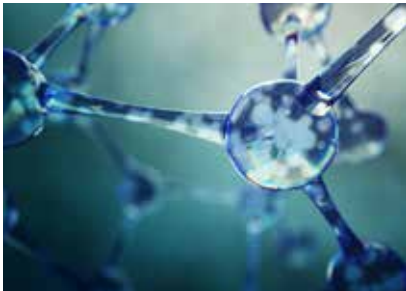


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Artificial intelligence and intellectual property: an interview with Francis Gurry

The deployment and use of AI technologies will have implications both for intellectual property law and policy and the administration of IP systems around the world, says Francis Gurry.

Ahead of the 2018 meetings of WIPO's Assemblies, WIPO Director General Francis Gurry shares his views on the implications of artificial intelligence (AI) for intellectual property (IP) law and policy and its use in the administration of IP systems around the world.

How would you characterize the impact of AI?

AI is a new digital frontier that will have a profound impact on the world. It will have enormous technological, economic, and social consequences and is going to transform the way we produce and distribute goods and services, as well as the way we work and live.

What impact will AI-enabled technologies have on innovation and creativity?

It is too early to say, but it is clear that AI will have an impact on traditional IP concepts. Commercial AI-generated music and AI-created inventions are not far off, and will transform the concepts of the “composer,” “author,” and “inventor” – although precisely how is not yet clear.

The fundamental goals of the IP system have always been to encourage new technologies and creative works, and to create a sustainable economic basis for invention and creation. From a purely economic perspective, if we set aside other aims of the IP system, such as “just reward” and moral rights, there is no reason why we shouldn't use IP to reward AI-generated inventions or creations. But this still requires some thought. The answers are not yet clear.

The broad use of AI technologies will also transform established IP concepts – patents, designs, literary and artistic works, and so on. This is already happening, but is a consequence of the digital economy, not AI alone. For example, the life sciences generate enormous quantities of data that have significant value but don't constitute an invention in the classical sense. So we need to work out the rights and obligations that attach to them.

There are strong social views on this already. The “open” movements for science, data, and publication, for example, favor the view that data should not have proprietary categories placed on them. They argue that, as data is a foundation of AI, it should be freely available to enable the development of AI and other applications.

But, of equal importance in the current economic context, we have established property rights for intangibles to provide incentives for investment in the creation of new knowledge and to ensure fair competition.

“AI is a new digital frontier that will have a profound impact on the world.”

Francis Gurry,
Director General, WIPO

These two approaches need to be reconciled. Lines will have to be drawn between the need to keep channels of data open and flowing, on the one hand, and the need to close them to ensure the right incentives are in place for the creation of new knowledge, on the other hand.

Data and algorithms raise a number of fundamental IP-related questions. For example, how do you create property rights in an algorithm that is constantly changing, to the extent that your invention is not the same even one year after you have applied for a patent? That's a new challenge that we shall have to address.

Does that mean that the existing IP system is becoming irrelevant?

The statistics tell us otherwise. Demand for IP rights continues to surpass economic growth rates around the world. The IP system as we know it is certainly not going out of fashion. It is being used more than ever before. But new challenges are emerging and the result may be an additional layer of IP, rather than the replacement of the existing system.

It has been notoriously difficult for creators to capture the value of their work in the digital environment. Will the new wave of digitization compound this problem?

AI may indeed make it difficult for creators to capture the value of their work. But, if you take the example of AI-generated music, somewhere in the process the digital expression of music generated by a composer – whether it be Mozart, Beethoven, or a contemporary musician – will be fed into the AI algorithm. The question is at what stage do we attribute value to the human origin of data? We don't yet have the answers to that question.

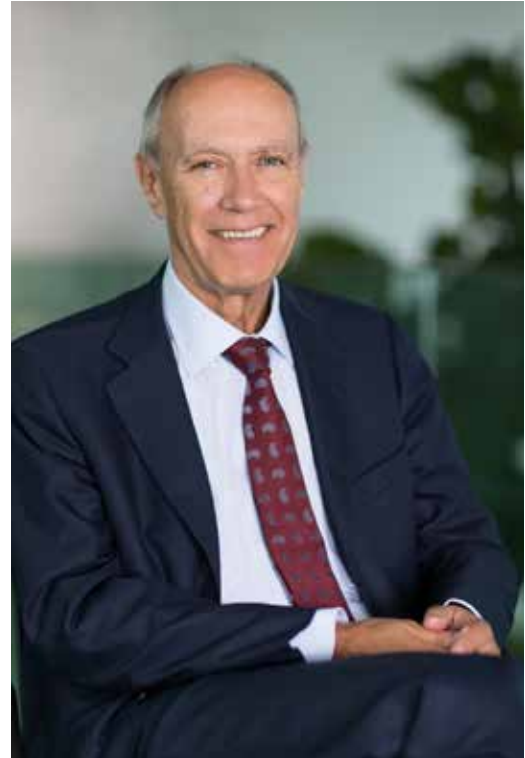


Photo: WIPO / E. Berrod

“AI systems will play an increasingly important role in IP administration in the future.”

Francis Gurry, Director General, WIPO

Various policy approaches are emerging for data and AI, including in relation to data security and integrity, the impact of data and AI on market competition, national security, labor, and ownership. We are only now developing the lines of analysis, but these tend to reflect pre-AI approaches. No doubt, new categories will emerge too.

Why has AI become a priority for WIPO and the global IP community?

There are three factors driving the use of AI in the administration of IP systems. The first is volume. In 2016, the last year for which data are available, around 3.1 million patent applications, some 7 million trademark applications, and 963,000 industrial design applications (covering 1.2 million designs) were filed worldwide. That volume is rapidly exceeding the processing capacity of available human resources. For example, in the area of trademarks and designs, the judgment, whether made by an IP office or a court, as to the registrability of a trademark or a design – the benchmarks of which are distinctiveness for a trademark and originality for a design – is made by reference to pre-existing marks and designs. It is simply not possible for a human to sift through the millions of trademark and design applications received each year to determine whether a given trademark or design qualifies for registration.

That is why WIPO has developed an AI-empowered image search tool for trademarks. Embedded in the WIPO Global Brand Database, the tool is a world first. It delivers results in a second and is highly accurate.

Volume is a principal driver of the use of AI in IP administration. Quality and cost are also important drivers. Amid increasing global demand for IP rights, AI tools allow us to achieve better quality and reduce administration costs.

What is your vision for the use of AI to improve the administration of IP?

AI systems will play an increasingly important role in IP administration in the future. Given the costs associated with gathering and cleaning large corpuses of data to feed AI-systems, we need to encourage the sharing of resources. I would hope that in deploying the AI-based systems of the future, the international IP community can work together to achieve high levels of interoperability in a cost-effective manner.

WIPO's approach so far has been to explore ways to develop AI applications using training data provided by member states and other institutional partners. In return, we share with those partners any new AI applications developed using those data. For example, WIPO has developed a state-of-the-art neural machine translation tool that is powered by AI, known as WIPO Translate. We are sharing this tool with 14 intergovernmental organizations and various patent offices around the world. Since the system depends on access to and availability of data, all partners can benefit from its use and can supply data to improve it. That is how, in the best of all possible worlds, we might develop these tools most effectively.

WIPO has clearly been a leader in developing AI applications in the IP field. Is the Organization exploring the use of AI applications in other areas?

WIPO is continuing to develop and refine WIPO Translate and our trademark image search tool. These are major developments in this area. The automatic classification of patents and goods and services for trademark applications are other promising areas for the application of AI. In May, in collaboration with an AI expert at the University of Geneva, WIPO launched an automatic patent classification tool for the International Patent Classification (IPC) system using neural network technology. This new tool, known as IPCCAT-neural, will be retrained annually with updated patent information and will help patent examiners access and search prior art more easily. This, of course, is an important basis for determining the patentability of an invention.

AI holds great promise in facilitating patent search and examination. One can foresee its use, for example, in searching and comparing the gene sequences associated with certain patent applications.

We are also exploring the use of AI, in particular, the deployment of intelligent machine answering services, for WIPO's customer service activities. Over time, these tools will become an integral part of our customer service offering and will enable us to better respond to the expanding number of queries arising from the increasing use of the IP system.

There will be other areas in which AI applications can help make IP administration more efficient and robust.

Is there a role for Blockchain in the administration of IP systems?

Despite the widespread excitement about Blockchain, I don't see it replacing the basic function of the grant of a property right by a state or a public authority. IP is a creation of the state, and unlike physical property, it has no existence except through the creation of a right by a state. I don't see a private distributed system like Blockchain replacing that basic function of patent offices in determining whether or not to grant a property right. I do see it being a potentially superior form of recording transactions in relation to existing IP rights. There are, for example, many potential applications for Blockchain in the use and trading (e.g. licensing) of IP rights.

How would you characterize the uptake of AI across the global IP community?

It is early days. There is clearly a lot of interest in AI among IP offices, which see it as an opportunity to deal with volume, quality and cost. This will be a major focus in the coming months and years.

What are some of the barriers to the widespread deployment of AI-powered systems among IP offices?

Building AI capacity is a major challenge for all IP offices. While AI has been around for some time, only recently has it become an obvious technological solution. The number of professionals with the required training and knowledge is very limited. This makes developing in-house AI capacity difficult, particularly in the face of competition from better-resourced, higher-paying private enterprises.

Smaller IP offices face some specific challenges. AI systems depend on data (and algorithms) and smaller offices naturally have access to less data. That means the imperative of volume, which is forcing the development and deployment of AI applications in larger offices, is less strong in smaller offices, where the volume of applications remains manageable. That said, in the IP world, we do have a generally accepted policy of open access to data relating to IP registrations for patents, trademarks and designs. That will help the smaller IP offices, which, in principle, can access these data. Overcoming these challenges will require greater emphasis on collaboration and coordination.

What are some of the specific policy challenges associated with deploying AI for IP administration and how is WIPO addressing them?

This year, WIPO initiated an international discussion on IP questions surrounding, in particular, the application of AI in IP administration. In May, we hosted a meeting with IP offices on that subject. It was a successful start to this important discussion.

The broader question of how AI will change the categories and concepts of IP itself, however, is taking place at a time when the world is putting less energy into multilateral rule-making than at any point over the last 70 years.



Photo: MF3a / iStock / Getty Images Plus

The volume of IP applications filed each year, as well as the need to improve the quality of outputs, and to reduce the costs of IP administration, are key drivers of the use of AI in the administration of IP systems.

This is a serious problem that goes beyond IP, but especially needs to be solved in this area, because IP is essentially a global phenomenon; technology is global, as are the patent data associated with it. Patents rarely relate to a single jurisdiction. That is why we need global solutions that ensure at least functional interoperability.

