

XML-related intellectual assets

Cecilia Magnusson Sjöberg

Faculty of Law, Stockholm, Sweden
Cecilia.MagnussonSjoberg@juridicum.su.se

Abstract:

Information and technical applications on the Internet have come to represent great economic values. At the same time it is a well-known fact that the Web and similar digital networks challenge the conventional ways of understanding and managing intellectual property rights. This gives rise to a need for legal advice, but precise answers are rarely found in the law itself. In this context, awareness of the predominating legal principles for protecting DTDs and schemas, stylesheets, markup etc. already during system development may reduce the uncertainty.

Setting the scene

The popularity of the Web as a publishing medium highlights the legal issues surrounding electronic access to intellectual assets. This paper gives an overview of how investments represented in a typical XML-application may be protected by IPR (intellectual property rights) .

Information as well as technical applications in the Internet environment represent great economic values. But can we, for instance, consider a DTD as equivalent to a so-called literary work and thus protected by copyright? What about incorporating digitally available stylesheets into specially customised XML-applications? Etc. Potential right owners seek legal advice and look for practical solutions to the need to protect their works.

The widespread use of web technologies including XML methods adds new dimensions to the legal scene. In a historical perspective the national sovereignty characterising a state's possibility of regulating physical objects has during the years of ICT revolution been heavily influenced by the Internet as a global market place for immaterial objects. This gives rise to a need for revisions, adjustments and completely new legal regulations. International conventions, recommendations and case law developments are of course also important in this respect.

The rapid development of information technology represents, however, a core difficulty from a regulatory point of view. Attempts over the years to accomplish so-called technically neutral legislation do not fully respond to the need for legal clarifications. This has led to a situation in which technical means of ensuring intellectual property rights and enhancing security of the management of legally relevant documents have come to have an increased impact in practice. A recent example of this development trend is the so-called DPRL (Digital Property Rights Language) which is intended to support commercial use of digital works of different kinds (see further <http://www.oasis-open.org/cover/dprl.html>).

This background description boils down to a need to discuss XML both from the point of view of (a) intellectual assets and (b) as a potential method of ensuring copyright protection and securing legal documents in general. The focus here will be on substantive law issues associated with the use of XML. Section 2 of this paper, therefore, gives a brief overview of the legal state of the art concerning intellectual property rights in an IT perspective. The next part (Section 3) presents the major issues associated with regarding XML in a broad sense as a possible object of IPR. Finally, a few concluding remarks are presented.

The legal state of the art

The nature of intellectual property rights may roughly be described as a way to “encourage the publication or use of inventions, designs and other materials (‘protected material’) by providing legal protection to enable the owner to control their publication and use.”¹ More precisely, the owner of a legal right to intellectual property is enabled to (a) apply the protected material himself, (b) exclusively or non-exclusively license the intellectual property rights in the protected material to others and (c) assign the rights to others.²

The notion of “intellectual property rights” indicates that this legal concept comprises a collection of rights including patents, copyright, design rights, trademarks etc. In an XML environment, copyright and trademarks regulations are of major interest, and these rights, accordingly, will be at the centre of attention in the following pages.

Copyright

Copyright is a property right aimed at preventing undue copying of original **works**, ranging from fiction to computer programs. There is a requirement of originality attached to copyright which relates to the expression of thought and not to the originality of ideas.³ In practice this means that a most brilliant software solution in terms of logic design may in fact not be entitled to copyright protection, at the same time as a functionally very poor computer program might be.

The EC Directive on the legal protection of computer programs – the so-called Software Directive – states in its Preamble that “no tests as to the qualitative or aesthetic merits of the program should be applied”. Furthermore Article 1 (3) of the Directive states that“(a) computer program shall be protected if it is the author’s own creation. No other criteria shall be applied to determine the eligibility for protection.”

In addition to the fundamental economic rights attached to copyright (the right to copy the work and issue the copies to the public, perform the work to the public etc.) there are the so-called moral rights. This copyright feature generally gives the author of a work a right to be identified in any copy of the work which is issued to the public. The moral rights also includes a right to object to any derogatory treatment of the work.⁴

Ownership of copyright falls to the first author of a work or authors if the work is a result of joint effort.⁵ There are no formalities (such as registration) attached to the commencement of copyright. The well-known copyright symbol © is, for instance, no general legal requisite for obtaining protection. However, the Universal Copyright Convention prescribes the use of the ©-symbol to ensure international protection.

