First, it has underlined how critically important it is for actors across value chains to work together to identify barriers and opportunities and to find ways to address these in a collaborative way. Second, we learned the importance of looking at innovative financing mechanisms to address funding needs. Third, it is clear that Africa will not catch up if we do not create our own technology. We need researchers, engineers and other technical talent. Our talent requirements for today and tomorrow's industries need to be mapped out and resources need to be secured in a systematic way to reach talent targets. For years, African scientists and researchers have been involved in leading labs and research institutions all over the world, conducting breakthrough research in many strategic fields including aerospace, cybersecurity, semiconductors, health and more. We need to create an environment for such innovation to happen in Africa. Fourth, we need a clear plan to leverage IP and promote greater use of the IP system. And fifth, we need to win over African citizens to the importance of science for development. This is critically important. We need to promote broader understanding of why large investments are needed in these areas and how each and every African can be part of the continent's scientific and technological renaissance. This, and strong political commitment, will take Africa to new heights.



Protecting indigenous knowledge: a personal perspective on international negotiations at WIPO

Wend Wendland, Director, Traditional Knowledge Division, WIPO*

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Ten years ago, WIPO's member states launched negotiations to develop international legal instruments addressing intellectual property and genetic resources, traditional knowledge and traditional cultural expressions. These negotiations take place within an Intergovernmental Committee known as the IGC established in 2000.



** This article updates two publications by Wend Wendland, namely, *The evolution of the IGC from 2001 to 2016: An Insider's Account* in Daniel Robinson, Ahmed Abdel-Latif and Pedro Roffe (eds), *Protecting Traditional Knowledge: The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore* (Routledge, 2017) 31, and *International Negotiations at WIPO on Intellectual Property and Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions: Analysis of the Process So Far and Thoughts on Possible Future Directions* (2018) 114 *Intellectual Property Forum* 31. These earlier works contain detailed references.

Ten years ago, WIPO's member states formally launched negotiations toward developing international legal instruments addressing intellectual property (IP) and genetic resources (GRs), traditional knowledge (TK) and traditional cultural expressions (TCEs). These negotiations take place in an Intergovernmental Committee known in short as the IGC. This article** traces the undulating contours of the negotiations so far.

BACKGROUND

The IGC was established by the WIPO General Assembly in 2000; its mandate is usually determined by the Assembly every two years.

The objective of the IGC's new mandate for 2020-2021 is "finalizing an agreement on an international legal instrument(s), without prejudging the nature of outcome(s), relating to intellectual property (IP) which will ensure the balanced and effective protection of" GRs, TK and TCEs.

The ramifications of the IGC's task are immense. Many argue that adopting one or more international legal instruments would enrich the IP system by expanding its range of beneficiaries to include vulnerable and often marginalized indigenous peoples and local communities. They also argue that it would strengthen the IP system's contribution to sustainable development, thereby bolstering its legitimacy in all regions, and inspire fresh confidence in multilateralism.

Pragmatic win-win outcomes are tantalizingly within reach, at least on some aspects of the Committee's mandate. Substantial progress has been made.

However, the negotiation is profoundly challenging.

KEY CHALLENGES

Challenges relate to the nature of the issues, the ways in which the Committee functions and its situation within the broader multilateral landscape.

The relationships between IP and GRs, TK and TCEs are technically intricate, and the issues are distinct yet interlinked. This requires an unusually high degree of substantive competence as well as domestic coordination and policy coherence within participating countries. On top of this, at best, there are only a few national and regional experiences that may be models for negotiators to draw on. While the frequency of IGC meetings is evidence of countries' determination to make progress, the intensity of the process, coupled with its long duration so far, risks sapping its energy and momentum.

Another challenge lies in the relatively low interdependence between the issues under negotiation in the IGC and other issues on the international IP agenda. This leaves *demandeurs* (those countries seeking normative outcomes) with little leverage to extract concessions from non-*demandeurs*. Moreover, the fragmented treatment of these issues across various international forums can complicate efforts by *demandeurs* to establish dynamic cross-regional coalitions.

Progress is hobbled by varying degrees of political willingness among countries, leading to persistent divergences among them as to the IGC's objectives and expected outcomes. These in turn hinder the Committee's attempts to design an effective working methodology that could enable consensual compromise outcomes.

Finally, these issues do not yet seem to stir the hearts of ordinary citizens. There is little pressure from the public and civil society for a speedy conclusion to the negotiation.

MILESTONES

The early years

At first, the IGC's work combined fact-gathering, technical analyses, exchanges of practical experiences and policy debate. Troves of information about national and regional regimes were gathered through member state submissions, questionnaires, case studies and panel discussions.

The focus was on non-normative work, which led to a number of useful, practical outcomes. These included concrete first steps towards the defensive protection of TK (protection against TK being patented) through its enhanced recognition as prior art.

Work also commenced on technical standards for TK documentation and IP clauses for use in access and benefit-sharing agreements. Work towards new standards ("norm-setting"), especially for the positive or direct protection of TK and TCEs as a new form of IP, was not agreed upon. Impatience among many countries about the lack of progress on legal instrument(s) grew, and the value of gathering further empirical information and of non-normative practical outcomes came into question.

A pivot towards norm-setting

In July 2003, the IGC could not agree on its new mandate for 2004-2005, triggering the Committee's first real crisis. After four sessions, the enormity of its task was becoming clearer, as was the gulf in expectations among states as to the IGC's overall purpose and anticipated outcomes. The optimism of the early years dissipated

“Pragmatic win-win outcomes are tantalizingly within reach, at least on some aspects of the Committee’s mandate.”



Photo: WIPO / Daphné Zogratos-Johnsson

Nomadic Kyrgyz musicians.

