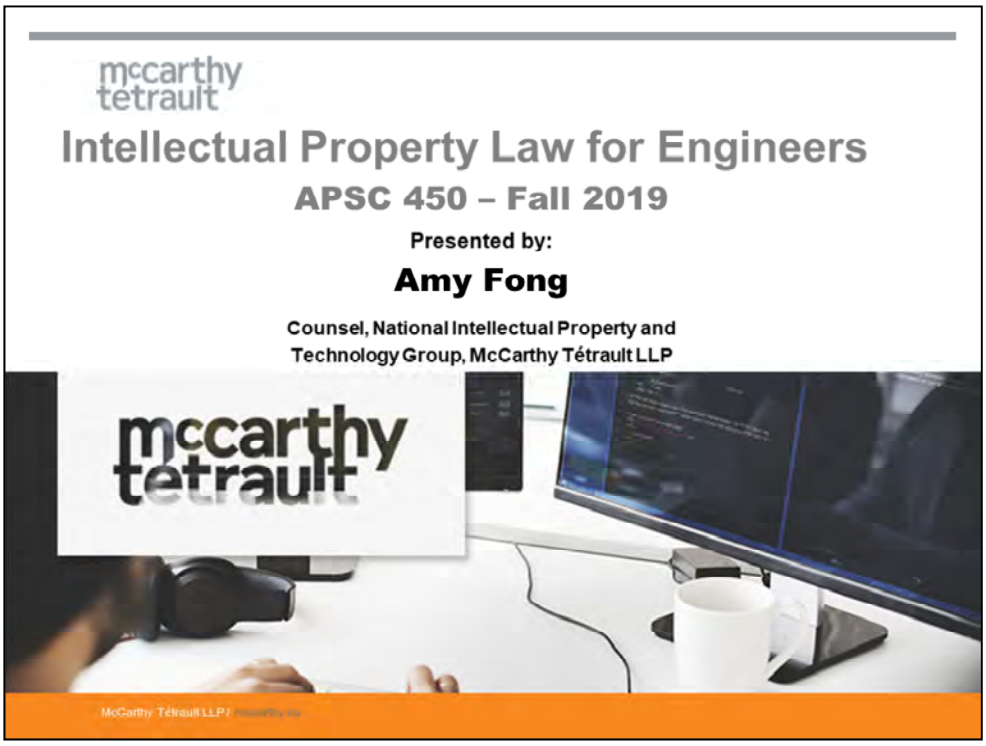
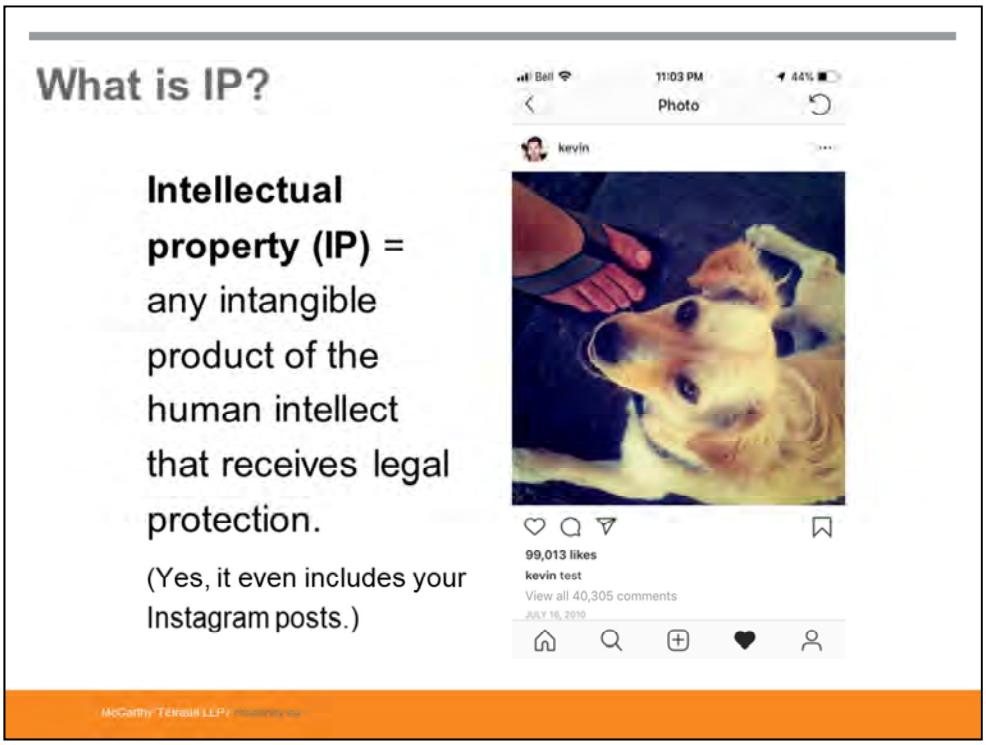


Hello. My name is Amy Fong. I am an intellectual property lawyer, and a patent and trademark agent with the firm of McCarthy Tetrault. Prior to studying law and becoming a lawyer, I received a Bachelor of Applied Science in Engineering Physics from UBC. I am happy to be sharing some insights with you today on the topic of intellectual property law.



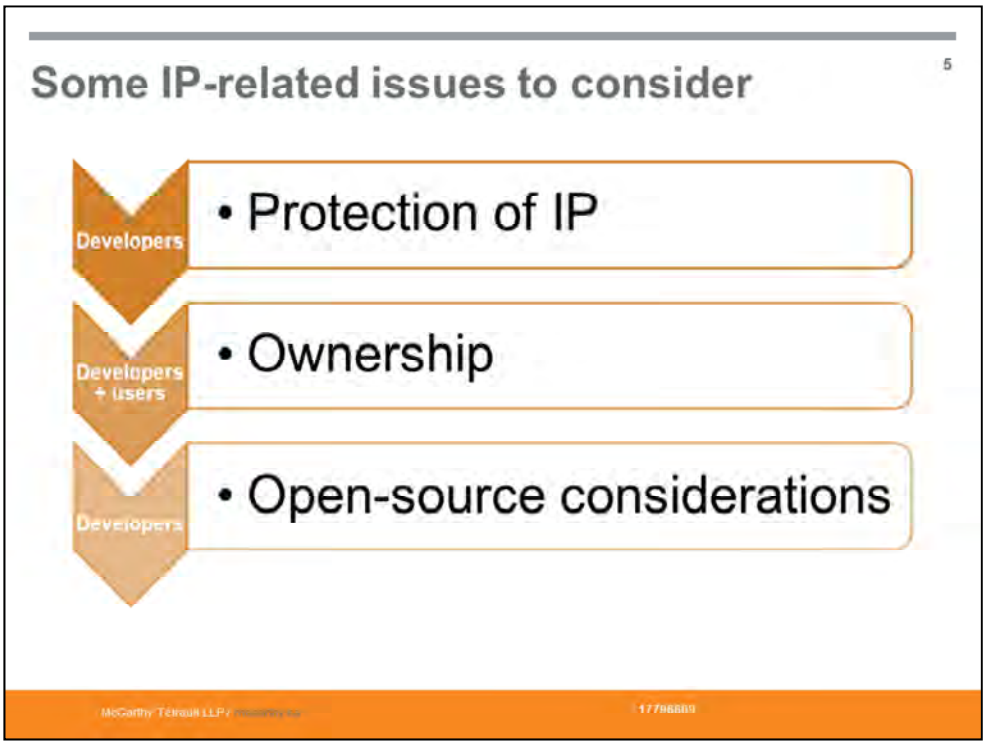
• So first off, what exactly is intellectual property, or IP, and why should we care about it?

