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Some estimate wearable technology could be worth US\$42 million within 5 years. What are the IP implications of this new technology trend? Photo: Google

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E-WASTE AND INNOVATION: unlocking hidden value

By Irene Kitsara, Access to Information and Knowledge Division, WIPO In addition to the environmental and health imperatives of responsible e-waste disposal, it also makes good economic sense. E-waste is an alternative source of base metals and noble metals making it a valuable commodity.

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Discarded end-of-life electrical and electronic devices - essentially every office or household good with a cable - are the world's fastest growing waste stream. By 2017 the annual volume of e-waste will increase by some 33 percent to an estimated 65.4 million tons – the equivalent in weight to 11 Great Pyramids of Giza - according to the UN-led public-private Solving the E-Waste Problem (StEP) initiative. The rapid development of electronics has brought with it many life-enhancing advantages and opportunities. The downside, however, is that the scale and speed of technical innovation in this area, fuelled by our limitless appetite for next generation technologies, as well as the global uptake of these low-cost devices - with mobile cellular penetration rates alone at 96 percent – are creating an expanding mountain of e-waste. Of the 50 million tons (including fridges, computers, laptops, mobile phones, game consoles, musical equipment and televisions) generated globally each year, only between 15 to 20 percent is recycled. Much of the remaining e-waste ends up in developing countries where it is often recycled by the informal sector using rudimentary methods that present significant risks to the environment and the health of local populations.

E-WASTE: A COMPLEX COCKTAIL

Unlike other types of municipal waste, e-waste involves a complex mix of hazardous, highly toxic materials and economically valuable, noble metals. As up to 60 elements from the periodic table can be found in complex electronic equipment, sophisticated processing technologies are required to maximize the recovery of these valuable resources while minimizing any negative social or environmental impact. This presents both challenges and opportunities for recyclers.

The list of toxic substances includes cadmium (Cd) found in cathode ray tube (CRT) computer monitors, mercury (Hg) used in flat screen displays, lead (Pb), beryllium (Be), brominated fire retardants, polychlorinated biphenyls (PCBs) and plastics, including polyvinyl chloride (PVC) used for covers, cabling and connectors. The negative environment and health risks associated with disposing of e-waste, and its rising volume, have, over the last decade, prompted policymakers to focus greater attention on developing more responsible practices for the disposal of e-waste.

In addition to the environmental and health imperatives of responsible e-waste disposal, it also makes good economic sense. There is a growing perception that e-waste is a valuable commodity. Electronic devices are an alternative source of base metals such as copper (Cu) and tin (Sn), special metals such as cobalt (Co), Indium (In) and antimony (Sb) as well as noble metals such as silver (Ag), gold (Au), palladium (Pd) and platinum (Pt). Although the quantities used in each individual device are small, for example, 250 mg of silver are used in each mobile phone, when you consider the global sales of mobile phones are in the hundreds of millions the economic benefits of recovering and recycling discarded or obsolete mobile phones and other electronic devices are clear.

TRACKING E-WASTE-RELATED INNOVATION

In order to gain a better understanding of available technologies for e-waste recycling and recovery, and as part of its efforts to promote environmentally sound disposal and recycling of e-waste, the Secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (SBC) (*www.basel.int*), recently requested WIPO's support in preparing an e-waste technologies patent landscape report.

The report (*www.wipo.int/patentscope/en/programs/patent_landscapes/index.html*), provides a comprehensive overview of available technologies for e-waste recycling and recovery as far as they are described in patent documents focusing on end-of-life mobile phones and computer equipment. It offers a snapshot of innovation in this field, identifies observable trends in patenting activity and provides insights about the technology development cycle, the geographic distribution of innovation, research topics and primary actors, including case studies, within e-waste and related research and development.

The report analyses patent applications relating to e-waste recycling in three main categories, namely: technologies for recycling or recovering materials such as plastics or metals; sources of e-waste and their processing (e.g. batteries, cabling and printed circuit boards); and processes and logistics involved in e-waste treatment, such as magnetic sorting of e-waste.

E-WASTE INNOVATION: AN ASIAN AFFAIR

The report shows that e-waste-related patenting activity gathered pace around 2000, subsided for a short while and then took off again around 2010. The bulk of e-waste innovation is taking place in Asia (followed by Europe and the US) with Japanese consumer electronics and metals firms, such as Panasonic, Hitachi and Toshiba, representing the largest and most dominant patent portfolios with over 50 percent of all activity. China is also emerging as a key player, with domestic e-waste-related patenting activity increasing seven-fold in just six years. The US makes up a small proportion of activity but is very active in recovery of rare earths. Many of the patent applications, however, are domestic or filed in just one jurisdiction. For example, of the 1,430 patent applications first filed in China, just 15 have been filed with another patent authority. The authors suggest this is related to the fact that as e-waste processing occurs primarily in Asia, there is little need for Asian companies to protect their technologies in Europe and the US. They also suggest it reflects a "scatter gun" approach to patenting by Asian entities in so far as applicants are filing many more diverse technologies more speculatively. Conversely, in Europe, Japan and the US, where patent applications tend to be filed in multiple jurisdictions, the emphasis is on developing targeted, higher value vetted technologies that require greater and more expensive protection regimes.

E-WASTE: A VALUABLE COMMODITY

E-waste is no longer exclusively an environmental and public health issue. The report also points strongly to the commoditization of electronic waste, with a large increase in patent activity relating to the recovery of valuable rare earth metals (e.g. lanthanum, neodymium and praseodymium) commonly used in modern electronic devices and the recovery of noble metals, such as gold, silver and platinum, from e-waste streams.

The data indicate that the recovery of rare earth metals is an emerging area of interest and one that is broadly protected in multiple jurisdictions. They also reveal a concentration of US-based activity in relation to rare earth extraction. The US holds the highest absolute number of patent families in this area. This trend is partially explained by the fact that China accounts for 90 per cent of the primary extraction of rare earth elements which are not normally sold as commodities in the open market and are subject to strict export controls. Major electronics manufacturers in the US, Japan and Europe, therefore, have an incentive to seek alternative sources of the rare earths they need. Between 2009 and 2010, patent activity more than doubled in this sector. The report also highlights a relationship between the international flow of e-waste streams and the specialization of commercial entities within destination countries. For example, Chinese patent applications in this area tend to deal with the dismantling of e-waste and the separation of waste streams and are focused on electronic components, such as printed circuit boards and batteries, suggesting that the e-waste stream is pre-dismantled prior to reaching China. The report identifies three primary sectors of innovation in e-waste processing: decontamination, chemical separation and metal extraction.

DRIVING INNOVATION TRENDS THROUGH REGULATION

The patent landscape report also indicates a correlation between changes in legislation and patenting behavior. For example, although plastics and ferrous metals are the primary items recovered from e-waste, there have, in recent years, been sharp increases in the recovery of lead, tin, and especially silver and copper. Silver is the primary noble metal extracted from e-waste streams. This development appears to be driven by the implementation of the EU Waste Electrical and Electronic Equipment Directive (WEEE) 2012/19/EU and the Restriction of Hazardous Substances Directive (RoHS) 2011/65/EU to replace poisonous lead solder alloys with new pure tin, silver and copper soldering technologies.

The report indicates extensive growth in patenting activities for technologies dealing with hazardous cadmium and battery dismantling, the use of conveyor belts in e-waste logistics and waste stream sorting operations and the recovery of rare earth materials. With respect to mobile devices, which are strongly tied to computing equipment within the patent literature, growth sectors in mobile device e-waste recovery is focused primarily on components and includes a growing emphasis on battery and printed circuit board e-waste; increasing use of chemical separation techniques; decontamination of mobile device waste streams; and recovery of silver from mobile devices.

Only a small proportion of the e-waste generated globally each year is recycled, much of the rest ends up in developing countries where recycling methods present significant social and environmental risks. WIPO's patent landscape report on E-Waste Recycling Technologies, however, indicates companies are beginning to recognize the economic value of e-waste and are developing technologies to extract maximum value from it.





The majority of the top patent applicants are bigger corporations and, interestingly, over 25 percent of the overall patenting activity comes from just 21 patent applicants, with Panasonic having the biggest patent portfolio in the field. The top commercial applicants include major consumer electronics firms, but also several corporations whose primary interest is metals extraction, such as JX Nippon, Mitsui Mining and Smelting, and Kobe Steel reflecting the growing recognition of e-waste as a high value commodity. Japanese firms as a whole are the most prolific patent applicants, with many consumer electronics companies owning technologies for plastic recycling, indicating that this was a primary historical concern with respect to processing e-waste. The report also identifies various corporate initiatives to establish national recycling networks that manufacturers can use to provide convenient recycling opportunities for consumers. For example, since October 2007, MRM (Electronic Manufacturers Recycling Management Company) sponsored by Mitsibushi Electric, Panasonic, Sanyo, Sharp and Toshiba, has established 1,800 recycling sites across the US and recycled 380 million pounds (over 172 million kilograms) of electronics. It is the most comprehensive recycling network in the US.



Rare earth metals

Rare earth metals are used in small amounts in almost all consumer electronic devices that contain lasers (e.g. DVD players) or displays that utilize phosphorescence. They are also used for magnetic components (such as loudspeakers, headphones or magnetic disk drives), batteries and in glass for optics, such as camera lenses.

