

MANAGING INTELLECTUAL CAPITAL: INDIVIDUAL RIGHTS AND THE PUBLIC INTEREST

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Abstract

Managing intellectual capital and intellectual property is a challenging task, especially for knowledge-based organisations vested with a public interest. Scientific ethics and freedom of information may clash with copyright law or with other intellectual property enactments, thereby engendering conflicts of interest. International law and treaties make for a complex regulatory framework. World-wide advocacy of the open access principle has led to some statutory changes, but its proponents mostly assume that copyright owners will act voluntarily. The implications for knowledge management are elucidated.

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Suggested track:

K Intangible assets and social, intellectual, and cultural capital

1 Introduction

The widespread discussion of private property rights to intellectual capital and other intangible assets such as patents and copyrights is generally - and also rightly - seen as an issue of international law and of national sovereignty. It is, however, also an issue which necessarily impinges on the operative knowledge management of organisations which are stakeholders or players in this field. Particularly knowledge-based organisations vested with a public interest may easily find themselves to be in a conflict of interest between their inherent commitment to the principle of freedom of information on the one hand and their duty to show due diligence to the property interests of individual rights-holders on the other hand.

Although intellectual property is only a subset of intellectual capital, it is often called the "most tangible of the intangibles." This means that it is a good subset with which to illustrate the concepts involved.

2 Theory / Issues

Scientific ethics and intellectual property

Content providers which primarily serve the scientific community have a clear duty to facilitate as far as possible the transfer of knowledge within that community in a manner commensurate with the scientific ethic. At the same time, they may also be charged with the custodianship of legal titles administered on behalf of private holders of intellectual property rights. Also, liability issues for the distribution and dissemination of information arise when content providers conduct business across international borders using interactive media technologies. What may pass as freedom of information in one country, for example, may be held to be an infringement of copyright or as a violation of libel law, religious sentiments or social customs in another.

What one might call the culture of the Internet, which is marked by scientific values such as the free exchange of information, is experiencing attempts by governments and private enterprises to limit its freedom. Whereas government action is usually orientated to some form of censorship (Global Internet Liberty Campaign 2003) or to restrictions based on claims of national security (ON Magazine 2004), businesses try to make the Internet's traditionally open standards proprietary to themselves, cf. Microsoft and Sun Microsystems (McCullagh 1998)

Parallel to this there is also the tendency for enactments which make copyright infringements on software products a criminal offense, as well as also being a civil violation.

Much of this was inevitable when the Internet became commercial. Domain names became a saleable commodity, for instance, and domain-name squatters soon multiplied. Then copyright holders like Microsoft, Sony and Time-Warner demanded stricter intellectual property laws. They argued that without that protection, they wouldn't post their articles, movies or songs online. Commerce became more important than cooperation.

The biotechnology industry has had to cope with similar problems. When genetic engineering exploded, the industry found itself transformed from a traditional share-everything scientific environment into one where the discovery of a gene could be worth substantial sums of money. Unrestricted information flow soon stopped.

Scientific ethics is - at least partly - an institutional code of conduct that reflects the chief concerns and goals of science (Resnik 1993). In this definition, 'conduct' refers to all aspects of scientific activity, including experimentation, testing, education, data

analysis, data storage, data sharing, peer review, government funding, the staffing of research teams, and the like. Although academic science, military science, and business science share some common principles, they have different goals and concerns. These different goals and concerns give rise in turn to different ethics. In the military, national security is the primary goal, and secrecy is essential to achieving this aim. Secrecy is also important in business science in order to promote its main goal, the maximization of profit. There has been much debate among philosophers about the aims of academic science, but clearly two of its chief concerns include the search for explanatory knowledge and true beliefs about the world. Since ethical rules in science should promote these goals, several of science's most important principles emerge:

- Scientific honesty: Data should not be fabricated, concealed or misrepresented.
- Carefulness: avoidance of careless errors in all aspects of scientific work.
- Intellectual freedom: Scientists should be allowed to pursue new ideas and criticize old ones. They should be free to conduct research they find interesting.
- Openness: i.e. sharing of data, results, methods, theories, equipment, and so on.
- The principle of credit: One may not plagiarize the work of other scholars. One must give credit where credit is due (but not where it is not due).
- The principle of public responsibility: Reporting research in the public media when the research has an important and direct bearing on society and it has been sufficiently validated by scientific peers.