Is there a role for multilateralism in an AI-driven world?

Yes, and for various reasons. First, achieving functional interoperability of IP systems around the world will require multilateral cooperation. Second, one of the functions of the IP system is to ensure fair competition. Multilateral rule-making is a constructive and positive way to achieve this. And, as IP will be one of the main battle grounds for competition in the future, strong multilateral cooperation is essential. The third reason is that technology is constantly evolving, and at great speed. In this context, multilateralism is an extremely important mechanism for supporting capacity building and sharing to ensure that the technological gaps that exist are not exacerbated. That is a real challenge.

What are next steps for WIPO in this area?

We will continue to foster cooperation in the development and deployment of AI applications for IP administration. And we will continue to find ways to initiate international discussion on the evolution of IP law and policy in an increasingly AI-driven world.

Saudi Arabia embraces AI-driven innovation

By Catherine Jewell,
Communications Division, WIPO

Saudi Arabia is undergoing an ambitious economic reform and transformation program known as Vision 2030. Digitization and AI are central to the delivery of that transformation.





Saudi Arabia's, Deputy Minister of Technology, Industry and Digital Capabilities, **Dr. Ahmed Al Theneyan**, talks about his country's ambitions to drive innovation and economic growth using advanced digital technologies to deliver on its bold reform program, Vision 2030.

What role does artificial intelligence play in Saudi Arabia's Vision 2030?

Saudi Arabia is undertaking the largest and most ambitious economic reform and transformation program in its history. A broad range of initiatives is being rolled out to realize the objectives of Vision 2030. Digitization and artificial intelligence (AI) are key enablers of these wide-ranging reforms. Our digitization initiatives support our Vision 2030 objectives in various ways, and in particular, by building an information and communications technology (ICT) infrastructure fit for the 21st century. All technologies rely on this, so it's a top priority.

We are also working to enhance the digital capabilities of the workforce to align with AI and technologies like the Internet of Things (IoT) and Blockchain, to build, maintain, and operate the solutions and services that will emerge from the Vision 2030 transformation. This is an enormous undertaking that involves major educational reform to make sure students acquire the digital skills for the jobs of the future. That's why we are now introducing digital skills in K-12 education. To meet the changing demands of the workplace, we are working with the Ministry of Education so that school and university curricula match future needs and build skills in areas such as AI, data science, data security, and so on. This is absolutely essential. We need to prepare the next generation for the jobs of the future.

We're also building a robust localized technology sector to support Vision 2030 programs. Our aim is not only to supply local demand, but to export our technology and compete with leading international providers. Vision 2030 programs also promote innovation, the widespread use of open data – which we believe is the fuel of the 21st century – and efficient government.

“I believe that AI and robotics have huge potential to improve our lives and boost productivity. We just need to employ them and use them in the right manner.”

Dr. Ahmed Al Theneyan, Deputy Minister of Technology, Industry and Digital Capabilities, Saudi Arabia

In summary, Vision 2030 commits to building sustainable cities and communities, improving the health and well-being of our citizens, improving the quality of education, providing decent work, and fostering innovation-driven economic growth. This is a huge undertaking, so we are rolling programs out gradually; we are starting by building the technical infrastructure and enabling its use. Only then will transformation and innovation come about. AI is at the heart of this endeavor. It permeates all aspects of Vision 2030.

What prompted your digitization initiatives?

All countries now rely on technology – and emerging technology in particular – for their sustainable development. Our Vision 2030 programs are designed to achieve efficiencies in government through greater automation, and that requires digitization. To enhance the lives of citizens you need smart cities, which require systems and services built around AI and the Internet of Things (IoT). Digitization is an enabler for any development program and we are using it to advance our Vision 2030 goals.

What impact will digitization have on innovation in Saudi Arabia?

Innovation is a very broad concept that also encompasses how you approach things. It's a mindset and a culture. When it comes to ICT, our innovation efforts, and those of our sister agencies in government and the private sector, are focused on promoting a culture of entrepreneurship and innovation. For example, we are building a network of innovation labs, where students and entrepreneurs can explore their ideas, learn about and test innovative business models, and come up with solutions that can contribute to advancing Vision 2030 objectives. We're actively encouraging aspiring entrepreneurs to develop their ideas through these innovation labs, which also enable us to increase awareness about innovation, entrepreneurship, and intellectual property (IP). These have been quite successful. We recently launched an innovation platform called FekraTech (meaning your idea in Arabic) and in just one innovation round, we received some 4,000 proposals. One invention that really stands out is an AI-based chatbot called Nahla, which helps people with chronic diseases, such as diabetes, learn about and better manage their condition.

Our aim is to encourage young people to become entrepreneurs, rather than job-seekers, and to provide them with the practical knowledge they need to develop and commercialize their ideas.

What role does IP have in achieving Vision 2030's goals?

In March 2017, the Government announced the establishment of the new Saudi IP Authority (SIPA). Its mission is to regulate, promote, and protect IP rights in the Kingdom. These responsibilities were previously scattered across different government bodies. Unifying IP under a single government agency will support our drive to transform Saudi Arabia into an advanced knowledge-based economy, built on innovation and entrepreneurship.

On World Intellectual Property Day this year, His Excellency Dr. Maji Bin Abdullah Al Qassabi, the Minister of Commerce and Investment and Chairman of the Board of Directors of SIPA, unveiled the Authority's new strategy. The aim is to develop a national IP ecosystem that supports the creation of a favorable environment for innovation and business development; one that fosters the growth of small and medium-sized enterprises, attracts foreign investment, and promotes the Kingdom's economic development goals. SIPA's IP strategy reflects best international IP practices and is designed to promote innovation. With a strong IP system in place, businesses will be able to leverage the economic value of their ideas and better defend themselves against their theft. Our aim is for Saudi Arabia to become an attractive destination for innovators and entrepreneurs.

What other opportunities does AI present in promoting Saudi Arabia's development?

We're embracing AI and exploring how to use it in an innovative, responsible, and ethical way that will advance our Vision 2030 objectives. So far the Government has invested around USD 3 billion in building the infrastructure so that the country is AI-ready and can become a leader in AI use.

We're working to improve the lives of our citizens through the use of AI for better education, health and services, and, of course, by developing smart cities. Recently, we announced a USD 500 billion investment to create a mega-intelligent city called Neom, a name that signifies new future. Work to create this intelligent city covering 26,000 square kilometers will begin in 2020. Neom will go well beyond a smart city as we know it today, and will allow for a new way of life built around the best technologies of the future. Everything in Neom is about AI, big data, and IoT. Our municipality reform program also foresees the development of five top world-ranking smart cities, again to improve the lives of urban residents. But government can't achieve these ambitious goals alone. That's why we are working with private sector partners.



Saudi Arabia recently announced a USD 500 billion investment to create a mega-intelligent city called Neom. The project is billed as “the land of the future, where the greatest minds and best talents are empowered to embody pioneering ideas and exceed boundaries in a world inspired by imagination.”



What sort of impact will AI have?

I believe that AI and robotics have huge potential to improve our lives and boost productivity. We just need to employ them and use them in the right manner. Once we do that, we'll see great results in terms of productivity and well-being.

Automation and digitization are not new. In the 1980s, when digitization really began to take off, people said computers would kill jobs. In fact, the opposite occurred; they created more jobs and significantly improved productivity and the quality of our lives. Many studies suggest the net impact of digitization will be positive. Of course, some of the routine jobs will disappear, but new, higher value ones will emerge. We're very optimistic about the Vision 2030 transformation. It's creating many opportunities to reskill the workforce to take on the jobs of the future.

We have also put into place special programs to empower and enable women to work within the ICT sector. Our aim is to double the participation of women in the sector, and we are making progress. Currently, around 45 percent of computer science graduates are female, so I think we will meet that target ahead of schedule.

What are the big challenges you face in rolling out the digitization plan?

The introduction of any new technology presents risks and opportunities. AI has huge potential, but we need to make sure we are building the right ecosystem and that we have effective and appropriate policies in place. One major challenge lies in building digital skills. We already have programs in place to train around 20,000 students and create 20,000 jobs in the ICT field. So far, we have trained around 7,000, mostly in the areas of data science, AI and cyber security. We're also working with the international community, other government agencies, and the private sector to implement appropriate and effective policy and regulatory frameworks so these technologies are used properly. And we're working with our partners to ensure effective data governance structures are in place to assure data quality. This is extremely important for AI-driven systems.

What are your views on embedded biases in AI algorithms?

This is a global issue. Effective regulation of data, its protection, and privacy are essential in building trust in AI. But history tells us that, with proper governance, these issues can be managed effectively. Any new technology brings challenges around trust, uptake, skills and capabilities, and so forth. But with the right ecosystem, policies, and governance structures in place, we will tackle them.

Are people in Saudi Arabia generally open to AI innovations?

Most of our population is made up of young people who are digitally savvy. Our people are very smart and tech-oriented and adopt technology very quickly. This is a great opportunity for us. We just need to seize it by putting an appropriate ecosystem, and effective governance and regulations, in place.

What does the future hold for Saudi Arabia?

Vision 2030 will bring about major changes across the economy and society and will significantly improve the quality of our citizens' lives. We are all very excited about the country's ambitions and the direction we are moving in. Things are happening faster than you can imagine; what used to take years, now takes days. People are very excited about Vision 2030, which is already starting to yield tangible results.

Bringing AI to life

By **Catherine Jewell**,
Communications Division, WIPO

Sophia the Robot, the humanoid robot from Hanson Robotics, has become a global cultural icon. Her maker, David Hanson, CEO and Founder of Hanson Robotics, shares his vision of a future built around superintelligence.

How did you get into robotics?

I have always been drawn to ask “what if?” and to think about all the ideas that spin out from that. All science starts as philosophy and all technology starts as a dream plus reason. Invention and innovation are about making the unknown known. Ultimately, the development of artificial intelligence (AI) isn’t just powered by technology, but by dreams and discovery.

My path has led me to many interesting disciplines across the arts, sciences, and technology. The interplay of these interests prompted me to start creating humanoid robots as a new artistic medium. I find this very interesting.

I studied a bit of computer science while programming robots, built my first humanoid robot in the early 1990s, and then completed an undergraduate degree in film/animation/video focused on AI-based narrative. I worked as a professional sculptor for a while and then moved into robotics development at Disney Imagineering. After that, I joined a mixed-disciplinary PhD program, which further fueled my interest in robotics.

Can you tell us about Sophia?

Sophia is our most advanced character robot. She has become quite a cultural icon with a global following. She leads our greater mission to make an impact on humanity through the development of intelligent, empathetic robots. We use her in a variety of R&D and service robotics activities, as well as in support of our community outreach and artistic efforts at Hanson Robotics.