Practical training for member states and indigenous peoples and local communities

In addition to administering the IGC process, WIPO's Traditional Knowledge Division provides a wide array of technical assistance and capacity-building services. These assist member states to develop policies, strategies and laws; strengthen the practical ability of indigenous peoples and local communities to make effective use of existing IP tools if they so wish; and, provide hands-on training to a wide range of stakeholders on issues relating to IP and GRs, TK and TCEs in diverse practical situations.

as *demandeurs*' expectations of quick normative outcomes soured. Some countries believed it was premature to embark on norm-setting before securing wider agreement on objectives, guiding principles and core concepts. The WIPO General Assembly had to step in. After lengthy negotiations, member states agreed on a carefully constructed mandate, which for the first time included a reference to "international instrument or instruments," marking an explicit pivot towards normative work. The IGC was also required to "accelerate" its work.

However, developing countries soon grew skeptical about the Committee's effectiveness in norm-setting. Again, the Committee was at a critical point. Yet, no member state had formally proposed a comprehensive draft instrument. In 2005, the WIPO Secretariat published the working documents on TK and TCEs as concise "draft articles." Some negotiators found this useful to pinpoint areas of possible consensus and difference. The articles comprised draft objectives, principles and substantive provisions. However, non-*demandeurs* were not ready to work on them in this form. Such work was shelved and was replaced by discussions of "issues". At the member states' request, the WIPO Secretariat prepared materials on the "international dimension" of the IGC's work and analyses of gaps between the protections provided by the IP system and the needs and aspirations of indigenous peoples and local communities and other *demandeurs*.

Text-based negotiations begin in 2010

In late 2009, and to the surprise of many, the WIPO Assembly agreed on a much strengthened mandate for 2010-2011. It referred for the first time to "text-based negotiations" on all three themes, to "international legal instrument(s)" (emphasis added), and to the possible convening of a Diplomatic Conference. This language re-ignited *demandeurs*' expectations, but drew non-*demandeurs* into normative work, which they considered premature. Many perceived a chasm between the mandate's ambition and the maturity of the negotiation.

New working methodologies

From 2010, as the IGC battled to undertake genuine "text-based negotiations", attention turned to finding more effective work methods. "Intersessional working groups" proved a breakthrough, allowing for considerable technical progress in 2010 and 2011. Other methodological innovations were also tested (see p.29). The challenge was to balance inclusiveness and transparency, on the one hand, and efficiency and effectiveness, on the other. Often progress made in smaller informal groups was reversed by the plenary. There was much back and forth, with, at times, more "back" than "forth".

Genetic resources: clarity emerges

Negotiations relating to GRs took a leap forward in 2012, with the emergence of a single consolidated text. Options around a new patent disclosure requirement related to GRs (with or without associated TK) became clearer and pressure mounted for an agreement on this question. In 2017, the WIPO Secretariat published a first-ever compilation of key policy questions on and national experiences with such a requirement (*Key Questions on Patent Disclosure Requirements for Genetic Resources and Traditional Knowledge* (2017)).





Photo: Bartosz Hadyniak / E+ / Getty Images

Innovative mechanisms introduced by the IGC

- **Plenary:** the meeting of all IGC members and accredited observers. The decision-making body within the IGC process. The IGC reports to the WIPO General Assembly.
- **Thematic sessions:** IGC sessions which focus solely on GRs, TK or TCEs. By contrast, **cross-cutting sessions** focus on more than one of these topics, usually to enable the IGC to address issues arising in respect of two or all of the topics.
- **Ad hoc expert groups:** groups formed by experts appointed by countries and the indigenous caucus who, in their personal capacities, meet to address specific legal, policy and technical issues in relation to IGC-related topics in order to support and facilitate the negotiations of the IGC's plenary.
- **Intersessional Working Groups (IWGs):** established by the WIPO General Assembly in 2009 to provide legal and technical advice and analysis to the IGC; these met in 2010 and 2011, and comprised one technical expert from each member state and accredited observer who participated in his/her personal capacity; each IWG met for five days; detailed modalities for their organization were agreed by the IGC in May 2010. So far no further IWGs have been established.
- **Contact groups, informals and informal informals:** held during IGC sessions, these meetings tend to comprise a limited number of delegates from each regional group and one or two indigenous representatives to discuss key issues and to make textual or other proposals for consideration by the IGC's plenary, in an informal, off-the-record setting.
- **Facilitators:** individual delegates that may be proposed by the Chair and approved by the IGC to assist the text-based negotiations by following the discussions closely, keeping track of views, positions and proposals, drafting proposals, and preparing revisions of the negotiating texts for review by the plenary.
- **Friend(s) of the Chair:** delegates or other persons invited by the IGC Chair to assist and advise him/her on a continuing or *ad hoc* basis.
- **Seminars:** organized by the WIPO Secretariat in 2015, 2016 and 2017; informal opportunities for country delegates and representatives of observers to share regional, national and community practices and experiences, as well as to exchange views on key IGC issues.
- **Expert drafting groups:** open-ended, informal drafting groups to produce revised versions of the negotiating texts for consideration by the IGC's plenary.
- **High-level segments:** meetings held among high-level authorities (e.g. ambassadors and senior officials) to share views on key policy issues relating to the IGC's negotiations to further inform the IGC plenary. A high-level meeting took place during the February 2014 session of the IGC.

In April 2019, the IGC Chair, Ian Goss, prepared, under his own authority, a draft international legal instrument on GRs and associated TK. Negotiators have recently agreed to include this text among the Committee's working materials, as a Chair's text. This suggests that while the Chair will continue to "hold the pen" in relation to his text, it is among the documents that the Committee may consider as it works on the text of a possible future instrument.