• IP is a type of asset which is recognized to have value, and therefore receives legal protection. More specifically, IP is a non-tangible product of the human intellect, and is considered to be a form of intellectual capital. So, anything that you "create" could potentially be IP, including even your own Instagram posts, and there are laws in place to protect the creator's rights in that IP. IP is often misunderstood because there are so many different types of IP, governed by applicable contracts and a complex set of laws which are different in each country. So, using Instagram as an example, contrary to what many people believe, it is actually a violation of copyright law to re-post another Instagram user's posts without their permission. Simply re-posting with attribution to the source does not get you around that requirement. If you want to be in compliance with the law, the best practice when dealing with other's posts is to contact the content owner to request and obtain their permission to share their content on your feed.

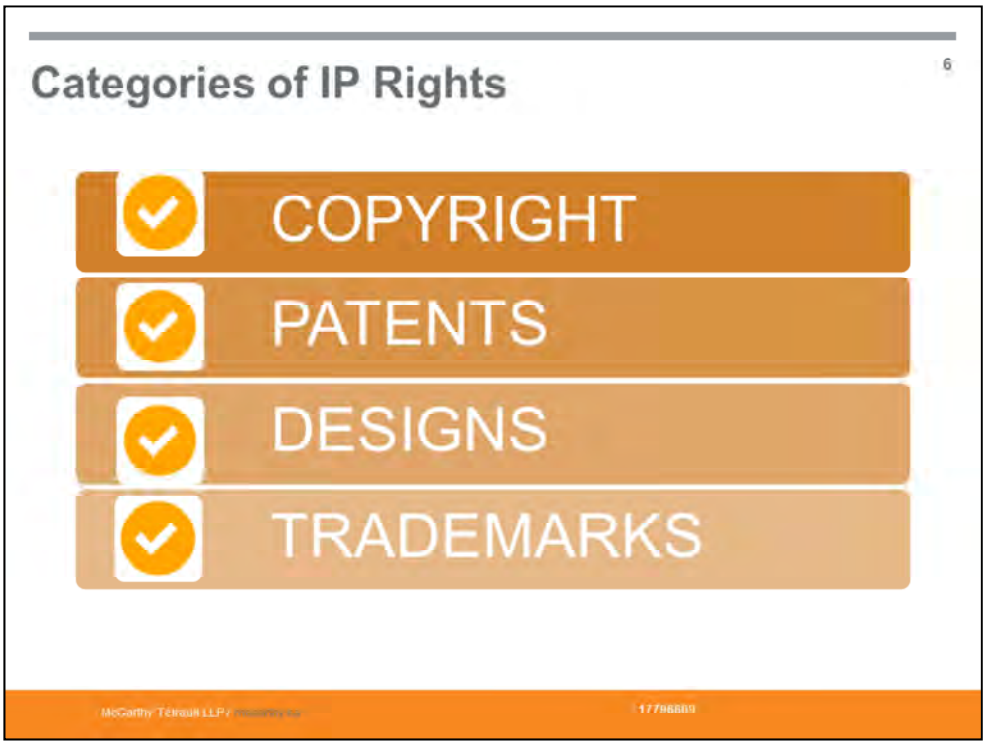
•Non-tangible assets, such as IP, are becoming increasingly valuable to companies, because innovation is accelerating in every sector. It is estimated that on average, about 85% of the value of a business is tied to its IP. Thus, because so much is invested in IP, it is important to develop a strategy around IP. As stated by Jim Balsillie, a co-founder of Research in Motion, "Innovation without a national IP strategy is philanthropy. You invent it you and invest in it, and others get the benefits"

• As seen here, aspects of an IP strategy can provide both defensive and offensive advantages. Some aspects of an IP strategy can be used defensively as a shield, to protect your business against being sued for IP infringement. For example, before engaging in any business activity that might involve the use of another person's IP, it is best practice to do your due diligence by conducting searches and assessing the risks of infringement or other problems and determining a way forward that would minimize those risks. Other aspects of an IP strategy can be used offensively as a sword. For example, patents can be obtained as a form of legal protection for inventions. These patents can support an innovative culture and allow a company to monetize its IP assets by preventing others from copying its inventions without a license. While patents are generally considered part of an offensive strategy, patents can also be used by companies as part of a defensive tactic – the idea is that if another company is suing you for patent infringement or threatening to do so, you can say, I've got some patents too, and I'll sue you right back. Those cases often result in a settlement between the parties based on a cross-licensing deal. Alternately, some companies choose to patent their invention simply to prevent others from being able to patent it for themselves.

It is important to keep in mind that IP rights are territorial. This means that IP rights apply only with the borders of the country in which the rights have been obtained. You cannot enforce your IP rights beyond those borders. If you obtained a Canadian patent, you can only complain against others who are making, using or selling your patented invention in Canada. If you want patent rights to prevent others from making, using or selling your invention in countries outside of Canada, you have to apply for patents in those countries.

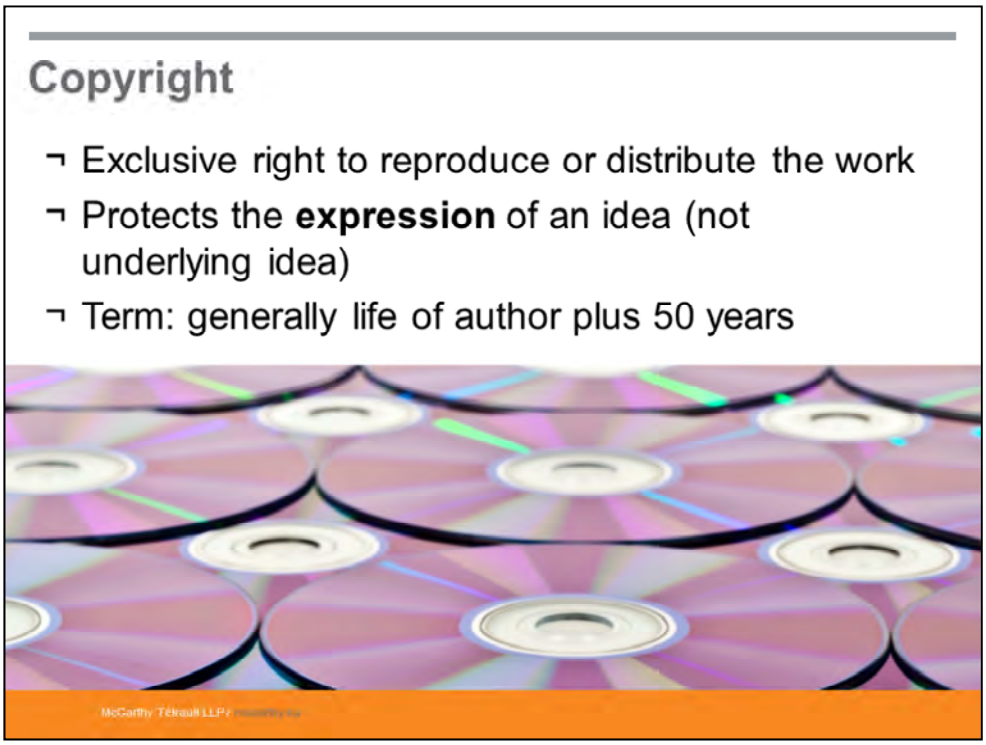


Legal issues can arise any time you are creating or using IP. Some of the IP-related issues which I will touch on in the next slides include: how to protect IP assets (which is relevant to developers of IP generally), IP ownership considerations (which are relevant to developers, as well as users who may wish to use the IP), and open-source considerations (which are relevant to software developers in particular, who need to use open-source code to generate their software applications). I will weave a discussion of these issues into the categories of IP rights which I will be going over in the next slides.