Sophia incorporates our most advanced AI software. It allows her to serve as a bold R&D platform and provides her with rudimentary understanding when she holds natural conversations, sees and responds to facial expressions, and adapts to and learns from those interactions. Also, it provides tools for developing her with the character and interactions for specific applications. Creating Sophia’s face, one of the human body’s most complex organs, was a very big challenge, both in terms of hardware engineering and design. Once we master the code to create a full spectrum of nuanced facial expressions, we have a very powerful means of communicating. Most human messaging is visual, unconscious, and informal. Our aim is to unlock and formalize that nonverbal language using AI, and thereby empower machines with better understanding of human emotions. Sophia is a huge step forward in realizing the dream of creating friendly machines that care for humans.

It took around eight years to develop Sophia’s skin and the software and mechanics for her to make realistic facial expressions. Her face now simulates all the major facial muscles.

While Sophia can make eye contact, making her intelligently responsive and interactive to create an empathetic connection with humans is a complex, ongoing challenge.

Sophia now has great hands and arms, which we built, with some narrow categories of high-performance manual dexterity. She can deal a hand of baccarat in 18 seconds and with over 99 percent accuracy! We’re also training her to hold a pen and draw. And with her new legs, built by our friends at Rainbow Robotics, she can walk for up to two hours on a smooth, flat surface.

At present, Sophia is being used for cognitive research and other types of therapy with astonishing results.

Sophia the Robot (below left) is Hanson Robotics' most advanced character robot. Sophia leads the company's mission to make an impact on humanity through the development of intelligent and empathetic robots, notes her maker, David Hanson (below right).



David Hanson on Hanson Robotics

Tell us about your company

We're based in Hong Kong (SAR) and employ around 50 people, mainly technologists and scientists, with some designers and artists. Four years ago, when investors started taking robotics and AI markets seriously, things began taking off for us. We now have a complete infrastructure for doing R&D and exploring different verticals in service robotics. Our business model focuses on renting, leasing, and maintenance of our robots.

In addition to Sophia and her siblings, we produce a low-cost consumer robot that can walk, make facial expressions, and gesture with its hands. It will come with a camera and compatibility with Raspberry Pi and other programming tools, including Python, so kids can have fun programming and interacting with it. With consumer robots, we can reach more people faster. We've also been developing a service robot, which is in testing as a training resource in business and medical fields (e.g. Mabel at the US Center for Disease Control). There's also quite a buzz around robotic service agents in the banking world and other verticals.

What is your vision of the future?

I want to collaborate with others to develop a roadmap for AI that enables us to bring out the best in human civilization and solve the world's greatest challenges. We need to think big. The idea is to maximize the potential of AI by creating machines with greater than human-level intelligence, creativity, wisdom, and compassion, to achieve a state of superintelligence.

At Hanson Robotics, we're creating expressive, life-like robots with a view to building trusted and engaging human-robot relationships. We're exploring what the future might be like with superintelligence. We do this by integrating robotics, AI, the arts, cognitive science, as well as product design and deployment. But ultimately, we need to develop a super Internet of AI to optimize the potential of all sentient beings, including humans – and even new kinds of sentient beings – and we think this will form the backbone of the 21st century economy.

What exactly do you mean by superintelligence?

Broadly, superintelligence means greater than human capacities to create, solve problems, and understand the world. We're talking about super-genius machines that will enable us to solve some of the world's toughest challenges: poverty; how to get energy without fossil fuels; or how to invent a better education system that doesn't just train children to memorize facts, but teaches creativity to actualize their potential. With superintelligence, we may solve these problems in ways humans alone cannot.

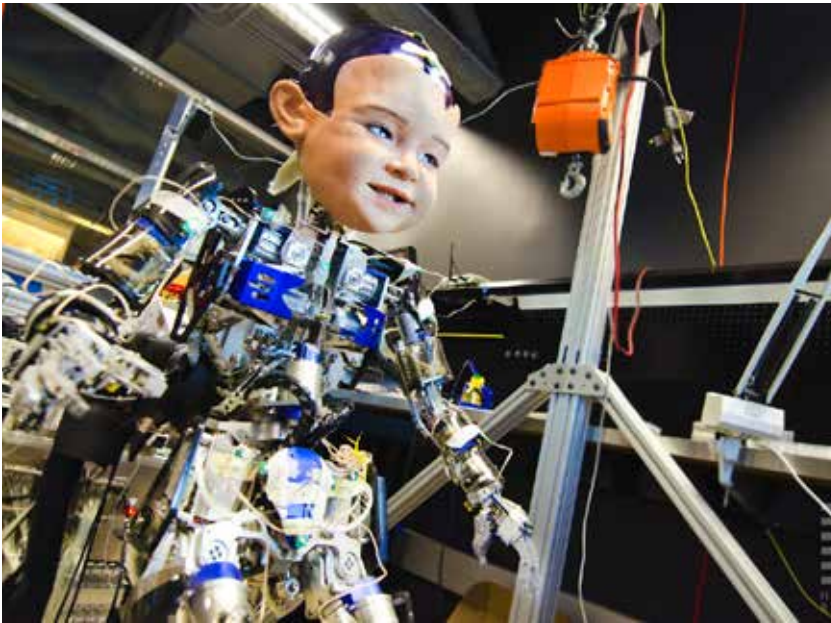
Historically, machines have augmented human intelligence. Books, for example, augment our memory, and the printing press spread the memories widely. Now, computing and AI allow us to explore data to identify patterns that can enable us to produce better outcomes. AI unlocks hidden patterns and finds potential. We already use these technologies to produce better crop yields and more accurate medical diagnoses. Imagine what could be achieved with sentient machines. We could look into the mysteries of human intelligence and identify ways to augment it.

Can you tell us more about your proposed Internet of AI?

By redesigning the computing infrastructure to create a networked system of superintelligence comprising a web of AIs, we could really boost our understanding of the intricacies of life on the planet. We could apply that understanding to build a world that encourages us to be our best. This is the idea behind SingularityNet – which I co-founded with Hanson Robotics' chief scientist Dr. Ben Goertzel, and Blockchain expert Simone Giacomelli – as an Internet of AI for good.

Such a system would be the ultimate mechanism for generating and harnessing the value of intellectual property (IP). It would allow us to track the contributions people (and machines) make – whether data, inventions, or ideas – and ensure they're rewarded appropriately as an incentive to create more and yield further benefits.

Photos: Courtesy of Hanson Robotics



Hanson robotics creates expressive, life-like robots with a view to building trusted and engaging human-robot relationships and exploring what the future might be like with superintelligence.

Professor Einstein (below), the first personal robot from Hanson Robotics, is a low-cost, playful robot that is designed to inspire imagination and share Einstein's sense of humor and vast knowledge with a new generation.



My ideal for superintelligence is to create an AI system that constantly seeks higher standards of universal benefit and makes that quest desirable for all people. To bring people on board, we need to gamify the pursuit of global well-being.

There is so much knowledge that lies fallow in our world and there are win-win transactions waiting to be found. If we have an AI that gets ever smarter and that can work with us, it can help us unlock that value.

Why is it important for robots to be human-like?

Humans are the best example of general intelligence in the known universe. Studying them enables us to develop potentially better models and theories of general intelligence. We have always used technology to better understand ourselves and our place in the universe. Building humanoid robots creates a tool for science and is an interesting artistic exercise.

When we create superintelligent machines we need a positive relationship with them based on mutual respect and trust. A human-like interface makes it easier to create an empathetic connection with humans for enhanced human-robot communication. Ultimately, human-like robots will speak to humans on human terms. The more you train robots in this way, the smarter they will become about the human experience.

Making fully embodied robots that simulate the whole human organism will allow superintelligent machines to learn and evolve like people, much like babies do. It will also allow us to tackle the miracle of emergence. Emergence is wired into math and physics, the base code of the universe. The mechanisms of life and emergence are not yet fully explored and understood, but we have enough understanding of the complexity of emergence in the physics of life, that

Photos: Courtesy of Hanson Robotics



Sophia the Robot incorporates the company's most advanced AI software. It took eight years to develop Sophia's skin and the software and mechanics for her to make realistic facial expressions. Making her responsive and interactive to create an empathetic connection with humans is a complex, ongoing challenge.

Bina48, a humanoid robot released by Hanson Robotics in 2010, is one of Sophia's growing number of siblings.



Photos: Courtesy of Hanson Robotics

already we can create kinds of simple artificial life in our computer simulations. Basically, when the conditions of a system are just right, new patterns emerge, as discussed in Stephen Wolfram's *New Kind of Science* and Christopher Langton's Edge of Chaos theory. To achieve machine creativity and true deep intelligence, we probably need to create such conditions. There is already evidence that spontaneous emergence happens in organisms, and appears key to humanlike creativity. We see this in the human nervous system and some deep learning networks. There may be other unknown mysteries of emergence that we can identify using AI and ongoing science that may accelerate the realization of superintelligent machines.

How can you ensure values are instilled in machines?

We have to work to design our machines with values and teach them our best. We may expect that not all species of superintelligence will bring out the best in humanity or serve the survival of life on the planet. So we have to wire the system to represent values around the best long-term survival potential of humans and the biome, and the search for maximum creativity, joy, and human actualization. We need to develop AI that activates a dopamine-reward cycle in people to encourage them to want to achieve truth, survival, creativity, and the greater good. We need machines that work with us to grow wiser too; machines that reveal our actual impact on the environment and humanity, enhance and maximize human wisdom, and help us cross-check and confirm truth, higher values, and assumptions. This will increase the odds that both humanity and AI align with universal values of truth, life, liberty, reduced suffering, and enhancement of creativity.

If we're smart and dedicated to that principle, we can achieve win-win transactions that make the planet a better and safer place. To do this better requires maximizing intelligence, with a deep commitment to persistently explore possible outcomes in pursuit of maximum benefit. I believe we can best achieve this by working in symbiosis with superintelligent machines. If we don't achieve these goals and imbue AI with such values, then AI may become dangerous.

What are your views on embedded biases in algorithms?

In computing, we have a maxim: garbage in; garbage out. Computers will learn what you feed them. Any prejudices in algorithms will be learned and amplified. So we have to be careful about the data we feed AI.

There are some exciting developments in the use of AI in automation science that may offer effective ways to reveal these biases. If AI is to be maximally beneficial, then we have to solve this problem.

What's your approach to IP?

Our policy is 70 percent open and 30 percent proprietary. We release a lot of code as open source. Many people are using it and that's great! Our quest is to use AI for the greatest good, and ironically our power to influence this kind of open future would be diminished if we were to be completely open source at this point. That's why we keep some IP for ourselves. But right now, we have the advantage of a fresh, innovative perspective, and are also protected by the combination of artistry and technology we use. I don't expect that competitive position will last forever and am proud of our achievements so far, but to remain competitive we will have to keep innovating.