A gap year in 2015 and the current phase

In a development that shocked many, the WIPO Assembly could not agree in late 2014 on a schedule of IGC sessions for 2015. Negotiations ground to a halt with potentially significant implications for the IGC's future.

Fortunately, a year later, countries renewed the mandate and agreed to a work program for 2016-2017.

The mandates for 2016-2017 and 2018-2019 are similar. While their language may be soaked in constructive ambiguity, useful new features include "ad hoc expert groups", an "evidence-based approach" and the simultaneous discussion of TK and TCEs. In this period, certain countries submitted proposals to conduct studies such as cost-benefit analyses, but this was not agreed to. Breakthrough progress remains elusive. Most delegations continue to restate well-known positions and are not negotiating with each other (nor indeed with themselves) to find compromise solutions. As yet, at least on TK and TCEs, there is little sign of gaps narrowing. The recent introduction of the Chair's text may re-energize work on GRs and associated TK. Most recently, the WIPO Assembly renewed the IGC's mandate for 2020-2021 on terms similar to those of the past four years.

Enhanced participation of indigenous peoples and local communities

The IGC addresses issues of particular interest and concern to indigenous peoples and local communities to a degree unparalleled in other areas of WIPO's work. Over time, the Committee has created mechanisms to enhance their participation in its work. This has enabled indigenous peoples and local communities to participate in international IP policy-making for the first time.

From the outset, the IGC has granted ad hoc observer status to a wide range of non-governmental organizations representing indigenous peoples and local communities. Since 2004, their representatives meet among themselves to prepare in advance of IGC sessions. At the suggestion of New Zealand, Indigenous Panels address negotiators. In 2005, member states established the WIPO Voluntary Fund for Accredited Indigenous and Local Communities, which funds representatives of accredited indigenous peoples and local communities to attend IGC sessions. For several years now, community representatives organize themselves in the form of an "indigenous caucus". The caucus is the only non-governmental stakeholder generally invited to participate with member states in informal meeting formats. Since 2009, an indigenous person works for a year or two at a time in the Traditional Knowledge Division under the WIPO Indigenous Fellowship Program.

CONCLUDING THOUGHTS

The renewal of the IGC's mandate indicates that countries still believe that these issues require multilateral resolution. Since 2000, negotiators have made a significant technical and political investment and have produced a wealth of substantive materials. National and regional legislative initiatives continue to draw on the draft negotiating texts, which themselves are significant outputs.



Photo: WIPO / E. Berrod

The IGC addresses issues of particular concern to indigenous peoples and local communities. The IGC has introduced a number of mechanisms that have enabled indigenous peoples and local communities to participate in international IP policy-making for the first time.

However, difficulties stem from differing degrees of political willingness, diverse views on objectives and core policy issues and varying levels of understanding of these technically complex issues.

The rumble of profound tectonic shifts in bio- and information technologies is also beginning to be heard in the margins of the negotiation. Likewise, fresh thinking of multilateralists around shifts from formal intergovernmental conventions to more dynamic and flexible multilateral outcomes is in the air.

Initiating a true *negotiation* would seem to be a priority. Towards this end, there are several ideas, such as securing firm consensus on the purpose and goals of the process, establishing meaningful intersessional work and enabling consequential informals among key delegations. There are also ideas about *demandeurs* creating meaningful leverage, building cross-regional coalitions, deploying senior political figures as “champions” of the process, identifying opportunities for compromise outcomes and energizing civil society.

Under its new mandate, the IGC will meet quarterly in 2020. This is a sign of commitment and determination. Lessons learned from the past 10 years will undoubtedly inform thinking on how best to work towards achieving pragmatic, flexible and balanced yet sufficiently consequential outcomes.

Australian court clamps down on the sale of fake Aboriginal souvenirs

By **Stephanie Parkin**, member of the Quandamooka People of Minjerribah (North Stradbroke Island), Queensland, Australia

Australian Aboriginal art and cultural expression is of major importance to Aboriginal artists and communities across Australia. “Aboriginal art” in the form of cultural expression is tied to identity, knowledge and connectedness to ancestors, land and sea country that has existed since time immemorial and which has been passed down through generations.

The existence of products in the tourist and souvenir market that mimic authentic Aboriginal cultural expression has been a problem in Australia for decades. Recently, this so-called “fake art” was considered by the Federal Court of Australia (Federal Court) in the case involving the Australian Competition and Consumer Commission (ACCC) and Birubi Art Pty Ltd (Birubi). For the purposes of this article, the reference to “fake Aboriginal souvenirs” is intended to mean souvenir products made in an Aboriginal “style” without the actual involvement or knowledge of an Aboriginal person.

In March 2018, the ACCC instituted proceedings against Birubi, a wholesaler of Australian style souvenirs based in Queensland, Australia. The ACCC is the independent Commonwealth regulator, which promotes principles of fair trade and consumer protection through the enforcement of the Competition and Consumer Act 2010 and the Australian Consumer Law.

In October 2018, the Federal Court found that Birubi misled consumers by making false representations that the souvenirs it sold were made in Australia and hand-painted by Australian Aboriginal people, when they were actually produced in Indonesia by non-Indigenous people.

“Fake Aboriginal souvenirs exploit and distort Aboriginal cultural expression and interfere with the proper maintenance and transmission of Aboriginal cultural expression and knowledge.”



An example of the boxed boomerang. Image taken from the judgment in the *Australian Competition and Consumer Commission v Birubi Art Pty Ltd* [2018] FCA 1595.

