
Managing legal risks associated with intellectual property on the web

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Abstract: Intellectual Property (IP) has taken a prominent place on the web. Today's organisations need to know the ways in which their websites can be the target of costly IP litigation. Organisations also need to know how to manage and protect their own IP that they expose through their web presence. This paper provides an overview of the legal risks associated with IP on the web. Managing such risks begins with gaining a clear understanding of how to address the salient issues related to IP that any organisation has to take into account when it has a web presence or provides a service using the web. Towards this end, a comprehensive survey of existing IP case law in the context of web content is provided. The survey focuses on three essential IP areas: copyright, patents, and trademarks.

Keywords: Intellectual Property; IP; copyright; trademarks; patents; web; internet; hypermedia; content management.

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1 Introduction

The World Wide Web (herein referred to simply as 'the web') has made the transition from an academic research network to a commercialised commodity. The first popular web browser, NCSA's Mosaic, was introduced to the internet in 1993 (Cailliau and Ashman, 1999). Shortly afterwards, enterprises started to realise that the web provided new opportunities for them. The web presence of an enterprise is now seen as an important business success factor, affecting its reputation, marketing, customer support, competitiveness, and – ultimately – its revenue. As a result, websites have become an important asset, critical for the image of the company. An enterprise's web presence can be seen as part of the communications perspective of e-commerce, which is the delivery of information or products and services via computer networks (Ngai and Wat, 2002).

Due to the web's academic origins, it was – and to a lesser degree still is – perceived as being a free and unregulated space (Lessig, 1999; Medley *et al.*, 1998). However, now that websites have become important assets, enterprises increasingly want to protect their web presence and control the way in which others utilise their websites. As a result of the growing commercialisation of the web, legal issues play an increasingly important role for both content providers and consumers. Until 1994, courts in the USA did not have to deal with any web cases. In 2001, however, the state and federal courts have

published more than 1100 opinions involving the web (Isenberg, 2002). Whether one likes this development towards a more regulated and litigious web or not, organisations with a web presence need to know about the potential legal risks they are exposed to. The exposure to potential legal risks depends on the type of e-business applications that an enterprise uses. Applications that involve well-defined users and interactions such as e-mail and intranets pose fewer risks than an open web presence on the internet. The same holds true for more complex applications such as e-marketplaces and supply chains. From this perspective, public websites are among the e-applications that pose a comparably high risk.

Since the internet offers low-cost access to the web, its economic potential is not restricted to only larger enterprises. In fact, smaller enterprises have much to gain by having a presence on the web (*e.g.*, new market channels and greater geographic exposure (Prasarnphanich and Gillenson, 2003; Haynes *et al.*, 1998; Auger and Gallagher, 1996). The majority of Small and Medium-sized Enterprises (SMEs) have established a web presence. Brown and Lockett's (2004) data on e-business engagement of SMEs shows that 79% use e-mail and have web access, 56% have a web presence and intranet, and 18% are engaged in e-commerce. Only 11% or less are engaged in more complex e-business applications such as e-marketplaces and electronic Customer Relationship Management (eCRM). In a US study conducted by Haynes *et al.* (1998) in which internet use of 297 businesses, each with an average of 74 employees, was surveyed, 45% of the businesses had a web presence.

Legal problems arise when website owners believe that their rights have been violated. However, it is hard to predict what a certain owner will view as a violation. A recent trend on the web are sites that combine (or 'mash') data from other sites to provide new, enhanced consumer experiences (The Economist Technology Quarterly, 2005). For example, a certain site uses textual data from Yahoo!Traffic and map data from Google to create traffic maps. Sometimes such "mash-ups happen without the sites that supply the data even knowing about it" (The Economist Technology Quarterly, 2005). It remains to be seen whether this new approach remains unchallenged by the suppliers of the data.

While there are other legal issues related to the web besides Intellectual Property (IP), this paper focuses mainly on legal issues raised by IP law. IP law is important because it provides protection of, for instance, a website's content, designs, processes, and implementation. Because of its broad coverage, many relevant legal cases involving websites fall into the area of IP. In contrast to other legal areas, international treaties on IP have effectively set minimum standards that most countries in the world adhere to.

Generally, it seems that little research has focused on legal issues in the context of e-business or content management. A literature review of 275 e-commerce articles (published between 1993 and 1999 in ten journals) reports that only three of these articles address legal topics (Ngai and Wat, 2002), even though the number of reviewed articles exhibit an approximately exponential growth. This is especially surprising since law (and other public policy issues) are consistently reported as top inhibitors of e-commerce. This paper is a step toward closing the gap of identifying legal issues that should be addressed in a business context.

1.1 Legal issues of hypermedia

Most users and organisations that utilise the web do not think of it in terms of hypermedia. However, the web is an example of a hypermedia system. Hypermedia content is made up of *nodes* (i.e., fragments of text or other information) and associative *links* between the nodes to form an information web (Jonassen, 1989). Distinctive features of hypermedia systems (such as Xanadu (Nelson, 1997; Nelson, 2000), IsaWiki (Iorio and Vitali, 2005), and the web itself) include the overlapping of the roles of content readers and content providers, and the low entry barrier to become a content provider.

