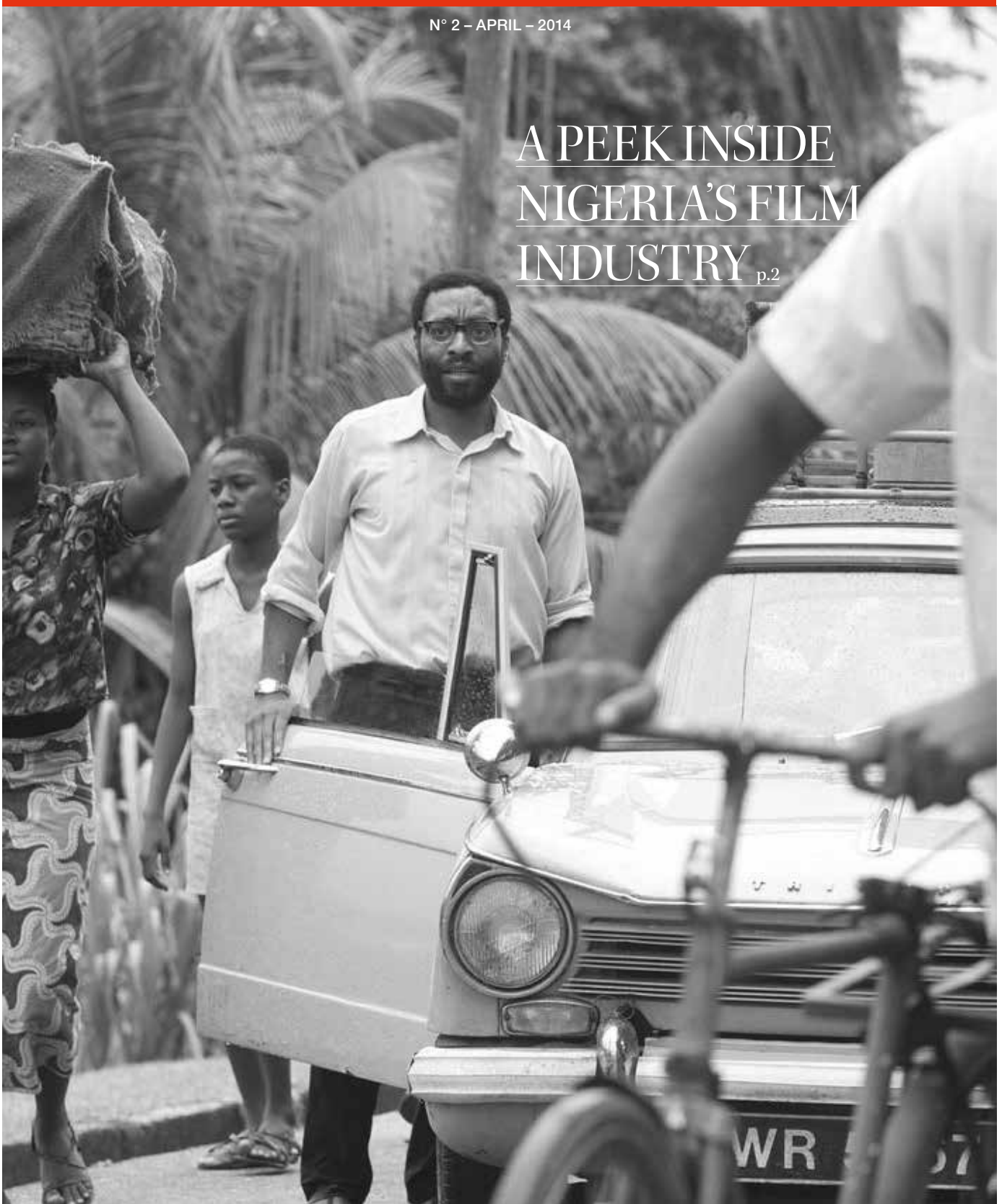


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A PEEK INSIDE NIGERIA'S FILM INDUSTRY p.2



VIDEO GAMES AND IP: A GLOBAL PERSPECTIVE p.6 | PATENT
TROLLS: FRIEND OR FOE ? p.21 | RAISING IP AWARENESS IN AFRICA:
A CALL TO ACTION p.30

WORLD IP DAY

Message from Director General Francis Gurry

Each year we celebrate World Intellectual Property Day on April 26 as an opportunity to discuss the role of intellectual property in relation to innovation and creativity. This year, our theme is Movies: a global passion.

Movies have always attracted global audiences. From the very first silent movies they were watched across the whole world with fascination, and with passion. More recently, we have witnessed the growth not only of global audiences, but also of global production. Where Hollywood was once the dominant player worldwide, now we see film industries flourishing across the world, be it Bollywood in India, Nollywood in Nigeria, or in Scandinavia, North Africa, China or other parts of Asia. So movies really are a global passion.

Movies are also a direct product of intellectual property (IP). Think about how a film is made. You start with a script, which is the intellectual property of an author or screenwriter. Then there are the actors, whose performances are their intellectual property. Then there is music, in which the composers and the performers have IP. Numerous players contribute to creating a film, and to enabling us to watch it as a seamless performance, woven from a multiplicity of intellectual property. IP underlies the whole film industry.

All these players who contribute to making and distributing movies are protected by an international legal framework. This started with the Berne Convention back in the 19th Century. Together with our member states, WIPO seeks to ensure that this legal framework keeps pace with our changing world, and continues to serve its fundamental purpose of making IP work for creativity and innovation. Recently we added a new treaty, the Beijing Treaty on Audiovisual Performances, to protect the performances of actors.

On World IP Day this year, I invite movie lovers everywhere, when next you watch a movie, to think for a moment about all the creators and innovators who have had a part in making that movie. And I would urge you also to think about the digital challenge which the Internet presents for film. I believe it is the responsibility not just of policy-makers but of each of us to consider this challenge, and to ask ourselves: How can we take advantage of this extraordinary opportunity to democratize culture and to make creative works available at the click of a mouse, while, at the same time, ensuring that the creators can keep on creating, earning their living, and making the films that so enrich our lives?

CONTENTS

- p.2 A peek inside Nigeria's film industry
- p.6 Video games and IP: a global perspective
- p.12 A fair deal for authors
- p.14 The case for authors' rights: a view from within
- p.16 Joanne Harris and the voodoo of writing
- p.18 Ibero-American broadcasters signal need for change
- p.21 Patent trolls: friend or foe?
- p.24 Exploring the scope of gene patents through new levels of transparency
- p.30 Raising IP awareness in Africa: a call to action

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Front cover:

In just 20 years, Nigeria's low-budget film industry has become an increasingly influential multi-billion dollar business. The recently released movie, *Half of a Yellow Sun*, is Nigeria's first international co-production.

Photo: Courtesy of Metro International

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Property Organization

A PEEK INSIDE NIGERIA'S FILM INDUSTRY

By *Sandra Oyewole*,
Partner, *Olajide Oyewole LLP*

In April 2012, it was reported that the US hedge fund, Tiger Global Management, had invested US\$8 million in iROKotv, the world's largest online distributor of licensed Nollywood films. This substantial injection of funds to scale-up iROKotv's video streaming operations was testimony to the growing international prominence of Nigeria's film industry. Nollywood, as Nigeria's film industry is popularly known, produces on average 1500 films per year. This makes it the largest film industry in Africa and globally, second only to Bollywood. The industry's phenomenal growth in the last two decades is nothing short of incredible.

THE STORIES AND THE FILMS

Nigeria's film industry was born many decades ago. It comprises English language films (Nollywood), the Yoruba film industry, the Kano film industry (Kannywood) which produces films in Hausa, Igbo language films as well as those in other indigenous languages of Nigeria. The direct-to-video (VHS, VCD and DVD) distribution system which is a hallmark of Nollywood was triggered in 1992 with the film *Living in Bondage*, the first commercially successful movie shot straight-to-video. It heralded a new era of Nigerian filmmaking demonstrating what could be achieved with few resources and lowering barriers to entry for many talented filmmakers.

Nigeria's diverse cultural traditions and lifestyles (180 million people, 300 tribes and some 500 languages), offer a wealth of material from which the country's filmmakers skilfully draw to recount simple stories of daily life that resonate with Nigerians, as well as audiences sharing a similar culture and heritage across Africa and the African diaspora. These colorful and entertaining stories capture the imagination of audiences; they echo their life-experiences, feature a strong moral theme and yes, juju (black magic). Newer generations of filmmakers, however, are focusing on harder-hitting social issues such as rape (*Tango with Me*), domestic abuse (*Ije*) and cancer (*Living Funeral*). Nollywood is recognized as an expression of the depth and breadth of Africa's cultural diversity. It is enabling Africans to tell their own story.

Although Nollywood's distinctive story-telling holds broad appeal, the films produced have tended to be of low technical quality. Films with predictable storylines have been churned out according to tried and tested formulae. For many years,

filmmakers made films without a formal script, with actors simply making up their lines as they went along. In recent years however, filmmakers are working hard to shed amateur practices and placing greater emphasis on enhancing the quality of films produced.

AN INFORMAL STRUCTURE

To a large extent, the Nigerian film industry remains informal with a structure that is understood and that works for its filmmakers. It is a notorious fact that in spite of Nigeria's copyright law, which expressly provides for written contracts to prove ownership of films, chain of title (the bundle of documents that prove ownership of the rights in a film) has not been an important factor in raising film finance in Nigeria. This can be attributed to the operations of Nigerian film marketers who have for many years monopolized the business of financing, producing and distributing English language films in Nigeria. The marketers operate networks of shops and other outlets and wield significant influence over which films are made and sold. Revenues are almost exclusively derived from home video rentals and sales and this has to a large extent, worked in their interests. It is this model that helped catapult Nollywood on to the world stage.

The industry's informality and the absence of a plan, outlining how to capture a return on investment, has deterred other forms of private financing and closed the door on potentially lucrative distribution opportunities in overseas markets where chain of title is a prerequisite. However in recent years, filmmakers, independent of the marketers have begun to emerge. These filmmakers, with business proposals, the right contacts and perseverance, are able to secure finance from public and private sources. Several of films produced by these independent filmmakers also have the required chain of title agreements in place. Quite a few are now being premiered in Nigerian cinemas and selected countries around the world. The theatrical release means that filmmakers can now derive revenue from ticket sales.