Conflicts of interest

Conflicts of interest in this area can take on many different forms. A EURO-MEI position paper from 2003 has expressed concern that there is an automatic conflict of interest when organisations which hold or own rights, and which at the same time also use rights held by others, are represented in collecting societies together with individual creators of rights (Wilson 2003). The conflict of interest perceived here does not necessarily occur at the level of the individual use of intellectual property, but rather at the level of broad policy-making of the collecting societies.

There are also questions of legal protection of copyright, customs and taxes and improving official and unofficial statistics which are all on the international political agenda and require national implementation. There are signs of a political conflict of

interest taking place here at the level of broad social policy, e.g. between international rules and national protective interests, or between the goals of market liberalisation and preserving diversity of opinion (TAB 2002).

Another area in which conflicts of interest can easily arise is the research work of university staff members. In most cases, individual researchers retain their intellectual property rights to the fruits of their research work. Depending on contract terms, the universities may also participate to some extent in remunerations received for such work, or they may have the right to broker user fees and generally act as custodians of the intellectual property created by staffers. The interests of the staffers and the institutions need not necessarily always be identical (Schulenburger 1997). Also, research results may be restricted in their use by confidentiality agreements with private sector companies to the detriment of the implicit commitment of teaching institutions to the unhindered dissemination of scientific knowledge.

The regulatory framework: fair use and the open access principle

The fair use doctrine under U.S. copyright law is a legal principle that creates certain limitations on the exclusive rights of copyright holders. Various public interest organisations (NGOs) have developed guidelines to provide guidance on the application of fair use principles by educators, scholars and students who develop multimedia projects using portions of copyrighted works under fair use rather than by seeking authorization for non-commercial educational uses. Unfortunately, the U.S. Congress formulated the fair use principle in excessively general terms, thus making it very difficult to apply. Few, if any, precedential decisions covering whole classes of cases have been handed down by the courts, so that cases which come *sub judice* tend to be decided upon very narrow grounds.

With the publication of the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (Bullinger et al. 2003), an interesting new initiative has been launched in Europe. The signatories, among whom are the heads of the most important German research organisations, came out firmly in favor of a publication policy orientated towards open access to all human knowledge and cultural heritage insofar as it has been approved by the scientific community. These include scientific research results, raw data, metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia material. The basic idea behind this initiative is that all materials of the type described above should be made available for unlimited and unrestricted use worldwide and free-of-charge.

The recommendations for the actual operation of this open access policy will, however, likely prove to be somewhat impracticable in the long run. The proposal posits the voluntary plenary grant of a very broad permission to use materials. In effect, the rights-holder would waive all the intellectual property rights which he would usually own under the terms of national copyright law and international intellectual property treaties. This assumes that rights-holders will be predominately idealistic and will therefore elect to forego any opportunities they might have for selling their work. In the event that rights to a work are jointly held by several persons or organisations, all rights-holders must make the plenary grant before it can actually take effect for any given work. These grants must, of course, be made in writing. The declaration suggests that these written grants - together with machine-readable copies of the works themselves - should be stored in one or more central repositories which would serve the dual purpose of certifying that the permission had, in fact, been granted and also of delivering the document which was specified in the grant. Plainly, formidable personnel and financial resources would be necessary in order to create and maintain such a repository. No suggestion is made as to how or by whom all this would be paid for.

The Berlin Declaration also suggests a variety of supporting measures intended to promote and facilitate the voluntary issuing of such grants. Researchers, particularly those who have made use of works covered by grants, are to be encouraged to publish their own work according to the open access paradigm. Methods for the evaluation of open access publications and for maintaining high quality assurance standards and good scientific practice are to be developed. The declaration also urges that open access publication be taken into consideration in matters of promotion and tenure. There are, of course, other measures as well.

Regretably, though the declaration was received with some interest in Germany, many commentators have focussed their remarks on the issue of reducing expenditures for purchasing scholarly literature, in some cases imputing this as the main, or even sole, motive of the signers. This narrow view does not do justice to the comprehensive agenda of the open access paradigm.

With regard to a particular focus on the European region, the policies of and the regulatory framework promulgated by the European Union need to be considered. Of special interest in this context is the directive 2001/29/EC of the European Parliament and of the European Council of 22 May 2001 on the harmonization of certain aspects of copyright and related rights in the information society. The treaty establishing the European Union provides for the establishment of an internal market and the institution

of a system ensuring that competition in the internal market is not distorted. A major EU policy finding holds that harmonization of the laws of the EU member states on copyright and related rights contributes to the achievement of these objectives.