Since hypermedia research is much older than the web (Ted Nelson coined the term hypertext in 1965; Berners-Lee proposed the web in 1989), and since several hypermedia systems had been in use before the web, one would hope that hypermedia research can provide us with answers and guidance with respect to some of the IP issues that the web is facing today. In fact, IP issues were already raised by Jones in a paper at the first Hypertext conference in 1987, where he prophetically stated that “if the promise of hypertext actually is to be realised and disseminated to users, then early-stage identification of legal issues and compliance with legal obligations will be necessary” (Jones, 1987).

Unfortunately, even though the question of the legal implications of hypermedia systems was raised early on, there has been little further research in this direction – a notable exception being Nelson’s (2000) Xanadu system, which introduced mechanisms for dealing with copyright issues. The rights of authors and users in Xanadu are defined with a contract, which both parties have to agree to before using the system. Authors pay publishing fees and users pay usage fees. Users of the system can make derivative works of documents already in the system, thus becoming authors themselves. Samuelson (1991), discussing the legal implications and commercial viability of Xanadu, is critical about several aspects of the system. Meanwhile, the web has emerged as the most popular hypermedia system by far, achieving widespread authoring of hypermedia contents without prior consideration of the resulting legal issues.

1.2 Intellectual property

Kamil Idris, director of the World Intellectual Property Organization (WIPO), defines intellectual property as “the commercial application of imaginative thought to solving a technical or artistic challenge” (Idris, 2005). IP is a broad field, often divided into three main areas of copyright, patents, and trademarks. IP law gives a creator of IP certain exclusive rights, for a limited period of time, to exploit his or her creation, thus “preserving the motivation needed for people to undertake the development of new and useful things that could benefit society” (Bowyer, 1996). In doing this, IP law has to strike a balance between IP holders and the public.

IP law has national jurisdiction, and therefore varies from country to country. Given the importance of IP in the global economy, countries have worked together to unify IP protection. In 1873 the Paris Convention for the Protection of Intellectual Property became the first international treaty that covered patents, trademarks, and industrial designs. It was soon followed, in 1886, by the Berne Convention for the Protection of Literary and Artistic Works. Both Conventions have been amended several times; most recently, the Paris Convention was updated in 1979, and the Berne Convention in 1971. WIPO is currently responsible for administering both Conventions.

Both Conventions instituted a set of guidelines for IP laws of joining countries to minimally satisfy. As of 3 January 2005, 159 countries were members to both conventions. In 1994, the World Trade Organization instituted the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) that sets minimum standards of IP protection for its member states. Many of its provisions are based on those of the Paris and the Berne Conventions. The result is that most of the world has a uniform minimum standard of IP protection. As intellectual property takes a more and more important role in our knowledge-based economies, countries have continued evolving their IP laws beyond the requirements of the Berne and Paris Conventions, thus the protections guaranteed to IP owners in one country might be different from another.

In recent years, WIPO has been creating a new set of treaties intended to update IP protection, particularly in areas affected by the internet. These are: the Copyright Treaty (1996), the Performances and Phonographs Treaty (1996), the Patent Law Treaty (2000), and the Trademark Law Treaty (1994), which are yet to be accepted by the majority of countries in the world. At the same time, the European Union, in an attempt to uniform the IP laws of its member countries, has issued several directives to its members. While it is possible to state that there is a universal set of minimal protections for IP owners, it is not possible to state the same about the rights of the users of IP. In general, as the rights of the owners get expanded, the rights of the users contract, and vice versa.

The global effect of the internet makes it difficult to know what are the IP laws that a given organisation should obey. Should a website operator follow the IP law of the jurisdiction where the organisation is located? or where its web servers are located? or should it follow the law of the country from where its users are located? A company, therefore, might have to comply with IP laws of more than one country.

It is paramount for an organisation to keep track of the intellectual property of its website. An organisation needs to know what IP is being used, who created it, who its owner is, and – whenever the owner is not itself – what licensing arrangements have been made, and in some cases, even where the site links to.

1.3 IP in a website

The contents of a web presence is usually composed of a number of different artefacts. Smith (1996) gives the following list of types of content:

- Browsable contents – HTML pages (consisting of text and graphics), real-time sound, or video recordings.
- Executable contents – Java applets and JavaScript code embedded in HTML pages.
- Downloadable resources – programs, documents, graphics, sound, and video files intended for downloading and offline execution.
- Interactive facilities – response forms, e-mail-feedback, discussion forums, *etc.*
- Links – external links to other websites.

Each of these types of artefacts can be protected by IP law, creating potential legal implications for website operators, thus requiring a strategy to handle these IP assets.

1.4 *Research question and target audience*

Data presented by Brown and Lockett (2004) confirms that the majority of SMEs have established a web presence on the internet. (This follows Brown and Lockett, who use the European Union's definition of a SME as any business with less than 250 employees.) SMEs have a significant economic impact. In the European Union, they constitute more than half of the total economy; there are similar numbers for the USA (Haynes *et al.*, 1998). As part of their web presence, these SMEs are exposing part of their IP on the web and potentially utilise the IP of others. As a result, such a web presence has legal implications.