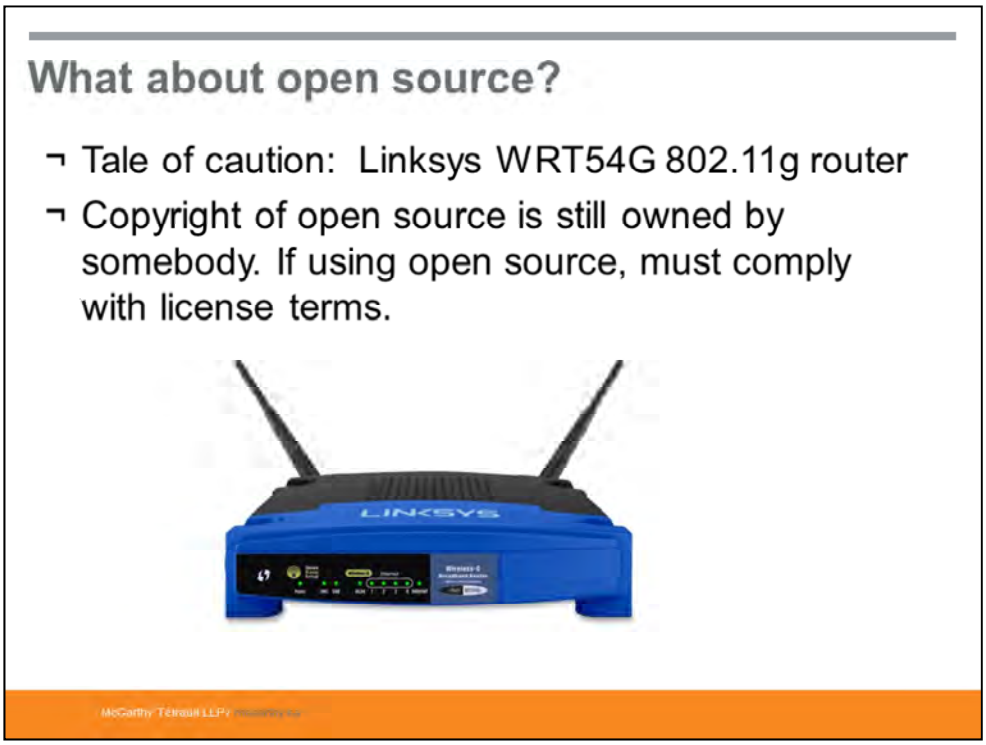
The categories that I will touch on are: copyright, patents , designs and trademarks.

The first category that I'll be addressing is copyright. Copyright exists in every original literary, dramatic, musical and artistic work that you create. Software and technical documentation are protected under copyright, because they are considered literary works.

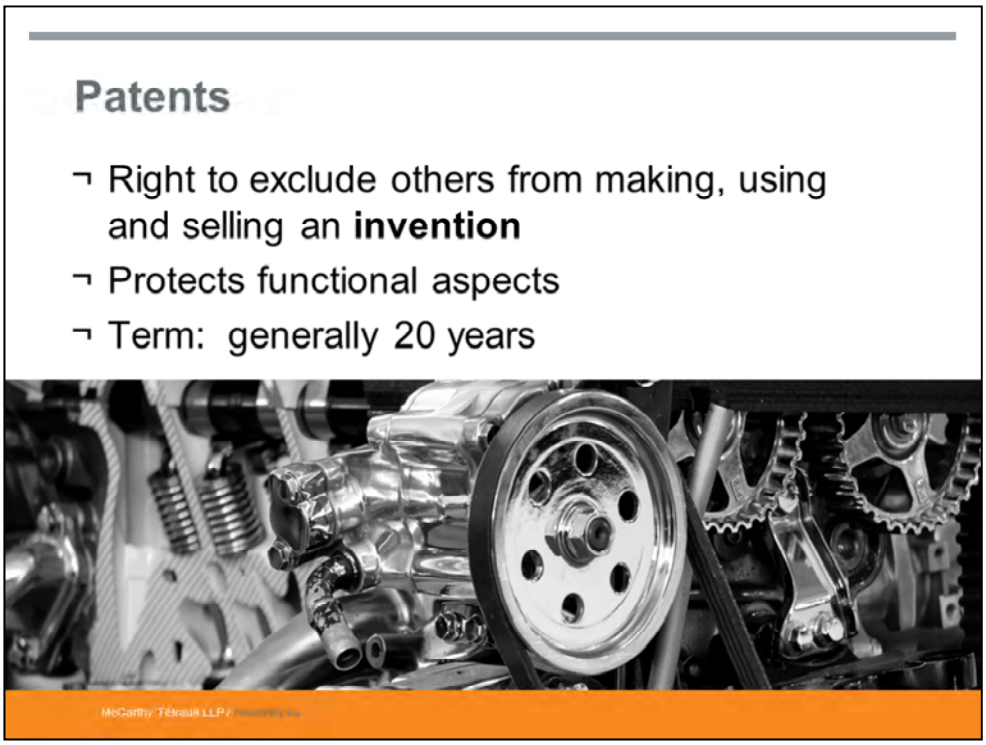


Copyright in a work means that the owner of the copyright has the exclusive right to reproduce or distribute the work, and to authorize others to do so. Copyright protects the expression of an idea, not the underlying idea itself. Thus, if you write software to implement a particular algorithm that you've developed, copyright laws would prevent others from making a copy of your software. However, copyright laws would not prohibit a competitor from writing their own software, perhaps in a different programming language, to implement the same algorithm and achieve the same functionality as your software. If you want to stop that from happening, you need to get a patent on your software.

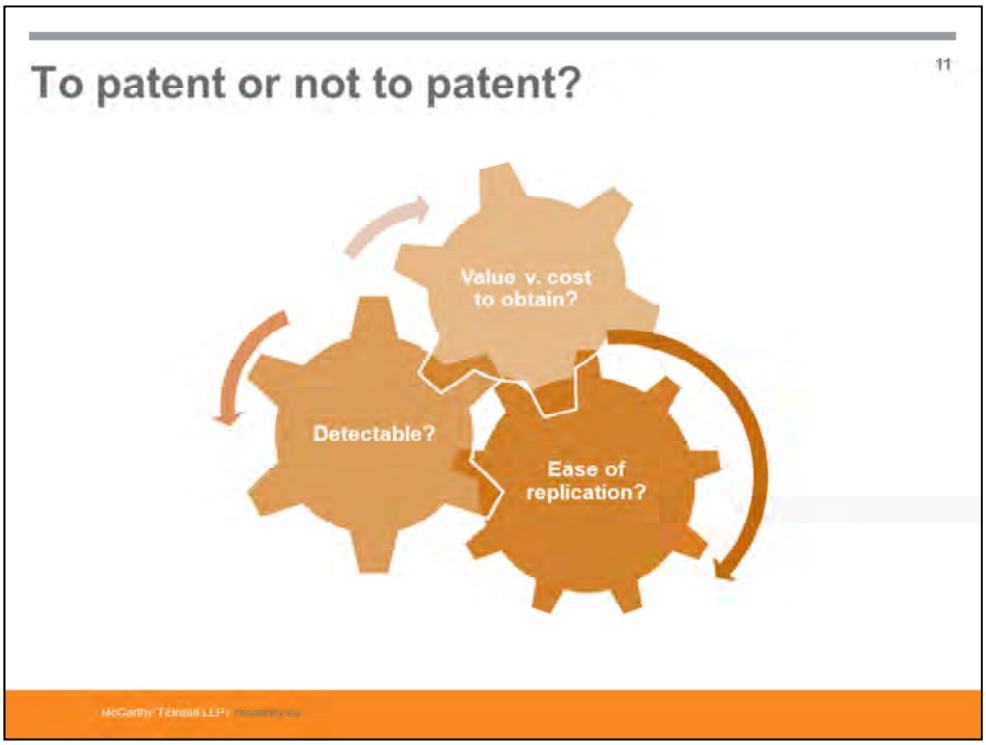
Unlike most other categories of IP, you don't need to apply to the government for copyright protection; the rights are automatically conferred upon the original creation of the work. The term of protection in Canada is generally the life of the author plus 50 years. While registration is optional, registering your copyright in Canada can provide some benefits, and in the United States, you effectively need to register your copyright with the United States copyright office in order to sue for copyright infringement.