DISTRIBUTION MATTERS

In the 1980s, Nigeria's cinema-going culture went into decline, triggering the phenomenal growth of direct-to-video production mentioned earlier. At that time, television broadcasting of Nigerian films was very limited. This, coupled with rampant



Photo: Pianos/Jacob Silberberg

Nollywood produces on average 1,500 films each year. This makes it the largest film industry in Africa and globally, second only to Bollywood. The industry's phenomenal growth was triggered in 1992 with the film *Living in Bondage*, the first commercially successful movie shot straight-to-video. Direct-to-video (VHS, VCD and DVD) distribution is a hallmark of the Nigerian industry.

piracy and the poor quality of outputs, significantly dampened revenue generating opportunities. The launch of the first Africa Magic Channel on Digital Satellite Television (DStv) in 2003 and the opening of Silverbird Cinemas in 2004, however, went a long way in improving the distribution channels and revenue streams available to Nigerian filmmakers. The National Film and Video Censors Board has to date licensed up to 80 fee paying cinemas and DStv now has 8 Africa Magic fee-paying channels broadcasting Nigerian films in the languages of 53 countries. In 2011, the launch of iROKOTv's video streaming platform created additional income-generating and distribution opportunities for filmmakers.

THE ANTI-PIRACY WAR

The embryonic nature of Nigeria's cinema infrastructure and the informal nature of film distribution have opened the door to rampant film piracy. Within hours of a film's release pirates are selling bootleg copies for a fraction of its retail price. Huge demand for Nollywood films among the African diaspora has also fuelled a surge in the export and sale of Nigerian films without the permission of right owners. The Nigerian Copyright Commission (NCC) has stepped up its drive to shut down illegal printing presses and prosecute infringers, but much still remains to be done.

The advent of the internet gave rise to another form of piracy, namely, the unauthorized, illegal streaming of films. However, iROKOTv's video streaming platform for licensed films has gone some way in addressing this problem. Well-crafted and targeted public awareness campaigns are essential to educate the public about the damage piracy causes and to encourage them to stop buying pirated films.

Recognizing its huge economic potential, in recent years, Nigeria's government has worked to improve IP awareness within the film industry. Through a range of training courses, seminars, and practical workshops, filmmakers are becoming more IP-aware.





Photo: Courtesy of Metro International

A new IP savvy generation of filmmakers is emerging; one that ensures that IP rights are recognized and protected and that appropriate contracts are in place. Access to such formal training is fostering a more business-oriented approach among filmmakers, and enhancing the quality of scripts, acting and other technical aspects of Nigerian film, making it an increasingly attractive investment proposition.

THE LAW

Copyright law (and contract law) underpins the relationships arising from the filmmaking process. Last amended in 1999, Nigeria's Copyright Act is of particular relevance to Nigerian filmmakers. For example, it states that:

- a film is a work that is eligible for copyright protection;
- the owner of the copyright in a film is the producer unless otherwise stated in an agreement;
- a film is a bundle of copyrighted works, including for example, the story, the acting, the music, etc. For copyright in these works to pass to the producer, a written assignment must be made;

In just 20 years, Nigeria's low-budget film industry has become an increasingly influential multi-billion dollar business. The recently released movie, *Half of a Yellow Sun* (above), is Nigeria's first international co-production.

- infringement occurs when any of the following acts is done without the permission of the producer:
 - making a copy of the film;
 - causing the film to be seen and heard in public;
 - making and using a recording of the sound track of the film;
 - distributing copies of the film for commercial purposes by way of rental, lease, hire, loan or similar arrangement.
- penalties for infringement include damages, injunctions, and account of profits, fines or imprisonment.

Effective implementation of the law, however, is impeded by very limited penalties, a slow judicial process, high legal costs and a lack of funds on the part of filmmakers.

As the arm of government responsible for strengthening the policy and legislative framework for more effective copyright protection, the NCC is driving the current review of Nigeria's copyright law. The objective is to ensure that the law keeps pace with technological advances, is effective in clamping down on copyright infringement and is responsive to present-day operating realities of, among others, Nigerian filmmakers. Reform of the Nigerian Copyright Act will go a long way in creating an enabling regulatory environment to support the continued development of Nollywood and Nigeria's creative sector as a whole.

With respect to contract law – the mechanism for recording the transfer of copyright from one party to another – in the absence of a codified law of contract, Nigeria relies on common law principles and case law.

THE ROLE OF THE GOVERNMENT

The industry received a welcome boost in 2011 with the establishment by the administration of President Goodluck Jonathan of a US\$200 million fund for the film industry. The fund is available in the form of loans and statutory corporate documentation is required to qualify. The fund has made it possible for two film distributors to establish new distribution channels; a move that is expected to help combat piracy and increase revenues from cinema and DVD releases. These are set to commence business this year

In March 2013, President Jonathan announced a 3 billion Naira (approx. US\$17million dollars) grant scheme, *Project ACTNollywood*, to support training and skills acquisition for film production, production and distribution. In addition to Federal initiatives, various State governments are supporting the industry. For example, the Kano State Sponsorship Board has to date backed 3 Kannywood films; the Bayelsa State Government is a major financial contributor to the Africa Movie Academy Awards (AMAA), an annual ceremony established in 2005 to reward the industry excellence; the government of Cross River State has built a state-of-the-art movie studio in Tinapa; plans are also afoot for the much anticipated Lagos Film Village.

Nollywood is a major employer of labor, reportedly second only to agriculture and generates millions of dollars every year. Its importance to the Nigerian economy cannot be over-emphasized. However, while it is the second largest film industry in the world in terms of volume, when it comes to revenue it falls far behind Bollywood and Hollywood. In order to create a more enabling environment, the Government of Nigeria, therefore, still has much to do. For example by:

- introducing tax breaks for filmmakers;
- devising incentives for co-productions with both Nigerian and international partners;
- fast tracking the revision of the copyright law;
- executing co-production treaties;
- supporting the Nigeria Film Corporation, established in 1979, to fulfil its mission and purpose, that is, the creation of an enabling environment for Nigeria's film industry;
- setting-up robust and vibrant units to fight piracy and infringement; and
- focusing on improving security.

NOLLYWOOD TODAY

The passion for Nollywood films and the indigenous stories they recount, is widespread. Nigeria's entertainment pages are full of news about the latest star-studded film premiere, and with iROKOTv reporting a global audience of 6 million in 178 countries – the hunger for Nigerian movies is evident. Recognizing its huge growth potential, public and private sector investors are now investing heavily in the industry helping it to shed many of its informal characteristics. This has helped to improve quality and increase the production of films with international appeal.

In just 20 years, against all the odds, Nigeria's low-budget film industry has become an increasingly influential multi-million dollar business. A growing number of quality productions are making their way to international film festivals and enjoying premieres screenings in major film markets and leading Nigerian actors are gaining international prominence. Despite the industry's many on-going challenges, the resilience, creative ingenuity and entrepreneurialism of Nigerian filmmakers coupled with the industry's unique style and broad popular appeal mean that it is no longer a question of whether a Nollywood film will become an international box office hit, it is simply a matter of when. ♦

VIDEO GAMES AND IP: a global perspective



Photo: © Electronic Arts Inc.

The global video games industry is worth an estimated US\$65 billion and its cultural impact is being felt across the world.



By **David Greenspan**, Senior Director
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Since the launch of the first mainstream game console by Nintendo in 1985, video games have become a global industry worth an estimated US\$65 billion. It is the fastest growing sector of the entertainment industry and an important driver of economic growth, creating millions of jobs, generating much-needed tax revenues and offering exciting opportunities for talented creators and engineers from all corners of the globe.

Unlike other creative industries, video games draw on the worlds of both technology and creativity. They fuse cutting-edge technology and imaginative artistic expression. The computer code underlying a game transforms ideas into rich expressions of visual art which come alive on a range of devices – consoles, computers, tablets and smartphones.

A GLOBAL PHENOMENON

The cultural impact of the industry is being felt across the world. It has become a global phenomenon with recent major successes from studios in countries as diverse as Belarus (Wargaming.net), China (with Tencent and Perfect World) and Finland (with Supercell and Rovio).

Over the last 20 years, the demographics of players have changed dramatically. Gone are the days when the average video game player was a teenage boy playing alone and firing away at bad guys in front of a television screen at home. Today, the average video game player will be thirty something, as likely to be female as male, will play on multiple devices and can come from anywhere in the world.

DRAMATIC CHANGES, EXCITING OPPORTUNITIES

Advances in technology have also dramatically changed the games themselves, spawning a wide range of new formats, stories, and genres. Games are in fact as varied as the imagination of the developers, featuring realistic graphics, voice-overs, use of motion capture technology giving characters fluid movements, music equal to film scores and original story lines. The development and marketing budgets for major game titles often rival those of the movie industry.

While still dominated by multi-billion dollar hardware companies such as Sony, Nintendo, Microsoft, Apple, and Samsung and publishers such as Activision, Electronic Arts (EA) and King (mobile), new technologies have opened up the gaming industry to many new independent developers. WIPO's recent publication, *Mastering the Game: Business and Legal Issues for Video Game Developers* provides established developers as well as new market entrants with information about how to develop a proactive strategy to secure the IP rights in their work for its distribution and use. The guide explores, in very practical terms, the range of legal and business issues facing developers at various stages of the process of developing a game and transforming it from a concept into a marketable product. It further underlines the importance of negotiating contracts to define who owns the IP rights in a work.

While many have cashed in on the public's seemingly insatiable appetite for video games, and there is still huge potential for growth, there are also significant risks and uncertainties. These are related, in particular, to the rising costs facing the industry – a major flop can severely impact a publisher's or developer's business – and the need to keep pace with constantly evolving tastes in terms of the games consumers want to play, how they want to play them and how they want to purchase them.

Just a few years ago, games (played on consoles) were sold mainly through retail outlets, and while physical console and computer sales still generate a substantial

proportion of industry revenue, mobile gaming (games played using mobile devices) has become the fastest growing sector of the industry. Digital distribution is expanding as a result of lower entry barriers and costs. At the same time, the marketplace is becoming ever more crowded, making it difficult to distinguish one game from another.