On a five-point complexity scale (very low, low, medium, high, and very high), Brown and Lockett (2004) rate web presence as low complexity. Furthermore, the cost of a web presence is also quite low (Auger and Gallagher, 1996). Although the complexity and cost of a website is indeed quite low as reflected by the comparably high percentage of SME engagement, it can expose SMEs to significant unanticipated legal risks. Since many SMEs have a web presence, many of them are exposed to these risks. For instance, a small local business website, just like any site on the internet, can be accessed by users that cross national and jurisdictional boundaries. Depending on the nature of the website and the conduct of the business, it can expose itself to a jurisdiction in a different state or country.

A significant number of law cases testify of the existence of legal risks involving a web presence, but the lack of legal publications in e-business journals implies that the problem has not been sufficiently addressed. This suggests that many organisations, mostly SMEs, may be unaware of the extent of the legal implications of their web presence and as a result develop their websites with little or no regard to the legal constraints. One of the vulnerabilities of SMEs is their lack of financial and human resources (Noori, 1987). While larger organisations often have already established intellectual asset management that allows them to assess IP risks and opportunities, SMEs typically do not have access to in-house legal advice. Thus, SMEs are potentially more vulnerable compared to large companies.

This paper addresses the following two related questions:

- 1 What are the (typical) legal issues that an organisation (*e.g.*, SME) with a web presence should be aware of?
- 2 How can the risks associated with these issues be managed?

Organisations should know about legal issues from two perspectives: as content providers and as content consumers. On the one hand, they need to know how to protect their own (intellectual) property, embodied in their websites. On the other hand, they need to know the legal constraints of utilising someone else's IP, including other websites (*e.g.*, by linking to them).

The research presented here cannot replace legal advice or override local policies that state what kinds of conduct violates IP law. Case law is still evolving and as a result there is greater legal uncertainty in this area when compared to other, more established areas of the law. However, the paper does highlight the areas of IP that have caused legal problems for enterprises with a web presence in the past, which should enable enterprises to make more informed risk assessments in the future.

1.5 Intellectual property risks

The next several sections of this paper provide a comprehensive survey of existing IP case law in the context of web content. The survey focuses on the essential areas of copyright, patents, and trademarks. There are several related topics that should be of concern to SMEs, such as trade secrets, trespass, and contracts. However, space restrictions in this paper preclude covering these secondary issues in more depth.

As shown in Table 1, the survey highlights the types of risks related to IP that organisations face, and why it is important to make sure IP is protected and used appropriately. The survey also touches on other potential legal issues besides the ones raised by IP, however, a detailed discussion of these issues is beyond the scope of this paper.

Table 1 Summary of primary IP issues that affect web content publishers

<i>IP law</i>	<i>Issues</i>	<i>Potential questions</i>
Copyright	Copyright ownership	Is the copyright owner of every media component identified? Is there a licence to use the content? Is the copyright of the website and its components registered?
	Linking	Are there hyperlinks that encourage copyright infringement? Is there a comprehensive attempt to deep-link to another website?
	Framing	Are there any frames around other websites?
	Thumbnails	Are there thumbnails that may violate fair use?
Trademarks	Proper use of third party trademarks	Are these trademarks properly acknowledged? Are they used in meta tags? Are they used in good faith?
	Protecting own trademarks	Are trademarks explicitly labelled as such?
Patents	Infringement	Is the site subject to any third party patents? Are these patents properly licensed?
	Protecting inventions	Should parts of the website be protected with patents?

Although the survey is detailed, space limitations for this paper necessitate that only a brief treatment of representative legal cases is provided. For this reason, references are provided to more in-depth discussions where appropriate. Whenever possible, the references are to publications that address an audience with an Information Systems (IS) background rather than legal experts. The authors of these publications are typically law professors, legal scholars, or lawyers with expertise in IP, discussing cases in such a manner that they can be understood by non-experts as well. Since many references are from IS journals or are readily available online, the interested reader should not have much difficulty in obtaining them. Furthermore, there is a number of free online legal resources covering laws and cases (Cramer, 2002).

In the following discussion, US law is assumed; explicit notes are made when discussing laws in other countries.

2 Copyright

Copyright protection applies to an original work that is expressed in a “tangible medium of expression” (August, 2003). Examples of such works include literary writings, sound recordings, paintings, movies, and television broadcasts. The TRIPs agreement has extended copyright protection to include computer programs: “computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971)” (World Trade Organization, 1996, p.10.1).

By creating a work, its author automatically gains its copyright, even when there is no explicit copyright notice or registration. Although a copyright notice is not required, it puts others on notice that the owner has expressed explicit interest in the copyright. The US Copyright Act states that “the notice shall be affixed to the copies in such manner and location as to give reasonable notice of the claim of copyright” (United States Copyright Office, 2003, sec. 401c). In some countries, notably Canada and the USA, copyrightable works can be registered by the copyright office. Others, such as the UK, have abolished this requirement: copyright is implicitly granted. While this procedure does not guarantee any extra protection, it can help to prove ownership of a work, and in some instances it might be a requirement to start legal proceedings against an infringer (as it is the case in the USA (United States Copyright Office, 2003, sec. 411b)).

The Berne Convention grants protection for 50 years after the author’s death. In the USA, copyright protection currently endures for the life of the author plus an additional 70 years after the author’s death, and if the work is for hire, 95 years after its first publication or 120 after its creation, whichever occurs first (United States Copyright Office, 2003, sec. 302).

