Copyright law, Contract law, Rights Expression Languages and Value-Centered Design Approach.

Introduction

Technological instrument constitutes a mean for pursuing the human goals[1]. Technique is an human intelligence's product: scientific and technological development has characterized the culture evolution. Nowadays, however, the technical means are so much increasing that man is loosing control over them.

There are many ways interpret the relationship between technology and society: some scholars assume technology is an independent and autonomous force[2]; other describe it as a factor that defines how we relate to the world we live in. The "neutralists", on the other hand, believe technology is nothing but a tool and has no bearing on our behavioural freedom as such. The technique could be used for different goals: for the freedom but also for the oppression, for the centralisation of power, as for decentralization[3].

The technique seeks to conceal its power declaring its diversity from political power because of its neutrality and objectivity. [4]

In the digital environment, the development of Digital Rights Management (DRM) systems, demonstrates (not only in the copyright area) the power of technology to supplement and even supplant legal regulation. Much as physical barriers and spatial relations constrain behaviour in actual space, technical standards constrain behaviour in cyberspace. In the physical world, people cannot walk through solid walls or occupy two spaces simultaneously. Similarly, there are certain activities that simply cannot be performed on a particular computer system, because the system is not built to accommodate the behaviour – the system may be programmed to deny access without a password, prevent logging on simultaneously from two terminals, or prohibit alteration of a file that is designed *"read only"*.

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[1] See GALLIMBERTI, *Psiche e techne. L'uomo dell'era della tecnica*, Milano, 1999, 78; SALMONI, *Le norme tecniche,* Milano, 2001; FISICHELLA, *L'altro potere- Tecnocrazia e gruppi di pressione*, Roma, 1997.
[2] SPINELLO, *Cyberethics: morality and law in Cyberspace*, Jones and Bartlett, 2003.
[3] SCHMITT, *L'epoca delle neutralizzazioni e delle politicizzazioni*, in MIGLIO, SCHIERA, (eds.) *Le categorie del politico*, Bologna, 1972, 179.
[4]. DOMMERING., Regulating Technology: Code is Not Law, in DOMMERING, L. ASSCHER (Eds), *Coding Regulating. Essays on the Normative Role of Information Technology*, Amsterdam, 2006, 27;

In cyberspace[5], however, how Lessig (and other scholars) argued, the prevailing instrument of regulation is not the rule of law, but what he calls architecture: the commands that are embedded in the communication protocols of the Internet and the software application. Human behaviour is steered by this invisible hand. Technical standards, which are within the control of the designer, conferring on him the power to "govern" behaviour with regard to that system, become a "law". In other words, the information "code" is becoming, *de facto,* a regulation built in architecture: the code structures the users freedom and behaviour as a given: no alternatives are visible and no choice can be made.

In the information environment, each step in the advancement of technology and particularly in the communication technology, enable maximum access and individual expression, but maximum control over individual behaviour, as well.

The implications and mutual relations between technique and law are incontestable and the tie is even stronger in the digital technologies environment[6]: the law evolves with and adapts to the technical development. At the same time the technique reveals new forms of regulation.

One can distinguish several interactions between information technology and law, in summary it would be said:

1. Code could partly complements law. We can think, for instance, of the speed limits enforced though law and supported by constructed bumps in the road.

2. Law regulate code. The laws regulating technological measures that are used to protect copyrighted works may serve as an example of that relationship (See Dir. 2001/29 EU and DMCA in U.S.).

3. Code development influences law itself. Because technological standards control user behaviour, they may directly supplant competing legal rule sets (DRM, for instance)[7].

In legal terms, the latter perspective seems to be the most risky because it opens the doors to company self-regulation threating fundamental rights.

DRM and Rights expression Languages.

Technology developements based on digital technology have largely facilitated access to, and use of, protected works via digital networks and fast and high quality digital copying; have brought about radical changes in the markets and consumer behaviour, multiplying the

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[5] About the role of the metaphor in cyberlaw and particularly of place and space based metaphors fore the internet and its constituent nodes and networks see COHEN, *Cyberspace as/and space* 107 *Colum. L. Rev.*, 210 (2007).

[6] REIDEMBERG, *Lex informatica: the formulation of information policy rules through technology*, 76 *Texas Law Review* 553 (1998).

[7] BENOLIEL, *Technological standards*, 92 *Cal. L. Rev.* (2004), 1069.

risk of piracy, as well. On the other hand digital technology has put the Distribution Companies in a position to control the use of their protected works and the access to them by technical means.