What are your next steps?

We're concentrating on scaling our operations. With our current leasing arrangements, we should be able to do that fairly quickly. Consumer robots and the software and content aftermarket for them present sizeable commercial market opportunities, so we're looking to secure a foothold there too. We may also consider going public to raise the capital needed to realize the full opportunity of using characters as an interface for AI in robotics services. There's a huge opportunity here to create an intuitive connection between robots and people.

Today, there are many examples of using AI for good to address specific, narrow issues. That's good, but I worry that we may not be addressing the big picture well enough. We already have the tools to address some of the deepest questions of our existence. We need to use them and we need to think big.

Intellectual property and e-commerce: Alibaba's perspective

By **Jungong Sun**, Director of the Alibaba
Intellectual Property Research Institute and
Vice-President of the Alibaba Group

E-commerce emerged in China just 25 years ago, in 1993. Two years later, the country's first e-commerce company was established, and three years after that, in 1998, the first e-commerce transaction took place. From these modest beginnings, China's e-commerce landscape has evolved beyond recognition. And in that process, it has moved away from mirroring the practices of Western economies to developing its own model which embraces globalization.

Since the 1990s, several pioneering global Internet companies have emerged. These include giants like the Alibaba Group (Alibaba), JD.com, and Suning.com. Since 2013, China has led global rankings for the volume of online retail transactions. In 2016, four Chinese online retailers – Alibaba, JD.com, Xiaomi, and Suning.com – ranked among the top ten global e-commerce companies. With a market share of 26.6 percent, Alibaba topped global rankings for that year.

Founded in 1999 by Jack Ma, China's online business pioneer, and his associates, the Alibaba Group now employs more than 70,000 people around the world and has more than 70 offices in Greater China, India, Singapore, the United Kingdom and the USA. The Alibaba Group has since developed leading businesses in consumer e-commerce, online payment, business-to-business (B2B) marketplaces and cloud computing. More recently it has expanded into a range of new areas, including mobile apps, mobile operating systems and Internet TV. Alibaba's mission is to make it easy to do business anywhere.

ALIBABA SPEARHEADS A NEW MODEL FOR INTELLECTUAL PROPERTY PROTECTION

The protection of intellectual property (IP) rights in today's innovation-driven and increasingly knowledge-based global economy is an important consideration for policymakers and businesses around the world. IP protection has also become a central concern for online retailers, including the Alibaba Group which has had IP protection in its sights since it began operating.

In an attempt to tackle the proliferation of counterfeit products more effectively, and the growing number of related complaints, many on-line retailers have set about building user-friendly, internal governance systems that support the protection of IP and their reputation as socially responsible corporate citizens. The Alibaba Group, for example,

Alibaba is at the forefront of efforts to shape China's e-commerce landscape. Its global reach is such that it translates product descriptions into 16 different languages.



Photo: RaymondAsiaPhotography / Alamy Stock Photo

“The Alibaba model for IP governance in e-commerce seeks to protect IP rights by integrating technology, business models and the law.”

Jungong Sun, Vice-President of the Alibaba Group

Using various advanced technologies, every day Alibaba identifies up to 600 million product images with an accuracy rate of 97.6 percent.



Photo: M4OS Photos / Alamy Stock Photo

has, through experimentation, pioneered the development of an ever-more sophisticated and effective IP protection system. Using advanced computing technologies and big data, Alibaba's Platform Governance Department has crafted and rolled out an effective system for spotting and disciplining offers involving counterfeit goods on its platforms. Alibaba's governance model is built around proactive monitoring and an effective IP rights infringement notification system. The so-called Alibaba Model for IPR protection in e-commerce is governed by technology, innovative business practice and the law.

USING TECHNOLOGY TO IMPROVE ONLINE GOVERNANCE

Alibaba is harnessing various advanced technologies to tackle online counterfeiting and piracy. To identify counterfeit goods it uses fake product identification modelling, image recognition techniques, semantic recognition algorithms, product information databases, real-time interception systems and data collaboration platforms. Thanks to its algorithms, every day Alibaba identifies up to 600 million product images with an accuracy rate of 97.6 percent. Using these sophisticated technologies, over 97 percent of suspected infringing goods are removed from Alibaba platforms as soon as they are posted online. In 2017, twenty-seven times more goods were removed from Alibaba platforms using these technologies than were removed with takedown notices issued by IP rights holders.

STRENGTHENING GOVERNANCE THROUGH INNOVATIVE BUSINESS PRACTICE

As a leading e-commerce player, Alibaba is at the forefront of efforts to shape China's e-commerce landscape. Since it opened its doors for business, the Alibaba Group has been working to build an open, collaborative and thriving e-commerce ecosystem that benefits consumers, merchants and the economy as a whole by making it easy to do business anywhere. With this in mind, Alibaba is leading the development of the private sector-led Electronic World Trade Platform (eWTP), a multi-stakeholder initiative which seeks “to incubate e-trade rules and foster a more effective and efficient policy and business environment for cross-border electronic trade development.”

By April 2018, seventeen countries and regions had set up pavilions on the Alibaba's Tmall platform, the preferred channel for large overseas brands and small and medium-sized enterprises seeking to enter China's sizeable and expanding online consumer market. To date, over 100,000 brands – representing 75 percent of



Photo: 360b / Alamy Stock Photo

Alibaba's pioneering approach to tackling online trade in counterfeit goods using advanced technologies, including AI, has become a reference for other online platforms.

the world's most valuable consumer brands – have a presence on Alibaba's e-commerce platforms. The commercial power of e-commerce in China has made it a magnet for global brands, and has allowed it to become the touchstone for best practice with respect to IP protection.

Alibaba is constantly exploring new ways to tackle the illegal online trade in counterfeit goods. In July 2016, the company launched its IP Joint-Force System, a world first, which combines the strengths of e-commerce operators and right holders. The system uses big data modelling identification to provide IP rights holders with links to suspected IP infringements, giving them "one-click rights protection." So far, over 250 rights holders have joined the initiative.

In August 2017, Alibaba launched the Alibaba Express IPP, which offers global IP rights holders a range of benefits free of charge. Beyond managing a world-leading online IP protection system for all brand owners, the program provides right holders with an upgraded IP enforcement service, in particular, by eliminating frivolous, bad faith complaints. Under the program, 95 percent of IP notifications (excluding bad faith notifications) can be processed within 24 hours. This is yet another global first for the Group.

GOVERNANCE UNDERPINNED BY THE LAW

The rules governing the use of Alibaba's platforms are rooted in law and are made publicly available to all parties via those platforms. Under development since 2010, the rules cover all types of IP infringement and govern the full range of activities undertaken by all parties using Alibaba platforms. To date, there have been more than 60 iterations of the rules for Taobao.com, Alibaba's biggest website, and over 70 iterations of the rules for Tmall.com. These rules cover penalties, access permission, transactions, and marketing. The group has also developed a variety of mechanisms to protect IP right holders. For example, in 2017, Taobao introduced its "three strikes and you are out" policy to clamp down on repeat offenders.

Since 2016, Alibaba has also actively initiated civil actions against vendors of counterfeit products on its platforms. In 2017, the Group won a landmark case when a Shanghai court ordered a vendor of pet foods to pay RMB 120,000 (approximately USD 17,700) in damages. The case attracted widespread attention in judicial and media circles as it was the first time an e-commerce platform had successfully sued a purveyor of counterfeit goods online. The case was selected as a top ten case for “Promoting the Process of the Rule of Law in China” by the Supreme People’s Court and China’s state broadcaster, CCTV.

INNOVATIVE DISPUTE RESOLUTION MECHANISMS

To resolve disputes arising from online transactions, Alibaba has developed its highly innovative Public Review Mechanism which canvasses public views on whether or not proposed rules to discourage certain online behavior are considered reasonable. Following its launch in December 2012, users of the Taobao platform were asked to vote on whether the platform’s rules regarding fictitious trading were reasonable. They concurred. The mechanism was subsequently rolled out to support the resolution of transaction-related disputes. The mechanism is proving highly successful and has been further enhanced. It now uses consumer inputs to support the identification of copycat brands. So far, nearly five million people have taken part in the Public Review Mechanism and over 100 million dispute judgments have been completed.

With Alibaba leading the charge, Chinese e-commerce enterprises have developed an innovative framework of e-commerce governance which combines proactive prevention and control measures with effective complaint handling and dispute resolution. The Alibaba model for IP governance in e-commerce seeks to protect IP rights by integrating technology, business models, and the law.

Alibaba’s model is now widely referenced and is being implemented by other e-commerce platforms. Its strength lies in the fact that the technology it uses can be easily adapted to areas beyond e-commerce to support the protection of IP rights across a broad range of sectors. In this way it supports efforts to build greater respect for IP rights across the economic and social spectrum.

THE FUTURE

Looking to the future, scientific and technological developments promise to boost creativity, innovation, and business growth in coming years. However, if we are to achieve inclusive trade – where many more small companies and individuals are able to participate in and enjoy the benefits of global trade – it is important that trade barriers are minimized and new global trade rules are adopted.

Legal systems are struggling to keep pace with the needs of the new information age. The traditional means of protecting IP rights are no longer fit for purpose in today’s seamless, high-tech-driven world. Those rights which are territorial in nature, meaning they only have a legal effect in the jurisdiction in which they are granted, are being challenged by the borderless nature of e-commerce. The legal penalties and enforcement mechanisms of the 20th century are toothless in tackling e-crimes such as online fraud, ID theft, spamming, and so on. We need to find new, more effective solutions to create robust systems for tackling these challenges. New technologies can help us better regulate the online ecosystem to ensure that it continues to expand.

In 2016, Alibaba introduced five new strategies for retail, manufacturing, finance, technology, and energy. As reflected in the company’s “Made in Internet” theme, the Internet, and use of big data to identify consumer preferences, will become an important driver for incubating and cultivating improved IP rights.

Only by respecting IP and fostering the development of IP rights that are effective in fostering online trade can we achieve high-performing, competitive markets. The issue of IP protection in e-commerce is a complex challenge, especially when tackling the online sale of counterfeit products. It involves more and better cooperation and joint governance among relevant stakeholders, and the sharing of data and technologies among government authorities, IP rights holders and e-commerce platforms. Such an approach is essential if we are to make a real difference, achieve mutual benefit and ensure that e-commerce continues to thrive.