After this period, the work no longer has a copyright owner and it is placed in the public domain. The public domain is an ever growing collection of works that anybody can reproduce without permission. An author can relinquish, if desired, copyright ownership and place a work in the public domain. For example, websites and other publications of the US Federal Government have been explicitly placed in the public domain (United States Copyright Office, 2003, sec. 105).

The copyright law has to balance the rights of the content creators to be compensated adequately for their efforts, and the rights of citizens to access and use this content. Copyright grants several rights that are held exclusively by the owner. Among these are reproducing the work, preparing derivative works, and distributing and selling copies of it. When an individual or an organisation want to use a copyrighted work, they must acquire a licence from the owner that permits the corresponding use.

The US Copyright Act has a provision called ‘fair use’ that enables the use of copyrighted works by a third party, without the explicit consent of its owner. In order to determine if a use is ‘fair’ the following four factors are considered (United States Copyright Office, 2003, sec. 107):

- 1 the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes
- 2 the nature of the copyrighted work
- 3 the amount and substantiality of the portion used in relation to the copyrighted work as a whole
- 4 the effect of the use upon the potential market for or value of the copyrighted work.

For example, limited quoting of paragraphs from a copyrighted book for the purpose of criticism is permissible under fair use. This fair use test is applied on a case-by-case basis. In other words, the copyright owner must claim that the user is violating their copyright and then sue. A judge will determine if there exists a violation by evaluating the fair use factors. Unfortunately, there is no simple test that one can employ to verify if a certain use of a copyrighted work is fair use or not. A company or a person can be sued and may have to pay their own legal fees even if the courts find the use to be fair.

The concept of fair use is not universal. In countries based upon common law (such as Canada and the UK) fair use is replaced with a similar concept called 'fair dealing'. Fair dealing indicates exceptional purposes in which someone can make use of a copyrighted work without a licence. While fair use allows anybody to use portions of a copyrighted work for any use, fair dealing indicates that copyrighted works can be used only for certain purposes. For example, the Canadian Copyright Act allows fair dealing (under certain conditions) for the purpose of research, criticism, and news reporting (Copyright Board of Canada 1985, s.29).

Stim (2000) suggests two situations that are likely to cause legal problems and trigger a lawsuit: the newly created work causes the owner of the original work to lose money, or the copyright owner is offended by the use.

2.1 Copyright ownership

A website is usually a work that combines many different elements (text, images, video, scripts, *etc.*), and each element might have different copyright owners. The website itself might be considered a 'compilation' that has its own copyright, even though each component might have different copyright owners. The site's copyright owner cannot exploit it without the permission of the copyright owners of each of these parts. Some copyrighted works might be a collaborative creation, where one or more individuals or organisations own its copyright (*e.g.*, computer programs that have been developed by several persons over several years).

Because copyright gives exclusive rights to its owner, it is important to determine, where appropriate, who is the owner of each work used in a web presence. In the absence of a legal agreement, copyright is owned by the creator. It is possible (depending on the applicable jurisdiction's IP laws) for the copyright to be owned by the author's employer (*i.e.*, *work for hire* – see Costello (1994) for a discussion of this issue in the software industry). When there is no explicit agreement, and depending on the business and employer relationship, it might be difficult (and contentious) to determine who the copyright owners are. An organisation should pay special attention to the way its website is developed. An agreement with its employees should explicitly state whether the IP created for the site is considered work-for-hire or not, and whether the developer transfers the copyright to the company (Isenberg, 2002). Whenever the copyright is not transferred, the copyright owner should issue a licence that permits the web operator to use the work in question.

Frequently, web developers use media for which they do not hold the copyright (such as photographs, icons, diagrams or scripts), and therefore, it is important to make sure that they and the website operator have a licence (from the copyright owner) that permits the use of the content in the way it is intended.

The issue of copyright ownership and licensing becomes more difficult to determine in websites that are developed by external organisations. It is important that contracts describe any copyright arrangements and address liability issues when either party has failed to obtain appropriate permissions for copyrighted material. It is recommended that any organisation seek legal counsel to clarify these issues, and to create proper IP agreements with its employees and contractors.

The USA has issued specific guidelines indicating how websites should be registered with the Copyright Office (United States Copyright Office, 2005). Such a registration is a necessary prerequisite to file an infringement suit. Since websites tend to evolve, repeated registration of the site might be necessary. In *IMS vs. Berkshire*, IMS alleged that Berkshire copied content from eight pages of its e-Basket website, that tracks magazine advertising. The obtained information was then used in a competing system. IMS published the e-Basket site on 14 January 2003 and registered it on 7 March 2003. Berkshire allegedly accessed the site around March of 2002. IMS claimed that the registered site is the same one that Berkshire infringed upon. However, IMS failed in its copyright registration to refer to its pre-January-2003 site as pre-existing work. Because of this, a district court ruled that the e-Basket site that Berkshire had accessed in 2002 was not protected by the registration secured in 2003, and therefore dismissed the claim to copyright infringement (Buchwald, 2004; Stanford Law School Center for Internet and Society, 2004b).

2.2 *Content reuse*

Since works published on the web are protected by copyright even without a notice or registration, copying and reposting will constitute a copyright infringement. This is contrary to popular assumptions that content on the web is ‘free’. To clarify, Samuelson (1994) explicitly states “If some people think it’s OK to post other people’s work on a BBS [*i.e.*, bulletin board service] or listserv because the author didn’t put copyright notices on work, they are relying on a mistaken assumption”.