In June 2019, the Federal Court handed down a penalty of AUD 2.3 million against Birubi for contravention of the Australian Consumer Law. Justice Perry heard evidence on the economic, social and cultural harms that fake Aboriginal souvenirs cause to Aboriginal artists and communities, and imposed a penalty that aimed to deter others in the market from engaging in such conduct. Birubi ceased trading shortly after being found guilty of misleading and deceptive conduct and went into voluntary liquidation before the penalties were handed down by the Federal Court.

LIABILITY

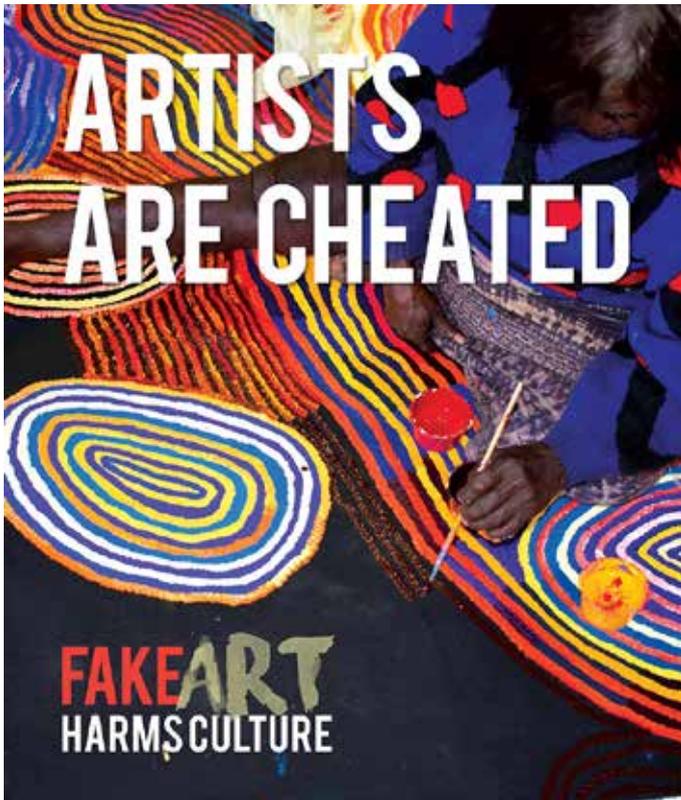
Birubi was a wholesaler of souvenir products, supplying approximately 1,300 product lines of wide variety to around 150 retail outlets across Australia. The ACCC brought the misleading and deceptive conduct action in respect of five of Birubi’s souvenir product lines which contained visual images, designs and styles of Australian Aboriginal art and culture. The five product lines in question and the ultimate penalty for each were as follows:

- loose boomerangs (AUD 450,000 penalty);
- boxed boomerangs (AUD 475,000 penalty);
- bullroarers (instruments used for communicating over long distances) (AUD 200,000 penalty);
- bamboo didgeridoos (AUD 700,000 penalty); and
- message stones (AUD 475,000) (collectively, products).

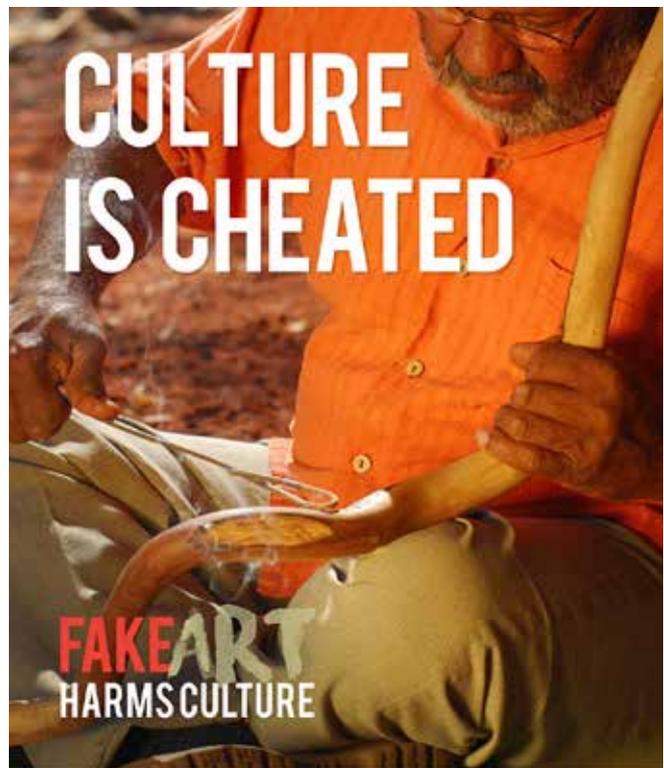
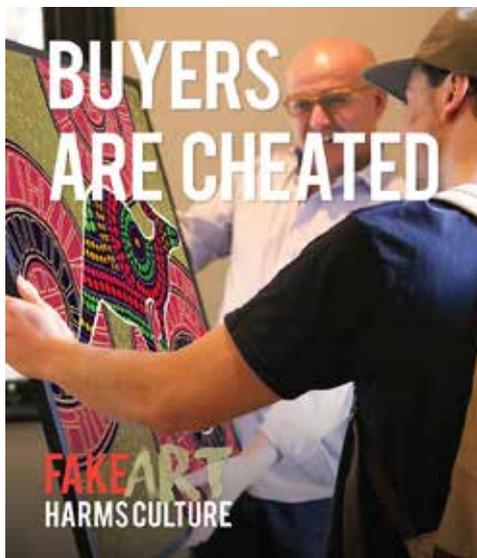
Justice Perry of the Federal Court heard evidence that from July 2015 to November 2017 Birubi sold over 50,000 of the products outlined above to retail outlets around Australia, including Sydney airport and major tourist destinations such as Bondi Beach in New South Wales and Cairns in Queensland. The products featured a range of symbols associated with Australian Aboriginal art, including visual designs and native animals, like kangaroos.