The duration of copyright varies depending on the type of work which the protected material represents.

The legal framework governing copyright protection is comparatively international. In spite of this incentive for harmonisation, national regulatory regimes vary considerably. The global infrastructure of the Internet adds of course to the picture of a complex legal setting, for instance, with regard to the selection of jurisdiction.

Important international legal instruments:

The Berne Convention for the protection of literary and artistic works from 1886⁶

¹ *Baker & McKenzie (London 1998) p. 5.*

² *See further e.g. ibid p. 5 ff.*

³ *See e.g. Lloyd (London 1997) pp. 300-301.*

⁴ *See further e.g. Baker & McKenzie (London 1998) pp. 28-38 and Lloyd pp. 324-325.*

⁵ *Special rules may apply to employee-created works and computer generated works. See e.g. Lloyd (London 1997) pp. 301 ff.*

⁶ *See <http://www.wipo.int/eng/iplax/index.htm>*

The Rome Convention for the protection of performers, producers of phonograms and broadcasting organisations from 1961 ⁷

The Universal Copyright Convention

The 1995 Agreement on Trade Related Aspects of Intellectual Property Law (The TRIPs Agreement) ⁸

The WIPO Copyright Treaty 1996

Important EC Directives:

The EC Directive 91/250, on the Legal Protection of Computer Programs
(The Software Directive)

The EC Directive 96/9 on the Legal Protection of Databases
(The Database directive)

The EC Directive 89/04 on the Harmonisation of Trade Mark Law
(The Trade Mark Directive)

Trademarks

The overall purpose of trademarks is to identify and distinguish the source of a good or service in a commercial setting. A trademark may take the form of “words, symbols, slogans, designs, characters, packaging, sounds, smells, and colors as well as product configurations”. ⁹ The detailed legal regulation of trademarks varies from one jurisdiction to another. Protection either requires registration or appears as a result of widespread use.

In an IT perspective, different forms of identifiers are of particular interest. In a broad sense the term identifiers may comprise domain names, public identifiers of different kinds as well as hidden metadata-tags. In an IPR-perspective this raises the question of possible protection as trademarks.

Without here going into any details, it is worth mentioning that domain names may be protected as trademarks. A closely related question concerns that of hidden metadata tags containing a competitor’s trademark for the purpose of improved retrieval of one’s own page by the search mechanisms of AltaVista, Yahoo, Googles and the like. This use of metadata may constitute a trademark infringement. A third question concerns whether public identifiers of different kinds may be covered by an intellectual property right. The answer is “yes” as titles are protected. It would, for instance, not be wise to use the word “Scientology Bible” as an identifier for something that in fact contains critique of this church.

XML-related IPR-objects

Introduction

From the point of view of substantive IT law it may not be considered very much of a new type of challenge to integrate XML into the legal framework of intellectual property rights, merely a matter of adjusting the

⁷ See http://www.wipo.int/eng/iplcx/wo_rome_.htm

⁸ See <http://wto.org/wto/intellect/1-ipcom.htm>

⁹ See e.g. Rosenoer, Jonathan, *CyberLaw* (New York 1997) p. 95.

interpretation and application of existing rules and cases to new circumstances. But it does require an in-depth understanding of the predominant legal principles in the field on the one hand and the functionality of this particular IT-related method for document management on the other.

The widespread use, for example, of electronic documents, automatic legal decision making, and the emergent virtual organisations have indeed changed the fundamental legal infrastructure in many areas, such as contract law, penal law, administrative law etc. To conclude, the understanding and management of law in the information society have both in practice and in theory turned out to be rather complicated.

A major explanation is, as already mentioned, that the law by tradition places an emphasis on the regulation of physical objects. The immateriality of the information on the Internet makes it therefore necessary to (a) investigate to what extent the existing legal framework may give advice, (b) analyse whether there are any specific IT-related rules etc. applicable and (c) by way of analogy pinpoint and clarify areas of legal uncertainty and possible ways of reducing it. This working method has in recent decades become a major task within the field of information technology law and is also the basis for the following presentation of XML in an IPR perspective.