As consumer electronics penetrate more markets around the world, demand for rare earth metals will increase proportionally.

Ninety percent of all rare earths are mined in China.

Examples of rare earth metals:

- Neodymium used in many magnetic applications, such as microphones, speakers and hard disk drive components.
- Yttrium, terbium, europium

 used as phosphors in many different types of display technology.
- Lanthanum used as electrode material in nickel-metal hydride batteries, such as those used in hybrid vehicles.

Breakdown of the number of inventions for the recovery and recycling of noble metals found in e-waste

Sources of noble metal recovery/recycling	Total inventions
Printed circuit boards	238
LEDs	109
Computers/Laptops	87
Wiring/cabling	85
Displays	78
Batteries	65
Telecom equipment	52
Telecom Equipment	52
Capacitors	51
Fuel cells	45
Magnetic components	38
Switches/sockets	35
Household appliances	34
Integrated circuits	18
Fuses	9
Resistors	9
Inductors	7
Medical equipment	7
Piezoelectric crystals	7
Coils	6
Discrete diodes	6
Transistors	5
Antennas	2
Transformers	1

E-waste-related patenting activity in Brazil, the Russian Federation, India and China is strongly tied to the smallest patent portfolios indicating that activity in these countries (especially China) is highly diversified and spread across hundreds of different entities. While the academic and research sector accounts for just 9 percent of e-waste-related patent applications, the percentage growth of patenting activity in this sector is outstripping that of the commercial sector. The top 30 research institutes that feature in the landscape report are all based in Asia, with China in a dominant position. The appearance of research institutes such as Japan's National Institute of Advanced Industrial Science and Technology (AIST) and the Republic of Korea's Institute of e-waste to mineral and metal recovery. The most active non-Asian public institutions are the German *Fraunhofer Gesellschaft* and the French CNRS (*Centre national de la recherche scientifique*).

As the world becomes ever more connected, there is every indication that the mountain of e-waste generated each year will continue to expand. As the findings of the WIPO e-waste patent landscape report suggest, however, there are already indications that companies are switching on to the economic opportunities associated with mining e-waste streams by developing technologies designed to extract the maximum value from discarded electronic devices. Increased levels of innovation in the rapidly evolving e-waste recycling sector is being fuelled by the realization that e-waste is a high value commodity, the recovery of which not only generates financial benefits but also promises to promote more environmentally benign recycling practices and improve the health and safety of local communities in destination countries.

By 2017 the volume of e-waste generated each year will increase by some 33 percent to an estimated 65.4 million tons – the equivalent in weight to 11 Great Pyramids of Giza – according to the UN-led StEP (Solving the E-Waste Problem) initiative.



The Brave New World of WEARABLE TECHNOLOGY: what implications for IP?

By **Emma Poole**, Executive Research Officer, WIPO

Wearable tech is both the newest technology trend and one of the oldest – we have been wearing functional objects ever since watchmakers like Peter Henlein developed portable clocks in the 16th Century. Now a sector that consists of multifunctional watches, pedometers, heart rate monitors, and GPS tracking devices, wearable technology, which some estimate could be worth US\$42 billion within five years, promises to revolutionize marketing, retail, fitness and medicine. This article explores how and points to some of the IP issues that may arise as the sector matures.

WHAT IS WEARABLE TECHNOLOGY?

Wearable technology encompasses innovations such as wearable computers or devices; augmented reality (AR); and virtual reality (VR). The existing wearable technology market is dominated by a small number of devices: smart glasses, watches and fitness bands, many of which interact with smartphones and tablets via apps to track users' sleep, health, and movement in a trend known as the 'quantified self'. Deloitte describes the sector as a 'mass niche' that will generate about US\$3 billion in this year alone.

EARLY IP ISSUES

The "intellectual property arms race" in the wearables' sector has begun. The first patent litigation is now underway in the US as Adidas takes issue with Under Armour over its MapMyFitnesss app; and tech companies, like Google, are acquiring and developing patent arsenals. In 2013 alone, Google was awarded over 2,000 US patents, almost double the number of all previous years combined, including one for a "gaze-tracking system."

The wearable tech sector is in its infancy, but will raise a number of intellectual property (IP) challenges. It seems likely, however, that these will mirror the pattern set by innovations in the mobile and semiconductor sectors. If they do, the breadth and quality of the patents that have already been granted may cause concern. The question of the validity of poor quality patents is prompting heated debate and is up for reform in the US. Conversely, industry standards for the wearable sector will be influenced by recent national and international developments – for example, in the US and Europe – in standard-essential patents and FRAND-licensing agreements (see box). Difficulties may also arise if more countries follow Germany and New Zealand in questioning the patentability of software.

Similarly, challenging questions will arise about the operation of trademarks in the sector, particularly in terms of how to handle competing marks in different jurisdictions, branding in virtual environments, and trademark enforcement in the ever-expanding domain name system.

DESIGN: THE ELISION OF FORM WITH FUNCTION

Intellectual property has traditionally made a neat distinction between design and patent law that wearable tech may well explode. Steve Jobs once said of design: "It's not just what it looks like and feels like. Design is how it works." The elision of form with function in wearable tech is seen most clearly in the increasing interaction between the tech and fashion industries. Tech firms have recruited senior fashion executives - Apple having recently recruited Paul Deneve from Yves Saint Laurent and Angela Ahrendts from Burberry - and both industries have formed partnerships and collaborations to design functional fashion - consider Google's partnership with Ray Ban and Oakley and Apple's work with the Nike+ platform and devices. Existing products include smart jewelry and sportswear with "smart" garments made of conductive fibers that can interact with other devices or determine product authenticity, not too far away.

These new developments will be affected by existing uncertainties and differences in international IP protection for three dimensional designs of clothing and footwear. The lack of clarity around the protection of unregistered designs and virtual designs may also affect innovation in this sector but existing forms of IP protection (such as trademarks or patents) may well fill the gap.

About FRAND

To ensure compatibility and interoperability of devices manufactured by different companies, industry standards are established whereby, for example, a patent on a technology that is essential for the implementation of a given standard must be licensed to third parties on fair, reasonable and non-discriminatory (FRAND) terms. Such licensing terms are designed to enable smooth and wide dissemination of standardized technologies, while, at the same time, maintaining incentives for companies to innovate and participate in standardization processes.



Google Glass is a wearable computer that features a small LCD display. It is voice activated and users can scroll through menus using a touch pad at side of the device. It supports a growing range of applications and among other things allows users to take photos, shoot video clips, upload files to the web, search the web and send e-mails. Its use has, however provoked privacy and security concerns.





Photos: Nike, Inc







The smart baby onesie, the Mimo Baby, made by Rest Devices in the US is a wearable baby monitor – durable sensors are woven into the fabric – keeping parents up to speed on a baby's vital statistics, such as breathing, activity level and skin temperature.

The broadest adoption of wearable technologies relates to products designed to monitor, track and record physical activity. Nike was one of the earliest adopters with the introduction in 2006 of the Nike+iPod Sports Kit. Its product line has since expanded to include iOS and Android apps, a multi-functional GPS watch, and the Nike Fuel Band.

THE NEXT STAGE: AUGMENTING LIFE

The next wave of wearable tech to be released into the market will consist of devices that incorporate either AR or VR technologies. Both technologies involve computer-generated environments – in AR that environment is superimposed over the real world (think Google Glass) and in VR the user is immersed in that environment (think the virtual reality headset, Oculus Rift).

AR devices may help improve efficiency, safety and productivity in customer service or logistics, and may be used by doctors during consultations or surgeries. Most early VR devices are designed for gaming environments but in time, they may allow all of us to chat across continents or for specialists to interact with remote devices to conduct remote-surgery, defuse bombs or explore inaccessible territories.

SECOND SCREENS AND PERSONAL BROADCASTING

Both AR and VR provide entirely new ways for consumers to experience content. VR devices could transform broadcasting by enabling users to virtually attend live events like sports matches, concerts or university lectures. Watching any television show while wearing an AR device could bring up related content on the device (similar to the 'second screen' experience of mobile phone apps providing related content to viewers). Reading a book or e-book could trigger a search function or prompt a dictionary app.

These new ways of interacting with creative content are likely to have serious implications for the copyright system. Any film or show could be recorded or live-webcast unobtrusively. Copyright on the proliferation of related content will be almost impossible to monitor; virtual infringement will continue to be hard to track; and evidence of infringement even more difficult to access. When anyone can record anything at any time, concepts of fair use or fair dealing will also become thorny.

BLURRING THE BOUNDARY BETWEEN BODY AND TECHNOLOGY

Wearable tech will also blur the lines between the human body and technology. The use of assistive technology by people with disabilities (including advanced prostheses used by athletes like Aimee Mullins and the transformative development of cochlear implants) has fuelled a continuing conversation about the use of tech to enhance human capabilities. As new devices become more permanently part of us (on our heads – consider Sony's SmartWig or tattooed onto our skin – consider Motorola's plans for a "sticker-like" tattoo containing passwords for authentication), new possibilities arise, using remote sensors, for example, to track vulnerable people such as children or those with dementia or using geo-location data for public health or sociological analysis.