In December 1996, a diplomatic conference was held under the auspices of the World Intellectual Property Organisation (WIPO) which led to the adoption of two new treaties, the "WIPO Copyright Treaty" and the "WIPO Performances and Phonograms Treaty", dealing respectively with the protection of authors and the protection of performers and phonogram producers. Those treaties updated the international protection for copyright and related rights significantly, not least with regard to the so-called "digital agenda", and improved the means to fight intellectual property infringements world-wide. The European Union and a majority of its member states have already signed the treaties and the process of making arrangements for the ratification of the treaties by the EU and its member states is under way.

It seems clear that the opacity and complexity of the current international legal and regulatory environment together with the competing interests and values in the sense of substantive tradeoffs between freedom of information within and for the scientific community and the proper deference to the rights of individual intellectual property owners represent a formidable knowledge management challenge for content providers.

3 Methods / Procedures

In the following section we proceed from the general to the particular, i.e. from knowledge management with respect to intangible assets / intellectual capital, thence to methodologies regarding corporate memory and finally to the specific case of a university having inherently conflicting intellectual property agendas.

Managing intellectual capital

Intellectual capital management as a sub-discipline of business studies had three distinctly different points of origin. The first was in Japan with the work of Hiroyuki Itarni, who studied the effect of invisible assets on the management of Japanese corporations. The second was the work of a disparate set of economists seeking a different view or theory of the firm. The views of these economists (Penrose, Rumelt, Wemerfelt and others) were coalesced by David Teece of UC Berkeley in a seminal 1986 article on technology commercialization. Finally, the work of Karl-Erik Sveiby in Sweden addressed the human capital dimension of intellectual capital and, in so doing,

provided an innovative view of the potential for valuing the enterprise based upon the competences and knowledge of its employees.

Over the period 1959 -1997 a diverse group of academic researchers and economists developed a new view of business strategy that emphasized resource efficiency rather than the generally accepted competitive forces. The resource-based perspective takes cognizance of the fact that firms have differentiated or unique resources, capabilities, and endowments. Further, these resource endowments are not easily added, nor are they easily discarded, at least in the short run, so that firms must operate with what they have. The resources-based perspective focusses on strategies for exploiting existing firm-specific assets. Since some of the firm's assets are intellectual, it follows that issues such as skills acquisition, the management of knowledge and know-how, and also learning become fundamental strategic issues. In this context, the work of Itami and Sveiby, dealing with invisible assets or human capital, may have enormous potential for contributing to business strategy (Sullivan 2000).

Measuring intangibles and intellectual capital: "Making the invisible visible"

Karl-Erik Sveiby - one of the economists mentioned above - has developed a methodology for dealing with this issue, which he has called the Intangible Assets Monitor. Goal of the IAM is not, however, to present a full picture of the intangible assets. Sveiby's position here is that this is not possible, and that for this reason the all-comprehensive approaches have failed so far. Sveiby's purpose is to be practical and to "open a few windows" so that managers can start experimenting.

Much of the international research that has been done in this area has assumed it is possible to devise information systems that can generate invisible equivalents in terms of money on balance sheets and various methods have been proposed for treating employees as balance sheet items, measuring them in money equivalents. Some introduce probabilities or discount a person's output during a life. While theoretically interesting, unfortunately few of these attempts to convert people or competencies into money has proved useful for managers. It is no problem to design indicators, the problem is how to interpret them.

The research in human resource costing and accounting has brought forth some interesting projects with an emphasis on personnel accounting calculations for use in decision-making. They have, for instance, assessed the costs of sick leaves and of personnel turnover and designed indicators that can be used heuristically by managers.

An argument for information systems such as Economic Value Added (EVA) that relate profits or cash flow to tangible assets, capital employed or equity, is that only by focussing on tangible flows are shareholders guaranteed that management will create what is now generally referred to as "shareholder value" (Mäkeläinen 1998). They may perform as reminders for the CEO to keep shareholder interest in mind, but it is dangerous – as some enthusiastic supporters argue – to use such ratios for operational control. They do not shed light on the whole range of intangible assets that exist, and they are not useful as management information systems monitoring the daily progress of a business. Sveiby's alternative view is that it is possible to create superior shareholder value by not focussing on the tangibles, but rather on the intangible assets.