Major IPR objects

An IPR inventory

The overall purpose of the **inventory** presented here of how different XML-related intellectual assets may fit into the system of intellectual property rights is to provide a basis for further discussions. In practice there are namely many factors influencing an assessment of whether a particular “work” is to be regarded as “protected material” or not. Differences in national jurisdictions, not least, make it necessary to emphasise the need for a supplementary legal analysis based on all factual circumstances in a certain case. The possibility of, and in fact common need for, specific IPR contract clauses adds to the picture. In this context mention should also be made of the possibility of taking advantage of technical measures as such in copyright protection.

The following discussion will focus on DTDs and schemas, markup in terms of elements and attributes, a marked up document, stylesheets etc., (hypertext) links and portals, and to some extent, databases (briefly). Central issues to be reflected upon are: the major form of intellectual property right, category of work, protected material (including the requirement of originality), forms of representation (graphical, digital, printed etc.), and finally possible infringements. It should once again be stressed that the given information is to be regarded merely as introductory remarks as to the possible legal status of various XML features.

One particularly important distinction is that between copyright protected computer programs and other literary works. This is because computer programs are surrounded by certain specific legal principles concerning backup copies, observation, functionality test, de-compilation, reverse engineering etc. ¹⁰ This remark indicates that the general starting point is that computer programs are copyright protected provided that the code (or other accepted forms of its expression) complies with the requirements of originality. ¹¹

There exists no universal legal definition of the term computer program, which may be taken as a sign of a general aim, given the rapidity of technical development, to avoid technically rigid regulations. An attempt to define the concept of computer programs was made, however, by the World Intellectual Property Organisation (WIPO) in the late 70's, describing a computer program as

¹⁰ See e.g. *Baker & McKenzie (London 1998) pp. 79 ff.*

¹¹ See e.g. *Article 1 (1) of the Software Directive.*

a set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities, to indicate, perform or achieve a particular function, task or result.

It is interesting to note that the (relatively) recently adopted EC Software Directive offers protection of computer programs in any expression and form without more precisely defining this object of protection. The protection includes source code, object code and the expression of the program in any other human readable language or machine readable form (Article 8 (2)).

Furthermore, the Software Directive encompasses the protection of so-called “preparatory design material”, which is to be understood as flow charts representing the underlying logic of the program, or a description in words or otherwise of the design of the program. This is to say, preparatory design material is protected as computer programs.

DTDs and schemas

A Document Type Definition may be described as “the formal definition of the elements, entities and notions which go to make up a specific document type in SGML“¹² (or XML). The major form of intellectual property right in a discussion about DTDs is **copyright**. Mainly because of a DTD’s character of a **specification** which cannot be executed (directly) by a computer, it is not likely to qualify as a computer program. Instead, it appears to be more reasonable to regard a DTD as a vocabulary of rules that may be computerised.¹³ Furthermore, a DTD has a declarative character – not procedural – with an infinite number of documents that will meet its requirements. But what about the **validation** of a DTD in order to find out whether it conforms to the given syntax? Could this be considered as similar to the compilation of a computer program? Hardly.

To summarise, the lack of executable algorithms in combination with the need for computer support, i.e. underlying software engine, for validation of the DTD itself and its correlation to marked up documents etc. probably disqualify a DTD from the IPR work category of computer programs.

One should bear in mind, though, that the legal definition of what is to be regarded as a computer program does not necessarily correspond to a common technical understanding. In this context mention should be made, for instance, of the fact that the declarative parts of COBOL-program will in an IPR perspective qualify as computer programs. This implies that it cannot be taken for granted that a court, somewhere in the world, will in fact look upon a DTD as program code.

The view put forward in this paper, however, is that DTDs – in spite of their somewhat hybrid features – have a predominant character of specification and not of computer program. Finally, DTDs are not programmed but specified.