I'd like to discuss a cautionary tale that demonstrates how copyright laws can catch even sophisticated companies off-guard, in the context of open source code. Linksys had a WiFi router that included a Linux kernel and other GPL (or General Public License) code. GPL is considered a "viral" type of open source license because any software program which you create that uses code distributed under the GPL terms must also carry the GPL terms. Somehow some GPL code in firmware had made it into the router because Linksys had acquired the firmware from another company, which in turn had outsourced the development of the firmware to an overseas developer. After Cisco's acquisition of Linksys in 2003 for 500 million US dollars, there were complaints that Linksys was violating the GPL terms in not providing the source code that it had used in its router, which is a requirement under the GPL terms. After significant pressure, Linksys finally released the source code of its router. To avoid open source headaches, and to ensure compliance with copyright laws, the best practice is to conduct open-source audits from time to time to determine which open source pieces have made into your software. This is particularly important if many parties are contributing to the development of the software and you do not have control or oversight over what everyone is doing. It is also good to have in place an open source use policy and make sure your software developers are in compliance with that policy.



Moving on to patents, patents are a form of legal protection preventing others from making, using or selling an invention. An invention is defined in the Canadian Patents Act to be any new and useful art, process, machine, manufacture or composition of matter. Patents are costly to acquire, but can be very valuable, in establishing a monopoly around your invention. However, it is important to bear in mind that a patent is a prohibitive right only. It does not give you a positive right to practice your invention. So if you make improvements to a patented invention, and obtain a patent to your improvements, you would need a license from the owner of the base patented invention in order to practice your patented improvements.

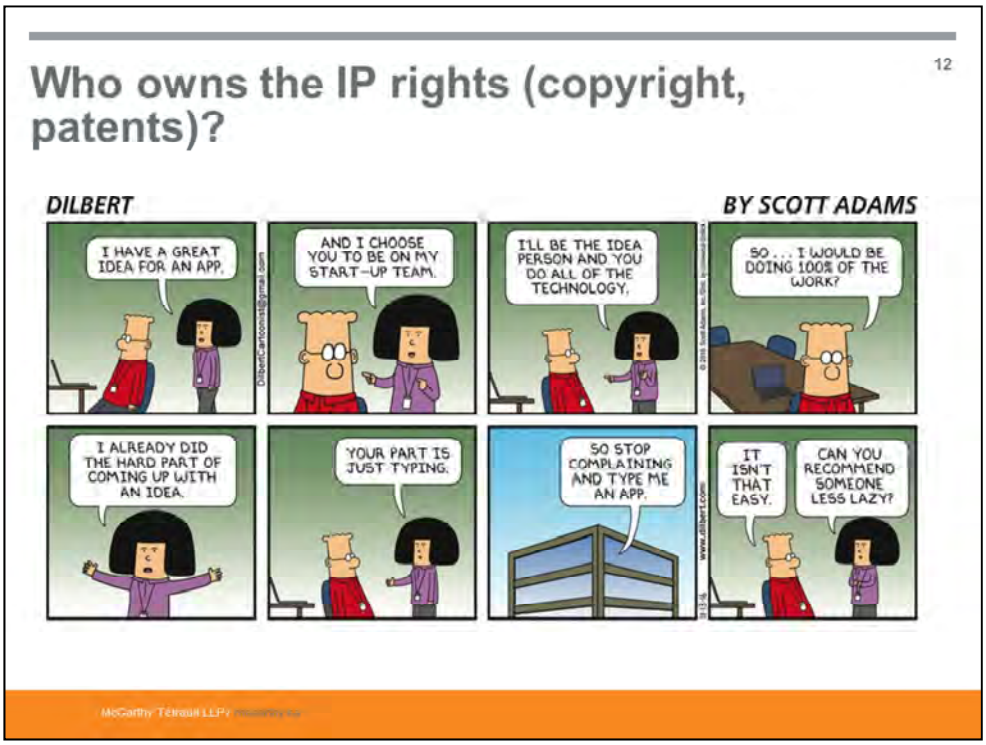


To decide whether or not to patent your invention, you need to perform a cost benefit analysis and consider detectability and ease of replication.

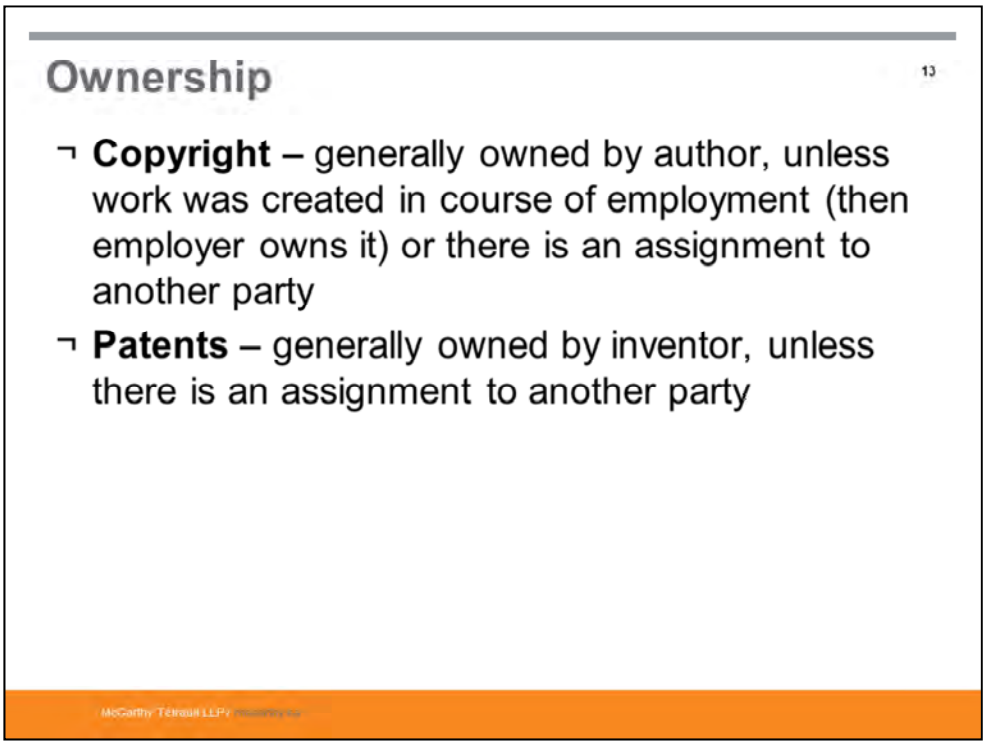
For the cost benefit analysis, cost is usually easier to determine, as you can add up the legal fees, government fees and maintenance fees for all of the patents you are hoping to obtain. Value is more difficult to measure. It can be measured in different ways: e.g. company asset (patent provides a competitive advantage – right to exclude others from copying your invention) – adds value when you are licensing or exiting ; also freedom to operate – if you have a patent on it, then if competitors try to sue you on their patent for practicing your invention you can say I can sue you back because you're also doing what I'm doing and it's patented.

For detectability, you want to ask how easy is it to detect acts of infringement by your competitors? For example, if the software is on the client side or on a device that you can acquire, you could look at what it's doing, maybe with the help of decompilers. But, if everything is happening on the server side, detectability of infringement would be more difficult.

Also, you want to consider ease of replication - how easy would it be for others to reverse engineer your product and copy your product? If it's impossible for others to figure it out, then maybe you can protect as proprietary trade secret information instead of going through the patent route.



I'm going to now move into a discussion on the ownership of IP. The question of who owns the IP rights is often a hotly contested one. This is a humorous comic strip that illustrates how technology gets created. It also leads to a discussion of some of the ownership questions that might arise where there are multiple parties who contributed to the creation of IP and might have a stake in the asset – is the owner o fthe IP the person who came up with the idea? Or the person who did all the work in implementing it? Or both? Often, the answer is not as clear cut as it might seem.



Ownership determinations vary for each category of IP. For copyright, the author is generally the owner, unless the work was created in the course of employment (in which case the employer owns the copyright), or there is an assignment that gives the copyright to another party. For a patent, the inventor is the owner by default, unless there is an assignment that gives the patent to another party. To avoid any confusion as to who owns the IP rights, it's best to have a written agreement that clearly spells this out. My next case study will demonstrate what could happen if you don't have any agreement which addresses ownership.