The video game industry is constantly evolving creatively (how a game looks), technologically (the hardware and software that bring the games to life) and commercially (the business models used distribute games to consumers). With such innovations, come new challenges.

DEFINING THE RULES OF THE GAME

The core legal issues facing all entities involved in the video game ecosystem – developers, financiers, publishers and distributors – focus on ensuring that appropriate legal arrangements are in place to enable the development, financing and distribution of games. While questions of privacy and data security, content regulation and monetization are key considerations (and are covered in the publication), developing a proactive IP strategy to secure appropriate IP rights is essential to the success of a developer's enterprise.

Game Project and IP Law

Copyright	Trade secret	Trademark	Patent
Music	Customer mailing lists	Company name	Hardware technical Hardware technical solutions
Code	Pricing information	Company logo	Inventive game play or game design elements
Story	Publisher contacts	Game title	Technical innovations such as software, networking or database design
Characters	Middleware contacts	Game subtitle	
Art	Developer contacts	Identifiable "catch phrases" associated with game or company	
Box design	In-house development tools		
Website design	Deal terms		

IP is the lifeblood of the industry. IP rights are associated both with the tools used to develop games and the content included in a game. For example, copyright safeguards the creative and artistic expression that goes into the software (the code), the artwork and the sound (and music) of a game. If developers want to create a new work on the basis of an existing copyrighted work, a so-called derivative, then they must first secure the appropriate licenses from the copyright holders. An example of a derivative work is *Shrek* the game which was based on *Shrek* the film. The process can also work the other way. When filmmakers want to develop a film on the basis of the story line of a successful game they too must secure rights from the right holders of the original work, for example, *Doom* the movie was based on *Doom* the game.

The Lord of the Rings and derivative works

Acquiring the right to make a derivative work – a new work derived from an existing copyright work can be a complex process.

To make *The Lord of the Rings* trilogy, Peter Jackson had to obtain a license from the Saul Zaentz Company which holds movie rights to Tolkien's work. As a derivative work the trilogy was copyrightable as a new work and licensable in its own right. In 2001, Electronic Arts (EA) developed the first *Battle for Middle Earth* game on the basis of a license from Peter Jackson films. Under this license EA could only produce game content, or a derivative work that came from the Jackson films. However, in 2005 while creating the sequel to *Battle for Middle Earth* and other *Rings* games, EA acquired a license to produce a game based on Tolkien's published works. This opened up a great deal of new territory for creativity.

Intellectual property is the lifeblood of the video games industry and a proactive IP strategy to secure appropriate IP rights is essential to the success of a developer's enterprise.



Photo: Electronic Arts



Photo: Courtesy of Freebird Games

Unlike other creative industries, video games draw on the worlds of both technology and creativity, fusing cutting-edge technology and imaginative artistic expression.

Categories of Video Games

Console	Personal computer (PC)	Mobile/Casual
Run on dedicated hardware	Run on Windows, Mac or Linux	Run on tablets and phones
Expensive to develop	Wide variety in terms of cost and genre	Less expensive to develop
Wide variety of genre	No single gatekeeper for platform	Social and casual games
System controlled by IP owners	Majority of sales through digital	Largest number of potential players
Box product and digital but dominated by box sales		

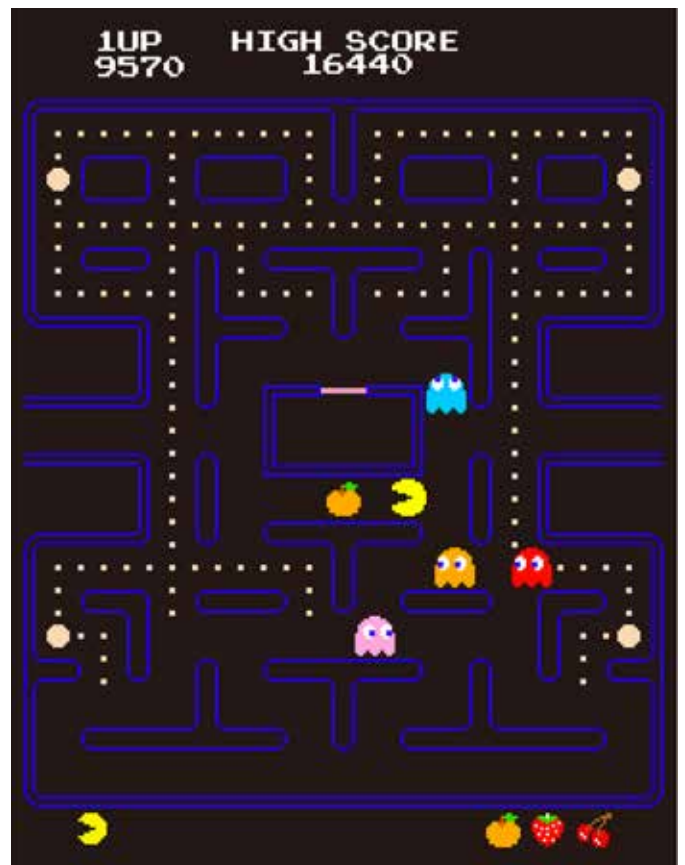


Photo: NAMCO BANDAI Games, Inc.

Trademarks protect the names and logos associated with a game and its characters and can be used to set a company and its games apart from others in the minds of consumers; patents protect the next generation hardware (and are particularly important for hardware manufacturers) or technical solutions as well as the inventive game play or design elements; and trade secrets can be used to safeguard a company's competitive advantage by protecting confidential business information, such as contacts or subscriber mailing list data, or an in-house development tool. Without the appropriate rights and licensing agreements in place, developers may find their game cannot be distributed; they may be unable to fully leverage the value of their work. What developers own is IP; what they sell (through licensing deals) is IP. In fact, all they have is IP, so they need to protect it.

The pace of change within the gaming industry itself can be a challenge insofar as the laws that are currently in place to safeguard and encourage innovation and creativity may lag behind and may not always provide an adequate solution to an emerging or unforeseen situation. These challenges are further compounded by the lack of harmonization of the laws applicable to the video game industry around the world.

CHANGING PATTERNS OF OWNERSHIP

Costs of development can vary considerably depending on the platform, artwork, game play complexity and whether any underlying IP is licensed in, but commonly run into the millions of dollars for console and online games, and the hundreds of millions of dollars for blockbuster games. Traditionally, it was the role of publishers to secure financing for game development, but with the emergence of new forms of distribution and alternate funding mechanisms, such as crowd-funding, the roles of publishers and developers are evolving. As a consequence, the IP rights that typically vested with publishers may now be shared with a publisher or owned by a developer or an investment vehicle. These changing patterns of ownership further highlight how important it is for developers to become IP aware.

From the very beginning of the industry, developers have incorporated licensed material into their games in an endeavor, not only to stand out in the crowd, but also to attract a wider audience through the use of recognizable brands and technologies to create more realistic game play.

A basic understanding of IP allows developers to more effectively tackle the range of licensing issues arising across the value chain with licensors whether in relation to securing

Eye-catching facts about the growth of video games

Industry statistics reflect the industry's staggering growth and growing popularity.

- Within 24 hours of its release in September 2013, *Grand Theft Auto 5* earned more than US\$800 million dollars and sold more than 11 million copies worldwide. Within a record-breaking three days, sales hit US\$1 billion dollars. In comparison, the biggest movie hit of the summer of 2013, *Iron Man 3* brought in worldwide sales of US\$372 million in its first weekend.
- Within 24 hours of the release of Microsoft's Xbox One and Sony's PlayStation 4 consoles in November 2013, over 1 million units of each were sold. Within 18 days, sales for each console hit the two million mark.
- Online revenue for video games including digital delivery and subscriptions increased to US\$24 billion in 2012. Similarly, mobile gaming generated between US\$8 to 12 billion in revenue in 2012 with game apps, dominating the iOS and Google Play app stores.

middleware (software that is integrated into the game engine to handle specialized elements, such as graphics or networking), talent, or external IP licenses relating to, for example, music, sports or film licensing which have become important areas of interest.

A familiarity with the range of legal and business issues explored in *Mastering the Game* will help developers pre-empt problems, avoid costly mistakes and provide a better understanding of the major terms of various industry agreements. ♦

A FAIR DEAL

for authors

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

Like us all, authors have to put food on the table and pay bills. However, in an increasingly digitized market and amid expectations, in some quarters, that all content should be free, it is a struggle for many authors to support themselves and to finance their creative endeavors. The official launch of the International Authors Forum (IAF), a new organization representing authors (writers and visual artists) globally, took place at WIPO in December 2013. A number of successful writers and artists – including Maureen Duffy, Joanne Harris, Robert Levine and Roberto Cabot – attended the event to support the new Forum and explain why copyright is important to them.

IAF'S OBJECTIVES

The IAF is seeking to introduce a global authors' perspective to international copyright policymaking circles – something that has been acknowledged as missing from these discussions for some years. By inviting authors' organizations from around the world to become members, the IAF aims to give all authors the opportunity to take part in discussions about their rights.

"The global problems are now so immense that we really need something which can support creators globally," said the author, Maureen Duffy, who has been instrumental in galvanizing support for the IAF. "There are far too many countries with no organizations to support their local authors and they tend to get ripped off and they will be increasingly ripped off if they are not made aware of what their rights are and how they should be protected."

Joanne Harris, author of the acclaimed best-seller, *Chocolat* (see page 16), explained that for her the value of copyright lay in the ability it gives the creator to choose how their work is used. Ms. Harris underlined the importance of "respect for the creator of a work, be that a piece of literature, a photograph, a painting, a piece of music. I want to know where and by whom my work is being used and reproduced," she said. "I don't want it used without my permission, or plagiarized or misrepresented. That's why copyright exists; to protect the work and its author from abuse. We want the public to read our books. We want to help schools and libraries. But we also want to have the choice to say yes or no to these requests".

Representing the voice of visual artists, Roberto Cabot, called for the broader application of the Artists' Resale Right (ARR) as part of an on-going campaign to ensure that artists and their families benefit, under certain conditions, from any appreciation in the value of their works as they change hands within the marketplace.