The introduction of so-called schemas does not change this view in principle, but it does weaken the argument. A schema can be generally described¹⁴ as a specification or formal definition of the constraints on the content of an XML document, aiming at both structure and functionality. One way to specify a schema is to use a DTD (this may be referred to as an SGML data schema), but XML schemas can model other kinds of structured data as well and are in principle more expressive. An important feature of an XML schema

¹² *Flynn (Boston 1998) p. 403.*

¹³ *Cf. the discussion about stylesheets below*

¹⁴ *See further e.g. Kennedy, Introducing XML schemas.*

is the possibility to integrate database functionality and communication between applications. A major purpose of an XML schema is indeed to make it support data typing (integer, date etc.) and thereby facilitate XML data interchange with conventional database systems.¹⁵ XML schemas are written in XML and have been developed for use on the Internet and are therefore co-ordinated with other W3C specifications.

This rudimentary description of schemas highlights how much more powerful and functionally oriented an XML schema is compared with a DTD, but we are still dealing with a specification and not an executable code. However, this reasoning is not similar to saying that a DTD or schema may not be copyright protected. On the contrary, DTDs commonly represent economic investments and valuable intellectual assets of an enterprise or organisation. From a philosophical point of view this may appear somewhat contradictory, considering that one of the underlying goals of the development of SGML – and XML for that matter – has been to provide means for platform independent interchange of documents through networks.

The general copyright requirement of originality naturally applies also to a DTD or schema that seeks protection. An original combination of logical connectors¹⁶ and occurrence indicators plays an important role here.

The form in which the DTD or schema is represented makes no difference to the possibility of copyright protection. This means that a graphical version, a representation in conventional text format or a digital copy are equally protected.

Markup

Markup in terms of a customised set of tags comprising both elements and attributes may no doubt represent an important intellectual resource to an enterprise or organisation. This applies to both commercial providers of general solutions to document management problems and in situations where a specific tagset has evolved during the procedure of system development. In this context the intellectual asset represented by the markup may be protected by copyright.

Provided that the markup at hand meets the requirement of originality, protection can be expected as a literary work. Similar to the previous discussion about DTDs a key issue is whether it would be possible to argue that markup should fall in to the IPR categories of either “computer program” or “preparatory design material”. The answer – based on current legal discussions about the status of HTML-code – is no.¹⁷ This conclusion is based mainly on the following.

In spite of the fact the markup code does give instructions – to a web browser, for instance – there is no compilation or interpretation similar to what is a function commonly associated with the running of a conventional computer program. The fact that the markup may not be directly executed by a computer is, however, not a formal reason for excluding the code from protection as a computer program, because there are software modules which, in spite of not being executable, are considered to fall into this IPR category.¹⁸ Still, in a discussion of the general characteristic of markup, the question of the code being executable or not is relevant.

¹⁵ *The relationship between an SGML DTD an XML schema and a database schema may be described by listing what they respectively support: (a) SGML DTD: field name, hierarchy, sequence and frequency, (b) XML schema: field name, hierarchy, sequence, frequency, data typing and relationships and (c) database schema: field name, data typing, frequency and relationships. See ibid.*

¹⁶ *Major logical connectors are decided order (all included), optional order (all included), exclusive or and inclusive or. Major occurrence indicators are: one, zero or one, one or more, and zero or more.*

¹⁷ *See e.g. Lindberg and Westman (Stockholm 1999) p. 159 and Wagle and Odegaard (Oslo 1997) pp. 80-83.*

¹⁸ *See Wagle and Odegaard (Oslo 1997) p. 81.*

Furthermore, the lack of conditional stipulations in markup places it more naturally as another form of literary work than computer programs which commonly are procedural.¹⁹ Yet another aspect has to do with the fact that the specific legal framework surrounding computer programs does not easily apply to markup.²⁰ For instance, how does one decompile element tags?