This is referred to Digital Rights Management (or DRM).

There is not a shared definition for DRM[8], according to World Wide Web Consortium (W3C), DRM could be defined as a system of Internet technology components and services along with corresponding law, policies and business models, which strive to distribute and control content and its rights. DRM is the "digital management of rights" (which aims to control access and use of information content) not the "management of digital rights"[9]. DRM covers the description, identification, trading, protection, monitoring and tracking of all forms of rights usages over contents, and the management of rights holders relationship as well.

The emergence of technical sites for the "production of power" constitutes new regulatory and political processes, and in doing that it alters the patterns of visibility and invisibility typically associated with the modern forms of democratic government. The new regulatory sources are processed by technical expert; they define and revise the technical standards. These regulation processes are diverse: some are operated by private consortia of technology Companies, other by open membership organisations, and others by goverment bodies.

For most ordinary cyberspace users, standard processes are opaque and mysterious[10]. It is important, however, to evaluate and compare different methods of formulating standards-based regulation and to consider whether and how to respond to the different kinds of invisibility that they create. The cyberlaw "credo" that "code is law", recognizes that Internet technologies encode an especially powerful and invisible form of discipline.

To understand the different perspecitves, which characterize the law and technical scientists mentality, may be useful to know the meaning of the concept of "transparence" which assumes for the computer scientist in the digital space a particular meaning: the concept has different meaning in law and technical environment. In legal area, what is transparent is visible. In information technology, on the contrary, transparent is what is not visible: the invisibility of complex procedures increases the usability of the information systems. Thus, it is evident that even if the tecnical standard incorporates a legal rule, this wouldn't be visible.

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[8]About the DRM definition see CASO (ed.) *Digital Rights Management, Problemi teorici e prospettive applicative*, Atti del Convegno tenuto presso la Facolta di giurispreudenza di Trento il 21 e 22 marzo 2007, available at URL <http://eprints.biblio.unitn.it/archive/00001336/>; ID., *Digital Rights Management, Il commercio delle informazioni digitali tra contratto e diritto d'autore*, Padova, 2001; BECKER, BUHSE, GUENNENWIG, RUMP (Eds), *Digital Rights Management*, Berlin, 2003, 26.

[9] W3C workshop on Digital Rights Management for the Web:worshop report, 2001.

[10] ROSSATO, *Tendenze evolutive nello spazio digitale*, in PASCUZZI (ed.), *Diritto e tecnologie evolute del commercio elettronico*, Padova, 2004, 34.

Whether the legal rules are embedded in technical standards, the norms are imposed like rules of nature, it means that it is not possible to break the rules even though unfair. The code making as well is not subject to an official system of democratic checks and balances and, therefore, the code regulation is not in conformity with the democratic principles. Furthermore, through the "code" everytime and everywhere it is possible to impose automatic enforcement.

Vice versa the legality of a rule is in the criticizing possibility: in a democratic State, citizens are not passive receiver of the law, they can deny the rule legality, they can disregard because of the higher law.

The balance between exclusive rights to information such as copyright and the free flow of information has traditionally been a matter for law-makers and the judiciary. The fair treatment of digital contents in an information society posed enormous challenge for legal regulation as well as the application of the existing intellectual property regime of copyright.

The protection of sheltered subject matter against unauthorised use is an important element of digital rights management, but the function of DRM goes beyond this purpose. As mentioned above, DRM system are typically able to offer broader functionality than simply protect content against unauthorized access or copying. DRM are based on technologies that describe and identify content, and enforce rules set by rights holder for the distribution and use of content.

In a DRM system, content providers are protected not only by technological measures, but also by the combination of technology, usage contracts, technology license agreements, and anti-circumvention regulations, which have been adopted over the last several years both in the US and the Europe. As regarding to protection by usage contracts, content providers use contracts to force consumers to use the protected content only under certain conditions. The contracts state the rights and relationships of the contracting parties to the subject matter of the contract and the DRM makes possible the enfocement. From a legal perspective DRM creates several problems ranging from copyright, contract law, consumer protection, patent, antitrust and privacy.With DRM, for instance, although copyright law, will recognize users' rights to fair use, they may be not able to exercise them. DRM, in fact, is not conceived as an implementation of copyright law: it is a system for the protection of digital works which implement licenses rights or grants like controls that can be expressed in a computer environment. This means that, irrespective of the nature of the contents - copyright protectable or not - who puts content on-line can provide a strict protection of the information.