There will also be questions about the use of technology that is always with us – the privacy implications of facial recognition capabilities on wearable devices and the security implications of technology installed in our bodies. More complicated issues may arise in relation to the use of haptic technology in wearable devices which may blur the boundary between virtual and actual touch.

The Internet of things

The next industrial revolution involves connected devices – industrial objects that have processing power and that are connected wirelessly to each other. This "internet of things" includes the fabled refrigerator that orders milk when you are nearly out; aircraft parts that can send engineers alerts when they need to be serviced; and heating systems that switch themselves on when your mobile phone tells them that you are nearly home. New modes of interaction developed for these devices will raise their own IP questions. Gestures are an important aspect of our use of technology (for example, pinching and swiping); there have already been applications to patent and trademark gestures. It is possible to imagine a lucrative trade in the generation of a brand new form of creative content – choreographers may be about to get rich.

LEARNING AND HELPING – PERFECT INFORMATION FOR PERFECT ADVICE

Wearable tech's full potential will be realized when the technology moves from devices observing us to platforms using the data generated from that observation to give us tailored advice (or target marketing at us). The possibilities are extraordinary: devices will direct us to meetings; improve our productivity; tell us about security threat alerts; and deliver drugs, manage pain and restart our hearts. Devices will also interact with the expanding internet of things (see box): switching off an alarm, warming the house and opening the garage door. Already you can open a car boot by waving your foot under the rear of a car.

The problem is that, in order to anticipate what we need, the platforms will need to have learned correctly what we usually do. That means that the quality of the data analytics or how often we do or don't wear our device could make the data inaccurate or incomplete and the advice unhelpful.

OWNERSHIP OF DATA

As the wearable tech sector develops and allows tech companies to acquire more and more information about us, it will be interesting to consider who owns this newest form of intangible property. A European Commission report called it 'life data' and described it as encompassing both our personal identification information and the information about ourselves that we upload to online services. The poet Ted Hughes once said "I hope each of us owns the facts of his or her life." In a digital environment in which tech companies exchange free use of services for almost unlimited use of our data, it may not be at all clear that we do.

Any uncertainty about the ownership of this life data will have multiple consequences. The interaction with the internet of things will be particularly important – will we and our devices be legally one identity? If our device is stolen, will it still open our garage door? If not, why and how? This will relate to the interoperability of the various devices and how permissions for use of data and information are sought and obtained.

The legal consequences of using or wearing technology have already started to be explored: from a driver allegedly distracted by Google Glass, to a person texting a driver held potentially responsible for accidents that driver causes. An Australian will made on a mobile phone has just been found to be valid. Will uploads from wearable devices be evidence of contracts, agreements, testaments and, indeed, criminal activity? Who will p. 13

give permission for those uploads to be used as evidence – the person who generated them or the tech firm who financially benefits from them?

The life data of certain individuals may have a greater financial value than the life data of others (a new way to follow your favorite celebrity). Will we all have a form of copyright over our life data and if we do when will it arise? This may be particularly important as digital technologies like wearable tech will "hugely expand the notion of collaboration" by making real-time complex collaborations between people across the world (and between people and machines) possible. Knowing how to quantify these contributions will be crucial in assigning economic value to them.

Finally, the aggregation of life data for communities or whole societies will be extremely valuable to both the private and public sectors. How will governments make sure that they have access to life data for public interest and public health initiatives?

THE FUTURE

While it is clear that these technologies could create exponential value for business, at the moment it is not so clear why and how they will be of value to the bulk of consumers. The up-take of devices is modest – it is estimated that less than one percent of the UK population now owns a smartwatch.

There are other concerns: limited battery life, skin irritations, data security, and weariness with invasive technology. One of the pioneers of virtual reality, Jaron Lanier, has described the 'creepiness' of tech firms that use the incidents of our lives to market their products to us. In his novel, *The Circle*, Dave Eggers presents a tech dystopia dominated by wearable tech in which "privacy is theft." The reluctance of digital natives to wear watches may impede the take up of smartwatches and the *Star Trek* dream of tricorders and communicator badges is arguably already being met by smartphones and tablets.

The future of the wearable tech sector is a blank slate with these concerns balanced against considerable potential. The slow growth of the sector may be easy to explain: consumers may not be ready for the full functionality of wearable technologies. Apple was working on 'multi-touch' technology long before the creation of the iPad but did not release it until consumers developed an instinctive understanding of how that technology would be valuable to them. As we must run before we can walk, possibly we have to absorb tracking, augmenting and learning devices before they can really help us. Or will we lose enthusiasm for these new devices – how many fitness bands and heart rate monitors are already gathering dust among middle-aged gym kits? ◆

Making sense of Europe's UNITARY PATENT

By **Gwilym Roberts**, Partner and **Julia Venner**, Associate, Kilburn & Strode, LLP, London, UK As a concept, a unitary European patent has been under discussion, in one form or another, for over four decades. In the last couple of years, however, there have been significant developments in the implementation of the so-called "EU Patent Package" (the Unitary Patent Regulation (Regulation No. 1257/2012) which implements enhanced co-operation in this area, together with the applicable Translation Arrangements (Regulation No. 1260/2012), and the Agreement on the Unified Patent Court). The aim of the EU Patent Package is to provide a single pan-European patent and a single court for litigation of European patents. While this package is being heralded by some as a means to make access to the patent system easier, less costly and more legally secure, by providing uniform patent protection in all participating member states, it remains to be seen whether the current proposals will actually deliver these benefits to patentees.

UNITARY PATENT

The Unitary patent will sit alongside "standard" European patents granted by the European Patent Office (EPO), which are subject to a national validation procedure to take effect in the designated states.

The process of applying for a European patent, the examination of the patent application by the EPO, and the EPO grant formalities will remain unchanged under the new regime; the difference arises after grant. In order to obtain a unitary patent, the patent owner must file, within one month of grant, a "Request for Unitary Effect" and, during a transitional period, the applicable translation. European patents will continue to be granted in English, French or German. English-language patents will require translation into any other language of an EU member state. French or German language patents must be translated into English. Such translations will be required until suitably accurate machine translations are available (and for a maximum of 12 years after the Regulation enters into force).

Keeping the unitary patent in force will require the annual payment of progressive renewal fees to the EPO. Once granted, a unitary patent is intended to provide uniform protection having equal effect in all participating member states. A unitary patent can be enforced, assigned, revoked, limited and can lapse in all participating member states, and can be licensed in respect of the whole or part of the territories of the states. For example, it will only be possible to assign a unitary patent in respect of all of the participating member states. It will, however, be possible for the patent owner to grant a third party a license to use the patented invention in respect of only some of the participating member states, for example the UK, France and Germany.

Under the current system, a granted European patent can be validated in up to 38 European Patent Convention (EPC) states and 2 "extension states" (Bosnia & Herzegovina and Montenegro). Although the new system moves towards a single pan-European patent, the unitary patent will still have a somewhat "patchwork" nature. Only European Union (EU) states may be party to the Unitary Patent Regulation ("the Regulation"). Many EPC states are not EU states (for example, Switzerland and Norway) and will therefore not be covered by the unitary patent. Furthermore, two EU



Photo: iStock @ Martin Wimmer

The EU Patent Package intends to make access to the patent system easier, less costly and more legally secure by providing uniform patent protection in all participating member states.

states, Spain and Italy, have opted out of the Regulation. As of the time of writing, Poland has declined to sign the Unified Patent Court Agreement, ratification of which is a pre-requisite for participation in the unitary patent, and is therefore also currently outside of the unitary patent system. To date, only 24 of the 40 states that may be designated by a European patent application will be covered by a unitary patent. For the remaining states, it will remain possible to proceed in the traditional manner, with national validations at grant.

UNIFIED PATENT COURT

The Unified Patent Court Agreement ("the Agreement") is an international agreement between contracting member states. The Unified Patent Court (UPC) will have mandatory jurisdiction over both unitary patents and, subject to transitional provisions, over standard European patents, insofar as they designate contracting member states. The UPC will also have jurisdiction over Supplementary Protection Certificates (SPCs), which are granted for inventions in certain technologies requiring lengthy regulatory approval processes). It will not have jurisdiction over national patents or national utility models.

During a transitional period of at least seven years after the date of entry into force of the Agreement, an action for infringement or revocation of a standard European patent or an action for infringement or for a declaration of invalidity of an SPC may still be initiated before the national courts. Furthermore, unless an action has already been brought before the UPC, holders of standard European patents or patent applications granted or applied for prior to the end of the transitional period and holders of SPCs can opt out of the exclusive competence of the UPC. The owner of a unitary patent, however, cannot avoid the jurisdiction of the UPC. The territorial extent of the UPC will include all contracting member states to the Agreement (all of the EU States, with the exception of Spain and Poland). While Italy is not a participating member state of the Unitary Patent Regulation, it has signed up to the UPC. The UPC will therefore have jurisdiction over the national part of a standard European patent that has been validated in Italy, unless the patent holder has opted out of the exclusive competence of the UPC, as described above.