In this case study, Roofdog was a videogame developer, and Roofdog brought in an artist friend, named Seggie, to help out with the graphics design.

Seggie contributed a few new designs and artwork, but Roofdog did all the coding. After the game was launched in 2011, it exceed everyone's expectations and reached the top of the App store. Roofdog only wanted to pay Seggie a fixed salary, but Seggie said he was a co-author of the game and therefore should be able to share in the profits.

The problem was there was no paper documenting an agreement between the parties. So, a lawsuit was started by Seggie, who sought 50% of the profits. In the end, the Quebec Superior Court determined that Seggie was not a co-author, and therefore did not get a share of the profits. The court awarded Seggie $10,000 for his efforts, but then also awarded Roofdog's owner $22,000 for defamatory comments that Seggie had made on social media. So, Seggie is out $12,000.

If Seggie had made a bigger contribution to the game, the outcome might have been different, as he might have then been considered to be co-author and therefore co-owner of the video game. However , by not having any written agreement in place regarding ownership, the parties wasted a lot of time and money arguing that issue before a court, and letting the court ultimately decide.

Ownership questions can also be challenging to answer in the context of new technology developments.

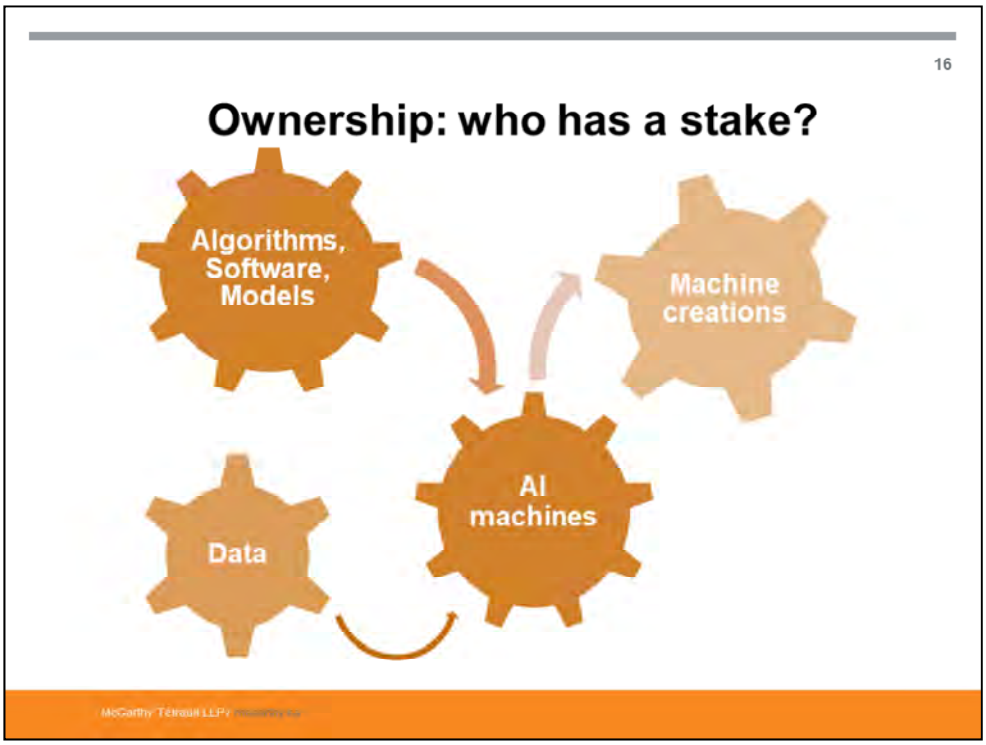
This is the AI-generated Portrait "Edmond de Belamy" from the French collective "Obvious" (formed of three 25-year old guys)

This portrait was created by feeding a series of portraits into a generator, then discriminator tries to distinguish if it was done by hand or by computer.

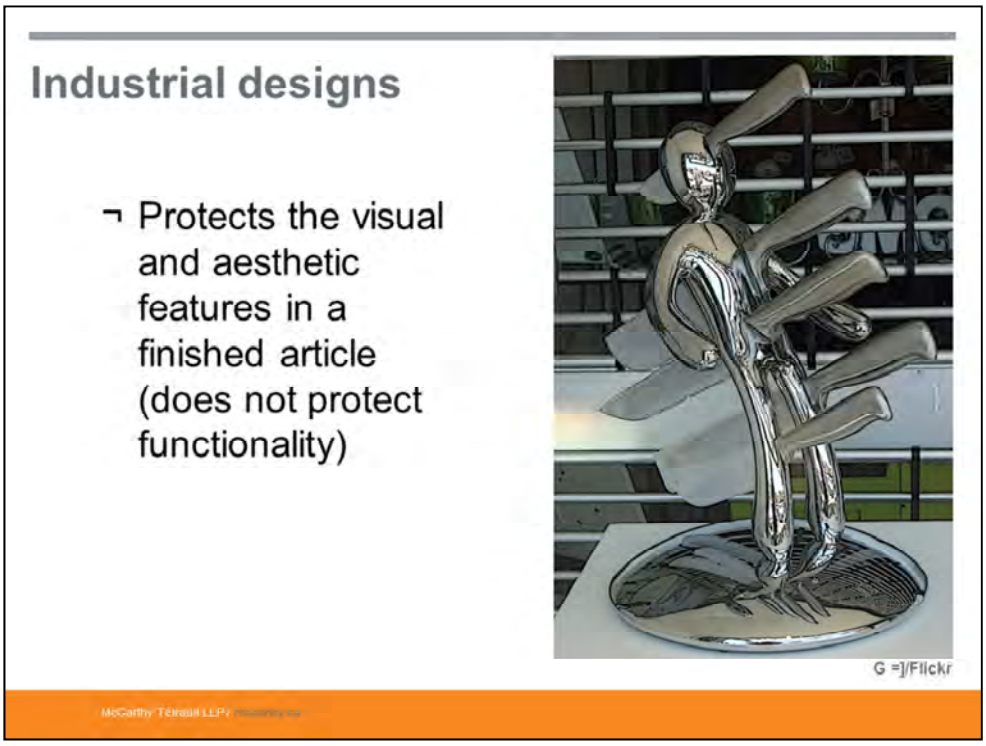
It's hard to see from this representation, but in the bottom right corner, the portrait was signed by a mathematical equation that represents the algorithm that was used to produce the portrait.

The open-source algorithm that was used for creating this portrait was shared by 19 year old Robbie Barrat, and he had developed it based on "Generative Adversarial Network" (GAN) designed by Ian Goodfellow.

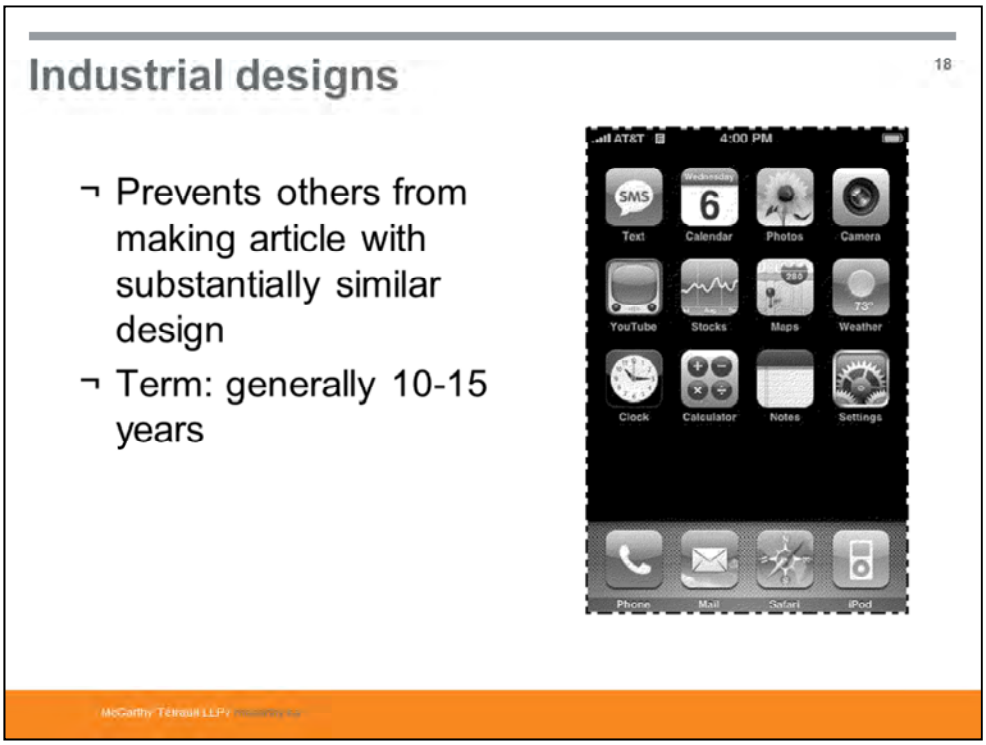
The portrait was auctioned off by Christie's in October 2018. It was estimated to sell for $7K-$10K, but it sold for over $400K