Despite being manufactured in Indonesia by non-Aboriginal people, the products were sold with words on their packaging such as “handcrafted”, “Aboriginal art”, “genuine”, and “Australia”. After considering the evidence, the Federal Court concluded that Birubi had breached provisions of the Australian Consumer Law in relation to the provenance and characteristics of products supplied.

The Federal Court stated that the overwhelming impression conveyed by the products and associated implied representations was that they were made in Australia and were hand painted by Aboriginal people.



Photos: Courtesy of The Fake Harms Culture campaign by the Indigenous Art Code. Copyright Agency and Arts Law Centre of Australia



The existence of products that mimic authentic Aboriginal cultural expression has been a problem in Australia for decades. The "Fake Harms Culture" campaign was launched in 2016 in response to calls from Aboriginal and Torres Strait Island artists to address the misuse of their cultural expression in the form of fake souvenir products.

During the proceedings, the ACCC Commissioner Sarah Court stated that “it was unacceptable that Birubi sold Indonesian made products as having being hand painted by Australian Aboriginal persons when that was not the case.” She added, “The artwork, images and statements used by Birubi suggested a relationship between Australian Aboriginal people and the production of the products which did not exist.”

PENALTIES

Justice Perry heard how fake Aboriginal souvenirs mislead consumers as to the authenticity of the products that consumers are purchasing. It was also brought to the Federal Court’s attention that Aboriginal people and communities are suffering a negative impact from fake Aboriginal souvenirs in a number of ways.

The manufacture and sale of fake Aboriginal souvenirs mean that Aboriginal artists are denied economic opportunities to benefit from their own cultural expression. It also means that Aboriginal people are deprived of the ability to control their own cultural expression in accordance with cultural protocol and respect.

The Court heard expert evidence from Dr. Banduk Marika, a Rirratjinu woman of North-East Arnhem Land in the Northern Territory. Dr. Marika gave evidence that an Aboriginal person’s right to produce specific visual designs is critical to their own identity and should be carefully controlled by that person to protect their identity and future generations *Australian Competition and Consumer Commission v Birubi Art Pty Ltd (in liq) (No 3)*.

Dr. Marika explained that traditional lores exist across Australia such that a person from another clan or part of Australia, such as Central Australia, would not use North-East Arnhem land designs without permission. In the same way, Dr. Marika would not use Central Australian designs without permission because she did not know or understand the lore governing the use of those designs.

Justice Perry acknowledged that Dr. Marika gave compelling evidence as to the cultural harm that flows from the misuse of Aboriginal cultural designs that are incorporated into fake Aboriginal souvenirs, including the risk of misappropriating the art and conveying a meaning that is wrong or harmful to the actual true meaning of the design. Such misuse demonstrates that the design has been used without the permission of the design’s guardians, or appropriate family clan.

Dr. Marika reiterated that it is entirely inappropriate for a person to use a design that does not belong to them, whether they were a person from a different clan, the same clan, or a non-Indigenous person. When viewed

and understood in this way, fake Aboriginal souvenirs exploit and distort Aboriginal cultural expression and interfere with the proper maintenance and transmission of Aboriginal cultural expression and knowledge.

In handing down the penalty, Justice Perry noted that “...the evidence as to the potential for direct and indirect economic, social and cultural harm occasioned by conduct of this nature for Indigenous Australian artists and more broadly for Indigenous communities is powerful”.

LAW REFORM

While the Birubi case is important in continuing to highlight the problem of fake Aboriginal souvenirs in Australia, it also demonstrates the limitations of existing laws. One limitation is that the Australian Consumer Law is only concerned with misleading and deceptive conduct. In a practical sense, this means that souvenir products made by non-Aboriginal people incorporating Aboriginal cultural expressions does not contravene that law provided the souvenirs are clearly labelled with accurate information about where the souvenirs are made and by whom. Although such conduct may be permitted under the Australian Consumer Law, it is obviously problematic for and causes harm to Aboriginal artists and communities, as evidenced by Dr. Marika and the Federal Court.

In light of the Birubi case, stakeholders, such as the Arts Law Centre of Australia and the Indigenous Art Code and Copyright Agency, have continued to highlight problems with existing legislative frameworks and are calling for law reform.

In Australia, while there are parts of existing laws that may be relied upon in particular circumstances – these include the Australian Consumer Law and the Copyright Act 1964 (Cth) – there is no standalone legislation that is specific to or recognizes rights attached to Aboriginal cultural expression (or traditional knowledge that lies within such expression).

“The Birubi case is important in continuing to highlight the problem of fake Aboriginal souvenirs in Australia. It also demonstrates the limitations of existing laws.”



Photos: Julie Sisco, 2019



The cultural expressions embedded in “Aboriginal art” are tied to identity, knowledge and connectedness to ancestors, land and sea country that have existed since time immemorial and which have been passed down through generations. Various works by Aboriginal artist, Delvene Cockatoo Collins, member of the Quandamooka People of Minjerribah (North Stradbroke Island), Queensland, Australia.

The Birubi case was instituted by the ACCC at a time when a number of other actions were taking place at Government and non-Government levels to address fake Aboriginal souvenirs, including:

- the “Fake Art Harms Culture” campaign launched in 2016 by the Arts Law Centre of Australia, Indigenous Art Code and Copyright Agency in response to calls from Aboriginal and Torres Strait Islander artists to address the misuse of their cultural expression in the form of fake souvenir products; and
- the House of Representatives’ Standing Committee on Indigenous Affairs inquiry into the “growing presence of inauthentic Aboriginal and Torres Strait Islander “style” art and craft products and merchandise for sale across Australia”, which in its final report released in December 2018 recommended the introduction of standalone legislation to recognize Indigenous Cultural and Intellectual Property rights.