The UPC will comprise a Court of First Instance (CFI), including a Central Division and Local and Regional Divisions. After much political argument, it was decided that the seat of the Central Division will be in Paris, with separate specialist divisions in London (for cases relating to human necessities, chemistry and metallurgy) and Munich (for cases relating to mechanical engineering, lighting, heating, weapons and blasting). In addition to the CFI, there will be an Appeal Court, based in Luxembourg.

The UPC will have the power to decide questions of infringement and validity. Cases concerning the infringement of a patent can be brought before the Local/Regional Division where the alleged infringement occurred or where the defendant has their residence or principle place of business. In the event that there is no appropriate Local/Regional Division, cases can be brought before the Central Division. A counterclaim for revocation must be brought before the same Division as the infringement proceedings, although parties can alternatively agree on a Division of their choice, including the Central Division. However, all or part of the action can be referred thereafter from the Local/Regional Division to the Central Division. In this way, "bifurcation", where actions for infringement and revocation are heard in different courts, is possible. For example, an action for infringement could be heard in a Local/Regional Division whilst a counterclaim for revocation may be handled, at a later date, by the Central Division. This is intended to make the UPC more patentee-friendly. However, there are concerns that, whilst this may be the case, it is to the detriment of third parties.

An action for revocation or declaration of non-infringement must be brought before the Central Division (or a Local/Regional Division, if the parties agree).

WILL THE EU PATENT PACKAGE BE FIT FOR PURPOSE?

As noted above, the EU Patent Package intends to make access to the patent system easier, less costly and more legally secure by providing uniform patent protection in all participating member states. Whether the package actually delivers these advantages remains to be seen.

A first issue of concern is the patchwork nature of the system. If you obtain a unitary patent, it will still be necessary to carry out national validations in any EPC states or extension states that are not covered by the unitary patent, if you wish to obtain patent protection in those states. Secondly, although a "unified" court is provided, a certain amount of forum shopping will be possible within the UPC. For example, an action for patent infringement can be brought before the Local/Regional Division where the alleged infringement occurred or where the defendant has their residence or principle place of business.

Furthermore, some commentators, including Google, Apple and Samsung, are concerned about the issue of bifurcation, where actions for infringement and revocation are heard in different courts. In particular, they are alarmed by the potential for a court to order an injunction prohibiting the importation and sale of goods, even though the patent may ultimately be found invalid; provisions that patent assertion entities or "trolls" may be quick to exploit. Such bifurcation also opens up potential complications in relation to the language of proceedings.

Lastly, it is unclear whether the new system will actually save costs or whether it will in fact be more expensive than the current system. The level of renewal fees for unitary patents has yet to be set but they are expected to reflect the size of the EU market and to be equivalent to the level of the renewal fees paid for the average geographical coverage of current European patents. So, for owners only interested in validating their European patent in a small number of participating member states, the unitary patent may not be an attractive option. There are also concerns regarding the cost of creating and maintaining the UPC. As the EU is no longer a party to the Agreement on the UPC, the cost of setting up the court will be borne by contracting member states. Going forward, as the intention is that the running costs of the UPC will be covered by court fees, there are concerns that these will be correspondingly high.

There is also apprehension regarding the quality of decisions coming out of the court and the first few judgments will therefore be crucial in alleviating these concerns.

WHO MIGHT USE THE SYSTEM?

It is unclear what the uptake for the new system will be. Many patent owners, when considering whether to obtain a unitary patent or to proceed solely with national validations, are likely to consider only the cost at (or closely following) grant, and are unlikely to take into account the cost of future litigation. The reduced requirement for translation of the granted patent will therefore be an attractive feature of the new system. However, the level of the renewal fees set for unitary patents will also be a key consideration. If too high, this may limit the interest of parties such as small and medium-sized enterprises. However, for larger companies who routinely validate their European patents in numerous states, the unitary patent may provide annuity savings.

The fact that the unitary patent can be revoked in a single action in respect of all participating member states may reduce its appeal, particularly in respect of high-value patents. For such patents, owners may prefer to obtain a standard European patent and opt out of the exclusive competence of the UPC. Once the nine-month EPO opposition period has elapsed, such patents could only be revoked on a national basis, one state at a time.

As discussed above, patent assertion entities or "trolls" are expected to favor the new system, particularly while it remains unclear whether the UPC will take a patentee-friendly approach, for example via bifurcation. The possibility of obtaining an injunction against an alleged infringer before the validity of the patent has even been considered will be a potent weapon for such entities.

WHEN WILL THE EU PATENT PACKAGE COME INTO FORCE?

The Agreement on a Unified Patent Court will enter into force once 13 contracting member states, including the UK, France and Germany, ratify it or after the "Brussels I" Regulation (No. 1215/2012) on the jurisdiction of the courts in civil matters in the EU is amended to clarify the jurisdiction of the UPC, whichever is the later. The Unitary Patent Regulation will apply from the date of entry into force of the Unified Patent Court Agreement.

At present, Austria, France and Sweden are the only countries to have ratified the Agreement, although it would appear that Belgium, Denmark and Malta will shortly join them. A date of entry into force of 2016, or even 2017, is seen as realistic. However, recent legal challenges by Spain still have the potential to derail the package.

GOOD INTENTIONS TINGED WITH PRACTICAL CONCERNS

While there does appear to be a large degree of political goodwill behind the EU Patent Package, the likely impact of the new system, and when it will come into force, remain uncertain.

The theory and intent behind the new system may be good, but there are areas of concern. The potential appeal of the new system to "trolls" is alarming some and large numbers of patent owners may elect to opt out of the exclusive jurisdiction of the UPC, particularly in respect of high-value patents, to avoid the risk of simultaneous revocation in all of the participating member states. The cost of the new system, in particular the cost of renewal fees and litigation before the UPC, are also a significant concern. Finally, there is apprehension regarding the quality of the decisions that will come out of the UPC. However, given the close involvement of Europe's top judges, and the long and distinguished history of European law, there is hope that the UPC will deliver on its promise to defend "against unfounded claims and patents", "enhance legal certainty", strike "a fair balance between the interests of right holders and other parties" and allow for "proportionality and flexibility". •

Facilitating generic drug manufacturing: BOLAR EXEMPTIONS WORLDWIDE

By Anthony Tridico, Partner, Jeffrey Jacobstein, Associate, and Leytham Wall, European Patent Attorney, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, USA As the global disease burden expands, the need for new, more effective treatments is greater than ever. Investing in drug research and development is, however, a costly, high-risk endeavor. Patents are intended to offer some guarantee of a return on investment, but the patent system is also designed to balance the interests of inventors with those of the public. So, after a patent expires, a patented technology may be freely exploited by anyone; although care should be taken to ensure that there are no other IP rights associated with the technology that could impede practicing an invention in this way. In the pharmaceutical industry, patents can hinder or prevent manufacturers of generic drugs from entering the market. As with the makers of brand name pharmaceutical products, generics manufacturers need to prove the efficacy and safety of their products. They can, in certain circumstances, use elements of the original manufacturer's approval if they demonstrate that their generic version is bioequivalent to the approved medicine, but may have to conduct additional trials on a protected product before its patents expire or are held invalid by a court. The generic manufacturer, therefore, runs the risk of infringing a patent held by a brand name manufacturer even if it does not plan to enter the market until after the patent expires or is found invalid. Generics manufacturers also have to set up and test manufacturing and delivery capacity before entering a market, creating additional risks of infringing a patent held by a brand name manufacturer. To overcome this problem, many countries have put into place legal exemptions (or research exemptions) from infringement for certain acts relating to the development and submission of testing data to a regulatory agency. These exemptions are often referred to as "Bolar" provisions, in reference to a US law enacted to overturn a prior court ruling holding that the US did not provide for a research exemption - Roche Products, Inc. v. Bolar Pharmaceutical Co., Inc., 733 F.2d 858 (1984).

Many nations have put similar exemptions in place, but their nature and scope vary significantly from country to country.

NORTH AMERICA

In the US, the Hatch-Waxman Act established a regulatory framework to encourage the marketing of generic pharmaceutical products. The Act also created a research exemption, indicating that "it shall not be an act of infringement to make, use, offer to sell, or sell within the United States or import into the United States a patented invention... solely for uses reasonably related to the development and submission of information under a Federal law which regulates the manufacture, use, or sale of

drugs or veterinary biological products." 35 U.S.C. § 271(e)(1) ("Bolar exemption"). This provision overturned the Federal Circuit decision in *Roche Products, Inc. v. Bolar Pharmaceutical Co.*, Inc., 733 F.2d 858 (1984), which held that the traditional experimental use exemption to patent infringement (35 U.S.C. § 271(a)) did not apply to pre-market testing done by a generic manufacturer and submitted to a regulatory agency.

While the Bolar exemption provides some protection for generic drug manufacturers when preparing their products for regulatory approval, the statute's contours and reach remain uncertain outside this context. For instance, in *Eli Lilly and Co. v. Medtronic*, 496 US 661 (1990), the Supreme Court held that the exemption also applies to medical devices. Similarly, in *Merck KgaA v. Integra Lifesciences I, Ltd.*, 545 U.S. 193 (2005), the Supreme Court concluded that the exemption broadly protects any pre-clinical testing of patented compounds that is reasonably related to the submission of information to a regulatory agency, and not just late-stage safety and efficacy testing in human subjects. In *Momenta Pharm. v. Amphastar Pharm.*, 686 F.3d 1348 (2012) the Federal Circuit further expanded the exemption's reach to include post-approval activity, even if the information collected is never submitted to a regulatory agency, provided that the agency requires such testing or the retention of records for possible inspection.