Robert Levine, a journalist who is fiercely engaged with the impact of the internet on creativity, also endorsed the IAF as a welcome addition to the international copyright scene. "With so many organizations advocating for publishers and distributors it's nice to have one at WIPO that can also support authors," he said.

Various successful authors and artists, including (from left to right) Maureen Duffy (UK), Joanne Harris (UK), Robert Levine (USA) and Roberto Cabot (Brazil) attended the IAF's launch event to support the new Forum and explain why copyright is important to them.



Photo: WIPO/Berrod

About the IAF

The IAF is a global platform to ensure that the voice of authors is heard among others with rights and interests in creators' work, such as publishers and libraries, who already have globally representative bodies. It is a membership organization that supports the interests of artists and writers worldwide, and would be pleased to hear from organizations representing them.

For more information, contact katie.webb@internationalauthors.org.

What IAF does	IAF's partners	IAF's concerns
<p>IAF organizes events, publications and discussions</p> <p>IAF collaborates with other organizations representing authors to complement each others' work and promote the importance of creative work, financially, socially and culturally</p> <p>IAF recognizes the differing needs of creators in individual locations all over the world.</p>	<p>IAF collaborates with key partner organizations around the world to support and complement each others' work in areas of mutual interest.</p> <p>A list of Members can be found on the IAF website:</p> <p>www.internationalauthors.org/About-Us/Members.aspx</p>	<p>Contracts: Promoting recognition that creators should have a voice in negotiating and agreeing fair contracts.</p> <p>Remuneration: Ensuring authors' rights are protected in the digital age and that authors are fairly remunerated.</p> <p>Copyright: Promoting the importance of copyright.</p> <p>Exceptions: Ensuring exceptions enable a balance between access and the author's right to fair payment ♦</p>

THE CASE FOR AUTHORS' RIGHTS: a view from within

By *Catherine Jewell*,
Communications Division,
WIPO

The notable contemporary British poet, playwright and novelist, Maureen Duffy, shares her views on the challenges facing authors today and why it is important to defend their rights.

"To write is to write is to write is to write is to write..." said Ms. Duffy quoting Gertrude Stein. "We write for the love of it, but we also need to be paid ... we can't just run on our love alone."

The biggest challenges facing writers today are "getting published and getting paid," Ms. Duffy said. Whereas in the past, the existence of many mid-sized publishers meant writers had greater choice and opportunity to get their works published, today, with the sector's consolidation, a handful of international conglomerates dominate. "Publishers don't give advances in the same way that they used to. Now, they say, you write the book and we will see if we want to buy it," the author noted. Many smaller publishing houses have gone out of business and the few that have survived rarely have the clout to effectively market and distribute their works.

Within the evolving publishing landscape the Internet offers a potentially fruitful alternative means of reaching a broader audience, but is not without its risks. "Although the Internet provides opportunities for people to get their work out there, it doesn't yet provide proper opportunities for them to be paid for it. This is an enormous challenge," Ms. Duffy said. "Although digital technology can confer great benefits in ease of production and communication, that same ease makes it easy to pirate, to copy without payment, to distort and to deny authors any return from their investment of time, skill and economic support, or even any acknowledgement of their authorship which is a universal human right," she added.

Expectations of free access to digital content are particularly disquieting for authors. "Why should the author be the only one to give for free," Ms. Duffy queried, underlining the need, "to protect the creators so they get a viable share so they can go on doing what they do best which is creating."

"There is a tremendous place for authors' works online," noted Ms. Duffy. "We've been through everything from papyrus to paper and now we've got the Internet which is just a medium. It's global and that's fine, because we all want to reach the biggest possible audience, but there is a danger of damage to the quality of what is being offered and to the sufficient return to keep creators creating," she said.

While the rights of authors have been recognized in law since the adoption of the world's first copyright statute, the Statute of Anne of 1710 (see box) the need to defend these rights is taking on renewed importance in today's globalized and digitized world.

About the Statute of Anne (1710)

The Statute of Anne (formally “An act for the Encouragement of Learning, by vesting the Copies of Printed Books in the Authors or Purchasers of Copies, during the times therein mentioned”) enacted by the British Parliament in 1710, was the first statute to provide for copyright regulated by the government and courts rather than by private parties. As noted by the UK IP office, it introduced two new concepts, namely, that the author is the owner of copyright, and the principle of a fixed term of protection for published works.

According to the Statute’s Preamble, its purpose was to bring order to the book trade. It states:

“Whereas printers, booksellers and other persons, have of late frequently taken the liberty of printing, reprinting and publishing, or causing to be printed, reprinted and published books, and other writings, without consent of the authors or proprietors of such books and writing, to their very great detriment, and too often to the ruin of them and their families: for preventing therefore such practices for the future, and for the encouragement of learned men to compose and write useful books; May it please your Majesty, that it be enacted ...”

“Society needs author-creators culturally, socially, psychologically and economically,” Ms Duffy noted. An important challenge for policymakers around the world today is to cultivate the conditions that enable creators to earn a living from their work and to control its use. Only then, will it be possible to guarantee the continued development of a robust, dynamic and enriching creative sector for generations to come. ♦

About Maureen Duffy

Maureen Duffy, a well-known contemporary British poet, playwright and novelist, is the author of 33 published works of fiction, including 6 collections of poetry, several works of non-fiction and 16 plays for stage, screen and radio. She is a fellow of the Royal Society of Literature and King’s College London, and a Vice President of the Royal Society of Literature. Her most recent novel, published in 2013, is *In Times Like These*, a modern-day story of political and human folly.



JOANNE HARRIS

and the voodoo of writing

By *Catherine Jewell*,
Communications Division,
WIPO



Photo: Takazumi Uemura

The award-winning novelist, Joanne Harris, author of the best-selling novel *Chocolat* (1999), subsequently made into the Oscar-nominated film starring Juliette Binoche and Johnny Depp, shares her views about the role of the IAF and her experiences of life as an author. Ms. Harris's books are now published in over 50 countries and have won a number of British and international awards.

Why is the IAF important?

It speaks for authors around the world and safeguards their interests, ensuring that their work is neither misappropriated nor used without their permission.

Why is it important for authors to have a voice?

Authors and artists are not always shrewd business people. Sometimes they need help in fighting for their rights.

Do you think that authors are valued by society today?

Valued, perhaps, but not always well-paid.

What for you, as an author, is the most worrying trend today?

The lack of accountability for those who use and disseminate the work of others without permission or acknowledgement.

Is the digital environment an opportunity or a threat?

It can be both. But we need to address the problem of piracy and copyright theft in a more effective way.

What message do you have for online pirates?

There are so many different kinds of piracy. But to those readers who feel that downloading books or music is a victimless crime; it isn't. It is having an increasing effect on the survival of mid-list authors. If you value art and want to see it thrive, you need to pay the artist.

Many claim that content should be free. What is your response to this?

I think champagne should be free. Sadly, vintners disagree.

Why is copyright important to you as an author?

It exists to protect artists' work and to ensure fairness of treatment.

Does the copyright system need to change?

I don't think it needs to change as much as existing copyright laws need to be enforced more stringently.

What in your view is the value of storytelling?

It's the way we connect with others across race, time and culture. It creates empathy and encourages communication. It's the way we engage with other human beings, adding to our shared experience, wisdom and emotional growth.

Ms. Harris's books are now published in over 50 countries and have won a number of British and international awards.

Is the power of the pen mightier than that of the sword?

A sword can only kill you. A book can make you immortal.

What challenges do authors face today?

I think social media is becoming increasingly important in the world of writing. Some authors don't feel comfortable with the media scrutiny that comes with success, or with the kind of dialogue and personal contact that many readers now demand. It's a challenge that authors need to embrace.

Do you have any tips for aspiring authors?

Stop aspiring and start writing. The rest will come with practice.

How did you feel to have *Chocolat* filmed?

It was a lot of fun, although the story wasn't quite as I'd written it. The cast was terrific, though, as was the director, and the film had a lot of charm.

Were you involved in the screen adaptation process?

An author's involvement in a film of their book is rarely more than a courtesy. I was consulted over some things, but mostly I just stood back and enjoyed the show.

What do you most enjoy about writing?

All of it. The voodoo that comes from putting pen to paper in one country and having someone I've never met, laugh or cry from reading my words.

What inspires you? Where and when do you write?

Things I've seen on my travels; people I've met; stories I've read; dreams; memories. I take my inspiration where I can. I work where I can; when I'm travelling I work on planes and in hotels. When I'm at home I work best in my shed in the garden.

When did you begin writing and how many books have you published to date?

I've always written. So far, I've published 18 books – 14 novels; 2 cookbooks; and 2 collections of short stories.

Do you feel a special affinity or connection with the books you have written?

Of course, it's the same affinity someone has with the people they've loved; the children they've reared; the homes they've built.

What is the role of the author in society?

To remind people of who they are.

What are you reading at the moment?

A pile of ARCS [advanced reader copies of books] sent to me to review, and a well-thumbed copy of William Goldman's *Magic*, as an antidote.

Who are your favorite authors and why?

Vladimir Nabokov; Victor Hugo; Mervyn Peake; Angela Carter; Shirley Jackson; Ray Bradbury. All of them master storytellers, compassionate observers of human nature and language virtuosi. ♦



Ms. Harris's best-selling novel *Chocolat* (1999), was made into the Oscar-nominated film starring Juliette Binoche and Johnny Depp.

Ibero-American broadcasters

SIGNAL NEED

FOR CHANGE

By José Manuel Gómez Bravo, Corporate Director of Intellectual Property, PRISA; General Coordinator of the Permanent Representation of the Alliance of Latin American Intellectual Property Broadcasters (ARIP); and President of the International Observatory of Intellectual Property (ORIP)

In Latin America and Spain, as in other parts of the world, broadcasting is a key vehicle for mass communications. Broadcasters not only fulfill a range of public information and education services, they also create employment and drive the market for content creation and its distribution across TV networks. The new digital technologies that broadcasters use today are creating unprecedented opportunities for viewers to access a wide range of high quality content on multiple platforms and at affordable prices. These same technologies, however, also leave broadcasting organizations exposed to huge problems of signal piracy both within and across borders; a global problem compounded by outdated international broadcasting rules.