WIPO Re:Search supports the battle against malaria

By **Professor Katherine Andrews**,
Deputy Director, Griffith Institute of Drug Discovery
(GRIDD), Griffith University, Queensland, Australia

Photo: Konstantin Nechaev / Alamy Stock Photo



Innovative thinking is needed to eradicate the mosquito-borne disease, malaria, which claims more than 400,000 lives every year. WIPO Re:Search is helping to strengthen the global malaria research landscape through its scientific exchange program.

Malaria is among the world's top killers. Despite progress in reducing mortality and infection rates, this mosquito-borne disease remains a major global health challenge. In 2016, alone, an estimated 216 million cases of malaria were reported, according to the World Health Organization. While this was a significant decrease (some 18 percent) on 2015 estimates, malaria continues to claim more than 400,000 lives every year. Commitment and innovative thinking are needed to help eradicate this scourge.

Tackling malaria is a complex undertaking that involves the combined efforts of researchers, public health experts, industry, politicians, civil society groups, and many others. Of course, it also requires significant investment, which is often in short supply.



Enter WIPO Re:Search, a consortium led by the World Intellectual Property Organization (WIPO) and Bio Ventures for Global Health (BVGH) that brings together over 100 partners from government, academia, and industry. WIPO Re:Search leverages resources, know-how, expertise, and infrastructure to catalyze the development of more effective vaccines, drugs, therapies, and diagnostic tools to prevent and treat neglected tropical diseases (NTDs), malaria, and tuberculosis. It makes an important contribution to meeting the global malaria challenge by linking industry players with academic research groups, and government funding.

STRENGTHENING THE GLOBAL RESEARCH LANDSCAPE

Strengthening the global research landscape by fostering scientific collaborations between researchers working on NTDs, malaria and tuberculosis is a critical part of WIPO Re:Search's mandate. With its consortium partner, BVGH, WIPO Re:Search facilitates such collaborations through a scientific exchange program which promotes capacity building and joint R&D by arranging sabbaticals for interested scientists from developing countries at research institutions in Australia, Europe, and the USA.

Thanks to funds from the Australian Government under a funds-in-trust (FIT) arrangement, this program has a proven track record of success since its inception in 2013. The program initially placed six researchers from Africa at pharmaceutical companies and leading universities in Europe and the USA for periods of up to one year. An additional injection of funds from Australia in 2016 is now supporting 10 researchers from the Asia-Pacific region to undertake research in five Australian research institutes, including the Griffith Institute for Drug Discovery (GRIDD) at Griffith University in Queensland.

That's how we came to work with Dr. Mohammad Shafiul Alam, a scientist at the International Centre for Diarrhoeal Disease Research (icddr,b), in Dhaka, Bangladesh, a country where malaria remains a major public health challenge.

GRIDD's biomedical expertise and commitment to developing effective new drugs to prevent malaria made it a perfect destination for Dr. Alam, whose research interests include malaria drug resistance, point-of-care diagnostics for infectious diseases, host-parasite interactions and vector control.

COLLABORATIVE RESEARCH FOR BETTER RESEARCH OUTCOMES

There is no doubt that collaboration is a cornerstone of scientific endeavor, and is widely recognized as a means of improving the quality of research, leading to outcomes with positive, far-reaching impacts. Researchers from both developing and developed countries are investing their time, energy and expertise in tackling some of the world's most intractable health challenges and it makes sense to join forces to solve these problems. Joint efforts, such as those facilitated through the WIPO Re:Search FIT scientific exchange program, enrich health research and advance the development and diffusion of effective solutions that might not otherwise be possible.

Dr. Alam's six-month fellowship at GRIDD proved extremely fruitful. His contributions seeded many exciting opportunities to exchange knowledge and ideas and provided a level of personal interaction that email and Skype cannot achieve.

BENEFITS OF SHARED LEARNING

The value of the collaboration became clear as soon as Dr. Alam presented his research to colleagues in a seminar at GRIDD and shared insights about life as a researcher in a resource-constrained malaria-endemic region. His accounts of the daily challenges researchers face in Bangladesh, including, for example, maintaining the viability of samples without highly specialized laboratory equipment, reminded us of the harsh realities many face in resource-challenged environments. Like many research groups working in well-equipped labs in non-endemic areas, we rarely hear about these conditions. Insights like those gained at GRIDD through Dr. Alam's visit are critically important to generate realistic, relevant and effective solutions to tackle malaria and other infectious diseases, especially in endemic-country settings.

It is hard to imagine the stark differences in laboratory conditions, approaches and culture without first-hand experience of them and, importantly, the luxury of time. The simple phrase "We do it differently in our lab" takes on new meaning when it can be followed with "How?", "Why?" and "Can you please show me?" The trust, confidence and insights that flow from such interactions can generate significant benefits in terms of the quality of outcomes and the success of research collaborations. This premise is borne out by bioethicists Michael Parker and Patricia Kingori, whose work explores how scientists evaluate a positive research collaboration (see box).



Photos: Courtesy of Dr. Mohammad Shafiul Alam

Dr. Mohammad Shafiul Alam took part in a WIPO Re:Search scientific exchange program funded by the Government of Australia. His six-month fellowship at Griffith Institute for Drug Discovery (GRIDD) at Griffith University in Australia enabled him to advance his research on the development of anti-plasmodial compounds from natural products.



Dr. Mohammad Shafiul Alam (above left) and Dr. Katherine Andrews (above right). The Griffith Institute for Drug Discovery (GRIDD) is one of five research institutes hosting researchers from the Asia-Pacific region thanks to funding from the Government of Australia.



A long-term benefit of hosting a WIPO Re:Search FIT fellow is the opportunity to provide mentoring or advocacy support well beyond the term of the fellowship. This can range from practical advice on grant or manuscript drafts or input on presentations, to more strategic, long-term, career-development strategies. Network sharing is also a great opportunity and benefits both the fellow and the host, providing mutual opportunities to develop new contacts through each other's connections. A tangible outcome of Dr. Alam's fellowship at GRIDD was his appointment as an Adjunct Research Fellow at the conclusion of his fellowship. This recognizes the value of Dr. Alam's collaboration and the positive contribution he made to the partnership. It also formalizes his ties with GRIDD and Griffith University and will enable him to continue to have free-of-charge access to the University's extensive library resources. It further provides Dr. Alam with the opportunity to serve as an associate supervisor of doctoral students.

LEVERAGING RESOURCES AND FACILITIES

During his fellowship, Dr. Alam was able to access GRIDD's NatureBank, a unique drug discovery platform based on natural product extracts and fractions derived from Australian plants, fungi, and marine invertebrates. NatureBank's samples are divided into two libraries, one comprising 10,000 natural product extracts, and another made up of 50,000 natural product fractions. NatureBank also holds some 30,000 archived biodata samples. Its stock of samples may be used to screen for any disease and can accelerate drug discovery. NatureBank is an active player in WIPO Re:Search, to date having furnished samples for two of the program's collaborative R&D efforts involving neglected tropical diseases.

"It was a pleasure for our team to work with Dr. Alam and to guide him around our state-of-the-art infrastructure and processes. Having him embedded at GRIDD for several months gave us an opportunity to find translatable commonalities to aid him in his research," comments Associate Professor Rohan Davis, NatureBank's academic lead.

Access to NatureBank provided a perfect opportunity for Dr. Alam to select species of interest based on his own preliminary findings in Bangladesh. It also enabled him to expand his knowledge of different approaches for the discovery and development of anti-plasmodial compounds from those natural products.

"The fellowship provided an excellent opportunity for me to learn new skills, technical insights and expertise to continue important research on anti-malarial development from the natural products in an area where it is needed most," notes Dr. Alam.

Dr. Alam explores GRIDD's NatureBank, which is listed in the WIPO Re:Search database of partner resources. NatureBank is a unique drug discovery platform comprising some 30,000 archived biodata samples, which can be used to help accelerate drug discovery.



Photo: Courtesy of Dr. Mohammad Shafiqul Alam

What scientists want from a collaboration:

- Active involvement in cutting-edge, interesting science
- Effective leadership
- Competence in and commitment to good scientific practice
- Capacity building
- Respect for the needs and agendas of all partners
- Opportunities for discussion and disagreement
- Trust and confidence
- Justice and fairness in collaboration

According to bioethicists Michael Parker and Patricia Kingori

HIGHLIGHTING THE ROLE OF IP TO RESEARCHERS

The fellowship proved yet another opportunity to demonstrate the role that intellectual property (IP) rights can play in supporting effective research collaborations, particularly in relation to the sharing of resources. Strategic use of IP rights to leverage the value of research outputs can be an effective way to secure funding for future research projects.

On the strength of our experience in hosting Dr. Alam, and recognizing the challenges that can sometimes confront cross-border collaborations, we have signed a material transfer agreement with his host institute in Bangladesh. This arrangement allows the flow of materials to Dr. Alam's institute and thereby strengthens our common efforts to support breakthroughs in malaria research.

The strong relationship developed between GRIDD and Dr. Alam during his visit has paved the way for another WIPO Re:Search fellow to be hosted at GRIDD under the same program. Dr. Hamisi Masanjia Malebo, a Research Leader from the National Institute for Medical Research in the United Republic of Tanzania, will join GRIDD's Associate Professor Yun Feng for a six-month fellowship in January 2019. Dr. Malebo will work on Tanzanian traditional medicines used as anti-infectives and will focus on isolation and characterization of active agents from herbal extracts.

Such international collaborations are mutually enriching for all parties involved. GRIDD Director Professor Jenny Martin strongly supports these international linkages. "Our mission at GRIDD is to 'create knowledge that transforms lives'. That includes using our know-how and expertise to improve the skills of researchers from all over the world and to give them access to our unique resources and infrastructure," she explains. "It is very rewarding for us to participate in the important WIPO Re:Search initiative by hosting these fellows at GRIDD and to work with them to develop new knowledge and drug leads for major human diseases like malaria."



Pat-INFORMED: a new tool for drug procurement

By **Mark F. Schultz**, Professor, Southern Illinois
University School of Law and **Jaci Arthur**, Director of
Research, Institute for Intellectual Property Research,
Illinois, USA

The new Pat-INFORMED database makes it easier to obtain information on the patent status of a specific medicine in a particular jurisdiction. It is especially useful for drug procurement agencies.



Developing a medicine is a highly complex process that involves numerous innovative steps, many of which can be protected with patents. While swallowing a small pill seems straightforward and far less complicated than, for example, using our smartphone, there is actually a great deal of specialist technology and expertise behind all the medicines we use. A huge amount of science and research goes into not only identifying an active ingredient to treat a condition, but also into calculating the right dosage and optimal release time – that is, how long the drug is active in our body.

It takes many years to develop a drug, and in the course of that development researchers may find that the molecules they are working with have new properties, attributes, and applications that also may be patentable. This means that many patents may be associated with any one drug or medicine. Differentiating between key patents that relate to a specific formulation of a drug and more peripheral patents covering niche applications can be difficult, particularly for a non-patent specialist, such as someone procuring drugs for an aid agency.