If an author wants to use a work but cannot locate its copyright holder, there is the temptation to still use it. However, failure to locate or contact the owner, even after extensive efforts, is no defence against copyright infringement. It is recommended, as a general guideline, not to published anything on your website unless you own its copyright or you have permission from its owner to use it.

2.3 *Linking*

Spinello (2000) observes that “linking is the essence of the World Wide Web, and there is little doubt that legal or technological constraints on linking would have substantial negative ramifications for the Web”. Berners-Lee calls it a myth that a normal link could possibly infringe copyright. He makes the observation that “making [a] reference with a hypertext link [as opposed to giving the URL without explicitly linking to it] is more efficient but changes nothing else” (Berners-Lee, 1997).

Some site owners have tried to explicitly prohibit *deep-linking* to their websites. A link is called deep if it bypasses the front page (or official entry points) of a website. In *TicketMaster vs. Tickets.com*, Ticketmaster sued a competitor, Tickets.com, in July 1999 for using deep links to their event pages (Garrote, 2001). TicketMaster claimed it was

losing revenue because visitors were going directly to the page they needed, and were skipping pages that contained advertising. A US district court, as part of a motion to dismiss this case, came to the following conclusion:

“hyperlinking does not itself involve a violation of the Copyright Act... since no copying is involved. The customer is automatically transferred to the particular genuine Web page of the original author. There is no deception in what is happening. This is analogous to using a library’s card index to get reference to particular items, albeit faster and more efficiently.” (Hupp, 2000)

While in general the act of linking is not illegal in the USA, there are two situations in which it might create problems for the linking site. In the first one, a website knowingly links to material that invites the reader to violate copyright (*e.g.*, by linking to an illegal digital copy of a book, movie, or song). For example, in *Intellectual Reserve vs. Utah Lighthouse Ministry* (Cambell, 1999) the defendant was found liable for contributory infringement for linking to sites that violated the copyright of the plaintiff. Specifically, the defendant knowingly invited its visitors to follow the links and create copies of the material, even though it knew the material was copyrighted. In the second situation, the link can be considered a violation of the Digital Millennium Copyright Act (DMCA). One of the provisions of the DMCA is that copyright circumvention technology is illegal. In *Studios, Inc. vs. Reimerdes* the defendant’s website had created hyperlinks to technology enabling the circumvention of DVD encryption. Judge Kaplan ruled that the defendant had knowingly created these hyperlinks for the purpose of disseminating a circumvention device in violation of the DMCA (Kaplan, 2000). In both cases the plaintiff knowingly invited its visitors to follow links with the purpose of breaking the law.

Contributory infringement became an important issue for internet access and web hosting providers who were worried that they could be held liable for illegal activities (such as links to circumvention devices) of their users, or by content made available (and hosted on their servers) by their users. The DMCA addresses this issue and clarifies the conditions that service providers have to meet in order to avoid liability in such cases. One of these conditions is that service providers have to establish a ‘Designated Agent’ who is able to receive notifications of copyright infringements and to act according to the DMCA (105th Congress 2D Session USoA, 1998, sec. 512). Any website that allows users to post content or links to other sites should provide the name, address, telephone, and e-mail address of its DMCA Designated Agent to the Copyright Office, and in their website. Once the Designated Agent has been made aware of a copyright violation, the service provider is expected to quickly remove the corresponding content or disable access to it. It is recommended that any website (under US jurisdiction) allowing its users to post their own content or hyperlinks to be fully aware of their rights and responsibilities under Section 512 of the DMCA.

Another issue is how comprehensively a site links to another one. Under this scenario, the concern is how much information the linking site has ‘extracted’ from the original site to provide the links. For example, a site that tracks and links to auctions posted on another site would need to make a (temporary) copy of each auction before it can provide a link to it. There have been at least two ways in which the targeted site has sought legal protection against the linking site. In the first one, the targeted site has argued that it has been illegally scanned (with a spider), which constitutes an act of trespassing on the website breaking its terms of use. In the second one, the site has

claimed database protection. Databases are a new type of copyrightable IP, and countries are starting to pass modifications to their copyright laws to protect them. In the European Union, the Database Directive defines a database as “a collection of works, data, or other independent materials arranged in a systematic or methodical way and individually accessible by electronic or other means” (European Parliament, 1996). (The USA is considering a similar law, the Database and Collections of Information Misappropriation Act (Grove, 2004).) This broad definition can cover web pages that provide a collection of information, such as job postings or news stories, even if each of the individual items is not copyrightable (such as addresses or names). In *NVM vs. De Telegraaf*, De Telegraaf operated a real estate search agent (‘El Cheapo’) that extracted listings from the website of a broker. A lower court held that even extraction of small pieces of information can be infringing if that data is of great value to end users. Subsequently, the Dutch Supreme Court ruled in the case that owners of online databases can prohibit deep-linking to the contents of their database (see (Hugenholtz, 2001) for an overview).

2.4 Framing

A variant of linking is framing, which is the practice of displaying the content of another site within a sub-window (or *frame*) of the web browser, thus making it “easy to create the impression that the owner of the surrounding frames is in fact responsible for the defining document” (Berners-Lee, 1997). From a copyright perspective, such a composition might constitute a derivative work (Stern, 1997). (The creator of a derivative work, in order to assert copyright of it, requires a licence of each constituting component.) In this case, the user of the web browser might be the direct infringer, but the frame provider a contributory infringer.