The reasoning above does not exclude markup from being an intellectual asset that may be protected, but what kind of tags may be regarded as protected material? The assessment of originality will naturally be affected by the chosen characteristic of the markup. For instance, a tagset based merely on structural elements such as “Preface, Introduction, Chapters, References etc.” is less likely to reach the level of originality than a tagset mirroring more specific features of a particular application. An example from the legal domain may illustrate when the markup ought to qualify for copyright protection. An extraction of the tagset developed in the so called Corpus Legis Project (graphically illustrated in Microstars DTD editor Near & Far) is presented below.²¹ The sample of tags is used for topic oriented contents markup of legal statutes. The list of elements illustrates nine different legal elements.²²

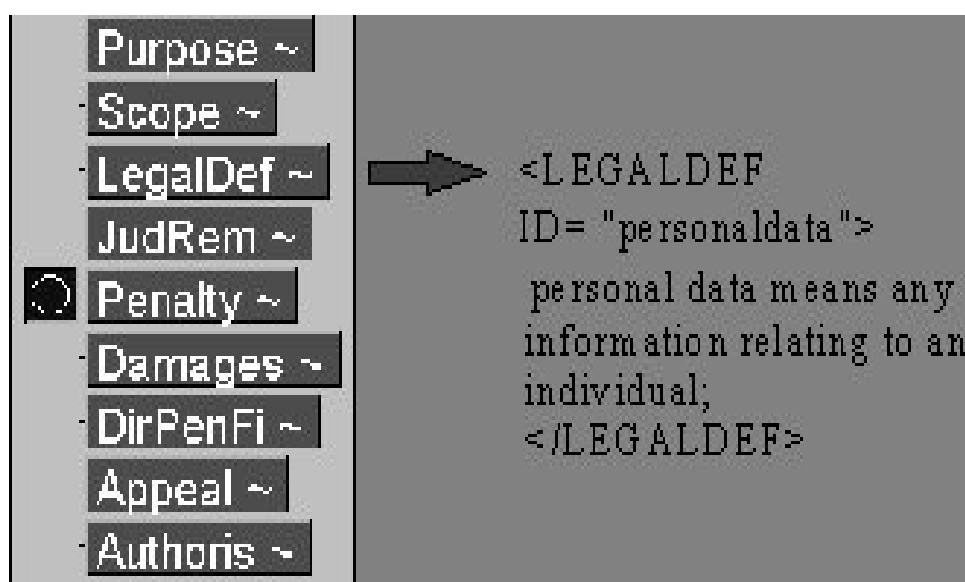


Figure 1. Topic oriented contents markup of legal statutes

The markup level (e.g. layout, structure and contents) as such does not determine the outcome of an originality assessment. It may very well be the case that a presentation oriented markup meets the requirements while, as indicated above, structural markup will not. Contents markup, on the other hand, is in general more likely to be regarded as an author’s own intellectual creation.

In order to qualify for copyright protection there are no special requirements as regards forms of representation. This means that a graphical representation of a tagset (see Figure 1 above) as well as elements inserted in a marked up document can be protected.

Marked up document

¹⁹ Lindberg and Westman (Stockholm 1999) p. 159.

²⁰ See *ibid* and Wagle and Odegaard (Oslo 1997) p. 82.

²¹ See further <http://www.juridicum.su.se/iri/corpus>

²² See further Magnusson Sjöberg (Stockholm 1998) pp. 137 ff.

On the basis of the discussion above concerning markup as an object of IPR, the broader notion of a marked-up document does not give rise to any principally new legal issues. This means that a marked up document may be subject to copyright as a kind of literary work, but it does not fall into the category of a computer program (including so-called preparatory design material).

There appear to be even weaker arguments than the markup code itself in favour of regarding the marked-up document as a computer program. Comparison may here be made to the distinction between a word processing program which is, of course, categorised as a computer program also in the sense of IPR, and the word processing document which does not fall into this category of work. ²³

The question of originality as a requirement for protection does not differ from any other similar assessment. One could possibly say that the insertion of customised markup may add to the originality of a certain document (text unit etc.). From a practical point of view it may therefore be relevant to present a printout version of a document trying to attain copyright with tags shown instead of tags hidden. For instance, one could not within the Swedish jurisdiction claim copyright to a law, but a marked-up version of the law may be subject to this protection. Furthermore, the supplementation of metadata to a document is another way of making it more original from the point of view of copyright.

```
<SUBDIV1 ID="Provisions"><S1TITLE>Introductory provisions</S1TITLE>
<ARTICLE ID="A1"><ARTNO>Section 1</ARTNO>
<PARA>For the purposes of this Act</PARA>
<PARA><LEGALDEF ID="personal-data">personal data<CR>
means any information relating to an individual;
(see <CLINK LINKEND="nm-de-personal-data">german</CLINK> law)</LEGALDEF></PARA>
<PARA><LEGALDEF ID="personal-data-file">personal data file<CR>
means any file, list or other record undergoing automatic data
processing that contains information relating to a <ANCHOR IDREF="data-subject"
REFTYPE="internal">data subject</ANCHOR>; (see
<CLINK LINKEND="nm-de-personal-data-file">german</CLINK> law)</LEGALDEF></PARA>
```