THE CHALLENGE

The challenge of searching for drug patents is compounded by the fact that neither generic nor brand names for drugs are likely to appear in patents. Drug patents are most likely to be filed and granted early in the development of the product, long before the active ingredient of the formulation receives a generic name (i.e., an International Nonproprietary Name (INN)), or a registered trademark or brand name. The inevitable gap between terminology used to describe a drug in a patent and the name by which the product becomes generally known can create challenges for assessing the patent status of a medicine.

A few countries have overcome this information gap by publishing databases, such as the United States' "Orange Book," which lists the patents that are relevant to each drug, according to the standard name for each medicine. The Orange Book also indicates when patents and other exclusivities expire. However, the Orange Book provides information only for the United States, and most countries do not provide such straightforward and simple references.



Photo: alvarez / E+ / Getty Images

Determining the patent status for specific medicines is made difficult because of a gap in the terminology used to describe a drug in a patent and the name by which the product becomes generally known.

DETERMINING THE PATENT STATUS OF MEDICINES MADE EASY WITH PAT-INFORMED

The World Intellectual Property Organization (WIPO) and the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA), together with 20 participating global pharmaceutical companies, are teaming up to respond to this gap in information by effectively globalizing the concept of the Orange Book.

Under an initiative known as the Patent Information Initiative for Medicines (Pat-INFORMED), which was rolled out in September 2018, WIPO, IFPMA and its partners are providing information – specifically, patent numbers and application and grant dates – for approved medicines in jurisdictions around the world.

Pat-INFORMED links patent information worldwide with standard product names for important medicines. The database provides a clear, easy-to-use interface, where entering a product's INN produces a concise list of patents, including the name of the company that owns the patents and the countries in which they have been granted.

Having this information available in one place is a big leap forward for all those interested in pharmaceutical patents. The primary goal of the project is to help procurement agencies obtain information on the patent status of a specific medicine in a particular jurisdiction. Pat-INFORMED will complement other patent database resources, such as those hosted by commercial entities, national patent offices, and WIPO's own PATENTSCOPE, which currently holds around 71 million patent documents.

WHY FINDING DRUG PATENTS IS A CHALLENGE


Most drugs are likely to have at least two names: a brand name chosen by the innovator and an INN (usually referred to as the generic name), which identifies pharmaceutical substances or active pharmaceutical ingredients. INNs are registered with the World Health Organization (WHO). For example, the INN of the well-known Hepatitis C drug that goes by the brand name Solvadi, is sofosbuvir. Similarly, the non-prescription pain reliever known widely by its INN, ibuprofen, also goes by brand names such as Advil, Motrin, Bufren, Nurofen, and many others.

INNs play an important role in public health by creating a shared nomenclature for drugs that cuts across national borders, brands, and health disciplines, simplifying communication and avoiding confusion. This shared language ensures that descriptions of drugs in prescriptions, medical records, purchase orders, inventories, and other communications are easily and consistently understood by all.










Doctors, health professionals, pharmacists, and specialists working in drug procurement use INNs as their common language (even if they also refer to brand names). INNs essentially comprise the word's formulary of known medicines. There are more than 8,000 INNs registered with the WHO.

Unfortunately, the common language created by INNs does not extend to the language used in drug-related patents. Pharmaceutical patents frequently do not refer to INNs. They tend to describe a drug by its chemical composition or a name widely accepted by experts in the relevant field, but which differs from the INN.

Figure 1

My account  Hosted by WIPO

Search INNs in pharmaceutical patents - Ex : aztreonam Countries filter

INN	Company	Patents
Erlotinib Hydrochloride		STABLE POLYMORPH OF N-(3-ETHYNYLPHENYLAMINO)-6,7-BIS(2-METHOXYETHOXY)-4-QUINAZOLINAMINE HYDROCHLORIDE, METHODS OF PRODUCTION, AND PHARMACEUTICAL USES THEREOF
Vemurafenib		COMPOUNDS AND METHODS FOR DEVELOPMENT OF RET MODULATORS
Lenvatinib Mesilate		QUINOLINE DERIVATIVE-CONTAINING PHARMACEUTICAL COMPOSITION 
Daclatasvir Dihydrochloride		CRYSTALLINE FORM OF METHYL ((1S)-1-(((2S)-2-(5-(4'-((2S)-1-((2S)-2-(METHOXYCARBONYLAMINO)-3-METHYLBUTANOYL)-2-PYRROLIDINYL)-1H-IMIDAZOL-5-YL)-4-BIPHENYL)-1H-IMIDAZOL-2-YL)-1-PYRROLIDINYL)CARBOXYL)-2-
Insulin Aspart; Insulin Degludec		PHARMACEUTICAL COMPOSITION NOVEL INSULIN DERIVATIVES
Crizotinib		ENANTIOMERICALLY PURE AMINOHETEROARYL COMPOUNDS AS PROTEIN KINASE INHIBITORS
Sildenafil Citrate		Use Of Sildenafil In The Treatment Of Pulmonary Hypertension
Sunitinib Malate		PYRROLE SUBSTITUTED 2-INDOLINONE PROTEIN KINASE INHIBITORS

Details of a search using Pat-INFORMED, relating to the INN sofosbuvir. The results display all relevant INNs, with further groupings or families listed to the right of each one. By clicking on the relevant field, users can access key details of the relevant patent, including its publication number, publication date, grant date, grant number, and, where available, a link to the text of the patent in WIPO's PATENTSCOPE database.

The absence of INNs from patent documents is not a purposeful omission. It is a function of the point at which each arises within the development process. A patent application can easily be approved years before an INN application is submitted.

This gap in time between when patents and INNs are issued is a natural result of how the drug discovery process unfolds. Patents protect promising early breakthroughs in drug development. They precede, and may be a condition of, any further investment in testing and development. INNs are assigned once that promise is more developed.

By the time a pharmaceutical company files a request with the WHO for an INN, at least some relevant patents will have been filed, and likely granted, and the drug is likely to be about to start clinical trials. After the INN request has been filed, there is an average 15-month wait before the publication of a “Recommended INN,” followed by a four-month period during which objections to that name may be raised.

The inevitable absence of INNs from many relevant pharmaceutical patents means they do not share the language used by the rest of the healthcare community to identify drugs. It is therefore unlikely to be possible to identify relevant patent applications filed prior to the date on which the INN is issued through a search using the common, generic name. This can lead to confusion for those seeking to determine the patent status of a medicine. Inexperienced researchers may draw false confidence from incomplete results, while more seasoned ones face concerns that they may have missed something due to the lack of common nomenclature.

The challenge is particularly acute for non-patent experts working in the healthcare system who rely on INNs to identify patented medicines. Most procurement agencies employ healthcare specialists who are far more familiar with INNs than the chemical compositions, chemical names, or patent classifications used to search most patent databases. These difficulties are experienced across the healthcare system. Government ministries, researchers, aid groups, and others also often find it difficult to determine the patent status of drugs in different countries when searching by generic names.

ADDRESSING A LONG-FELT NEED

The difficulties associated with searching for patents using INNs have led many observers to consider alternative approaches. For example, the WHO has consistently noted the difficulties associated with this gap in language and has recommended various strategies to remedy the problem. WIPO’s Standing Committee on Patents has also assessed various options. India considered – but ultimately declined to impose – a requirement for disclosure of INNs in patent applications. Also, in 2016, a large ad-hoc coalition of civil society groups similarly called for more information linking drug patents to INNs.

Pat-INFORMED meets this long-felt need. Users can, for the first time, find information on all patents linked to an INN in just a few clicks.

Twenty leading pharmaceutical companies have committed to contributing to the database, which contains information on drugs on the WHO Essential Medicines List, as well as important oncologic, Hepatitis C, cardiovascular, HIV, diabetes, and respiratory therapy areas. The project aims to eventually cover all therapeutic areas and will explore the feasibility of including other treatments, complex therapies, and vaccines in the future.

Participation in Pat-INFORMED is voluntary. Its participants are committed to disclosing core patents in every country in which they are granted with details of all therapies covered. This information will be updated every six months for products on the Essential Medicines List and annually for all others.

This commitment, coupled with the comprehensive nature of the database, means that those researching the patent status of medicines now have access to a trusted resource that will make it easier to connect with patent owners. This is one of the initiative’s key objectives.

Drug procurement by ministries of health, manufacturers, donors, and aid agencies can be complex and costly. Poor drug procurement practices can even lead to shortages in high-quality, life-saving drugs. Therefore, new tools, like Pat-INFORMED, which facilitate and improve that process, are critical.

With Pat-INFORMED, the language gap between INN and patent information will finally be closed. Importantly, the database is free, publicly accessible, and easy to use. Even a non-specialist can obtain better results, and more quickly, than previously possible.

A COMPREHENSIVE, ACCURATE, AND USER-FRIENDLY TOOL

Pat-INFORMED breaks new ground in terms of its accuracy, its comprehensive coverage, and the way in which it consolidates and links to relevant information through a clear and intuitive interface. On accessing the database, users simply type in the INN or generic name of the drug about which they are seeking patent-related information. The results display all relevant INNs, with further groupings or families listed to the right of each one – Pat-INFORMED calls these groupings “cards.” By clicking on a “card,” the user can access key details of the relevant patent, a link to contact the company that holds that patent, and a separate box for each jurisdiction in which the patent is granted. Each of these boxes presents details of the patent, including its publication number, publication date, grant date, grant number, and, where available, a link to the text of the patent in WIPO’s PATENTSCOPE database (see Figure 1).

AN INDISPENSABLE TOOL FOR THE GLOBAL PHARMACEUTICAL MARKET

Beyond hosting Pat-INFORMED, WIPO and IFPMA will act as intermediaries, ensuring that all *bona fide* requests received from procurement agencies are forwarded to the relevant pharmaceutical companies.

Crucially, all participating patent owners have committed to respond to such inquiries. Now, thanks to Pat-INFORMED, anyone involved in drug procurement seeking information on the patent status of drugs can find the right point of contact within a participating pharmaceutical company and is guaranteed a response. This makes Pat-INFORMED an indispensable tool for the global pharmaceutical marketplace.

Pat-INFORMED will help bridge the INN-patent information gap. While the database is not the sole source of information in drug procurement decision-making, it will facilitate the process of identifying the life-saving drugs that patients need, and will enable the drug procurement process to function more smoothly. The Pat-INFORMED database is already an important and critical advance for the patented medicines marketplace. It promises additional dividends in terms of supporting efficient drug procurement processes as other product areas are included and more companies join the initiative.