The first case that involved framing was filed in 1997 by a group of six content providers (among them the Washington Post) against TotalNews, which operates a website that frames the sites of online newspapers (*WashingtonPost v TotalNews*, 1997). TotalNews packaged the news stories with their own advertisement in a separate frame. In the complaint, the plaintiffs claimed, among other things, copyright infringement. The case was settled out-of-court in December 1997. As part of the settlement TotalNews stopped framing the suing newspaper sites.

In *Futuredontics vs. Applied Anagramics*, the latter framed web pages of its competitor, Futuredontics, and argued that its “frame provides a ‘lens’ which enables Internet users to view the information that [Futuredontics] itself placed on the Internet”. An appellate court ruled in favour of Applied Anagramics, finding that no derivative work was created by framing (*Futuredontics v ApAnagramics*, 1998).

Wood (2002), analysing the legal risks surrounding linking and framing, arrives at the following recommendations:

- do not deep-link without permission
- do not frame other entities’ pages without permission
- do not use links to sites that encourage others to engage in copyright infringement.

Because of the legal uncertainty that is still prevailing, these guidelines are conservative and hence quite restrictive.

2.5 Thumbnails

A thumbnail is a low resolution version of a digital image, and tends to be of significantly inferior quality than its original. Thumbnails are usually less than 200 pixels in each dimension and are intended to be used in an index or table of contents of images where the thumbnail links to its larger version. Typically, thumbnails are too small to be considered significant without access to the larger version.

In *Kelly vs. Arriba Soft*, the courts had to decide whether the use of copyrighted pictures as thumbnails was permissible. Kelly is a professional photographer who offers his photographs for sale through his website. Arriba Soft is an image search engine, which included in its corpus Kelly's photographs. As part of the indexing, thumbnail pictures are generated. Kelly alleged that the thumbnails constituted a copyright infringement. Kelly argued that thumbnails contain most of the creative elements of the corresponding full-size picture (such as subject, composition, and lighting). In this case, the court decided that Arriba's thumbnails were fair use (based on the four fair use factors given in the Copyright Act) and ruled for Arriba Soft (Tyler, 1999; Nelson, 1999).

However, one should not generalise from this ruling that thumbnails are always permissible. In fact, in the appeal decision, the court cautioned that "we do not suggest that the inferior display quality of a reproduction ... will always assist an alleged infringer in demonstrating fair use" (Nelson, 1999). Still, according to Sableman (2001) the ruling indicates that "the fair use doctrine is likely to protect normal indexing and summarising use of Internet content as hyperlinks".

3 Patents

Similar to copyright, the main purpose of patents is to foster innovation because they give an innovator an incentive to come up with new ideas. This incentive is a monopoly on the exploitation of the invention for a fixed period of time. To obtain a patent, the inventor has to fully disclose the invention to the public. In return, the patent grants the inventor the right to exclude others from making, using, or selling the invention for 20 years (Isenberg, 2002).

In contrast to copyright, an inventor must file a patent application with the US Patent and Trademark Office (PTO). To be patentable, an invention must meet certain tests, among them novelty and non-obviousness. An invention is novel if it is not part of *prior art* (i.e., the existing body of technology that could be reasonably known to someone working in the field). An invention is non-obvious if it is not an obvious variation of prior art. Once a patent is granted, the invention should be marked with the word 'patent' followed by the patent number. 'Patent pending' is often used to inform people that a patent has been applied for (Bowyer, 1996).

Traditionally, patents have been granted for industrial innovations such as machines and manufacturing processes. However, patent law has increasingly broadened its scope to accommodate technological changes (Durant and Chuang, 2000). For example, in the USA, business methods and software are now patentable as well. Amazon's 1-Click patent (discussed in the 'Business Method Patents' section below) is an example of a

business method patent. Many (technology) businesses view patents as the new currency of the information age. In 1999, about 161 000 US patents were issued; in 2001, the number increased to 344 717 (Takach, 2003).

In a lawsuit, the patent holder has to show that at least one claim of the patent covers the infringing product or process. The alleged infringer can defend against it using two methods: try to establish that the patent is invalid (*e.g.*, due to prior art), or that the alleged infringement is not an instance of the patent. The patent holder can ask for damages, typically profits that have been lost as a result of the infringement. Compared to copyright registration, the cost of obtaining and enforcing a patent is significant. Patent attorneys, (professional) prior art searches, and several fees are part of the application and maintenance process. Furthermore, patent lawsuits are expensive and, as a consequence, many of them are settled out-of-court. Lessig (2001, p.213) states that it takes on average \$1.5 million for both sides to take a patent dispute to trial.

Kirsch, a patent attorney, characterises the increasing importance of patents as follows:

“Technology companies that just a few year ago wouldn’t have ever considered the impact of patent protection – either offensively or defensively – are now devoting many resources to ensuring they are protected, and minimizing the possibility of infringing third-party patent rights. Those companies that don’t consider these issues do so at their peril.” (Isenberg, 2002, p.113)

The patent cases discussed below exemplify the impact that they can have on websites and web technology.