Figure 2. Sample of marked up version of a law

Stylesheets, etc

The basic idea of a stylesheet can be described as a means of formatting instructions stored separately from the target text. A major advantage is, of course, that the same content of a document may be presented in various ways, depending on the choice of producer, user etc. In this respect XSL (Extensible Styling Language) incorporates new functions that contribute to the already existing family of styling languages.

²⁴

In comparison with a DTD, stylesheets developed in XSL have more in common with the conventional features of a computer program. The application of a stylesheet is far more deterministic and leads to the same result independently of used software tool.

XSL is based on a method for so-called pattern matching which ranges from fairly simple matching of names of an element type that will be given a certain style to context-based considerations where Boolean operators (AND/OR) may narrow or broaden the matching criteria. Bradley describes this form of pattern matching in the following way:

²³ See e.g. Wagle and Odegaard (Oslo 1997) p. 81.

²⁴ Mention can here be made of CSS (Cascading Style Sheets) DSSSL (Document and Style Semantics and Specification Language).

At the heart of the XSL format is the capability to identify elements in the source documents which require specific formatting rules to be applied. This is termed ‘pattern matching’. Its capabilities in this area range from very simple (apply these formats to every element with the name ‘Para’) to the very complex (apply these format to every ‘Para’ element that appears within a ‘Section’ element immediately follows a ‘Figure’ element, and has an attribute of ‘type’ with a value of ‘continuation’). ²⁵

The procedural character of an XSL-stylesheet described above is further strengthened by transformation mechanisms of this styling language that take place prior to actually styling the content of a document. This may be done by adding prefixes and suffices to elements. ²⁶ There are several other aspects of XSL that support the idea that this kind of advanced stylesheets may be copyright protected as computer programs; given that they meet the requirement of originality of course.

Before moving on in this inventory of XML-related IPR objects, let us raise a very practical question. Would it be regarded as fair use of a copyright protected stylesheet to copy a part of it, acknowledge the source and claim that it has merely been “cited”? The answer is, “not necessarily”, considering that it is, for instance, not permissible to extract the best part of a work in order to improve one’s own. Another decisive factor is whether the copied part of the stylesheet – or for that matter, DTD, computer program, etc. – corresponds to what is to be regarded as a substantial part of a work. The setting of reproduction is also relevant. Partial reproduction for scientific purposes, for example, is more widely accepted than what is allowed in a commercial environment. ²⁷

Hypertext links and portals

One of the most intensively debated IPR issues related to the Internet concerns hypertext links. Just as with IT law in general, certain lines of arguments appear to be more distinct and valid than others. Caution is prescribed, however, as to how different courts governed by various jurisdictions will decide in an individual case.

Given these conditions, one could say that there is no general legal requirement to obtain permission before including a link to someone else’s homepage. Such a link will probably be regarded as a reference to someone else’s work, which is permissible. Furthermore, the hypertext link itself does not represent any expression that may be subject to copyright, as it merely contains an address to a site on the Web. In this context mention should be made of the fact that an author of a homepage or a site does have the possibility of protecting the contents of the web pages by passwords and user ID:s. ²⁸ However, not all kinds of hypertext links are innocent in an IPR perspective. The use of so-called embedded links may, for example, result in copyright infringement.

Furthermore, a Web site presenting a collection of links to other sites, indexes of how to search information on the Internet etc. may be protected, in which case the coping and integration of those links into another Web site will be forbidden.

It may not be the case that the structure of the portals so common today qualifies for protection as a database, literary work, but the legal framework of IPR includes so-called neighbouring rights that are generally considered to be weaker but do offer possibilities of protection and remuneration.