So, who owns the IP rights in an AI-generated portrait? The ownership question is more complicated because AI-generated artwork does not fit the traditional scenario of a solitary painter standing in front of a canvas, and the law hasn't caught up with the technology. There are many contributors to the process of creating AI art. So, is the owner, the person who developed the algorithm? The person who wrote the source code? Person who trained the machine? Person who contributed to data that was used to train the machine? The machine itself? The law is not very helpful in providing any answers here, so the best thing to do, in the absence of clear laws, is to have contracts in place, to deal with some of that uncertainty.

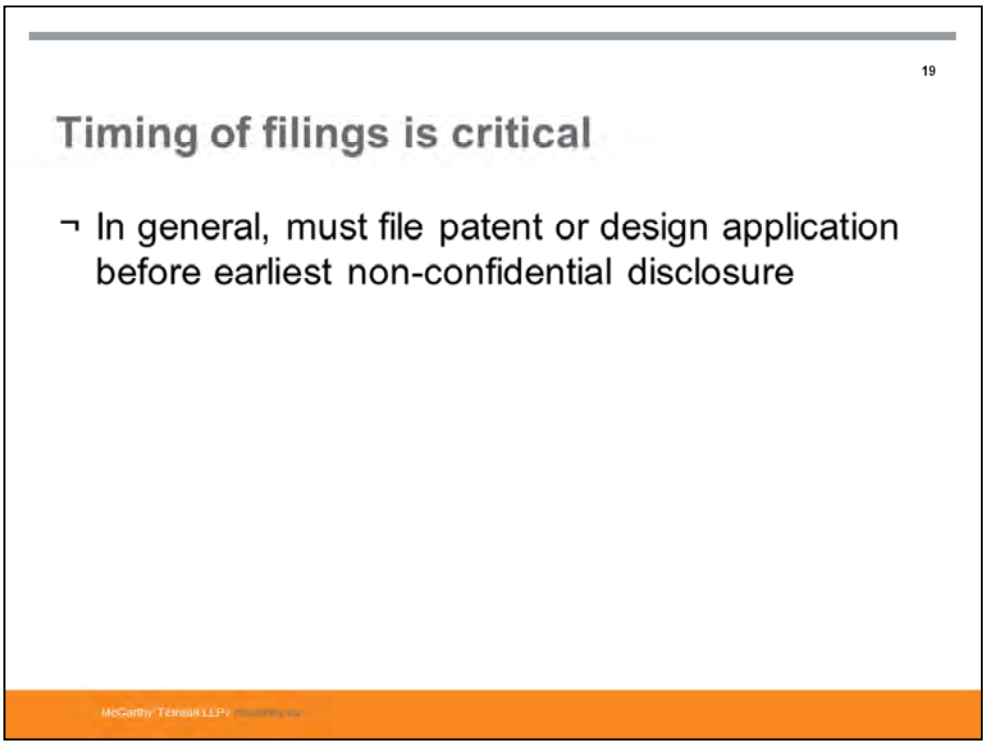


Next, I want to move on to industrial designs. An industrial design registration protects the visual and aesthetic features in a finished article. Unlike patents, a design registration does not protect functionality. A design registration would be useful for protecting a Voodoo knife holder such as the one shown here – it has some pretty striking features in the design. However, since the functionality of this knife holder is already known and therefore not novel, so you wouldn't also be able to get patent protection for this knife holder.



Industrial design registration prevents others from making an article with a substantially similar design. The term of protection is generally 10-15 years, depending on the jurisdiction. Increasingly, industrial design registrations are being sought to protect user interface designs, such as the one shown here that is owned by Apple.

In the United States, they call an industrial design registration a "design patent". A design patent should not to be confused with a regular or utility utility patent. So when you see in the media that something is "patented" in the US, you have to query whether they're talking about a utility patent (which protects functionality), or a design patent (which is an industrial design registration and protects the visual features).

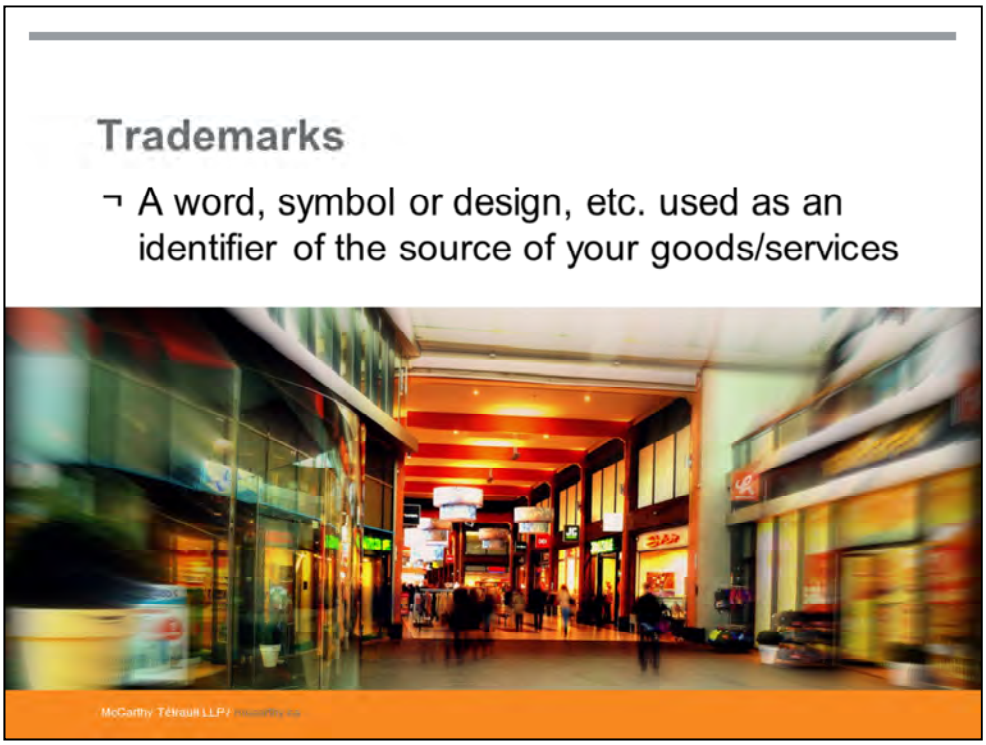


In general, in order to have valid protection, you must file a patent or design application before your earliest non-confidential disclosure of the invention or design. There are some limited grace periods available. For example, Canada and the US allow you to file a patent application within one year after your earliest public disclosure of the invention. However, other countries do not offer this grace period, so if you want to protect your invention in those countries, you've got to file your first application before any public disclosure.

Here's an example of how not filing your application in time, can lead to problems for the IP rights holders.