The Ibero-American Broadcasters for Copyright Alliance (ARIP), formed in September 2011, brings together broadcasting organizations from across Latin America and Spain. The broadcasting companies that make up ARIP operate in 18 countries which share a common language, cultural traditions and aspirations. Our aim is to highlight the need to make sure that the international legal framework governing broadcasting is updated and brought into line with present-day operating realities.

THE NEED FOR A MODERN LEGAL FRAMEWORK

The international rules currently in place, laid out in the 1961 Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations belong to another era. Broadcasting has evolved beyond all recognition since the 1960s. The prevailing international rules do not adequately protect broadcasters operating in today's digitized and technologically advanced world. The Rome Convention, for example, only protects free-to-air transmissions. It offers no protection with respect to transmissions via cable, the internet or mobile networks which are now a common feature of broadcasting.

THE SCOURGE OF SIGNAL PIRACY

The broadcasting companies that make up ARIP, like broadcasters elsewhere, are facing growing problems of signal piracy. Broadcasters invest significant resources in making it possible for programs to reach the public. Our activities involve planning programming schedules, securing the rights over the content we transmit and editing and promoting it prior to transmission. This is a large-scale undertaking involving substantial financial, logistical and technical resources. When signal piracy occurs we are robbed of the opportunity to get a return on our investment, for example, through advertising. This is a particular problem when it comes to broadcasting sporting events. We pay huge sums for the right to broadcast top-tier sporting events, such as the FIFA World Cup or the Olympic Games, only to see our returns eroded by the unauthorized use of our broadcast signals. On top of this, we have few effective legal means to stop these damaging practices which harm not only our interests, but also those of the sporting organizations responsible for hosting these events who rely on the sale of broadcasting rights and, ultimately, those of our viewers.



Photo: iStockphoto/ Warchi

About ARIPI

Launched in September 2011, ARIPI seeks to improve and strengthen the intellectual property rights available to broadcasting organizations in line with evolving technologies, platforms and developments in the industry, particularly with respect to the unauthorized use of radio and television broadcasts.

ARIPI's membership spans the Atlantic comprising broadcasting organizations operating in 18 countries, namely, Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Spain, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Portugal, and Uruguay.

The Alliance was founded by 13 companies, namely: Televisa, PRISA, Univisión, Caracol Radio y Caracol TV, Media Capital, RCN Colombia, Albavisión, Continental Argentina, Iberoamericana Radio Chile, Televisora de Costa Rica, Radio Televisión Guatemala and RPP Perú.

Membership is open to any Ibero-American broadcasting organization.

Unfettered growth in signal piracy, fuelled by expanded broad-band penetration, is undermining broadcasters' ability to deliver the quality and range of programming that viewers want.

Broadcasters not only serve as carriers of information, entertainment and educational services, but are also content creators in their own right. Like other content creators we have a vested interest in seeing our rights protected because when broadcast signals are protected, so too are the rights associated with program content.

SIGNAL PIRACY EXPLAINED

Signal piracy takes place whenever an encrypted broadcast signal is decoded without authorization through, for example, non-payment of a subscription fee. It can take a physical form involving unauthorized recording and re-transmission of broadcasts on video tapes, DVDs or USB sticks or it can be virtual, involving unauthorized distribution of signals over the air for re-transmission via the Internet. As broadcasters, we welcome the emergence of new media platforms and are happy that our viewers have an ever-expanding range of devices from which to view our programs. We should, however, have the legal means to prevent the unauthorized commercial re-transmission of our broadcasts over new media. Our broadcast signals are a major asset that we must protect. They embody the significant economic, creative and entrepreneurial effort we invest in broadcasting.

The largely unfettered growth in signal piracy, fuelled by the proliferation of enabling technologies, such as the Internet and fiber-optics (which has given rise to expanded broadband penetration), is undermining our ability to deliver the quality and range (news, entertainment, information) of programming that viewers want.

FAR-REACHING IMPLICATIONS

The threat of signal piracy goes well beyond our legitimate interest as private companies to generate a return on the substantial investments we make and the industry's long-term financial

sustainability. Broadcasters play a key public service role in terms of driving social cohesion, reaffirming cultural identity and informing the general public. The importance of broadcasting as a vehicle for social expression within a democratic society cannot be overstated. Broadcasting organizations in Latin America have supported the democratization of the continent, helping to consolidate national identity and reinforcing basic notions of Latin culture while maintaining our aboriginal traditions and values.

Our broadcasting activities are not only designed to entertain, they seek to inform, educate and promote cultural exchange and understanding. We have fought long and hard to maintain our independence and freedom as broadcasters in Latin America and we firmly believe that the surest way to secure the invaluable public service role of broadcasting, and the industry's long-term economic viability, is to create the conditions that allow broadcasters to obtain a fair return on the substantial investments they make.

For these reasons we are joining together with our counterparts in other regions to urge policymakers to lose no time in finalizing an international agreement that offers global, comprehensive, fair and balanced protection for broadcasters around the globe. The time is ripe, the time is now. ♦

PATENT TROLLS:

friend or foe?

*By Robert L. Stoll, Partner,
Drinker Biddle & Reath LLP,
Washington, USA and former USPTO
Commissioner for Patents*

Trolls of lore were ugly creatures who lived under bridges, charged travelers to safely cross raging waters and threatened harm to those who refused to pay. Trolls and their kindred spirits have haunted the nightmares of our children for generations. But in 1999, a lawyer at Intel Corporation, Peter Detkin, began using the term to describe companies with no products that brought what he believed were meritless patent suits. The term has since gained currency and is now widely used to characterize the activities of non-practicing entities (NPEs) or patent assertion entities (PAEs). The fact that Mr. Detkin went on to co-found Intellectual Ventures – widely perceived as an archetypal modern day patent troll – has caused many a wry smile within the IP community. Perhaps our collective subconscious childhood fear of the original troll is one of the reasons why it is easy for the media, our elected leaders and even some savvy CEOs to vilify modern trolls for everything they do. I guess Mr. Detkin rues the day he began using the term.

Although this article focuses on the experiences of the US, patent litigation issues attributed to NPEs already exist in other jurisdictions. Germany, for example, is a venue of preference in Europe for NPEs. Earlier this year, the Republic of Korea modified its laws to protect local technology companies from NPEs who had sued a major technology firm there multiple times. As the monetization of patents continues to grow around the world it will not be long before these issues gain traction in many other jurisdictions.

DEFINING A TROLL

What defines a troll? Most would agree that companies that don't make products and whose function is to buy up patents to assert against others would be in that category. But there seems to be as many permutations to this basic formulation as there are companies. What about large manufacturing companies that have divisions that purchase patent portfolios for the purpose of assertion? What about companies that spin off their unused patent portfolio to a wholly or partially owned subsidiary that asserts those patents? What about companies that buy up portfolios for defensive purposes, compelling membership by companies to join for protection? What about universities?

They don't make products. Most would say that universities don't fit into the category because they license to companies that make the products covered by their patents. But what if the university sells its patents to an NPE with an agreement to share in the profits?

As the foregoing suggests, defining a troll is very difficult. Some would even claim that Thomas Edison, one of the most prolific inventors in the US, was an early troll, seeking licenses for patents that he did not plan to manufacture.

The monetization of patents in the marketplace can spur innovation and drive economic growth and job creation. Many inventors just like to invent. Some have no interest in manufacturing anything, but would prefer to go back to the lab and hunt for the next new breakthrough. In trolls, inventors and others in the secondary market have a purchaser willing to pay for valuable patents: an entity that will help them reap the benefits of their efforts. It is widely recognized that patents are property and, like any other property, can be freely bought and sold, as long as there are no antitrust issues.

Until the onset of the troll era, small inventors, creditors in bankrupt companies with large patent portfolios and companies with many patents in technologies that they no longer planned to use, had few options to monetize them. In some instances, large companies refused to purchase or license these assets, taking a gamble that they could continue infringing because the costs of asserting patents preempted the owners' ability to enforce their rights. Faced with expensive enforcement and limited secondary markets, some in the financial services industries and in the emerging technologies sector who were unfamiliar with the patent world chose not to play in the patent sandbox.

The evolving use of patents by trolls required new strategies and new business plans for many powerful companies. The disruption caused by abusive litigation behavior in the corporate world has generated uncertainty and fear. Where we usually applaud innovation both in the scientific arena and in the creation of wealth in the challenging world of the money markets, the rise of the troll has many crying foul!



WHAT IS THE PROBLEM?

There are many! The quality of the patents being asserted has become a frequent lament. All too often, plaintiffs use low quality patents to extort settlements from small companies that cannot afford to defend themselves at trial, or they seek licensing fees from large companies who simply want to make the costly and time-consuming case go away.

The costs of litigating invalidity and/or non-infringement of a patent claim asserted against a small company in the US can bankrupt it, striking fear in the heart of a CEO who is just embarking on a business venture. Panic stricken, many small businesses, the majority of which have no in-house patent counsel, are forced into arrangements that significantly weaken their ability to grow. The legal fees to defend against such actions can be devastating.

Unsophisticated owners of mom-and-pop shops across the US are receiving vague legalistic demand letters alleging infringing uses of common office equipment such as copying machines, scanners, shipment tracking technology or basic WiFi. These are end-users who have legitimately purchased equipment from well-known manufacturers. Thousands of them, however, are being sued by NPEs for small amounts – demand letters for license fees as low as US\$1,000 are common – as part of a strategy to build up the means to attack the more well-heeled manufacturer at a later date.

It is good for innovative companies to know who they are dealing with and to have a thorough understanding of the environment in which they operate, but plaintiffs frequently transfer patent interests to shell companies. In effect, this masks ownership of a particular right and prevents potential licensees from knowing whether they have rights to all of the commonly owned patents covering the product they wish to produce. Without knowing the real-party-in-interest, a licensee is vulnerable to repeated attacks from the same parent entity.

SOLUTIONS

The types of problems (outlined above) that exist in the current patent system are real. They are barriers to further innovation and job creation. Fixing them, however, does not require a comprehensive definition of a troll. Lady Justice is blindfolded for a purpose. Justice in the US should be meted out objectively regardless of who appears in court. So too when dealing with troll-like behavior. It is not the identity of the actor that needs to be evaluated, but the character of the action. We need to assure that frivolous, predatory actions are penalized and we need to prevent the types of abusive tactics witnessed of late which harm our innovative culture.