In a climate where there is renewed action and calls for reform in the area, it will be interesting to see how the ACCC responds to other cases of fake Aboriginal souvenirs in the Australian market, particularly as the ACCC has publicly committed to “addressing conduct impacting Indigenous Australians”, which is an enduring priority. What is clear is that Aboriginal and Torres Strait Islander artists and communities will, as they have done for decades, continue to advocate for proper protections and recognition of their cultural rights and expressions.

This case well illustrates the issues being addressed by WIPO’s program on traditional knowledge and cultural expressions (see *Protecting indigenous knowledge: a personal perspective on international negotiations at WIPO*, p.22).

Tackling bad faith registration of domain names in a fast-changing landscape

By **John McElwaine**, Partner, and
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The “Dot Com” boom of the late 1990s ushered in the commercialization of the Internet and spawned the expansion of the domain name system. These positive developments, however, also gave rise to the problem of cybersquatting – the bad faith registration of domain names, especially well-known trademarks, in the hope of reselling them at a profit.

On the 20th anniversary of the implementation of the Uniform Domain Name Dispute Resolution Policy (UDRP), which has been highly successful in tackling cybersquatting, we reflect on the origins of the policy and its effectiveness, as well as how it may evolve in the years ahead.

THE ORIGINS OF THE UDRP

Acknowledging the threat that cybersquatting represented to consumer trust and to the safety, security, and stability of the Internet, in the late 1990s the United States Government asked the World Intellectual Property Organization (WIPO) to conduct a consultative study on domain name and trademark issues and to develop recommendations to combat related online abuses. WIPO’s recommendations culminated in the UDRP, which has proven to be a highly successful and effective online tool for protecting brand owners’ rights and for building consumer confidence in global e-commerce.

In April 1999, WIPO presented its report to the then-newly-formed Internet Corporation for Assigned Names and Numbers (ICANN) recommending a quick, efficient, cost-effective and uniform procedure to address

cybersquatting. The WIPO Report also provided forward-looking recommendations on registrant contact information, a topic that ICANN is only now addressing following the implementation of the European Union’s General Data Protection Regulation (GDPR). In the six months following the launch of the WIPO report, the ICANN community, through its multi-stakeholder policy development process, made a few minor changes to WIPO’s proposed policy.

UNPACKING THE UDRP

The UDRP requires a complainant to establish three elements, namely, that:

- the domain name is confusingly similar to the complainant’s trademark;
- the registrant has no rights or legitimate interests in the domain name; and that
- the domain name has been registered and is being used in “bad faith”.

A successful UDRP complainant can elect either to have the disputed domain name transferred to its control, or to have it cancelled. The UDRP was adopted as a binding “consensus policy” (meaning the UDRP was required to be implemented by registries and registrars to all ICANN-managed domains, such as “.com”) by the ICANN Board in October 1999. A month later, the WIPO Arbitration and Mediation Center (“the WIPO Center”) became the first accredited UDRP dispute-resolution service provider, and in December 1999, the first domain name case was filed with the WIPO Center.



For the past 20 years, the WIPO-designed Uniform Domain Names Dispute Resolution Policy has proven to be a highly successful and effective online tool for protecting brand owners' rights and for building consumer confidence in global e-commerce.



THE FIRST 20 YEARS: TRENDS AND CHALLENGES

The first domain name case was brought by the *World Wrestling Federation* for <worldwrestlingfederation.com>. Over the following 12 months, the WIPO Center handled 1,857 domain name cases. Ten years later, in 2010, it managed 2,696 UDRP cases. With the exception of a small dip in its caseload in 2013, the WIPO Center has seen continuing year-on-year increases in the numbers of domain name cases filed. In 2019, the WIPO Center estimates it will handle some 3,600 cases – its largest annual load since the launch of the UDRP in 1999.

The success of the UDRP and its global acceptance, are without question. So far, it has been used by brand owners the world over, who have filed over 45,000 cases with the WIPO Center. From the outset, the majority of complainants using the UDRP have resided in the United States, with France, the United Kingdom, Switzerland and Germany rounding out the top five.

In 2019, the United States accounted for 32 percent of brand owners (“complainants”) filing their cases with the WIPO Center. Similarly, the majority of respondents to these cases (i.e. the individual or entity who registered the domain name, which is the subject of a case) have resided in the United States, while those in China, the United Kingdom, Spain, France and Australia are in the top five. In 2019, the United States accounted for 26 percent of WIPO respondents to UDRP-related cases.

The UDRP has proven to be a flexible and valuable tool for brand owners in combatting the many different and new ways in which bad actors abuse trademark rights online. Indeed, some of the specific issues brand owners have had to grapple with over the last 20 years did not exist when the UDRP was adopted in the late 1990s. Two decades later, the UDRP continues to provide domain name owners with a fair procedure for tackling such abuses.

Importantly, the broad letter of the UDRP was sufficiently comprehensive to allow for the development of a body of case law to address new and evolving abuse scenarios. For instance, the issue of potential “bait and switch” schemes by resellers was addressed in the seminal *Oki Data* case (WIPO Case No. D2001-0903), in which a test was set forth to determine whether a dealer’s use of a mark in a domain name may be characterized as *bona fide* fair use.

Another notable phenomenon was the increase in attempts to monetize and resell domain names that were valuable due to the goodwill of the brand featured in them – but over which the registrant had no rights – and which were merely “held” without resolving to an active website. Such “passive holding” was addressed in the seminal *Telstra v Nuclear Marshmallows* case (WIPO Case No. D2000-0003), in which the totality of the circumstances was considered (namely that it was clear that the trademark owner had been targeted) to determine bad faith.