Companies participating in Pat-INFORMED

AbbVie (USA)
 Astellas Pharma Inc. (Japan)
 Bristol-Myers Squibb (USA)
 Daiichi-Sankyo (Japan)
 Eisai (Japan)
 Gilead Sciences, Inc. (USA)
 GlaxoSmithKline (GSK) (United Kingdom)
 IPSEN (France)
 Johnson & Johnson (USA)
 Leo Pharma (Denmark)
 Lilly (USA)
 Merck KGaA (Germany)
 MSD (aka Merck & Co., Inc.) (USA)
 Novartis (Switzerland)
 Novo Nordisk (Denmark)
 Pfizer (USA)
 Roche (Switzerland)
 Shionogi Inc. (Japan)
 Takeda (Japan)
 UCB (Belgium)

ARIPO's drive to strengthen Africa's innovation ecosystem

By **Susan Mwiti**, African Regional Intellectual Property Organization (ARIPO), Harare, Zimbabwe

Practical interventions that address gaps in capacity across Africa and that support its structural transformation are critical to the continent's socio-economic performance and growth.



“Our aim is to raise awareness among the research community about the urgent need to develop sound institutional IP policies to stimulate innovation and the commercialization of research results.”

Fernando dos Santos, Director General, ARIPO.



Headquarters of the African Regional Intellectual Property Organization (ARIPO), Harare, Zimbabwe (above). ARIPO is working to promote the development of the region's IP ecosystem and support national efforts to harness the value of local innovative and creative resources.

Developing the infrastructure, capabilities, and policies to enable Africa to move to a sustainable future is central to the African Union Agenda 2063, but remains a significant challenge.

Persistent gaps in capacity across Africa stem, in large part, from a “mismatch” between training and the evolving needs of the economy. Many countries continue to focus on training in the humanities and far less on encouraging students to acquire scientific and technical skills. Globally, 80 percent of humanities’ graduates are from Africa. Ninety-five percent of African students study social science, business, and law and just four percent study engineering, manufacturing, and construction. Yet more worrying, only two percent study agriculture, a sector that generates around 32 percent of the GDP of African countries.

THE NEED TO BUILD IP CAPACITY TO HARNESS AFRICAN INNOVATION

Practical interventions that address capacity-building imperatives and that support Africa’s structural transformation are therefore critical to the continent’s socio-economic performance and growth. The need to build intellectual property (IP) capacity is one area requiring urgent attention. Some African countries still have no IP office in place, and among those that do, few have developed and rolled out effective national IP policies and strategies to support their economic ambitions.

Africa has a strong tradition of innovation and creativity. While it commands extraordinary creative resources, it has often struggled to realize their full economic potential. A widespread lack of understanding of the role and economic potential of IP rights and limited access to functional IP systems are largely to blame.

ARIPO’S ROVING IP SEMINARS

Over the past four years, in a bid to bridge this gap, the African Regional Intellectual Property Organization (ARIPO) has been organizing roving seminars on IP across its 19 member states. Making better use of IP for business competitiveness and development in Africa was a central theme of the 2014 and 2015 seminars, which targeted senior government officials, policymakers, and law makers on the one hand, and the business community on the other hand. With respect to the former group, the aim was to demonstrate the importance of effective IP policy in fostering social and economic development, and the need to establish robust and effective IP legal frameworks at the national level, for example, by signing up to various regional and international IP agreements. In reaching out to the local business community, the aim was to highlight the role that IP rights can play in supporting profitability and business growth.

In 2014, roving seminars were held in eSwatini (formerly Swaziland), Gambia, Liberia, Mozambique, and Sierra Leone. These efforts helped pave the way for Gambia to ratify the Swakopmund Protocol on Traditional Knowledge and Expressions of Folklore (see box) and advance various IP-related legislative reforms. The following year, roving seminars were held in Ghana, Kenya, Lesotho, Rwanda, and Zambia.

Beginning in 2016, the focus of the seminars moved toward fostering creativity and innovation for economic growth and development in Africa, in line with ARIPO’s drive to promote the development of the region’s IP ecosystem and support national efforts to harness the value of local innovative and creative resources.

In 2016, roving seminars were held in Botswana, Namibia, and Uganda, and in the following year, in Malawi and the United Republic of Tanzania. To date, around 2,030 participants have taken part in the seminars which have been held in 15 of ARIPO's 19 member states.

RAISING IP AWARENESS AMONG AFRICA'S RESEARCH COMMUNITY

Recognizing their strategic importance as generators of IP, since 2017 ARIPO has been targeting its outreach efforts toward universities and research institutions. The aim here has been to encourage them to develop and implement effective IP policies and to strengthen understanding within the research community about how to manage IP assets effectively and the options available to them when they want to protect and commercialize those assets in domestic, regional, and international markets.

The seminars cover a range of topics, including: principles and concepts of IP, basic principles of patent drafting, and the enforcement of copyright and related rights in the digital era. They encourage researchers to move beyond the “publish or perish” mindset and to embrace the strategic management, use, and exploitation of their IP assets.

So far this year, roving seminars have been held in Botswana, Liberia, Mozambique, Namibia, and Zimbabwe. By July 2018, more than 850 participants from universities and research institutions had benefitted from the seminars. The roving seminar program is set to continue through 2020.

“We are working to build IP awareness and understanding within the region's universities and research institutions because these organizations are responsible for creating a significant amount of new knowledge and are major potential generators of IP,” explains ARIPO Director General Fernando Dos Santos. “Our aim is to raise awareness among the research community about the urgent need to develop sound institutional IP policies to stimulate innovation and the commercialization of research results,” he adds, noting that “most economies are aspiring to become innovation-driven knowledge economies built on intellectual capital and IP rights, the potential of which remains largely untapped in many African universities and research institutions.”

A recent situational IP analysis commissioned by WIPO revealed that most African universities and research institutions are struggling to establish institutional IP policies and strategies required to protect their research outputs. These findings have prompted ARIPO and WIPO to jointly develop a series of *Guidelines on Developing Intellectual Property Policy For Universities and R&D Institutions in African Countries*, to provide practical assistance in

About the Swakopmund Protocol

The Swakopmund Protocol on the Protection of Traditional Knowledge and Expressions of Folklore was adopted in 2010 by ARIPO member states. It seeks to address inherent inadequacies within the conventional IP system by providing effective protection for the wealth of African natural and cultural resources that have contributed to the advancement of the arts, science, and technology. The Protocol also seeks to prevent misappropriation, misuse, and unauthorized exploitation of these resources by third parties.



Photo: Courtesy of ARIPO

Participants and speakers at a roving seminar organized by ARIPO in Malawi. Front row (from left to right): Chapusa Phiri, Chair of the ARIPO Administration Council; Dora Makwinja, Chair of the ARIPO Technical Committee on Copyright and Related Rights; Fernando dos Santos, ARIPO Director General; Hon. Samuel Tembenu, Chair of the ARIPO Council of Ministers, Minister of Justice and Constitutional Affairs, Malawi; Joyce Banya, WIPO; Emmanuel Sackey, Intellectual Development Executive, ARIPO.



Photo: Courtesy of ARIPO

Participants at the IP seminar held at the National University of Science and Technology in Bulawayo, Zimbabwe. So far, over 2,000 participants have taken part in ARIPO seminars, which have been held in 15 of ARIPO's 19 member states.

developing and implementing the types of institutional IP policies that will enable them to leverage the commercial value of their research outputs. A series of pilot projects is foreseen to further advance these efforts. “We believe that these initiatives will go a long way in helping universities and research institutions steer their research efforts towards the use of IP to support outcomes of greatest potential benefit to society,” says Mr. Dos Santos.

For its part, the African research community has been overwhelmingly positive in its readiness to embrace strategic use of IP. Over 40 universities in 15 African countries have expressed an interest in taking part in these pilot projects. The aim is to engage with each of them to support them in using the guidelines to develop their institutional IP policies.

BUILDING AFRICA’S IP TALENT POOL

Over the past decade, ARIPO has also been working to expand the pool of IP talent in Africa. In partnership with WIPO and the Africa University in Mutare, Zimbabwe, since 2008, ARIPO has supported a Master’s program in intellectual property (MIP). So far, nearly 300 students from over 26 African countries have graduated from that program.

In 2016, ARIPO conducted a Tracer Study of MIP graduates. It revealed that many of the graduates are now active within the national IP systems of their home countries. Many are actively shaping national and institutional IP laws and policies, while others are teaching IP in universities and colleges or sharing their IP expertise through a variety of national IP awareness programs.

To further expand the continent’s IP talent pool, ARIPO is also partnering with the Kwame Nkrumah University of Science and Technology in Kumasi, Ghana, in launching a two-year Master of Intellectual Property degree (MPhil) program in August 2018. And in May 2019, another Master of Intellectual Property degree program will be launched in partnership with the University of Dar es Salaam in the United Republic of Tanzania.

PROGRESS, BUT CHALLENGES REMAIN

While significant progress has been made, there is still a great deal to be done. Africa’s pool of IP professionals remains small and falls well short of what the continent needs if it is to harness Africa’s potential for innovation. In 2016, according to WIPO, IP offices located in Africa received a fraction – just 0.5 percent – of the 3.1 million patent applications filed around the world.

“The general lack of IP awareness in Africa explains the low percentage of international applications filed under WIPO’s Patent Cooperation Treaty (PCT) and the low uptake of IP support services offered by national IP offices and ARIPO,” says Mr. Dos Santos.

Despite the challenges it faces, ARIPO believes that a great deal can be achieved to transform Africa’s IP landscape in line with its *Value & Growth Strategic Plan, 2016–2020*. The time is ripe to advance Africa’s aspirations and goals in the area of IP and innovation. Working with academic institutions to ensure that they have IP policies in place will help catalyze the development of national innovation ecosystems, support IP awareness among key IP generators, and enable African countries to harness the value of their creative and innovative resources in support of sustainable national economic development. Through its IP capacity-building and awareness programs, ARIPO is committed to supporting Africa’s long-term development goals.

Origin-based products in the Russian Federation

By **Daria Novozhilkina**, Attorney at Law (Russian Federation) and freelance writer

About geographical indications and appellations of origin

Geographical indications (GIs) and appellations of origin (AOs) are distinctive signs that inform consumers about the origin of a product and indicate that its special features are attributable essentially to its place of production. An AO implies that production, processing, and preparation take place within a defined geographical area and that the qualities and characteristics of a product derive exclusively or essentially from its geographical environment, including natural and human factors. To qualify for protection as an AO, the link with the place of origin must be stronger than that required for GI protection.

While AOs and GIs are internationally accepted terms, countries use various terms within their national laws to provide the same or similar legal protection.