The most ambitious proposals to date, in Sveiby's judgement, share another fundamental flaw: they tend to be based on an implicitly manufacturing or industrial orientated perspective. They do not take into consideration that service companies account for most of the employment in the industrialised world and that the rapidly growing - and largely unresearched subsector - which Sveiby calls 'knowledge organisations' (Sveiby 1997) - a more accurate term might be: 'knowledge-based organisations' - are already bypassing the manufacturing sector in many countries. Depending on one's perspective any indicator is subject to a large number of possible interpretations, so the coherent conceptual framework is the foundation that must be built first (Sveiby 1998).

Corporate memory

Generally speaking, corporate memory is a virtual expertise-based resource to consult and enable management of know-how in a company (Vanwelkenhuysen 1996). As a rough analogy, a corporate memory is comparable to a virtual network about human and project expertise (tacit or explicitly represented) available in a company at a given time. This network specifies where and how to access or consult this expertise. Corporate memory is also a collection of distributed and heterogeneous knowledge-bases about individual and project experiences and tools to manage these knowledge-bases for or in new project situations.

Knowledge-bases about individuals are - at their highest level of abstraction - similar to the CVs of these individuals. At a detailed level, this knowledge base may represent the problem solving expertise of an individual.

Knowledge bases about project experiences detail project histories in terms of project management issues, design technical issues and the lessons learned. These experiences are not necessarily represented in a manner that enables direct reuse, though clearly this must be seen as being a desirable goal.

Utility of corporate memory

What is the use of a corporate memory? Why is there a business interest in corporate memories? Corporate memory serves to enable and support a gradual change of the way people in an enterprise work from a functional-oriented discipline (e.g., marketing dept. or engineering dept.) to a project-driven, cross-functional work (e.g. customer-centered or concurrent engineering projects). To some extent, having and effectively using a corporate memory will make it less necessary to undertake some business reengineering processes. The existing organisation can be maintained. The corporate memory is a resource that supports intermediate steps towards a gradual re-organisation.

It can also support improvement and enhancement of the available expertise/competence of a company such that new projects, that previously could not be addressed, become achievable. Expertise/competence improvements can be achieved by stressing 'learning'. A corporate memory enables management of the expertise available in the company to stimulate learning through expertise transfer, cross-project fertilizations, stimulation of creativity by encouraging dynamic project setup and coordination, and through distributed control.

It can also be useful to enable and support the formation of virtual corporations. Corporate memories (or only aspects of it) can be shared among enterprises to share in and build on their key competences. Based on these key competences, temporal alliances among enterprises can be investigated and formed to increase their scope of competence to tackle new projects which cannot be realized by each enterprise individually and/or to quickly respond to market opportunities.

At the operational level, the utility of a corporate memory is to benefit from previous experiences in the company to improve the quality and efficiency of project development/service efforts and to support dynamic opportunistic project management and coordination.

Through the use of design rationales and design history from projects pursued in the company, a project team can make their design process more efficient and effective. The availability of design rationales and design history enables the reuse of analyses

and lines of reasoning in previous projects. This widens the solution space that can be explored during the design process with the same resources which, in the end, is likely to result in more customer satisfaction. Design rationales and histories provide the same benefits for the projects in which these structures are created. Furthermore, traditional project management and coordination boundaries are relaxed, if not replaced, to enable and support a dynamic project management and coordination. This way, project teams are empowered and can respond quickly to customer requests and feedback. Some of the changes that can be achieved through a corporate memory are:

- Traditional project organisation (based on task decompositions and project roles) can be replaced by dynamic and self-organizing project teams.
- Traditional project management (based on central control and hierarchical authority relationships) can be replaced by self-sufficient teams which are enabled and empowered to make decisions and to quickly respond to changes and opportunities.
- Traditional project control can be replaced by a customer-driven control exercised through the evolving customer-needs and the exploration of the implications of alternative design decisions.

How do these general considerations relating to corporate memory apply to the issue of knowledge management of intellectual capital and intellectual property? How can they be applied, for example, to the special situation of scientific research ethics?