Despite this seemingly broad scope of protection, the exact contours of the US exemption remain in flux and any inquiry into its applicability remains highly fact-specific. Post-market approval studies intended to monitor patients receiving an approved product, for example, may not qualify for protection under the exemption if the monitoring is not expressly required by a regulatory agency, is routine, or continues long after marketing approval. Similarly, it remains unclear when early testing of a product (such as high throughput screening of compounds, or *in vitro* assays) would satisfy the requirement for testing conducted "for uses reasonably related to the development and submission of information" to a regulatory agency. Thus, companies relying on the exemption are advised to exercise caution and to consider alternative protection, such as that afforded by the common law experimental use exemption.

Bolar exemptions are also available in Canada and Mexico. The Canadian Patent Act (Section 55.2(1)) notes that "[i]t is not an infringement of a patent for any person to make, construct, use or sell the patented invention solely for uses reasonably related to the development and submission of information required under any law in Canada, a province or a country other than Canada that regulates the manufacture, construction, use or sale of any product." Canadian courts have broadly interpreted this exemption to apply when a patented invention is used solely for the development and submission of information required by a regulatory authority. As in the US, the Canadian courts have extended the Bolar exemption to encompass material that is not submitted to a regulatory authority but is subject to potential inspection, including samples and data stored pursuant to regulatory requirements.

Mexican law similarly provides for a Bolar-like exemption, although such protection is available only when a patent is within eight years of expiration for a biologic product, or within three years for a small molecule.

CENTRAL AND SOUTH AMERICA

Although many Central and South American nations do not have clear research exemptions in their national laws, some have put in place Bolar exemptions. These include Brazil (Law No. 9.279/96), Chile (Chilean Patent Law, Article 49), Colombia (Andean Decision 486 and Decree 0729), Dominican Republic (Law 20-00, Article 30), Peru (Decree 1075, Article 39), and Uruguay (Law No. 17.164, Article 39). Argentina may provide a Bolar-like exemption under article 8 of Law 24766, which governs data confidentiality, but this remains to be tested in the courts. Member states of the Andean Pact have the option of establishing a Bolar exemption in their national legislation, but some states have yet to enact clear exemptions.





ASIA

With the notable exception of Hong Kong, China, Bolar-type exemptions are prevalent in the national patent laws of many Asian countries. As in the Americas, the scope of exemption varies significantly from state to state. For example, Pakistan (Section 30(5)(e) of the Patents Ordinance 2000) provides Bolar-type provisions for research intended to be submitted to authorities in the country, while Section 107(a) of the Indian Patents Act more broadly exempts acts relating to the development and submission of information required by law "in India or in a country other than India." A similar far-reaching exemption is also seen in the Philippines in the Universally Accessible Cheaper and Quality Medicines Act of 2008 (Section 72(4). In contrast, the scope of the Bolar defense is narrower in Singapore (Singapore Patents Act, Section 66(2) h), and is limited to clinical testing to meet requirements for marketing approval in that country alone.

The types of products covered by Bolar-like legislation also vary across the region. Some countries limit the exemption to drugs and medicines — such as Malaysia (Patents Act 1983, Section 37(1A)), the Philippines (the Universally Accessible Cheaper and Quality Medicines Act of 2008, Section 72(4)), and Thailand (the Patent Act, Section 36(4)). Others, such as Viet Nam extend the exemption to any product requiring regulatory approval (Article 125.2.a of the IP law), while Chinese law (Chinese Patent Law, Article 69(5)) expressly covers a "patented medical apparatus" as well as a patented medicine.

In Japan Bolar provisions have been shaped by case law interpretation of the traditional experimental use exemption provided for by statute. The Japanese Supreme Court judgment on April 16, 1999, held that a clinical trial necessary to submit a new drug authorization could correspond to the statutorily exempted actions for experimental or research purposes, and thus would not be considered patent infringement.

In Western Asia, Israel's Bolar provision (Israel Patents Act, Section 54A) extends to acts undertaken to obtain regulatory marketing approval in Israel or in another country whose law also includes a Bolar-type defense

EUROPE

The Bolar exemption in European Law is governed by Directive 2004/27/EC. Article 10(6) provides that: "[c]onducting the necessary studies and trials with a view to the application of paragraphs 1 to 4 [i.e bioequvalents and biosimilars] and the consequential practical requirements shall not be regarded as contrary to patent rights or to supplementary protection certificates for medicinal products." Notwithstanding the EU Directive, the exact language, scope and interpretation of Bolar exemptions vary across Europe. Generally speaking, countries can be divided into two categories. Those countries where the exemption is limited to activities relating to marketing approval of generic medicines, bioequivalents and biosimilars, such as the UK (at the time of writing), Belgium, Cyprus, Ireland, Netherlands and Sweden. And those countries that more broadly exempt any act required for marketing approval, as well as acts relating to innovative medicines, such as Austria, Bulgaria, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, and Spain, as well as non-EU states Norway and Switzerland. Furthermore, many countries in Europe (such as Austria, Germany, Denmark and Italy) also exempt acts aimed at marketing authorizations outside the EU or European Economic Area (EEA).

Until recently, European case law in this area was sparse. The Polish Supreme Court issued a decision on Bolar exemptions on 23 October 2013 (CSK 92/13, Astellas v Polypharma). The Court held that a third party supplier of an active pharmaceutical ingredient (API) to a generic manufacturer infringed the rights of the patent holder, because it was unable to control whether the purchaser used the API for the purposes covered by the Bolar exemption. In the corresponding German proceeding, the Düsseldorf Court of Appeal referred questions on this same issue to the Court of Justice of the European Union (CJEU) (C-661/13). In particular, the German court has asked the CJEU to rule on whether a third party supplier can be exempt from patent infringement and under what conditions, particularly whether the third party supplier must take action to ensure the API is only used for the purpose of obtaining regulatory approval. This is a crucial question for API suppliers and the European generic industry who are keenly awaiting the CJEU's decision. While legal uncertainty about the scope and interpretation of Bolar provisions across the European Union remains, the establishment of the Unified Patent Court (UPC) suggests that some degree of additional harmonization across the region may not be far away. Article 27 of the UPC Agreement includes Bolar provisions and its wording appears to restrict the exemption to generic medicines, bioequivalents and biosimilars. Of course, in non-EU states such as Norway and Switzerland, and in non-UPC states such as Poland and Spain, those potential restrictions would not apply.

In some countries outside the EU, notably, Russia and Ukraine, there are no specific Bolar-like exemptions in national law (although Russian case law may provide some protection). Thus, efforts to obtain market approval, including conducting pre-market clinical trials, may be regarded as patent infringement in those countries.

AUSTRALASIA

Both Australia (the Australian Patents Act 1990, Section 119A) and New Zealand (New Zealand Patents Act 1953, Section 119A; shortly to be replaced by the new Patents Act 2013, Section 119A) have Bolar exemptions in place. Australia's provisions expressly state that medical or therapeutic devices are not included under the exemption, but acts undertaken to obtain regulatory approval in a foreign country are. The exemption does not apply to uses involving the exportation of goods from Australia, except where the term of a pharmaceutical patent has been extended. Similarly, New Zealand legislation exempts acts related to the development and submission of information required under New Zealand law or the law of any other country, but more broadly covers any regulated product, and includes acts of sale for such products within the exemption.

This review demonstrates that, while a large number of countries have Bolar-type exemptions in place, their scope of protection varies significantly across different states. Practitioners and companies intending to rely on the Bolar exemption should take these nuances in protection into account when undertaking research and testing activities in different jurisdictions. \blacklozenge

IP Litigation: What Place for PATENT DRAWINGS?

Bernadette Marshall, NBG Drafting and Design, USA



Photo: NBG Drafting + Design



Photo: NBG Drafting + Design

Effective graphics can highlight subtle differences or similarities between the invention that is the subject of a lawsuit and the prior art.

In today's ever more complex technology landscape, the number of patent lawsuits is on the rise and patent litigation costs are skyrocketing. This is especially true in the United States where, in 2012, according to a recent study by PricewaterhouseCoopers over 5,000 patent lawsuits – an all-time record – were filed, each costing on average around US\$2.8 million. Within this setting, companies should not underestimate the importance of using simple, clear and precise illustrations, not only to enhance their chances of obtaining a patent in the first place, but more importantly to defend their rights in the event of litigation.

Patent drawings – graphical representations of a given technology and how it functions – are an integral and essential part of the process of applying for patent protection (with the exception of chemical compounds). An invention is often more easily explained by drawings than by lengthy written explanations. Accurate, clear drawings strengthen and enhance patent applications (see *www.wipo.int/wipo_magazine/en/2010/02/article_0008.html*) making it easier for patent examiners to understand a technology and its associated claims. They can also prove invaluable in the event of a dispute. Whether a right owner is pursuing an infringer or defending a patent, drawings can help educate a mediator, an arbitrator, a judge or a jury and help clinch a favorable court decision. Whether deciding on appropriate damages or negotiating a settlement, a well-defined patent, supported by meticulously prepared drawings, enables the owner to obtain the best result possible.