3.1 *Business methods patents*

Patents about web technology or functionality held by one organisation can impact other websites. Amazon’s ‘1-Click’ patent (US patent 5,960,411, which was granted in the US on 28 September 1999 under the title ‘Method and system for placing a purchase order via a communications network’) describes an arguably obvious method of doing e-commerce on the web. The basic idea is to purchase an item with a single click, using the user’s shipping address and credit-card information already on file. Briefly after the patent was granted, Amazon sued Barnesandnoble.com for infringement and won a preliminary injunction in December 1999 (during the Christmas shopping season, the busiest of the year) (Wolverton, 2002).

It seems that the court’s decision had an impact on other web content providers – Apple published a press release in September 2000 that it had licensed the 1-Click patent from Amazon for its Apple Online Store (Apple Computer, 2000). Barnesandnoble.com appealed and a higher court overturned the preliminary injunction in February 2001, also raising doubts about the validity of the patent (Stern, 2001). In that decision, the case was remanded to another appeals court for a full trial. However, the parties decided to settle in March 2002. The terms of the settlement were not disclosed.

Priceline vs. Microsoft is a similar case in which Priceline claimed that Expedia’s *Price Matcher* service infringed on its reverse auction patent (US Patent No. 5,794,207) (Isenberg, 2002). Expedia agreed to pay royalties and the case was settled out-of-court.

3.2 Software patents

One of the most famous patent cases that has affected the web involved the GIF format for graphics files. GIF uses the Lempel-Ziv-Welch compression algorithm, patented by Unisys (US Patent No. 4,558,302, with counterpart patents in France, Canada, UK, Germany, Italy, and Japan). Unisys forced developers of software that created GIF files to pay a licence fee, and requested a \$5,000 fee from any website that used GIF files created with software that did not have a licence from Unisys (such as many freeware and open source applications). These acts prompted several organisations (such as the League for Programming Freedom and the Free Software Foundation) to boycott the use of GIFs, and accelerated the acceptance and support for the Portable Network Graphics (PNG) format. The GIF patents expired in 2003 and 2004 (Weiss, 2004; Shearer, 1995; Miller, 1999).

A more recent example is a claim from Eolas that it holds a patent for the automatic downloading of embedded content (*i.e.*, plug-ins). (The patent was filed in 1994 and granted in 1998, and is entitled ‘Distributed hypermedia method for automatically invoking external application providing interaction and display of embedded objects within a hypermedia document’, US patent 5,838,906.) The patent potentially affects content that is referred to by <embed>, <object>, and <applet> HTML tags. In fact, the patent contains the following example of an HTML tag to describe an embedded object:

```
<EMBED TYPE = "type" HREF = "href" WIDTH = width HEIGHT = height>
```

Eolas sued Microsoft, claiming that Internet Explorer infringes on the patent. (Other browser vendors such as Netscape and Opera are potential targets as well.) A district court jury granted Eolas \$521 million in damages in August 2003, and it was affirmed by the court (Stanford Law School Center for Internet and Society, 2004a). In March 2005 an appellate court, reversing part of the earlier verdict, ordered the district court to conduct a new trial (Festa, 2005).

Independent from the legal proceedings, the PTO decided 12 November 2003 to re-assess the validity of the patent. At the same time, there are several proposals to work around the patent. One of them is to insert a dialog box that explicitly prompts the user to launch the embedded application to get around the patent’s definition of an ‘automatically invoked’ application. Another one proposes to use DHTML to launch applications instead of statically embedded HTML tags. Regardless of the workaround, if the patent is held valid, it will have a significant impact on website developers and users.

4 Trademarks

According to the Trademark Act (also known as the Lanham Act), a trademark includes “any word, name, symbol, or device ... used by a person ... to identify and distinguish his or her goods” (Isenberg, 2002). Similar to a copyrighted work, trademarks need not be registered; they are acquired through use. Conversely, a trademark has to be actively in use, otherwise it becomes invalid. Federal trademarks registered with the PTO are identified with the ‘®’ symbol. Unregistered trademarks can be identified with the ‘™’ symbol to put others on notice that a trademark is claimed.

Trademark law allows multiple companies to hold the same trademark as long as they are in different ‘wares’, and there is no potential consumer confusion. Some trademarks become so famous that they receive protection in all areas (such as ‘Kodak’ or ‘Coca-Cola’).

A problem arises for domain names, because only one trademark can hold the corresponding domain name. This has resulted in many domain name disputes (see Smith (1998) for some examples). It is recommended that organisations trademark their domain names, or verify if the choice of a new domain name is not already a registered trademark that could potentially create legal problems in the future.

Trademark owners can sue for infringement if someone uses their trademark in a way that is ‘likely to cause confusion’ by consumers. If the trademark is famous, owners may prevent others from using the same trademark in a different field under the theory that such uses would *dilute* the value of the famous mark even if there is no likelihood of confusion. Deciding what constitutes infringement or dilution is difficult to determine and as a result rulings are hard to predict. Furthermore, Isenberg (2002) observes that “often, it seems that, especially in internet cases, some courts have gone out of their way to find a trademark famous (and therefore protected by the anti-dilution law) if the defendant using the trademark appears to be acting in bad faith”.

A website can use a trademark in two main different ways: as part of its content (such as text or photographs), and as meta tags (which are only visible to spiders and are particularly useful to search engines).