Many universities recognize the problem potential and address it with the help of ethical practices guidelines. For example the University of Pittsburgh, which maintains an Office of Research Integrity and has handed down such a guideline (ORI 2003). It states that there are some circumstances in which conflicts of interest could compromise the integrity of research or even lead to research misconduct, for example, by the distortion of research outcomes as a result of the personal financial interests of a researcher. The annual disclosures of outside interests by researchers required by the university's Conflict of Interest Policy and the review of these disclosures by academic administrators are intended to avoid the escalation of conflicts into improper behavior or misconduct. Possible preventive measures provided under that policy include divestiture or public disclosure of outside interests and internal monitoring of the research within the university. A notice of special interests is expected, possibly as a footnote, in publications, research proposals and reports, and in clinical research protocols. The reader is reminded that many journals and funding agencies require

such disclosures. A faculty member is urged also to disclose to research students his or her financial interests in activities related to the students' research. When asked to enter into peer review of a manuscript or proposal, a researcher is expected to disclose any conflict of interest with respect to the matter under review.

The authors of a commercially sponsored study report must have - as an obligatory condition to their agreement with the funding agency - access to all the data underlying a publication, including data from all sites in a multi-site study, and must have full control over the decisions to publish.

In the special case where university researchers are considering or are involved in commercialization of an invention, for example through a start-up company or by licensing technology to an established company, researchers should consult not only the university's Conflict of Interest Policy, but also the Commercialization of Inventions through Independent Companies Policy. The latter policy specifies certain limitations on a faculty member's equity holdings. It also provides for some restrictions on the faculty member's participatory role in such a company and on that person's role in university research sponsored by the spin-off company.

The purpose of these rules is plainly to guarantee that the scientific or academic character of research work is predominant, and that conflicts of interest with regard to commercial research do not arise, are resolved in favor of scientific considerations or are at least made known to other potential stakeholders.

Managing the risk of copyright infringement for universities

In the early days of the U.S. Fair Use Doctrine (U.S. Copyright Act 1976), managing copyright infringement risk meant essentially having a fair use policy, and fair use policy usually meant simply that it was university policy to obey the law (Harper 2001). The Internet age presents universities with additional challenges. The requirements for legal compliance in the field of intellectual capital are stricter. U.S. copyright laws now mandate that universities provide accurate information about copyright law to their students, faculty and staff in order to limit their legal liability. Liability is also directly tied to the actions of their faculty and staff. Thus, universities need a copyright policy that goes beyond mere reference to or recitation of the fair use statute or even reference to specific guidelines. Fair use must be more carefully explained if faculty members, staff and students shall be expected to respect its limits. More importantly, fair use is just the tip of the iceberg. Even if all stakeholders understand fair use perfectly, which given the diversity of case law established on this issue is unlikely, they still need to know

about other important exemptions and what to do if a proposed use does not fit into one of them. Sometimes they will need to get permission where fair use does not apply. Faced with that responsibility, they may well wonder why their organisations aren't licensing permissions efficiently or why the library does not have the works they need in electronic form or isn't making the availability of such materials widely known so they may link to them and avoid the need for permission.

These concerns, as wide-ranging as they are, cover only one aspect of risk management - the use of others' work. The complement to these concerns is the set of issues associated with ownership and use of the copyright works created by faculty or staff members. Thus, to be comprehensive, the approach to managing copyright infringement risk should address the use of others' copyrights and the creation, ownership and management of institutional copyrights.

It has already been stated that not every educational use is a fair use. So, to reduce the risks associated with the use of others' works, organisations should provide:

- Fair use guidance. It is necessary to insure that routine activities comply with copyright law by providing faculty with information about fair use and how to apply it in the various contexts they encounter in the course of their university work.
- Help to get permission: In addition to providing effective guidance about fair use, assistance should be provided to make it easier to get permission for those uses that go beyond fair use. In many cases there will exist an organisational liability for faculty infringements involving the creation of online course materials, so it is actually in the university's own interests to facilitate this process. A centralized facility is better able to capitalize on the growing expertise of a discreet number of individuals who have learned how to obtain permission quickly and efficiently.
- Comprehensive access licensing: One need also provide support for staff who negotiate license agreements for access to electronic works. If sufficient access is acquired upfront and information is widely distributed about online holdings to faculty, students and staff, and if it is mandated that required and supplemental reading lists be cross-checked against available databases of electronic holdings and articles readily found online, then getting additional permissions to use works to which one already has gained access should no longer be necessary.

Managing copyrights

University faculty, students and staff create educational materials, scholarly works and administrative publications by the thousands every day. Their creations are getting more complex and more valuable. A university must not fail to recognize their value or to preserve it for the university community's benefit. Risk management strategies developed within the context of a reexamination of their mission in the electronic environment can help insure that the value of these works is not lost.

A comprehensive risk management strategy also should address who owns works created on campuses and who has rights to use and exploit them. There are two aspects to this: understanding copyright ownership and active copyright management.