Litigation is, of course, the worst case scenario. It is preferable to deter potential infringers before they even get started. A patent that is clear and unambiguous, with professionally prepared patent drawings may make an infringer think twice about copying an idea. The earlier an infringer is deterred the better it is for the patent owner.

However, if a case does go to trial a patent application containing accurate and clear patent drawings is critical insofar as it helps the judge and members of the jury to understand the patent owners' claims. In many jurisdictions the jurors do not take trial exhibits into the jury room but will often have a copy of the patent document containing a complete set of drawings. That said, it is not always recommended to simply enlarge a patent drawing because what may be clear to a patent examiner may not be clear to a mediator, arbitrator, judge or a jury. Detailed and precise patent drawings make it easier to generate graphics for the purposes of a trial or arbitration or mediation. If patent drawings are initially created using computer-aided design and drafting (CADD) software (most patent drafters use CADD), the files can, as a rule, be used to prepare graphics without having to recreate them from scratch, saving time and money.

GRAPHIC SKILL

Many patent drafters are themselves skilled in creating graphics for alternative dispute resolution (ADR) or litigation purposes. The patent drafter who created the drawings for a specific patent application in the first place will already be familiar with the invention and will spend less time preparing any graphics required for litigation purposes, saving the patent owner additional expense.

Skilled patent drafters have many creative ways of producing visually pleasing and persuasive exhibits that are easy to understand. The more complex and less defined the case, the more valuable the drafter will be in making constructive proposals. The technique employed to present the information, be it in the form of high-tech 3-D animation or low-tech blow-up charts, depends, to a large extent, on the purpose for which that information is required. For instance, is the aim to present the patented invention clearly or is it to explain highly technical aspects of the patent in more detail?

In the event of an infringement lawsuit against your product, patent drawings featuring known patents, products or publications prior to the filing date of the other party's patent could help support your case. The size, clarity, and position of the featured elements as well as the use of color to highlight key elements can be very persuasive. Consistency in the presentation of an item or product can strengthen recall.

Effective graphics can highlight subtle differences or similarities between the invention that is the subject of a lawsuit and the prior art. Many options are available when it comes to deciding how best to portray evidence in support of a case. Cost, however, can be a determining factor, so it is important to obtain a detailed proposal up front.

OPTIONS AVAILABLE INCLUDE:

- Charts and graphs to simplify complex information and make it easier to understand;
- Timelines to display events in chronological order;

- 3-D animations to enable better understanding of how a technology works;
- Photorealistic animations to highlight product similarities and differences;
- PowerPoint presentations, enlargements, photographs, working models and interactive exhibits.

When it comes to design patents – a type of design right under US law – in the US, infringement is typically determined wholly on the basis of the drawings included in the application; proof of unfair competition is generally not required.

According to United States Patent and Trademark Office (USPTO) guidelines (USPTO: A Guide to Filing a Design Patent Application, § Drawings or Black & White Photographs) "the drawing disclosure is the most important element of the application" and the drawing or photograph in a design patent application "constitutes the entire visual disclosure of the claim". Drawings therefore need to be so well executed that "nothing regarding the design sought to be patented is left to conjecture."

The current test for design patent infringement, known as "the ordinary observer test" used in *Gorham v. White (81 US 511 (1871))*, determines that there is infringement if "in the eye of an ordinary observer giving such attention as a purchaser usually gives, two designs are substantially the same". Design patent litigation is about assessing the design, form and visual aspects of a product. Graphics used in such litigation are an effective means of demonstrating whether two designs are substantially similar or different.

The services of a competent and experienced drafting firm can prove invaluable in securing and defending patent rights. Good patent drawings make for robust applications and sturdy defense when necessary. ◆

On location, filming Sarah Lotfi's short film, *Menschen*, which she hopes to develop into a feature length movie.

INDEPENDENT MOVIE-MAKING: an interview with Sarah Lotfi



By **Catherine Jewell**, *Communications Division, WIPO* Making a career as a film-maker requires painstaking attention to detail, determination, resilience and vision. It can be a tough road to travel. Film directors are typically hired on the strength of their track record making it very difficult for aspiring youngsters to get a foothold in the industry. The only way in which most of them can build up a portfolio of work to attract potential producers and investors is to start off as an independent filmmaker. The award-winning writer, director and producer, Sarah Lotfi, shares her insights and experiences as one such filmmaker.

How did you get involved in film?

I have always been fascinated by film. Growing up, movies were my window on the world.

So far I have made four short films that have gone on to film festivals. *Menschen* (German for people) is by far the most successful. As a student, in 2009, I made *The Last Bogatyr*, a surreal piece that gave a Russian perspective of the Front in WWII, which was successful on the film festival circuit and helped me really make my name as a young filmmaker and gain credibility among crowd funders. The film was a regional winner and national finalist in the 2010 Student Academy Awards film competition run by the Academy of Motion Picture Arts and Sciences.

Building on my experience in making *The Last Bogatyr*, I continued working with what I call historical re-enactors – people who explore new perspectives on historical events – to make *Menschen*. Given my interest in the WWII movie genre, they advised me to read memoirs of the *Wehrmacht*. The WWII genre is well developed and I was searching for a new angle. Drawing on my own experience as the sister of two siblings with severe developmental disabilities, in *Menschen* I explored what happened to those with severe developmental disorders under the Nazis. Instead of focusing on their tragic treatment, I wrote a positive story of hope and humanity amid institutional brutality; a story, which moves beyond stereotypes and which I hope will have a lasting impact. *Menschen* has also made it possible for me to draw public attention to these disabilities.

As much as film is about entertainment, I believe it is also about empowerment. Conor Long, who plays Radek, has Down's syndrome. By casting him in this role we were able to reach out to disability advocacy and support groups. I had a wonderful experience at a film festival recently when a young woman with Down's syndrome came up to me with a beaming smile to tell me she saw herself in the film.

Filmmaking offers a huge opportunity to create awareness and really touch people. It is such a powerful form of communication. I find it incredibly invigorating to write a story and to see it transformed into an audiovisual work. I think any creator will tell you the same.

Why did you film Menschen in German?

I believe filmmakers have a responsibility to be authentic. In a period movie, this means being as true as possible to the identity of the characters represented. That was why we chose to make the film in German. We even engaged a dialect coach to make sure we got the accents right. Authenticity and production value are also hallmarks of the film's producer, Anastasia M. Cummings, who worked closely with me to ensure the film is credible to European audiences.

How long did it take to research and make the film?

From pre-production to locking the cut it took just nine months, in 2012. I am very ambitious as a filmmaker and want to get things done as quickly as possible. *Menschen* was a large undertaking for a short, independent film. On our first day of filming up to 80 people were on the film set for our largest action shot. Shooting elaborate action sequences takes a great deal of detailed planning and coordination. Even the editing is a lengthy process.

What were the key challenges in making Menschen?

Securing funding is always a challenge for independent filmmakers, and is especially difficult when it comes to small film projects, such as *Menschen*. We opted to crowd-fund the film, dividing our funding campaign into three phases. This enabled us to raise smaller amounts of money at different stages of the production process and helped ensure we had a constant flow of cash. Crowd-funding has been used to great effect by iconic filmmakers such as Spike Lee and Zach Braff. It also offers unknown, small independent filmmakers like me, an incredible opportunity to realize their projects.

Filmmakers need to know and build their audiences, and crowd-funding is a useful way of doing this. When you make a film like *Menschen* that appeals to specific audiences, those niche groups are drawn to the film and help build its success.

Independent filmmakers often find themselves in a "catch 22" situation. For example, you negotiate for named talent but the named talent does not want to sign on to your venture because you don't have the financing in place but the financiers will not commit without the producer bringing assets, such as named talent, to the table. So it goes round and round. That is why crowd-funding is such a blessing for the independent world because you can start building an audience that really believes in your project and this gives you something to really negotiate with, even if you are crowd-funding for smaller amounts and not your whole budget.

Independent filmmakers strive to get known talent involved in their work. This opens doors for them to get their work screened not only in a theatrical setting but also on the film festival circuit. It is becoming a trend among "A" list actors to get involved in independent film projects. Some see an independent film with a good script as an opportunity to play outside their type cast and to play characters they would not normally get with a more commercial production. If it fits in with their schedule, they may take a lower rate of pay to embark on a potentially interesting venture.

Why is copyright important to you as a film-maker?

Copyright is critically important to filmmakers and to the filmmaking process. Filmmaking is a collaborative endeavor and copyright keeps that collaboration flowing. Having produced *Menschen* as a short film, we are looking to expand it into a feature format. If we didn't own the copyright in it, we wouldn't be able to do this. Copyright protects the interests of creators and prevents others from using a work without the creator's permission. Unfortunately, in our competitive world people don't always respect the creator. Copyright gives creators the means to defend themselves against the unauthorized use of their work.

What is the role of film festivals?