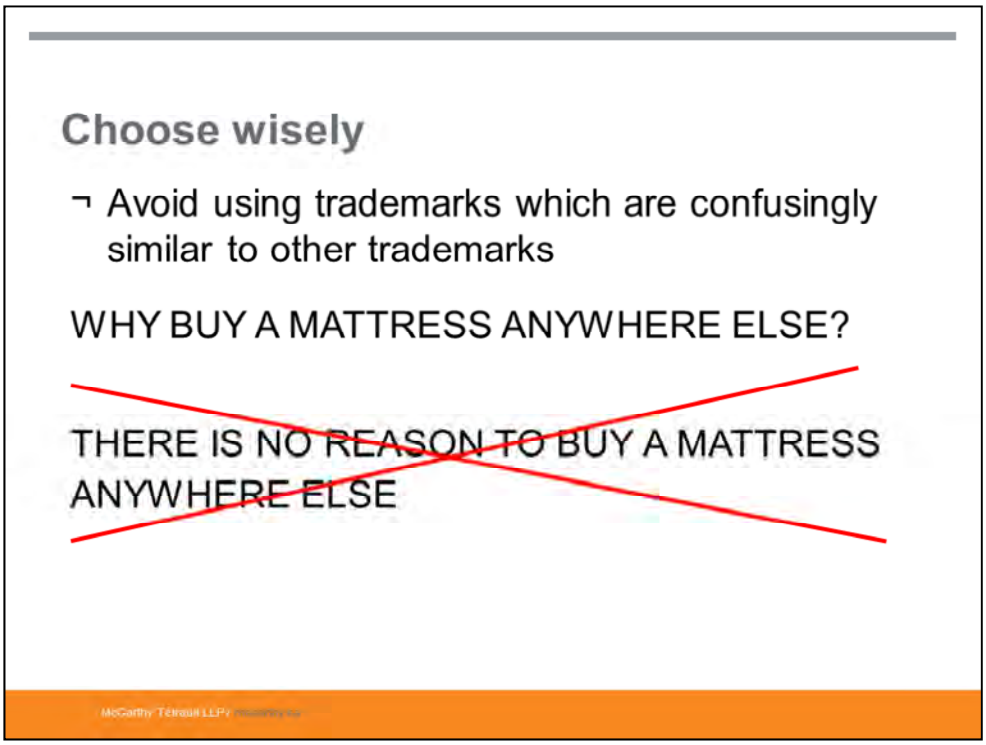
Crocs had a design registration for their shoes in Europe. The French budget brand 'Gifi' brought a claim to cancel the design, on the basis that the design had been disclosed more than 12 months before filing. In Europe, there is a grace period of 12 months for pre-filing disclosures for design registrations. Note that there is no grace period in Europe for patent protection, meaning you have to file a patent application before any public disclosure if you want protection in Europe.

Crocs' design registration was ultimately cancelled by the IP Office, which was affirmed by the European Court of Justice in 2018. This meant that Crocs lost some market share to its competitors.



The final category of IP that I will be discussing is trademarks. A trademark is any word, symbol, or design, etc., that is used as identifier of the source of your goods or services. I say "etc." because sounds, scents, colors could also be considered an identifier. We live in a brand-oriented society where we rely on the use of trademarks to distinguish between all the various sources of goods and services that we can buy. And so, the value of brands has increased over the last several years.

Here are some traditional examples of trademarks, including symbols, word(s), word and design combination, color (as applied to the sole of a shoe in this example illustrated), packaging (distinguishing guise of a Coca Cola bottle)

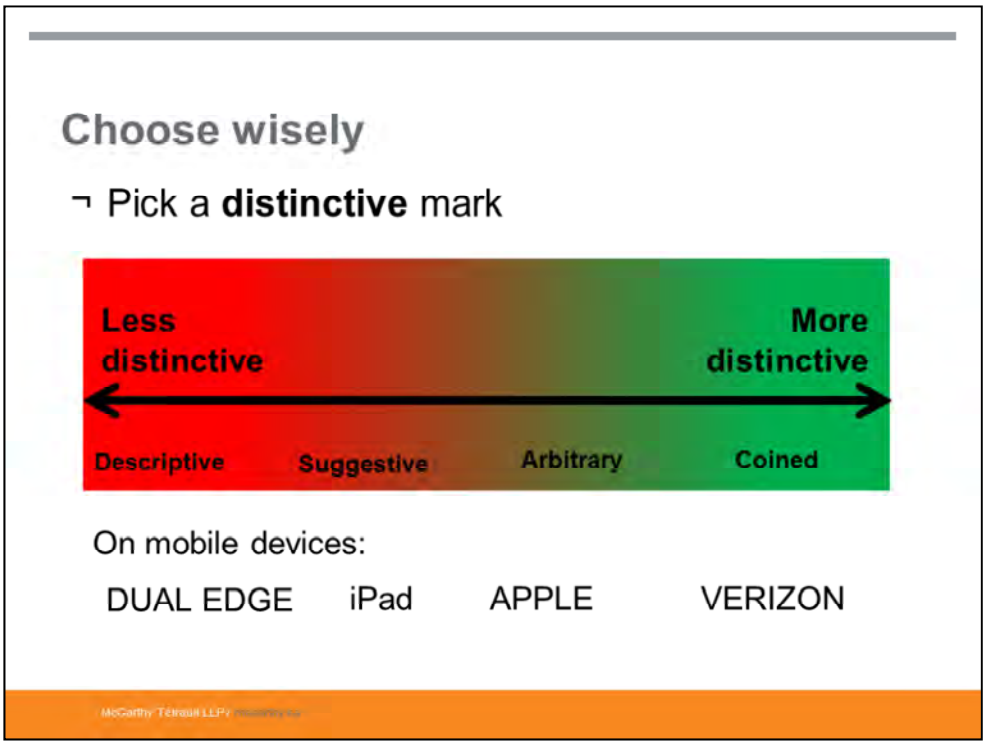


Many legal and business problems can arise if you do not choose your trademark wisely. First of all, you want to avoid being sued for trademark infringement, and also you want to be able to help your business grow by using a mark that can be protected through a trademark registration, develop a reputation, and be enforced against others.

To achieve the first objective of not being sued, you want to AVOID marks that can be confused with others' trademarks, trade names, and here's an example of that.

- Sleep Country has used its trademark (slogan) WHY BUY A MATTRESS ANYWHERE ELSE since 1994
- Sleep Country registered it as a trademark in 1996
- July 2016 – Sears began using THERE IS NO REASON TO BUY A MATTRESS ANYWHERE ELSE
- Sleep Country asked Sears to stop using that mark
- Sears did not, so Sleep Country brought an action for trademark infringement, depreciation of good will and passing off
- In early 2017, Federal Court ordered an injunction, prohibiting Sears from

using the slogan



To achieve the second objective of helping your business grow, you want to choose a trademark that is **distinctive** (that means it must be capable of distinguishing you from others offering similar goods/services). If you don't have a distinctive mark, you will have trouble developing a reputation and you will have trouble protecting your mark and enforcing it, since distinctiveness is a requirement for trademark registration.