What Is Copyleft?

The copyleft method of putting intellectual property permanently into the public domain was developed as a way to operationalize the open access principle. This method is inherently creator-driven, i.e. it can by definition only be used by persons who have created intellectual property and who, in consequence, are the original rights-holders. It is - in a manner of speaking - the obverse side of the coin dealt with in the above section which described the methods employed by a knowledge-based organisation, specifically: a university, to guard and to exploit the intellectual property rights developed by their staffers. The term copyleft arose in the field of freeware (Free Software Foundation 2003). Copyleft is a general method for making a program free software and requiring all modified and extended versions of the program to be free software as well.

The simplest way to make a program free is to put it un-copyrighted in the public domain. This allows people to share the program and their improvements, if they are so minded. But it also allows uncooperative people to convert the program into proprietary software. They can make changes in the source code and re-distribute the result as a proprietary product. People who receive the program in that modified form do not have the freedom that the original author gave them because the middleman has stripped it away.

In the GNU project, the aim was to give all users the freedom to re-distribute and change GNU software. (GNU - which stands for 'GNU's Not Unix - is partly a body of Unix-compatible software, but most famously it is a philosophy that software conceived and offered as freeware should not become proprietary.) If middlemen could strip off the freedom, there might be many users, but those users would not have freedom. So

instead of putting GNU software in the public domain, its creators 'copyleft' it. Copyleft says that anyone who re-distributes the software, with or without changes, must pass along the freedom to further copy and change it. Copyleft guarantees that every user has freedom.

Copyleft helps programmers who want to contribute improvements to free software get permission to do that. These programmers often work for companies or universities that would prefer to receive direct remuneration for staffers' work. Programmers may want to contribute their changes to the community, but their employers may want to turn the changes into a proprietary software product. When it is explained to the employer that it is illegal to distribute the improved version except as free software, the employer usually decides to release it as free software rather than to throw it away.

To copyleft a program, it is first necessary to invoke copyright; then to add distribution terms, which are a legal instrument that gives everyone the rights to use, modify, and re-distribute the program's code - or of any program derived from it - but only if the distribution terms are unchanged. Thus, the code and the use freedoms become legally inseparable.

Proprietary software developers use copyright to take away the users' freedom; the copyleft advocates use copyright to guarantee that freedom. (Hence the name 'copyleft', which is intended to show the inverse intent of this unusual application of the principle of copyright.)

Copyleft is a general concept; there are many ways to fill in the details. In the GNU Project, the specific distribution terms that are used are contained in the GNU General Public License.

The GNU's general public license is probably the best-known instance of this license type. There are, however, any number of other GPLs available. Their terms and conditions do not always have the exact same effect as the GNU license. For instance there are other licenses (cf. the Artistic License) that provide for "a reasonable copying fee" for distribution. Another license type (the Reciprocal Public License) mandates that all modifications to a software program shall be documented both in the source code and in an external file named "Changes". It is therefore imperative that organisations making use of intellectual property covered by some form of general public license should take care to familiarize themselves with the specifications of the license type used.

Counter-copyrights have the effect of essentially waiving standard copyright, thus putting a piece of intellectual property in the public domain. Unlike copyleft, however, this attribute is not passed on with the aid of binding distribution terms. The counter-copyrighted document can be used to create a proprietary resource which is then copyrighted by a third party. (<http://cyber.law.harvard.edu/cc/cc.html>, 2004)

4 Conclusion

The field of intellectual capital / intellectual property has many facets: public vs. private interest, freedom of information vs. property rights, the special difficulties of managing intangible assets, to name only a few. Active copyright management and active risk management - with special regard to liability risks - is necessary.

In view of these findings and considerations, established methods and procedures of organisations operating in the intellectual capital field should be reviewed and - if necessary - revamped so as to bring them better into line with best practice. Staff members at all hierarchical levels of enterprises managing intellectual property need to have an appropriate understanding of the importance of the issues involved and of the knowledge management tools provided for the handling of intangible assets. Entities vested with a public interest should undertake greater efforts to enhance their own awareness of the value of the intangible assets they administer or own. In support of this, the monitoring of such assets should be both systematized and routinized. Such entities should also seek public forums in which to clarify the contribution these intangible assets make to the general public welfare. Lawgivers and other public policy-makers need to acknowledge this contribution in an explicit manner and should make all possible effort to simplify the regulatory framework in the area of intellectual property.

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