Film festivals enable filmmakers to promote their work within the industry. There are many different types of film festivals, some focus on international and domestic releases, others focus on different film genres or subject matter and others just celebrate films. At the end of the day, I am just happy to have my work screened in a setting where people can enjoy it. That ultimately goes back to why copyright and licensing are important. For example, if you have a license to use a piece of music in your film but you only negotiated that license for use in the film festival and then you suddenly find you are negotiating a deal for distribution, having to go back to the source to renegotiate the license for that piece of music, can be costly and hinder negotiations. When negotiating licensing deals you want to secure the broadest coverage so you don't have to go back and renegotiate a deal.

What is the future of film?

Transmedia is becoming a big thing. An increasing number of projects are using content to create a more interactive viewing experience across multiple media platforms. The possibilities for exploiting creative content are limitless and offer huge opportunities for reaching new audiences and actively involving them in a story. Take for example, Lance Weiler's short *Pandemic 41.410806-75.654259* which unites film, mobile and online technologies, props, social gaming, and data visualization. The film was a central part of an interactive transmedia *Pandemic 1.0* experience at the Sundance Festival in 2011, during which the audience actively worked together to stop the spread of a fictional pandemic over a period of 120 hours. Interest in this kind of interactive experience is being fuelled, I think, by the video-game generation. Video games have become such a major part of youth culture and the industry is really expanding.

What message do you have for pirates?

I understand why piracy exists insofar as films are not always simultaneously available in the desired formats in different parts of the world. The industry is working hard to address this. But as an independent filmmaker it is so hard to create a film and make a living from it. Our IP rights are the only way we can make





Sarah Lotfi (below) directing Conor Long (above), who plays Radek in *Menschen*. Ms. Lotfi believes film is a very powerful form of communication and is as much about empowerment as entertainment. a return on our investment and respecting these rights is the only way the industry will have any chance to grow.

It really saddens me to see people with camcorders going to theatres, recording movies and putting them online. These recordings are nothing close to what the artist intended. As much as I want people to see my film I really want them to actively support the film economy and that will only happen if piracy goes into decline.

Not so long ago, the only way to experience film was at a theatre, but with so many new viewing devices available today, a trip to the cinema is considered an expensive indulgence. That said, as a filmmaker I want people to see how I envision my work. Seeing a film on the big screen with the proper sound equipment is a completely different experience from watching it on a phone and using ear buds.

Can you say something about the collaborative nature of filmmaking?

While the concept of a film comes from a single artist or group of artists, filmmaking is a joint effort. Different groups of people come on board at different stages of the process to bring the project to completion. It is impossible for a single person to make a film. Orson Wells said a writer has a pen and a painter has a brush but a filmmaker needs an army. He was absolutely right. Directors are only as successful as their ability to work with the film crew and cast. The role of director is exciting, but can be intimidating because there can be so many obstacles to overcome but there is something incredibly validating as a human being to know that you are collaborating with others and that together you are creating a great piece of work. I think that's why I like it.

Is digital technology an opportunity or a threat?

Digital technology is always an opportunity because it makes it possible to create quality work at an affordable price. For example, the digital cinema package (DCP) format makes it possible for filmmakers, like me, to exhibit our films in a large theatre with surround sound in 2k resolution (the equivalent of a film print). The cost of converting digital film to film stock is prohibitive compared to the cost of converting into DCP. Without such advances, low-budget filmmakers would be unable to get their work seen. Digital technologies are lowering entry barriers for new filmmakers and fuelling a boom in our industry.

Who are your favorite directors?

What I like most about the medium is its versatility. No film is perfect. There will always be films to enjoy and to learn from. I really like what Joe Wright did with *Atonement*, *Hanna* and *Ana Karenina*. From the classic pantheon of filmmakers I like Ingmar Bergman's work especially The *Seventh Seal* and Fred Zinnemann's *A Man for All Seasons*.

COPYRIGHT AND FASHION – AUK perspective

By **Iona Silverman**, IP Associate, Baker & McKenzie

Despite its current and future potential importance to the economy, fashion is not awarded the same level of copyright protection as other creative industries.



Designed by Gracie Wales Bonner, winner of the L'Oréal Professional Talent Award 2014.

In 2006, the UK Government formally adopted the term "creative economy" to capture the sense of the wider contribution of the creative industries to economic and social life. Since then, it has increasingly recognized the importance of the creative industries, in particular the fashion industry, as a generator of jobs, wealth and cultural engagement. However, despite its current and future potential importance to the economy, fashion is not awarded the same level of copyright protection as other creative industries.

Insofar as the fashion industry thrives on copycat designs and seasonal product lifespans, some question whether it has any desire or need to invoke copyright. However, if the UK's creative industries are to continue to flourish, protection is paramount. In an age where mobile phone cameras, 3D printers and online shopping combine to snap, recreate and sell knock-off products in the time it takes to display a collection at a fashion show, designers need to be able to protect their works just like other artists.

DOES COPYRIGHT PROTECT FASHION?

Before considering the extent to which copyright protects fashion, a short word on design rights. Why, you may ask, should copyright protect works of fashion when design rights can protect the appearance of a product? This article does not explore the protection offered by registered designs nor does it argue that they are unimportant; rather it probes the extent to which copyright protects fashion.

In principle, every original work is automatically protected under copyright, however, the WIPO-administered Berne Convention for the International Protection of Literary and Artistic Works gives countries some latitude in determining how to protect applied art such as fashion (Article 2(7)). To be protected by copyright in the UK, a work must fall within one of the eight categories set out at s.3 of the Copyright, Designs and Patents Act 1988 ("CDPA"). Logically, a work of fashion should be an original artistic work. Case law, however, does not favor this argument as garments and other works of fashion do not fall neatly into any of the listed sub-categories of artistic works. The most appropriate category, works of artistic craftsmanship, requires a work to be both artistic and a work of craftsmanship.

The meaning of "artistic" has been considered in a number of cases. In *Hensher v Restawhile*, the House of Lords unanimously held that a prototype for a distinctive three-piece lounge suite, which was intended for mass production, was not artistic. The Lords differed in their reasons as to why. Since this case, a baby's cape has been held not to be artistic because there was no intention to create an artistic work and a patchwork bedspread was not deemed to be artistic because although the designs were "pleasing to the eye" they were not sufficiently creative. More relevant still to the fashion industry, sweaters and cardigans were held not to be artistic. Although they had been displayed in the Victoria and Albert Museum, they were

exhibited as examples of developments in fashion rather than as works of art. Most recently the High Court has held that the storm trooper helmets used in the *Star Wars* films were not artistic because their purpose was not aesthetic. The Supreme Court later held that the helmets were not sculptures, and could not be protected in that way either.

These cases suggest judges are reluctant to concede that works of fashion could be artistic. The meaning of "artistic" remains difficult to define; as a general rule it seems the work must be aesthetically appealing to the general population or must have been created as an artistic work.

Demonstrating "craftsmanship" is easier. Knitting and tapestry-making have been treated as crafts (as were the storm trooper helmets). While works of fashion are likely to be considered works of craftsmanship if they are one-off pieces, the position with respect to mass-produced goods is unclear. In *Hensher v Restawhile*, Lord Reid and Viscount Dilhorne said that the requirement for craftsmanship implies that a work must be hand-made whereas Lord Simon held that "craftsmanship" cannot be limited to handicraft; nor is the word "artistic" incompatible with machine production.

Overall, these cases demonstrate that the threshold for showing that a work is one of artistic craftsmanship is high, meaning that garments are not protected by copyright in the UK. Other countries, including France, Germany and the US, do not have closed list copyright systems; because they don't have to attribute works of fashion to a specific category of protected works they enjoy a broader scope of protection.

IS THE UK MOVING TOWARDS AN OPEN LIST SYSTEM?

In France, Germany and the US, any work which is original can be protected by copyright. In France, the threshold for originality is a work which "bears the stamp of the author's personality" and in Germany copyright protects "personal intellectual creations". This is similar to the "intellectual creation" test found in the Software Directive, the Database Directive and the Term Directive of the EU. This test was first used in respect of literary works at a European level in Infopaq, a case decided in 2009 concerning the copyright in a digital news reporting service. The Court of Justice of the European Union (CJEU) held that for a part of a literary work - a newspaper article - to amount to an infringing reproduction, that part must itself be an original work in the sense of being its author's own intellectual conception. In Bezpecnostní softwarová asociace - Svaz softwarové ochrany v Ministerstvo kultury a case relating to copyright in graphic user interfaces, the CJEU held that copyright applies only in relation to a subject matter which is original in the sense that it is its author's own intellectual creation. Later the test was applied by the CJEU in Football Association Premier League and others v QC Leisure and others and Karen Murphy v Media Protection Services Ltd and in SAS v World Programming Ltd.



Designed by Andrew Asai who recently graduated from Central Saint Martins, University of the Arts, London, UK, a world leading center for art and design education. These cases have enabled the CJEU to migrate from a starting point where only computer programs, databases and broadcasts were harmonized works (see above Directives) and all other subject matter was protected as set out in national legislation, to fully harmonizing the notion of a work, so that anything which is the "author's own intellectual creation" is protected. This is, of course, inconsistent with the closed list approach in the CDPA. Lionel Bently, of Cambridge University, has critically defined this process as "harmonization by stealth". If the harmonized notion of a protected work is implemented in the UK, this could dramatically expand the scope for fashion designers to use copyright to protect their works.