If well managed, geographical indications (GIs) and appellations of origin (AOs) can support product branding, rural livelihoods, and economic development. These distinctive signs indicate a connection between the quality, characteristics, and reputation of goods and their geographical origin. Recognizing their potential to create value, policymakers in many countries are promoting their use to help advance national economic development objectives.

Recent developments in the Russian Federation indicate that GIs are gaining traction within public policy spheres as a means of promoting regional development in that country. The Russian Federation covers a huge area spanning 11 time zones. Its vast cultural and geographical diversity has given rise to myriad products with the potential to qualify for protection as GIs or a variation thereof.

In the Russian Federation, origin-based products are protected as designations of origin (DOs). Article 1516 (1) of the Civil Code defines DOs as “designations that constitute or contain a modern or historical, official or unofficial, full or abbreviated designation of a country, city or a rural settlement, area or other geographical locale, as well as a name derived from such designation, that has become known due to its use with regard to a good, the special characteristics of which are exclusively or mainly determined by natural conditions and (or) human factors that are characteristic for that geographical locale.”

When the Russian Federation joined the World Trade Organization (WTO) in 2012, it was required under the Agreement on Trade Related Aspects of Intellectual Property (TRIPS), to foresee the implementation of a special regime for GIs in its national law. At the time there was some uncertainty as to whether a DO as defined under Russian law was more akin to an AO or a GI. During the accession process, the representative of the Russian Federation indicated that its Civil Code was to be amended to align the definition of DOs with the TRIPS definition of GIs. This amendment remains in process.

CURRENT ARRANGEMENTS

At present, DO protection is granted upon registration with the Russian Federal Service for Intellectual Property (Rospatent), which issues DO certificates and maintains a State Register of DOs.

With a certificate in hand, producers can use their DO to brand and market their goods both on- and off-line but are prohibited from selling or licensing those rights (Article 1519, para. 4 of the Civil Code). Moreover, the registered DO may not be used by anyone who has not obtained a certificate, even in cases where the true origin of the product is indicated, or the designation is used in translation or accompanied by words such as “kind,” “type,” and “imitation” (Article 1519, para. 3 of the Civil Code).

Around 170 DOs have been registered with Rospatent so far. Examples include Narzan (mineral water), Tula Pryanik (a type of gingerbread), and Gzhel, Zhostovo, and Kholkhoma (ceramic handicrafts).

Following the establishment in 2012 of the Intellectual Property (IP) Council – which reports to the Federation Council, the Upper House of the Federal Assembly – and its recommendations, the Russian Government launched a new policy to encourage broader use of DOs.

POTENTIAL BENEFITS

The legal, economic, social, and political dimensions of GIs make them a useful element in promoting regional development. GIs can play an important role in preserving local traditions and knowledge; they can support livelihoods; increase opportunities for value creation and employment; and can generate environmental benefits through effective stewardship of local resources.

GIs provide consumers with detailed information about a product’s origins and the way it is produced. They guarantee specific features of a product – although not necessarily its superior quality – and their use requires all authorized producers to adhere to established standards to ensure consistent quality.

GIs are powerful marketing tools that enable producers to develop markets for their goods and transform their knowledge and skills into higher value products. Consumers are often willing to pay higher prices for authentic, high-quality products. In this way, GIs can improve rural livelihoods based on the local resource use and foster economic development. Market analysts at KPMG, estimate that the Russian Federation’s new GI policy could lead to an economic benefit of up to RUB 500 billion (over USD 73 million) for the Russian Federation by 2025. However, it is not always easy to bring GIs into play. Establishing a GI means producers have to work together to determine production methods, implement standards of quality and control, and to market and distribute their products. This can be challenging.

IDENTIFYING CANDIDATE PRODUCTS

More than one-third of the 80 plus counties that make up the Russian Federation have never filed an application for a DO. Many local producers and regional officials are unaware of the potential benefits of using GIs. This is a major barrier to their uptake and use.

The IP Council and Rospatent are therefore working to improve IP awareness, particularly with respect to DOs. In 2017, they issued and widely distributed *Guidelines for the Registration and Grant of DOs* to clarify registration procedures and explain the advantages of using DOs. Rospatent has also created a dedicated webpage for DOs and regional brands.

These efforts are beginning to yield results. In 2017, the number of applications for DOs rose to 56, from 44 in 2015 and 2016.

The IP Council is also calling on county officials to identify and report on potential candidate products by the end of 2018. Officials have also been urged to implement targeted programs to provide practical assistance in registering and promoting regional brands.

These efforts are being complemented by other federal initiatives, including the Ministry of Industry and Trade’s *Brands of the Russian Federation* scheme and the Ministry of Tourism’s drive to create a register of the top 100 national souvenirs. Together, these programs are reinforcing awareness of the value and economic potential of GIs and regional brands.

Baked pryaniks (below) are made from flour and honey, and sometimes with ginger or pepper. They taste like gingerbread. The famed Tula pryanik comes from the city of Tula near Moscow and was first mentioned in 1685. In the 2018 FIFA World Cup it was sold in the form of a *matryoshka*, a Russian doll, (itself a Russian DO) playing football.



Photo: Alexander Kurlovich / Alamy Stock Photo



Photo: Valeriya Popova / Alamy Stock Photo

Zhostovo painting (above), typically used to decorate metal trays, comprises beautiful bouquets of flowers painted on a black background. The handicraft dates from the 1820s in the village of Zhostovo, 40 kilometers north of Moscow.

Khokhloma (below) is a wood painting technique known for its radiant red, green, and gold floral patterns on a black background. It is typically applied to wooden tableware or furniture and dates from the mid-17th century. The town of Khokhloma is in the Nizhny Novgorod region, some 500 kilometers from Moscow.



Photo: Zoonar GmbH / Alamy Stock Photo



Photo: Skim New Media Limited / Alamy Stock Photo

Gzhel blue and white ceramics (above). References to it go back to the 8th and 9th centuries. Organized production began in the early 19th century. Gzhel covers more than 20 small villages to the southeast of Moscow.

IMPROVING THE LEGAL FRAMEWORK

Progress is also being made in improving the legal framework for origin-based products. On July 27, 2018, the State Duma (the Lower House of the Federal Assembly of the Russian Federation) passed the first reading of draft law No. 509994-7. The draft law recommends that the IP rights outlined in the Civil Code be extended to include GIs and DOs. It further seeks to boost the number of regional designations by lowering the threshold for GI protection compared to that required for DOs. It also foresees enabling the conversion of GIs into DOs and *vice versa*, provided certain requirements are met.

Under the new proposals, the procedure for acquiring DO rights may change. Currently, a DO application must be filed with Rospatent along with a report from a designated authority confirming the product and its attributes are linked to the natural conditions or human factors associated with a specific territory. Just four entities are authorized to issue these reports: the Ministry of Health (for goods related to mineral water); the Ministry of Industry and Trade (for arts and crafts); the Ministry of Agriculture (for food and non-alcoholic beverages); and the Federal Service for Alcohol Market Regulation (for alcoholic products). Where products fall outside the purview of these authorities, it is not possible to obtain an eligibility report, and without a report, Rospatent cannot register a DO. In an attempt to address this bottleneck, the draft law extends the list of goods eligible for DO protection and bolsters the powers of the above-mentioned bodies. Some of those powers may be delegated to regional authorities.

The draft law also includes a proposal to allow associations, unions, and other groups of producers to register DOs. At present, it is only possible for individual producers to do so. This promises to benefit all those in the DO value chain by enabling them to combine forces to deal with registration formalities, quality control, marketing and promotion, and IP enforcement issues. Details of the status of the passage of the draft law are available at: <http://sozd.parliament.gov.ru/bill/509994-7>.

OVERCOMING EXISTING CHALLENGES

Poor awareness among producers about the benefits of DOs is inhibiting progress in expanding their use in the Russian Federation. In some instances, producers are opting to register trademarks rather than DOs to protect their products.

Trademarks are a perfectly legitimate means of protecting distinctive goods. They can be licensed by the owner to anyone, anywhere in the world, since they are linked to a specific company or trademark holder and not to a specific place.

In contrast, signs used for GIs or DOs usually resemble the name of the place of production or by which they are known locally. A GI may be used by anyone in the geographical area or origin as long as it is produced according to established quality standards, but can only be used by authorized producers. Unlike a trademark, a GI cannot be licensed.

Members of the Eurasian Economic Union:

Armenia
Belarus
Kazakhstan
Kyrgyzstan
Russian Federation



Photo: mikiel15 / Alamy Stock Photo

A fountain outside the Kislovodsk Narzan gallery in the city of Kislovodsk. Narzan mineral water contains natural carbon dioxide and claims to have health benefits. It originates from the melting Elbrus glaciers and filters through the rocks absorbing mineral salts. It has been produced in Kislovodsk in the Northern Caucasus since 1894.

When the public policy objective is to develop markets for local resources, support livelihoods, and foster regional development, policymakers may opt to expand use of GIs or DOs. In such instances, it is important that local producers understand the opportunities, and indeed the limitations, associated with the various IP protection options available to them. Should they work together to establish a DO from which they can benefit collectively? Or should they go it alone and individually register trademarks to protect their goods?

INTERNATIONAL DIMENSIONS

As IP rights, including GIs, are territorial, meaning they have a legal effect only in the jurisdiction in which they are granted, it is important to protect GIs in all markets in which they are likely to be commercialized. Beyond national law, GI protection can be acquired through regional and international mechanisms but may hinge on first protecting the GI in its country of origin.

Protecting a GI abroad can be achieved in various ways: by obtaining protection directly in the country concerned; via bilateral agreements; or through regional systems.

For example, the Eurasian Economic Union (of which the Russian Federation is a member) is developing a system that allows authorized producers to register trademarks and DOs by filing a single application in a member country (see box). Producers that opt to use collective or certification marks may protect their goods abroad via the WIPO-administered Madrid System for the International Registration of Marks.

Alternatively, producers may use the WIPO-administered Lisbon Agreement for the Protection of Appellations of Origin and their International Registration or the Geneva Act to that Agreement, concluded in 2015. While not yet in force, the Geneva Act modernizes the 1958 Lisbon Agreement and makes it easier for producers to register and protect their AOs and GIs in countries other than the country of origin.

Much progress is being made in promoting the use of DOs in the Russian Federation. The ongoing transformation of its DO landscape promises significant dividends both for producers of origin-based products and consumers eager to savor the country's vast cultural wealth.



34, chemin des Colombettes
P.O. Box 18
CH-1211 Geneva 20
Switzerland

Tel: +41 22 338 91 11
Fax: +41 22 733 54 28

For contact details of WIPO's External Offices
visit: www.wipo.int/about-wipo/en/offices/

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For comments or questions, contact The Editor at WipoMagazine@wipo.int.

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