The America Invents Act of 2011 took a significant step forward in providing several more rapid and less expensive procedures for removing improvidently granted patents from the system. These include:

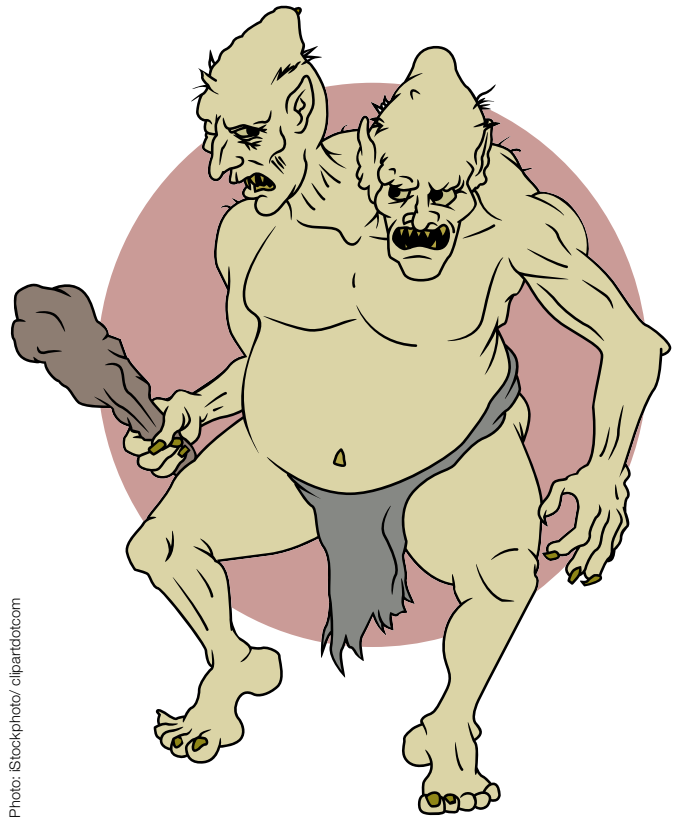


Photo: Stockphoto/clipartdata.com

While the behavior of so-called patent trolls, has been the subject of heated debate in the US, as the monetization of patents continues to grow around the world these issues are likely to become more prominent in other jurisdictions.

- *Inter Partes* review which allows a third party to challenge a granted patent on the basis of earlier prior art;
- Post grant review which allows any first-to-file patent to be challenged on any statutory grounds within the first nine months of issuing the patent; and
- The recently enacted Transitional Covered Business Methods procedure which permits a challenge on any grounds for a non-technical financial service or product patent.

While these procedures are new and it will take some time to evaluate their full impact on the patent system, they are a relatively inexpensive way to challenge patents that should never have issued from the USPTO and thereby limit their use in a frivolous lawsuit.

The most effective way to remove overly broad and poor quality patents and to reduce predatory activity is to ensure that bad patents don't issue in the first place. Trolls don't issue their own patents! The USPTO is an agency that is funded by the fees applicants pay for the examination of their applications and yet for years, Congress has diverted these funds away from the agency. Without these funds, the USPTO is hamstrung. It is unable to acquire all of the available databases of prior art needed to accurately search public domain material and it is unable to provide its patent examiners with the time they need to properly examine the applications they receive. On top of this, the first victim of inadequate funding is training. As a consequence, examiners are not trained to focus on assuring enabling disclosures and well bounded claims. This, in turn, leads to greater uncertainty and more unnecessary litigation.


Driven by the misplaced focus on trolls, the US Congress and the US Administration are again focusing on patent reform that they hope will further curb abusive practices regardless of the definition of the actor. The US House of Representatives, in arguably the most polarized of times, has passed patent reform legislation and now awaits action by the US Senate. A number of the current discussions are addressing the issue of real-party-in-interest and legislators are trying to find ways to identify patent owners without making the requirements overly

burdensome. Other proposals relate to a form of "loser pays" provision where frivolous suits are discouraged by requiring the loser to pay the attorneys' fees of both parties. Ideally, the provisions will ease current standards for the award of attorney's fees, but will give the courts, which are closest to the proceedings, some discretion in evaluating the situation and will allow the Judicial Conference to develop regulations.

Still other portions of the bill under consideration would increase the required specificity of pleadings and curb the abusive use of demand letters. If properly crafted, both measures could improve the transparency of the system and help reduce predatory activities.

One provision rightfully dropped from consideration in the bill passed by the US House of Representatives relates to making the recently enacted Transitional Covered Business Method (CBM) procedure permanent and expanding it to include any computer-implemented (software) invention. As the original CBM procedure is only around a year old, expanding it now, with all the other significant changes recently enacted and with more likely to be enacted, could have serious deleterious consequences. In addition, providing more uncertainty in the emerging technologies of computer-implemented inventions will make it harder for small businesses in this competitive environment to secure funding.

While the fear of trolls has pushed legislators to address some of the problems of the US patent system as it currently exists, at the end of the day, legislators must judiciously focus their attention on the potential for abuse not only by so-called trolls, but by anyone. Making the US patent system fairer and more transparent will benefit the US economy, boost job creation and spur innovation to create new inventions that improve the human condition. ♦



EXPLORING THE SCOPE of gene patents through new levels of transparency

By *Osmat A. Jefferson*, *Cambia,*
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Summary of the recent Nature Biotechnology article on
"Transparency Tools in Gene Patenting for informing policy and practice."

As the global intellectual property (IP) system grows and now impacts virtually all citizens, it is crucial that the means to understand these rights and their teachings, as well as their implications and scope become global public goods. To do so requires not only that the primary data is available freely and openly in a standardized and re-useable form, but that tools to visualize, analyse and model that data are similarly open and free public goods, adaptable to diverse needs and uses; this we call ‘transparency’.

Open web-based platforms that enable the aggregation, commentary and mapping of this knowledge by the community and that transcend any one jurisdiction or field of innovation, are also needed.

These imperatives have informed Cambia’s development of The Lens (an open access, autonomous web-based patent search facility), and in particular, its biological innovation capability, part of which is referred to here as the PatSeq facility (see box).

Gene patents are among the most contentious, opaque and poorly understood aspects of modern IP. Inventions and products or services that hinge on knowledge of or direct use of the sequences that make up genetic material, typically DNA, or the proteins that genes encode, are becoming common and very important. Societal concerns about the appropriateness of allowing patenting of these components of living systems have also become prominent.

Transparency in relation to the extent and scope of genetic inventions is critical, and has several important roles. First, transparency allows examiners to understand the invention and to determine if it meets patentability requirements. Second, it enables public access to, and use of, the invention concept to enact the patent ‘bargain’ or ‘compact’, thereby fostering follow-on inventions, cumulative innovation, and reducing duplication of effort. Third, transparency gives policy-makers an evidence base and context to ensure that patent practice is aligned with the economic and social goals of the IP system. In each of these critical roles, patent office practice in relation to gene patenting falls short.

DNA and protein sequences are made up of either combinations of four letters – A, C, G, and T, in the case of DNA – or 20 types of amino acids, each with different chemical properties – in the case of protein. To understand their structure, function and similarity, they must be read using specialized computer software tools. Therefore, when disclosed in a patent document, an examiner or practitioner would need to use computer-mediated searching, analysis and visual tools to interpret their contextual value or meaning. Any form used in the patenting process that does not facilitate access to computer searchable information – often called ‘machine readable’ – in our view fails to meet the patent system’s public disclosure requirements.

In a recent publication (www.nature.com/nbt/journal/v31/n12/full/nbt.2755.html) we reported the development and availability of an open, public, web-based platform that has great potential to improve the transparency of gene patenting worldwide.

Our international survey of 55 patent offices during the period July to October 2011 which focused on standards and practices regarding patentability of genetic sequences, revealed significant room for improvement in terms of making these data freely and publicly available for aggregation. While patentability requirements appear to be converging in at least 35 respondent patent offices, public disclosure of patent sequences remains restricted to visual inspection. Open public capabilities to search and analyse sequence-based discoveries and inventions are almost non-existent.



Photo: iStockphoto/ bestdesigns

Cambia’s international survey of 55 patent offices, which focused on standards and practices regarding patentability of genetic sequences, revealed significant room for improvement in terms of making these data freely and publicly available for aggregation.



The PatSeq Toolkit

In the multilingual Lens facility, we developed a suite of tools to navigate patent and sequence information. For example, when a patent document contains a sequence disclosure, a small helical DNA structure appears in the information column of the search results page alerting users to its availability. We have also introduced a sequence tab that clarifies the nature of the disclosed sequence(s) within the document portfolio allowing users to search and filter the metadata (nature of sequence, length, origin of organism), whenever available, to locate the sequence within the document, and to view the original data source (where we downloaded the sequence from). We also created PatSeq Explorer, PatSeq Analyzer, and PatSeq Finder for more in-depth analyses.

PatSeq Explorer enables multi-level visualization and navigation of patent disclosed sequences that map according to various homology thresholds to a reference genome, the first publicly available example of which is the human genome. At the genome and chromosome levels, users can investigate overall patenting trends, filter, and search sequence and patent attributes, and link to various sets of patent documents in The Lens database or choose to investigate further and analyze the sequence at the locus and gene levels (see Fig. 1). Mapped sequence entries are displayed according to their location in the patent document and their type, along with a summary panel view of their numbers and their corresponding patent documents counts in the jurisdictions in which the sequences were disclosed. All views are embeddable in blogs and social network facilities (to encourage uptake of evidence-based tools) and we expect all documents and sequence collections to be downloadable in the near future.

PatSeq Analyzer: enables users to zoom in to the details of a particular sequence entry, view and compare disclosed sequence ID numbers within and across various patent documents and analyze their corresponding patent attributes within a specific gene area. The tool is a modified genome viewer built and integrated into PatSeq Explorer based on the open source HTML5/SVG genome maps browser developed by the Computational Medicine Institute, Prince Felipe Research Centre, Valencia, Spain. All views in PatSeq Analyzer are also embeddable.