The test was considered in relation to originality by the High Court in *Newspaper Licensing Agency v Meltwater.* It found that the test for originality had been "re-stated but for present purposes not significantly altered by *Infopaq*". This was confirmed by the Court of Appeal. Subsequently in *Temple Island Collections Ltd v New English Teas Ltd*, the "red bus case", the then Patents County Court (now the Intellectual Property and Enterprise Court) was asked to consider whether copyright subsisted in the composition of a photograph of a red bus travelling over Westminster Bridge, against a monochrome background. It was common ground at trial that, following *Infopaq*, copyright may subsist in a photograph if it is the author's own "intellectual creation". As the works in this case were photographs, the analysis is in line with the Term Directive, however it is interesting that the court made reference to *Infopaq* rather than the Term Directive when stating the test.

These cases indicate that the harmonized test for originality now applies in the UK; it therefore seemed likely that the harmonized notion of a work would also apply. However, when *SAS Institute v World Programming Ltd* returned from the CJEU to the High Court, Mr. Justice Arnold held otherwise saying that just because something was an intellectual creation it was not necessarily a work. The Court of Appeal dismissed the subsequent appeal but failed to address this point, leaving open the question of whether the intellectual creation test defines a protectable work in the UK.

PROTECTION IN THE US

In the US, original works of authorship are protected by copyright. The test is whether they contain a "modicum of creativity". One of the main differences in the US is that the US Copyright Office operates a voluntary registration system for copyright – in line with the Berne Convention (Article 5(2)). Federal registration presumes ownership and validity, and crucially is necessary to file an infringement action. US law also provides for a fair use exception which is broader than the fair dealing exceptions seen in Europe. Fair use is an old doctrine which was codified by s.107 of the Copyright Act 1976. The question of whether use is fair is determined on the facts of each case, however the general principle is that the use must add to society or be "transformative". The US system therefore allows for works of fashion to be more easily protected than in the UK, and for registration, enabling designers to publically stake a claim in their designs. However it also permits a broader use of protected works before such use is deemed infringing.

The Innovative Design Protection Act, more commonly known as the "Fashion Bill", was originally introduced to Congress in 2006, however 2012 saw its sixth, and likely final, failure to make law, meaning that legislative change in the US is unlikely any time soon.

PERFUMES

If all "intellectual creations" were protected by copyright in the UK an example of a product that might benefit from protection is perfume – a global multi-billion dollar industry. While trade mark law and passing off may serve to protect a perfume's name and packaging (and even use of descriptors of the scent) it is not currently possible, in the UK, for fashion houses to protect the perfume itself.

In other jurisdictions perfumes are already protected by copyright. In 2006, in *Lancome Parfums v Kecofa BV*, the Dutch Supreme Court held that *Trésor* by Lancôme was protected by copyright (see *www.wipo.int/wipo_magazine/en/2006/05/article_0001. html*). Dutch copyright law, which like French law follows a civil law tradition, therefore protects original works which bear the stamp of the author's personality. For a creation to qualify as a protected work, it suffices that it be expressed in a manner "perceptible to the senses". In this case, the Dutch Supreme Court concluded that while a perfume's scent was "too fleeting and variable and dependent on the environment," to be protected by copyright, the liquid making up the perfume was "sufficiently concrete and stable" to be considered a work. Since the liquid satisfies the perception requirement under Dutch law and perfume is a creative composition, it may be protected by copyright.

In the same year, the French *Cour de cassation* held that perfume could not be protected by copyright as it was not sufficiently creative. In *Bsiri-Barbir v Haarman & Reimer*, the *Cour de cassation* ruled that perfumes are not eligible for protection under French copyright law because they "are a product of the application of purely technical knowledge and lack, therefore a discernible association with the individual personalities of their creators." The court was of the view that perfume makers were artisans, or craftsmen, rather than artists. It is ironic that in France a work is not protected if it is a work of craftsmanship whereas in the UK designers must try to demonstrate exactly the opposite. The *Cour de cassation* has since confirmed, in *Beaute Prestige Int'l v. Senteur Mazal*, that French copyright does not protect perfumes.

Notwithstanding the inconsistencies surrounding the protection of perfume, fashion houses would find it easier to use copyright to protect works of fashion if the requirement that a copyright work fall within one of the eight categories set out at s.1 CDPA were abolished. This would be a radical change to copyright law in the UK, but it is a change which is currently a real possibility.

In the UK, the political climate and the application of recent CJEU case law combine to create the potential for copyright law to change dramatically. If a judge were to confirm that, following *Infopaq*, any work which is the author's own intellectual creation is protected under English law this would open the door for fashion designers to argue that shoes, hats, clothes, perfume and make-up should all be protected by copyright. It seems fair, given the creative and original nature of works produced by the fashion industry, that copyright should extend in some form to protect fashion. It is up to the fashion industry to mould that argument in its favor and to maximize the opportunity presented by the current uncertainty surrounding the definition of a copyright work.

To stay ahead of the game in fashion, the law in the UK needs to be updated; otherwise the UK's young designers and fledgling businesses may choose to launch in more favorable jurisdictions. ◆

ONE YEAR ON: IP Australia's Regional Patent Examination Training Program

By **Fatima Beattie**, Deputy Director General, IP Australia In April 2013, IP Australia embarked on developing and delivering an intensive online training program to participants in different countries and time zones – a challenge, but one worth pursuing based on the benefits already being realized.

Launched with the support of the ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA) Economic Cooperation Work Programme (ECWP), and the World Intellectual Property Organization (WIPO), the Regional Patent Examination Training (RPET) Program had an inaugural intake that included eight examiners from Indonesia, Kenya, Malaysia, the Philippines, Kenya and the African Regional Intellectual Property Organization (ARIPO).

Traditionally, patent examiner training has been undertaken on an *ad hoc* basis, over short periods of time and face-to-face; an approach that does not provide for indepth training and knowledge transfer. In light of this, IP Australia decided to develop a new learning experience that creates a community of learning backed-up with a support network.

The RPET program uses e-learning technology to provide modern, comprehensive and intensive competency-based training for patent examiners from different national IP offices. The training material is based on IP Australia's existing training framework, introduced several years ago to improve the quality and consistency of examination output, and has a focus on search and examination to international standards in line with the Patent Cooperation Treaty (PCT).

Trainees advance through the program on the basis of their progress rather than according to an artificial trainer-based timeline. They are periodically assessed against defined skills sets and standards of practice. Graduates of the RPET Program will have consistently demonstrated the application of their skills and knowledge to their own work.

Patricia Kelly, its Director General, noted that IP Australia has, for many years, been an active contributor to the development of patent examination capabilities around the world.

"We have delivered training programs, either by ourselves, or in partnership with other IP offices, including WIPO. However, these traditional training programs have been delivered over a short period of time, usually one or two weeks."

"These kinds of time constraints mean that we have only been able to address a few of the skills necessary for world class patent examiners. This new style allows us to take this one step further."

"We have taken our training that is conducted at IP Australia, with our own staff, and turned this into a collaborative distance based learning program."



The Program helps enhance the consistency and quality of

ONE YEAR ON

WIPO Director General, Francis Gurry congratulated IP Australia on the success of the RPET Program, stating that he had "always been convinced that this was an important initiative for providing a targeted and results-oriented approach in building patent examination capacity in developing countries and least-developed countries. This has been clearly confirmed through the positive feedback that WIPO has had from the two initial beneficiaries in Africa of the program."

patent examination in participating offices, enabling them to boost their examination methods to international standards.

"They have all lauded the uniqueness of the Program and how beneficial it has been for them in terms of the high standards, quality and excellence of content."

On RPET's first anniversary, Ms Kelly commented that the Program "has illustrated that, with the use of modern technology, the sharing of knowledge no longer needs to run on an *ad hoc*, face-to-face basis. It can now be coordinated easily and effectively, allowing offices to share their knowledge in a more consistent way."

Ms Kelly added that "feedback received from the participants in the program has been very positive. Some offices have indicated that the structure of the Program with the involvement of both trainees and local supervisors makes it easier to implement positive change within their office. Some offices are considering modelling their own domestic training on the RPET Program approach."

EFFECTIVE SUPPORT

Dato' Azizan Mohamad Sidin, Director General of the Malaysian Intellectual Property Office (MyIPO) said that "the RPET Program has helped inform other training programs that are being developed in the ASEAN region."

Participants from the inaugural Regional Patent Examination Training Program that began in April 2013 with IP Australia delegates.

MyIPO is leading the development of an ASEAN project called "Capacity Building for Patent Examiners – An Ideal Training Model" that is built on the principles of the RPET Program. "We have been able to leverage the good work of IP Australia's RPET Program to assist in the development of an ideal training model, with the similar aim of RPET, to create a more consistent and comprehensive approach to training and improving patent examination standards in the region," Dato' Azizan added.

NOW WHAT?

A second intake of trainees started the Program in March 2014. The 15 participants hail from ARIPO, Indonesia, Kenya, Malaysia, and the Philippines, as well as Thailand and Vietnam.

"The 2014 intake has been made possible by funding provided by ASEAN, and WIPO continues to support African participation in the Program," Ms Kelly said.

"We are very grateful for the financial support the RPET Program has received as it enables IP Australia to extend the Program to more participants." •



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