4.1 Content

Playboy vs. Welles is a case that exemplifies that judicious use of someone else’s trademarks can be claimed as fair use ((*Playboy v Welles*, 1998), see Lastowka (2000) for a discussion of the case). Terri Welles is a photo model and was Playboy’s 1981 Playmate of the Year. She launched her own website in June 1997 and used terms such as ‘Playmate of the Year’ and ‘Playboy’ in her site’s pages. She placed a disclaimer at the bottom of her pages that stated that the site was not affiliated with Playboy, and that ‘Playboy’ and ‘Playmate of the Year’ were registered trademarks. Playboy sued Welles for trademark infringement and dilution. A lower court denied Playboy’s motion for a preliminary injunction. The court found that Welles made fair use of the trademark because they were used in good faith and accurately described her website. The court viewed the use of a disclaimer in her favour. (Ironically, the disclaimer might have helped to give the site a higher ranking for searches that contained the trademarks used in the disclaimer.) An appellate court confirmed the lower court’s decision. Kuester and Nieves (1998) recommend that:

“one preventative measure against a trademark or copyright claim is a common disclaimer. The disclaimer should state that the Web site and owner of the Web site are not sponsored or affiliated with any owners of the specific trademarks used on the Web site.”

In the USA, the protection of a trademark can be limited by freedom of speech. In general, contents of a noncommercial nature (*e.g.*, news coverage) have a stronger free speech protection than commercial contents such as the one in *Playboy vs. Welles*. However, courts have disagreed what constitutes noncommercial speech (Lastowka, 2000).

Therefore, a careful analysis (by an IP lawyer) of the use of the trademarks in the content of a site is definitely recommended. In addition, whenever a trademark is used, it should be stated that the term is a trademark, whether the trademark is registered, who the owner is, and whether the site is or is not affiliated with the owner.

4.2 Meta tags

HTML documents allow the author to specify information about the document in addition to the actual content. Such information, called meta data, is not shown by the web browser and is made up of key-value pairs. (The HTML standard itself does not specify the keys; instead, *profiles* are used to specify valid keys and their meaning.) The *keywords* attribute can be used to quickly identify and summarise the contents of a page. For example, a web page that sells Mikimoto jewelry could use the following keywords:

```
<META name="keywords" content="Mikimoto, jewelry">
```

Search engines may use this information to rank this page and determine that it will be highly relevant for somebody searching for 'Mikimoto jewelry'. However, keywords can be used to mislead a search engine in the sense that the given keywords might not correspond to the actual content. (This practice became so prevalent that some search engines started to ignore the meta tags as 'search spamming' (Arasu *et al.*, 2001).) Meta tags can infringe on trademark law if the content attribute contains terms that are trademarked. In the above example, the use of Mikimoto could be a trademark violation.

In *Brookfield vs. West Coast Entertainment*, Brookfield held the trademark 'MovieBuff', which was used by the defendant in a domain name, moviebuff.com, and in the website's meta tags. The court concluded that the defendant used the trademark to attract customers to his website: 'Using another's trademark in one's meta tags is much like posting a sign with another's trademark in front of one's store'. The court saw this as a trademark infringement under the doctrine of initial interest confusion (Paylago, 2000). Interestingly, the court said that the defendant could use the term 'movie buff' in meta tags, because it is a legitimate expression in the English language (dictionary doctrine (Lastowka, 2000)).

It is recommended that a site only uses trademarks it owns in its meta tags, or that it has the permission to use them in such way.

5 Summary

The majority of modern enterprises, regardless of their size, have a web presence. These enterprises, acting as both content providers and content consumers, need to know about IP aspects that potentially affect their activities. In contrast to large enterprises, SMEs are more exposed to potential legal risks because they can be assumed to have more limited legal resources.

This paper highlighted potential legal risks associated with IP on the web by discussing case law in the essential areas of copyright, patents, and trademarks. Even though it is difficult to provide clear guidelines due to evolving case law and diverging jurisdictions, the paper discussed areas of IP that have raised legal issues in the past. Changes in the web and in e-commerce, changes in law, and evolving case law means that enterprises should continuously review their exposure to IP risks.

The recommendations suggested in this paper provide a foundation for a more formal assessment of an organisation's IP risks associated with web content.

The key contributions of this paper are as follows:

- Advice on a number of legal issues related to IP on the web. When possible, general advice and recommendations from legal experts has been provided. It must be emphasised that these recommendations cannot substitute for professional counsel in concrete legal issues. Nevertheless, the recommendations can serve as a first step towards risk mitigation.
- A comprehensive survey of IP case law concerning an organisation's web presence. To identify relevant cases, a search was made through technical journals that feature law columns written by law professors or other legal experts (*e.g.*, Samuelson's *Legally Speaking* column in *Communications of the ACM*), dedicated legal journals that address internet law, and online IS news sources. Although the search was not exhaustive given the large and diverse information base, and the selection of the discussed cases is somewhat subjective, the survey is comprehensive in the sense that it shows the spectrum of legal risks.

IP law continues to evolve at a rapid pace. Some of the issues described herein might become irrelevant as the law changes, and new ones might appear. Also, different jurisdictions might have different interpretations of a given event. Seeking legal advice from a local and international expert in IP law is strongly recommended.

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