The UDRP also provides robust free speech protections, which are of course, balanced by cases involving claimed free speech, which is really a pretext for commercial gain – for example, in a case involving <walmartcanadasucks.com> (WIPO Case No. D2000-0477).

EMERGING DOMAIN NAME ISSUES

Today, brand owners and Internet users contend with issues such as the misuse of domain names to further the sale of counterfeit products, phishing schemes and fraud. In 2019, 16 percent of domain name cases filed with the WIPO Center involved instances of phishing schemes, 8 percent of cases involved an allegation of fraud and nearly 6 percent of them involved the sale of counterfeit goods or services. Two-thirds of the cases related to counterfeit products involved the fashion, retail and luxury goods industries. The banking industry was the primary target for both fraud and phishing schemes, accounting respectively for 21 percent and 34 percent of cases handled by the WIPO Center in 2019.

Furthermore, while having clear merit, the development and implementation of privacy and proxy services for domain name registrations (services that allow domain name registrants to keep their contact information private) have contributed to the ease with which bad actors can carry out their abusive activities on the Internet. In 2004, less than 5 percent of domain name cases handled by the WIPO Center involved privacy proxy services. By 2011, nearly 30 percent of domain name cases filed at the WIPO Center involved privacy proxy services. Then, in 2018, with the implementation of privacy rules relating to the GDPR, the WIPO Center saw an increase of nearly 45 percent in cases involving such services.

In the fast-changing online landscape, the UDRP has proven its resilience, adaptability, and capacity to address the emerging online issues that brand owners face. It remains an invaluable tool to uphold consumer trust, protecting them against bad online actors, and to maintain the safety, security, and stability of the Internet.

THE FUTURE

As we look to the future, an important first milestone is ICANN's upcoming review of the UDRP. In 2020, an ICANN working group will begin to look at whether the UDRP, in connection with other ICANN-created rights protection mechanisms (RPMs), "collectively fulfill the purposes for which they were created, or whether [improvements] are needed, including to clarify and unify the policy goals."

On the brand protection side, ICANN's UDRP review is likely to consider a number of requested changes, including whether to:

- i. change the bad faith registration "and" use element to bad faith registration "or" use – to address scenarios where an older domain name openly infringes a newer brand;
- ii. implement a "loser pays" element (similar to the practice in trademark opposition and cancellation proceedings in the European Union);
- iii. develop a WIPO-managed UDRP appeals process. The current system requires appeals to be brought before a court of competent jurisdiction, which requires significant time and money; and
- iv. implement bars on future domain name registrations for repeat offenders.

Other suggested topics for consideration include adding a statute of limitations, including a mediation phase prior to arbitration (for example, so that an incidental infringing link could be removed without repossessing the domain name itself), and allowing longer deadlines to respond to claims of infringement.

Regardless of individual viewpoints on the UDRP, it will be critical for the ICANN working group tasked with its review to be aware of the risks of making incidental or on-the-fly adjustments to a legal instrument with 20 years of case law behind it. Change can be positive, but with consumer trust in the Internet at stake, the working group must be well informed and must guard against undoing 20 years of good work.

AI'S POTENTIAL TO GENERATE EFFICIENCY GAINS

In the years ahead, it is possible that technologies based on artificial intelligence (AI) will be leveraged to bring efficiencies to this arbitration process. For example, the *WIPO Overview 3.0* (a summary of UDRP case law) could serve as a basis for developing an algorithm to identify common fact patterns or potentially infringing domain names. Similar tools have been employed in other fields, for example, to automate trademark searches. AI may also be used to analyze and measure other objective indicators of “bad faith”. As an example, EURid, the .EU registry, is successfully using AI to develop tools to proactively examine domain name registration data to identify domains name that may have been registered with an infringing or unlawful intent. EURid’s AI program reports that so far malicious domain registrations have been identified with a 92 percent accuracy rate.

POTENTIAL FOR BROADER APPLICATION

The UDRP was the first foray into addressing trademark abuse on the Internet. One important question now is whether it is possible to use the knowledge, expertise and processes developed under the UDRP to address other similar disputes.

Notice and takedown processes to deal with conduct that violates certain laws, such as copyright infringement, or platform terms of service, have been effective but blunt instruments. Moreover, the internal decision-making associated with such processes is not transparent, resulting in an actual, or perceived lack of, predictability in the application of the IP policies of platforms.

A quick and efficient dispute resolution process similar to the UDRP could help handle social media violations including fake news; social media handle infringement (e.g., your Facebook business page name); phishing or other fraud involving trademark impersonation; or copyright, defamation, and other terms of services violations relating to content posted on online platforms.

Using the model of an arbitration-light process such as the time-tested and successful UDRP (with its body of case law set out in the *WIPO Overview 3.0*) to handle these types of disputes would ensure due process and transparency through the application of a uniform set of rules. Such a model would thus provide predictability and stability for all involved – Internet users, platforms and online businesses could all benefit.

When Private International Law Meets Intellectual Property Law: A Guide for Judges

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In the modern economy, market transactions have become more complex, value chains have become more global and the movement of intangible capital, such as intellectual property (IP)-protected technology, designs, brands and creative works, has become more mobile.

In this context, court cases relating to the infringement of IP rights covering goods and services that are global in their use can have an impact worldwide. While IP rights apply within territorial boundaries, the interconnected nature of the modern economy means that judges tasked with disputes relating to IP rights are ever more frequently finding themselves at the crossroads of IP law and private international law, which concerns relations between private parties across national borders.