PatSeq Finder enables users to query their own sequence against the PatSeq databases and conduct sequence similarity searches. Results from such searches are aligned based on a score of relatedness to the original query sequence and display information relating to corresponding patent documents. Users can view sequences referenced in the claims, read the corresponding patent claims, examine alignment details, sequence annotation, and embed or download results in various formats.

To address this gap, Cambia has expanded the publicly searchable patent sequence database in The Lens (www.lens.org) to include data from 15 jurisdictions and has developed a suite of new patent sequence (PatSeq) tools to enable exploration of the legal and scientific information within biological patents as they relate to a particular genome. The first exploratory tools target gene patents and their disclosed biological sequences associated with the human genome, and provide a platform to map, analyse, annotate and share this knowledge with anyone.

Although the recent decision by the US Supreme Court on breast cancer genes (*Association for Molecular Pathology (AMP) v Myriad Genetics*) held that naturally occurring sequences are not patentable in the US (see www.wipo.int/wipo_magazine/en/2013/04/article_0007.html), isolated genomic sequences are still patentable in many jurisdictions, including in Australia, Canada, Europe and Japan (for an example of a gene patent, check claims 1-3 in the Australian patent AU_686004_B2 at www.lens.org/lens/patent/AU_686004_B2).

As markets and innovation become increasingly globalized, such differences in national patent practice and policy underline the need for improved, standardized and open data sets, and improved compliance standards, as well as shared, open, decision-making tools to support the development of a favorable policy environment for biological innovation.

The Myriad case also highlighted the technical complexity of genomic sequence-based discoveries and inventions and the urgent need for more precise tools that identify similarities in the sequences disclosed in patents, especially in the claims section of a patent.

In gene patenting, there is a critical difference between *disclosure* of sequences and *claiming* of sequences. Upon submitting a patent application for a biological invention, the applicant is required to disclose all involved sequences (those that are simply used as references in the document, those that support the invention, or those that constitute the invention), in a separate section, called sequence listings section. When all these sequences are disclosed, it is critical to have tools that distinguish and illuminate the role, function, and location of each disclosed sequence *vis-à-vis* the invention, as well as its similarity to all previously disclosed sequences. Without such technical knowledge and clarifying tools, the public, many policy-makers, innovators and investors are often confused about the extent and scope of gene patents.

In general, we found that many sequences are disclosed but few are claimed as genes. If a sequence *per se* is claimed, it is usually claimed as an isolated or purified molecule in a particular jurisdiction. A claimed gene sequence means that any potential use of that sequence is restricted and will need to be licensed from the patent holder for the duration of the patent term or for

as long as the patent is active in that jurisdiction. However, if the sequence is claimed as part of a larger sequence or as a target for a specific method, the uses of that particular sequence are unlikely to be exclusive making it possible for other inventors to access and use it freely without the need to negotiate a license. The public and innovators must be able to readily distinguish these cases to better understand the extent and scope of granted rights on gene sequences, reduce investment risks, and stimulate an equitable and inclusive innovation system, but this is extremely difficult.

While major patent offices claim to have sophisticated databases available to them that comprise a substantial set of sequences, in general the public cannot access or use these tools. Moreover, many patent offices with limited budgets or serving jurisdictions with emerging IP systems do not have access to such tools.

Even informal collaborations that seek to harmonize patent sequence disclosure and availability between countries are limited in scope. For example, the collaboration between the DNA Databank of Japan (DDBJ) (www.ddbj.nig.ac.jp/); the European Nucleotide Archives (ENA) (www.ebi.ac.uk/ena/); and the GenBank-PAT division at the National Center for Biotechnology Information (NCBI) (www.ncbi.nlm.nih.gov/genbank/) in the US, is limited to sharing nucleotide-based patent sequences with no formal agreement, as yet, to share protein-based patent sequences. The International Nucleotide Sequence Database Collaboration (INSDC) (www.insdc.org), which brings these three major public databases together, fosters the exchange of nucleotide-based patent sequences on a daily basis. While each database may have duplicate sequence listings from PCT applications and granted US patents, they each maintain a slightly different record of patent sequences. While some commercial vendors claim to offer comprehensive data and sophisticated analysis, this is an expensive means of accessing public information. And even these commercial databases are incomplete.

PATENT-DISCLOSED SEQUENCES AND THE HUMAN GENOME

Cambia's biological facility within The Lens (www.lens.org/lens/biological_search) provides an evidence-based understanding of the complex gene patenting landscape. It allows sequence and patent data aggregation, analysis and visualization, and is equipped with tools to dynamically search and find patent sequences associated with several genomes with various degrees of similarity, and to compare the scope of patenting, beginning with the human genome. Our analysis of the scope of patenting of known genes on the human genome showed that the percentage of known genes referenced – mentioned in the claims section of the patent but *not necessarily claimed* – ranges from 26 percent to 62 percent.

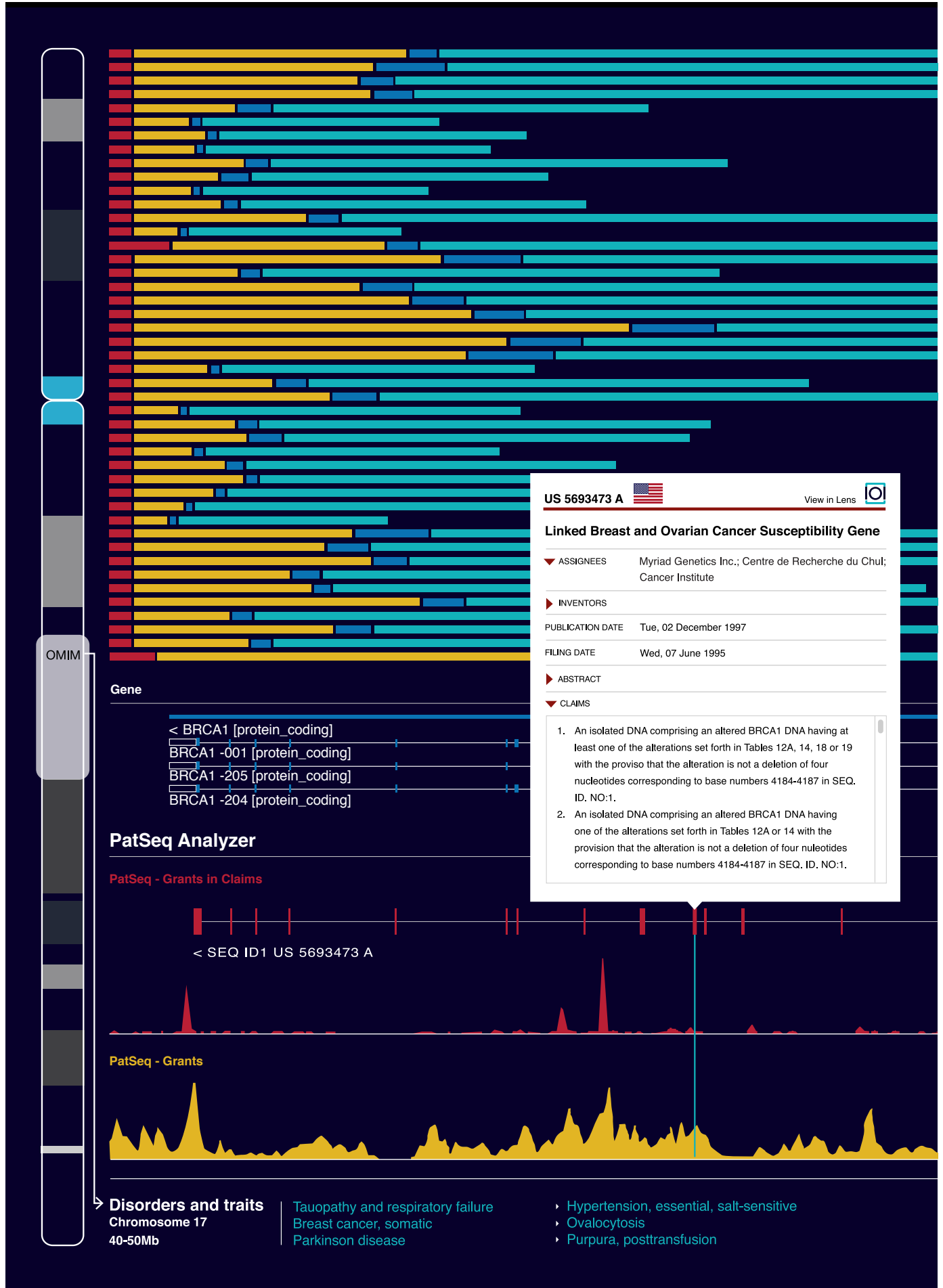


Fig. 1. In PatSeq Explorer, users can view the whole genome or any individual chromosome (Chromosome 17 of the human genome is depicted above), scan information about genes or disorders and traits at a particular location (in this example position 40-50 Mb is highlighted) using data from other public databases, and view patent sequence profiles at exact gene positions. Here, we show where one of the breast cancer gene, BRCA1, is located using PatSeq Analyzer. Users can then analyze patent attributes for a particular aligned patent sequence under the gene of interest.

By August 2012, we had 131,339 *nucleotide* and 15,054 amino acid sequence listing entries mapped with 100 percent homology onto the human genome. These were referenced in the claims of 13,985 US issued patents.

CLAIMED VERSUS DISCLOSED NUCLEOTIDE SEQUENCES

After optimizing and extending the algorithms to select patent documents that reference a sequence in their claims, we began analyzing manually the claims associated with only the fully aligned 131,339 nucleotide-sequence entries (not the amino acid sequence entries). These were referenced in 2,716 patents. We found that 76,910 sequences out of the 131,339 sequences mapped uniquely with 100 percent homology to the human genome and corresponded to 2,685 patents. The remaining 54,429 sequences were repeated in duplicated patent documents. According to the Myriad decision, the fully aligned sequences would be considered natural nucleotide sequences from the human genome, and therefore non-patentable in an unmodified form.