²⁵ *Bradly (1999) p. 358.*

²⁶ *Ibid p. 359.*

²⁷ *See e.g. Rosenoer (New York 1997) pp. 16 ff, Lindberg and Westman (Stockholm 1999) pp. 175-177, 202.*

²⁸ *See e.g. ibid pp. 9-11.*

To summarise, the advanced and comparatively much more powerful possibilities of implementing links by means of XLL, for instance, the method of pointing at several sources simultaneously, implies a need for legal awareness. In particular this applies to the function of prescribing by way of a link certain courses of action. More precisely, how to present the result of the link (in a new browser window, embedded in the current page or as a replacement of the current page) and when to effectuate the link (on a user's request or automatically).²⁹

Databases

Databases may be subject to copyright protection. Considering that the introduction of XML does not give rise to any specific IPR-issues in this respect, only a few remarks will be made on this area.

The starting point is that the notion of a database is vague from both a legal and a technical point of view. Article 1 (2) of the Database Directive (EC 96/9) defines a database as

a collection of independent works, data or other material arranged in a systematic or methodical way and individually accessible by electronic or other means.

A somewhat extended definition is given in the Directive's Preamble recital 17:

Whereas the term 'database' should be understood to include literary, artistic, musical or other collections of works or collections of other material such as texts, sound, images, numbers, facts, and data; whereas it should cover collections of independent works, data or other material which are systematically or methodically arranged and can be individually accessed; whereas the means that a recording or an audio-visual, cinematographic, literary or musical work as such does not fall within the scope of this Directive.

Important requirements for the constitution of a database in this legal sense are the existence of:

- a collection of
 - independent works, e.g. texts and computer programs, or
 - data or other materials
 - arranged in a systematic way.³⁰

The contents of a database may be subject to protection under at least the following conditions:

- the contained independent works
- the collection of the independent works, and
- the systematically arranged data or other materials.³¹

²⁹ See further e.g. Flynn (Boston 1998) pp. 140-142.

³⁰ For more in-depth comments, see e.g. Baker & McKenzie (London 1998) pp. 96 ff. and Lloyd pp. 365 ff.

³¹ Seipel, Peter, Databasrätt pp. 34 ff.

This means that databases represent a work category of its own. The definition comprises databases available on-line via the Internet through a homepage as well as via an FTP server. Databases delivered on, for instance, a CD-ROM are also protected by this EC Directive.

In this context a distinction should be made between computer programs – commonly search programs – that are used for retrieving or extracting information from the database and the database itself. Copyright protection may be offered to both work categories, but under different legal regulations. The form of protection is similar, however, because a database needs to qualify as original when its contents “constitute by reason of their selection or arrangement, the intellectual creation of the author” (Article 2(3), the Database Directive). In this context the use of XML may add to the originality by providing means for customised arrangement of data and facts in a systematic way.

Already protected works stored in a database will continue to benefit from the perhaps more extensive rights and remedies offered under other copyright rules. The advantage of the Database Directive is that it offers a so called *sui generis* protection in respect to contents that otherwise would not have been protected.

The exclusive rights in relation to the protection of a database are stated in Article 5 of the Database Directive comprising the following:

- (a) temporary or permanent reproduction by any means and in any form, in whole or part;
- (b) translation, adaption, arrangement and any other alteration;
- (c) any form of distribution to the public of the database or of copies thereof;
- (d) any communication, display or performance to the public;
- (e) any reproduction, distribution, communication, display or performance to the public of the results or the acts refer to in (b).

Concluding remarks

Generally speaking, the reason why management needs to bother with intellectual property rights is not merely out of a desire to protect an organisation’s own intellectual assets but also in order to acquire knowledge concerning prohibited and permitted actions in respect to competitors on the market. In practice, it may be interesting to know that a work being copyright protected does not completely remove it from public use. Intellectual property rights do not, for instance, impede anyone reading a DTD from being inspired by the underlying ideas, as copyright only concerns the expression of thought.