Take, for example, the following scenario:

Company A and Company B, with headquarters in Belgium and Australia respectively, enter into a license agreement regarding the distribution of the goods produced using a technology patented by Company A in Belgium and Australia. The license is governed by the law of Belgium. A dispute over an alleged breach of the license arises and Company A initiates a court proceeding in Belgium, where it has its headquarters. Instead of, or as well as, bringing claims under the license agreement, Company A claims patent infringement by Company B in Belgium and Australia. Company B counterclaims that Company A's patents in both countries are invalid.

Confronted with this case, judges may first hope that parties settle before either of them has to decide, but if there is no willingness to settle, the judges will face questions of private international law.

THE INCREASING RELEVANCE OF PRIVATE INTERNATIONAL LAW

Private international law becomes more relevant when facing the challenges unearthed by the heightened mobility of IP and the globalized nature of commercial dealings. This intersection between IP and private international law has attracted considerable academic and judicial attention, as it raises important questions about which court has jurisdiction to adjudicate cross-border disputes on IP, which law is to be applied, and whether foreign IP-related judgments can be recognized and enforced.

Recognizing the need to support the work of judges and lawyers around the world in navigating these issues, WIPO and the Hague Conference on Private International Law (HCCH) joined ranks to develop a practical guide on IP and private international law by judges, for judges.

A GUIDE FOR JUDGES BY JUDGES

When Private International Law Meets Intellectual Property Law: A Guide for Judges, provides experts who specialize in one of the two fields of law with a reliable overview of how these fields intertwine. In writing the guide, we do not claim to offer an exhaustive treatment of the law in all areas, but seek to clarify the operation of private international law in IP matters with illustrative references to selected international and regional instruments and national laws.

While IP rights apply within territorial boundaries, the interconnected nature of the modern economy means that judges tasked with disputes relating to IP rights are ever more frequently finding themselves at the crossroads of IP law and private international law, which concerns relations between private parties across national borders.

The purpose of the Guide is to help ensure that judges are better placed to apply the laws of their own jurisdiction, supported by an awareness of key issues concerning jurisdiction of the courts, applicable law, the recognition and enforcement of judgments, and judicial cooperation in cross-border IP disputes.

It does not advocate any particular approach to substantive issues of law or provide any solutions in individual cases. By highlighting the main issues in this complex area, we aim to assist judges and lawyers in many different countries to make informed decisions. Designed to be as user-friendly as possible, the Guide uses straightforward language, aided by diagrams and practical examples, to help explain key concepts that may find application. As it is directed to a worldwide audience, we have made every effort to approach the analyses of the cross-border issues, presented from a civil law and a common law point of view.

EXPLORING THE INTERSECTION BETWEEN PRIVATE INTERNATIONAL LAW AND IP LAW

The Guide leads the reader through the issues that characterize the intersection between private international law and IP. The opening chapters include a general overview of the separate and distinct fields of IP and private international law and touch on the intersection between them. They also explore the various legal frameworks that regulate this intersection. For example, we examine the rules of private international law that govern IP relationships focusing on the international and regional instruments as well as how these rules are integrated into IP treaties and registration systems. In this part of the Guide we direct the reader to some non-binding instruments dealing with IP and private international law (soft law initiatives).

The Guide also provides a step-by-step roadmap for legal practitioners dealing with cross-border IP issues (see figure below).

Figure 1
Sequence of PIL issues to consider



For example, a court will first be required to deal with competence issues. The court where proceedings are commenced must first decide whether it is an appropriate place for the determination of the proceedings. That requires consideration of what connection the parties, the subject matter and the relief sought have with that State. Whether a court is competent to decide an IP dispute – in other words, whether it has jurisdiction over the dispute – will be decided according to the private international law rules of the State where the court is located. These rules may also be affected by international or regional private international law or IP instruments. It is possible that courts in more than one State have jurisdiction to decide a dispute. In practice, this allows the claimant to select a court, which is sometimes referred to as “forum shopping.”

“The intersection between IP and private international law [...] raises important questions about which court has jurisdiction to adjudicate cross-border disputes on IP, which law is to be applied, and whether foreign IP-related judgments can be recognized and enforced.”

Having determined its jurisdiction, the court will need to determine the law applicable to the cross-border IP case. In the Guide we identify the points of consideration for a court when making this determination. While we attempt to offer a neutral approach to the issue, we explain that courts should be aware that national rules may interact with this process and note that that some steps in this process may overlap with points considered in determining jurisdiction. Figure 2 (right) provides a graphical overview of the multiple-step approach outlined in the Guide.

We then attempt to answer questions that may arise as to whether and how the court's judgment can be recognized and enforced in another State. Such questions will frequently arise where the defendant against whom a judgment has been ordered is located in another State or has assets located in another State. In this, we make a distinction between the courts that are involved in the recognition and enforcement stages: (i) the court that made the judgment (the *court of origin*) and (ii) the court of the State that is requested to recognize or enforce the judgment of the court of origin (the *court addressed*).

Finally, the Guide deals with issues relating to administrative or judicial cooperation. In cross-border civil or commercial transactions or disputes, difficulties can be encountered if the defendant or a witness is domiciled, or the evidence is located, outside the State where the proceedings are initiated; if a foreign State issues the necessary public documents; or if parallel proceedings arising out of the same dispute are initiated in different States. This is because each State has its own legal and administrative systems.

Closer cooperation between the authorities of different States can eliminate obstacles deriving from the complexity of different national systems. In the Guide we direct the reader to Conventions developed by the Hague Conference on Private International Law with the aim of facilitating cooperation through different mechanisms.

The Guide is available online at www.wipo.int/publications/en.

Figure 2
The multiple-step approach for deciding which law to apply





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