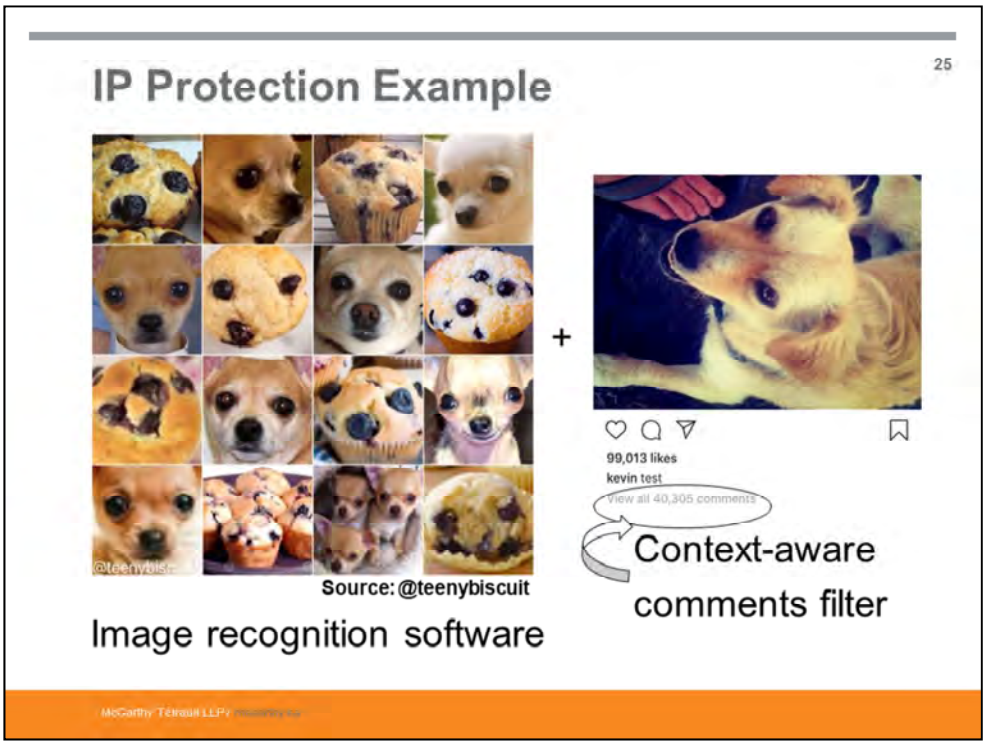
I've shown here a distinctiveness spectrum, with some actual examples, where marks on the green side are more distinctive, and marks on the red side are less distinctive.

You want to AVOID marks that clearly describe your goods or services.

- LG's mark DUAL EDGE for mobile phones was found descriptive in the EU and therefore not eligible for registration

Many trademarks are not registered. The common law offers some limited protection for unregistered marks, typically confined to the particular local area in which you are using the mark. However, registration confers much stronger protection, as it provides you with the exclusive right to use the mark

across the country. It's a good idea to a register a mark if it is valuable to your business.



To help you tie all the pieces together, I am going to walk you through a hypothetical example to illustrate how we might go about developing an IP strategy for an invention.

Let's say we've developed a new and improved image recognition software. It is so good that it can distinguish between images of chihuahuas and blueberry muffins with increased accuracy, for example.

Let's say you also want to help clean up the cesspool of social media and you've developed a new and improved context-aware comments filter for social media applications , blogs, websites – where image recognition can be used to provide some context for interpreting people's comments. For example, the comment "Nice muffins!" might be considered by this filter to be mundane and non-offensive in the context of a picture of blueberry muffins. But it might make a different assessment of those words in other contexts.

There is going to be some element of the application of artificial intelligence in both the image recognition piece and the context-aware comments filter.

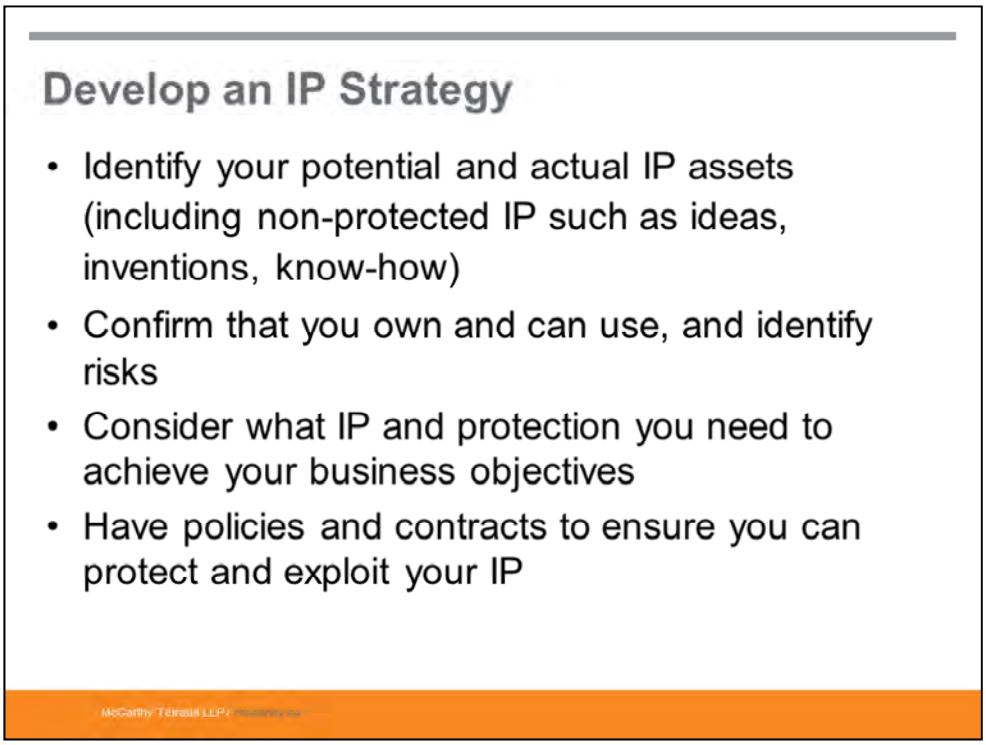
You may also then develop a new user application and come up with a catchy name for the app and a particular user interface design – this app will allow an operator of a social media page or site to customize settings, tell the software what they would find acceptable or not – e.g. is criticism OK? Or do you want everyone to just post positive comments only?

So, what can be protected in this case?

First, you an apply for a trademark registration to protect the name of your app, but before you decide on the name, you should consider whether the name is even a wise choice, and we've touched on some of the legal logistics for selecting a good trademark.

Second, while copyright will protect people from copying your source code for your software, it does not protect against people copying the underlying functionality, so you may want to look into applying for a patent if you want to also protect the functionality. There are multiple concepts you could explore protecting with patents –these include your new and improved image recognition engine, your context-aware comments filter, and perhaps even some aspects of the user application which enables users to adjust the settings of the context-aware comments filter.

Finally, it's important not to overlook design protection, which can be used here to protect the user interface design of your user app.



I want to close by highlighting some key points in developing an IP strategy.

First, you want to identify IP assets by : reviewing documents (e.g. contracts, policies), results of R&D and business processes, interviewing your employees

Identify what IP assets the company needs and doesn't need in order to achieve its objectives

Typical objectives include:

the types of products and services on which the company intends to focus its resources

the market it intends to serve

the mitigation of risk

the return on investment shareholders require

Place a value on your IP assets

Consider whether the IP is of key interest to your company

Consider market demand and the size of the market

Consider the competitive advantage the IP provides

Confirm IP ownership and rights: For example: employees vs. subcontractors; programmers using open source; licensing rights - do you have all of the rights you need (i.e. licensed rights match intended uses)

Identify risks - for example:

potential third party liability (e.g. infringement suits)

defects in protection (e.g. flaws in registration, insufficient policies and procedures)

must prove IP "title" the hard way/from first principles:

prove chain of "title" (how IP got into company)

prove maintained "title" (not lost IP through exploitation)

prove not sold/alienated "title" (not sold IP)

Protection: protecting the IP that you own or have rights to

Most appropriate protection depends on the product/software and circumstances (E.g., trade secrets may be more useful in the context of a process than products because less risk of reverse engineering)

Choice of IP protection category is not mutually exclusive **(except trade secrets and patent)**

IP registration available for:

Patents & designs - must register in order to protect; generally you must apply for protection prior to any non-confidential disclosure of the invention/design (but limited grace periods available in a few countries)

Trade-marks – common law offers limited protection for unregistered marks, but registration confers much stronger protection

Copyright - registration not required, unless you want to sue for infringement (particularly in the US)

Develop IP policies - e.g. disclosure on a "need to know" basis

Contracts:

Confidentiality agreements

Non-compete agreements

Licensing

Working with development partners or other 3rd parties: do you have agreements concerning ownership, protection, use and exploitation of IP?

I want to thank you for taking the time to listen to this presentation, and I hope that I have been able to shed some light on some of the complexities and issues of IP law that will help you in your career. If you have any follow-up questions, please feel free to reach out to me by email. Thank you.

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