If we are dealing with computer programs, a set of more specific rules apply, and so it is important to consider this work category in the context of schemas, stylesheets, etc. A major exclusive right of the copyright owner concerns reproduction, for which reason a program may not be copied – even for private use – without a licence or permission. Under EC law (Articles 5 and 6 of the Software Directive) an authorised user may, however, observe and study a program, make a copy or adapt it for the purpose of error correction. Furthermore, back-up copies are allowed and under certain circumstances so is decompilation (and reverse engineering). Algorithms, being a typical way of representing ideas, are not protected.

To conclude, the discourse of this paper illustrates how the conventional categorisation of copyright works is being somewhat outpaced by technical development. In spite of the fact that the legal framework of intellectual property rights has been IT-adjusted, in that it explicitly includes computer programs and

databases, there are fields of uncertainty. The introduction of XML schemas and XSL stylesheets provides two examples of possible ways of representing intellectual assets that from a legal point of view may be regarded as hybrid works. A management solution to this legal uncertainty would be (a) recognition of the general requirements of copyright protection (originality etc.), (b) contractual regulation and (c) the implementation of technical means of IPR protection.

Finally, this subject matter clearly shows the double faced interaction of IT and law. On the one hand there is a need to investigate IT-related substantive law issues. At the same time one should not disregard the fact that IT may offer vital support for the handling of a wide variety of legal issues, including the management of intellectual property rights.

Bibliography

- [1] Bradley, Neil, XSL Theory and Practice. In: XML Europe '99 Conference Proceeding pp.357-361. 26-30 April, 1999. Granada, Spain. Presented by GCA (Graphic Communications Association).
- [2] Flynn, Peter, Understanding SGML and XML Tools: Practical programs for handling structured text. Boston: Kluwer Academic Publishers, 1998.
- [3] Guide to Intellectual Property in the I.T. Industry: Intellectual Property in Practice. Bake & McKenzie and Robert J. Hart. London: Sweet &Maxwell, 1998.
- [4] Kennedy, Dianne, Introducing XML Schemas: A Tutorial: Concepts & Syntax. XML Europe '99. 26-30 April, 1999. Granada, Spain. Presented by GCA (Graphic Communications Association).
- [5] Lindberg, Agne and Westman, Daniel, Praktisk IT-rätt. Second ed (1997). Stockholm: Norstedts Juridik, 1999.
- [6] Lloyd, Ian, Information Technology Law. Second edition. London: Butterworths,1997.
- [7] Magnusson Sjöberg, Cecilia, Critical Factors in Legal Document Management: A Study of Standardised Markup Languages. Stockholm: Jure, 1998.
- [8] Rosenoer, Jonathan, CyberLaw: The Law of the Internet. New York: Springer Verlag, 1997.
- [9] Seipel, Peter, Databasrätt: Fokus på upphovsrätt och avtal. IRI-rapport 1990:6. Stockholm: Institutet för rättsinformatik, 1990.
- [10] Wagle, Anders Mediaas and Odegaard, Magnus jr, Opphavsrett i en digital verden. Oslo: Cappelen Akademisk forlag 1997.

Author

Cecilia Magnusson Sjöberg

LL.D., professor
Faculty of Law
Postal Address:
Stockholm University
S-106 91 Stockholm
Sweden
Telephon: +46 8 16 28 93
Fax: +46 8 612 90 72
E-mail: Cecilia.MagnussonSjoberg@juridicum.su.se

Cecilia Magnusson Sjöberg, LL.D. - Cecilia Magnusson Sjöberg is Associate Professor at the Faculty of Law, Stockholm University. She has had 15 years' of practical experience of developing and using IT-based legal information systems, including both the public and the private sector as well as participation in EU projects.

She gained her doctorate in 1992 with a thesis on legal automation in the Swedish public sector. Within the field of SGML/XML her major work – the Corpus Legis project – is described in the book “Critical Factors in Legal Document Management: A study of standardised markup languages” (Stockholm: Jure, 1998, <http://www.juridicum.su.se/iri/corpus>)

A new project has recently been initiated in which the possibilities of cross-fertilisation of advanced methods for security enhancement and applications of XML in the legal domain will be investigated.

She is at present course director for the international Master's Programme in Law and Information Technology at Stockholm university in which the development and management of information systems are studied in a legal perspective (<http://www.juridicum.su.se/iri/studentinfo/>).