An analysis of the claims referencing these unique sequences revealed a variety of strategies for claiming a nucleotide sequence; that a small proportion (13 percent) of these sequences are claimed as sequence composition (having exclusive rights on the use of that sequence); and that about a third of the corresponding patents were not maintained for their full potential lifetime (i.e. 20 years). Further analysis of the claimed and patented nucleotide sequences suggested that the public and private institutes have different perceptions of the value of gene patents and the models for their use.

PATENT OFFICE SURVEY RESULTS

Almost all respondent patent offices indicated that they comply with the agreed standard for disclosure of sequences associated with patent filings (the ST.25 standard), which unfortunately, does not stipulate machine-readability. Most offices – with the exception of Israel – make sequence listings publicly available. However, they are available mostly as part of the published patent document, in pdf or image formats, and thus not machine-readable. A few patent offices, such as those of Canada, Germany, and Hungary provide machine-searchable sequence listings on their websites, whereas Japan, the EPO, and the US, as well as the Republic of Korea to some extent, provide machine-searchable sequence listings through third party providers or electronic downloadable files via their websites. These are often fee-based.

While the survey generated a more realistic picture of the total count of sequence listings from some jurisdictions, this proved difficult for many others, especially those that rely on regional

patent offices, such as the EPO, and WIPO, for that information, or those that do not disclose publicly the yearly counts of such sequence listings. For example, in the US, where compliance with sequence rules is more rigorously observed, we found several thousand sequence listings cited in patents published since 1990 that were not included in the GenBank–PAT division database.

Our survey confirmed the lack of transparent public tools to navigate gene patents. While the Myriad decision has clarified, to some extent, the US position on gene sequence claiming, the ruling also exposed the critical need for, and lack of, nuanced and precise analysis of gene patents at both national and global level. Without transparency tools, the public will be disadvantaged, uncertainty will continue, compromising entrepreneurialism and investment, and inefficient use of resources will persist in industry and public sector innovation, to the detriment of informed policy making. Cambia's biological facility within The Lens offers an open public platform that serves as a uniquely valuable alternative to the current commercial services that serve only a few elite innovators in biological sciences.

The author acknowledges the contributions of the co-authors in the Nature Biotech article. ♦

About Cambia

Cambia, meaning change, is an independent non-profit institute creating new technologies, tools and paradigms to promote change and innovation. Its mission is to democratize innovation: to create a more equitable and inclusive capability to solve global problems using science and technology.

See: www.cambia.org/daisy/cambia/about/590.html

Raising IP awareness in Africa: A CALL TO ACTION

*By Dr. John O. Kakonge, Ambassador
and Permanent Representative of Kenya to
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World Trade Organization (WTO)*



There is a commonly held assumption, in Africa at least, that only educated people can protect an idea or use the intellectual property (IP) system to do so. As a result, although Africa is home to many talented creators, their works are largely undervalued and unprotected. If Africa is to fully benefit from its wealth of creative and innovative talent and take its rightful place on the world IP stage, Africans need to fully recognize and celebrate the talents of their innovators and creators.

Every once in a while stories of African ingenuity surface in the international press or on social media networks. For example, thanks to social media we heard about the smart ideas of Richard Turere, a young Masai boy, who saved his family's cattle from predators by devising an ingenious warning device known as Lion Lights. Thanks to the media attention this story attracted, Richard was recently invited to speak at a TED conference in California. On the strength of his work he has also won a scholarship to continue his studies. His school is also now exploring ways to protect his innovation using the IP system.

We need to seek out and celebrate such examples of ingenuity. This is essential if we are to improve awareness of the social, economic and cultural value of the continent's innovative and creative resources. It is also critical to our success in building a sustainable knowledge-based economy.

Low-levels of IP awareness among the public mean that that neither breach of copyright nor plagiarism is considered wrong and there is little realization that it is unlawful. Law enforcement officers are swimming against a tide of public ambivalence when it comes to IP, which makes their task all the more difficult. Many individuals are driven by an overriding concern to make money from an idea regardless of where the idea comes from. They care little about the rights (economic or moral) of the person or group that first came up with and developed the idea. All too often, the burden of proof falls on the inventor or creator to establish the legal rights in their work. This is an uphill battle that puts a drain on their time, energy and financial resources.

Richard Turere saved his family's cattle from predators by devising an ingenious warning device known as Lion Lights.

FACTORS FUELLING PIRACY

This general lack of public IP awareness has fuelled a booming illegal trade in pirated CDs, DVDs and the like. Hawkers touting their illegal wares are a common sight on street corners, at bus and train stations and in restaurants.

On the supply side, widespread youth unemployment is fuelling this illegal activity. On the demand side a lack of consumer purchasing power makes pirated rip-offs a cheap and attractive option. As such transactions are generally not considered a threat to public security some African governments tend to turn a blind eye to such illegal trade. And for their part, creators are unable to act to put a brake on such activities as they too are hamstrung by a chronic lack of awareness about the IP rights that flow from their work.

TRANSFORMING LIVES WITH IP AWARENESS

In Africa, IP has the potential to help reduce poverty, create employment and accelerate economic growth. Translating this promise into reality, however, requires a concerted effort by African governments to invest in IP education and to support the implementation of comprehensive public awareness campaigns to boost understanding of the system and its potential benefits.

The experience of Kenyan carpenter Horace Mate illustrates the transformative potential of effective IP awareness campaigns. Mr. Mate works in Kenya's extensive informal sector – known locally as *jua kali* ("hot sun"). A gifted and highly creative craftsman, he has produced throughout his career, a number of original and attractive furniture designs. However, he was never able to reap the full economic benefits of his work because as soon as he started making and selling a new design other carpenters would copy it and undersell him.

One morning, however, as he passed along Mombasa Road in Nairobi, he saw an advertisement outlining the mission and services of the Kenya Industrial Property Institute (KIPI). This prompted him to visit KIPI. On the strength of that visit he now understands just how much he can gain from identifying his IP and protecting it. His original creations are now properly protected and registered as industrial designs and he is starting to reap the economic rewards of his highly skilled creative work. To date, any infringing activity has been effectively quashed using cease and desist notices. More importantly, Mr Mate now realizes he must respect the creations of others. This is a small but critical step towards building IP awareness within his community. Mr. Mate's experience is just one example of the benefits that can flow from reaching out to local artisans to inform them about how the IP system can transform their business prospects.

FINANCING INTELLECTUAL PROPERTY

While there is no shortage of entrepreneurs in Africa, there are few opportunities for companies to expand or develop their innovative ideas. Africa does not have groups of financiers ready to invest in innovative Africa-grown ideas. The continent's venture capital market is poorly developed.

With the exception of South Africa, the number of patent applications – a traditional marker of innovative activity – recorded by African inventors is woefully low, reflecting the need to actively invest in developing effective national innovation ecosystems across the continent.

In Kenya, as elsewhere in Africa, IP is not generally recognized – by financial institutions or right owners – as a valuable capital asset that can be used as collateral to obtain business finance. Kenya's poorly developed innovation ecosystem means that the economic potential of the country's promising small and medium-sized enterprise (SME) sector is underexploited. It is widely understood that SMEs are important creators of IP and users of the IP system. Left unprotected, a promising invention or service may be lost to larger competitors with the means to more effectively commercialize them. An effective IP – focused business strategy is crucial in deterring potential infringement, turning ideas into business assets with real market value and funding follow-on innovation.

Japan's policy approach to SMEs offers a sterling example of the merits of implementing policies that support SMEs and venture companies. It is based on recognition of the role of SMEs in developing the infrastructure and technology (including processing materials and components) required by industry and in promoting local economies through job creation, and IP creation.

Similarly, direct government funding or support for artists is scarce. For example, in Kenya, while traditional industries, such as tourism and agriculture, continue to attract government support, there is little political will to develop the country's creative industries despite their huge growth potential.

IP CAPACITY-BUILDING

Building-up Africa's IP capacity will take time, energy and leadership. In Kenya, for example, we need to improve the IP knowledge and expertise of KIPI staff so they are able to deliver an improved quality of service. The services and assistance of the World Intellectual Property Organization (WIPO) and the African Regional Property and Industrial Organization (ARIPO) have a key role to play in enabling African countries to upgrade the skills and technical knowledge of IP office personnel.

Progress in building IP awareness needs to be steady and incremental. As a first step, much can be achieved by focusing on rolling out IP education initiatives at locations where generators of IP operate. IP offices, such as KIPI, need to target innovators and encourage them to use the facilities they offer, including access to IP databases, many of which are free of charge.

Awareness can be created in multiple ways: through workshops and training programs; by publicizing the services of IP lawyers; and by disseminating well-crafted publicity materials and posting timely and accurate information on internet websites. Similarly, much can be gained by exchanging experiences and views with other emerging economies, such as Brazil, China and India, where rates of IP use are on the rise.

Most emerging and fast-evolving industries, including the internet and the social media platforms, are characterized by



Photo: © James Durcan Davidson (CC-BY-NC 2.0)

Richard Turere's story attracted a great deal of attention from news and social media networks such that in February 2012 he was invited to speak at a TED conference in California (USA). On the strength of his work he has won a scholarship to continue his studies.

their high IP content. In the era of the knowledge economy, the IP system is the mechanism by which creators, inventors, companies and countries can add value to their creative and innovative resources and thereby spur economic growth. The challenge for African policymakers is to ensure that IP issues move up the political agenda so that the necessary resources and leadership are available to support the development of an effective and sustainable innovation ecosystem. While innovators may be found everywhere, those who understand how to protect the IP they create are few and far between – particularly in Africa. If Africa is to advance in technology, science, design and other fields to take its rightful place in the world, we must overcome this hurdle.

Today, governments have unprecedented opportunities to influence and guide public opinion through radio, television and social media platforms. Few – particularly in Africa – take full advantage of these opportunities. We need to embrace these tools, showcase and celebrate our ingenious inventors and creators and explain how IP can transform the lives of ordinary people on the street. We need to target different communities – designers, musicians, artisans, entrepreneurs, teachers, researchers and policymakers – to demonstrate the transformative power of innovation and the benefits that flow from understanding IP and its strategic use. The road ahead is long and the challenges are complex, but we have the raw materials – a huge pool of talented and imaginative young people – to tackle and resolve the many challenges that Africans face daily and to achieve sustained economic growth and social and cultural development. ♦

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