The DRM business model presents serious problems since substantially the rights management falls completely into private owner's hands.

Actually, flow of information is governed by private licenses and the following technological process, which embedds the license condition, not only casts doubts on a wide range of detailed legal rules, but also (and above all) calls into question the inner logic of the conceptual instrument chosen centuries ago, in order to coordinate and regulate the many interests that run the market of ideas[11]. The traditional account of this logic states that exclusivity and transferibility are needed in order to stimulate the production of creative ideas, while the legal limitation imposed on the exclusive right is functional to the public interest in the circulation of ideas. The question becomes even more problematic if we consider the nature of the license: a property license, *de facto*, is an unilateral legal action through which a property owner can exercise her/his rights, and it defines the boundaries of legitimate use[12]. The users, in fact, do have not choise: they can only decide to take or leave.

The DRM technology is always improving: we have been going from a quite basic DRM system to an even more complex technology. Electronic commerce is faced to obstacle that prevent the full development of digital media and services. Digital media creations have to be supported by intelligent DRM systems, able to adapt to new use models and to cope with contradictory interests of all stakeholders. One of the technical factors impeding the gowth of the digital rights management is the lack of interoperability among the increasing number of DRM solutions available[13]. DRM solutions should be able to process dialog and mediation between expectation expression. Therefore a number of organisations and companies have recognized the need for standards solutions: technical standardisation of delivery formats enabling the interoperability between systems and devices. The Moving Picture Expert Group, for instance, develops ISO technical standards for coded representation of digital audio and video, and enabled the development of multimedia standards such as mp3 format, digital television, DVD, multimedia information retrieval and description. The framework foresees to include the definition of legal metadata identyfing works and describing rights, users and conditions. MPEG-21 is expected to make interaction with content and to define the relationships between the normative technologies needed to regulate the multimedia delivery chain. These elements are elaborated by defining the syntax and semantic of their

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[11] CASO, *Digital Rights Management*, cit.

[12] ELKIN-KOREN, *What contrats cannot do: the limits of private ordering in facilitating a creative commonse* 74 *Fordham L. rev.* 375 (2005).

[13] ROSENBLATT, DYKSTRA, *Integrating Content Management with Digital Rights Management*, 2003, available on the web site <www.giantstepsmts.com>

characteristics: a machine – readable language, able to express rights, which are getting more and more complex in the digital word, is supposed to define algorithms enforcing electronic content governance within a trusted environment[14]. It is possible to imagine that the future of the DRM is the development of something called Rights Expression Language (REL). REL is a markup computer language which offers the promise of packaging assets in different DRM-enabled formats with a single set of business rules.

As any language, their objective is to be a vehicle of expression. This generic goal is concretised in the DRM field as expression of contract or licence agreements. There is a clear purpose of this expressions, which is what relates RELs to DRM: the control over access and/or use. By RELs the permission to copy, delete, modify, embed, execute, export, extract, annotate, aggregate, install, backup, loan, sell, give, lease, play, print, display, etc., can be expressed in a machine – readable form. In simple terms a REL is a language that express the rights one has in relation to a file: information can be viewed as an object within a closed computational system where certain permission can be attached to the object, which allow the user to do certain things with the object. This permission-object model applies with a certain ease when a right holder considers allowing digital content to be distributed and sold across network.

Computer language differs deeply from legal language because it must be a formal language that can be interpreted unambiguously by computers: one substantial technical requirement for RELs is machine readability. The degree to which RELs are intended to be machine actionable is a determinant in the kinds of rights that can be expressed in the REL. A machine actionable REL must use a very precise language and can nearly garantee compliance with the terms of the machine readable license.

In order to understand the current RELs state of the art, we need to know their different aspects: how they represent contract; how they manage control; their general architecture and finally the data elements that conform the language. A contract language tipically considers: 1) parties name and their roles; 2) statement of access and usage; 3) exchange of value (payments) for services or actions. The most basic elements in every rights language concept are "rights", "assets" or resources and "parties" or "agents" (the names of these three basics elements vary in each REL). "Rights" are understood as expressions which grant certain usage or access permission to digital good or services. Permission can be specified in more detail as prerequisites or restrictions. "Asset" represents the object *id est* the digital good or

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[14] STEFIK, *Shifting the possible: how trusted systems and digital property rights challange use to rethink digital pubishing*, 12 *Berkley tech L.J.* 137 (1997).

service to which the right apply. Under this perspective the REL should support a standard identification system (such as DOI, ISBN etc.). In fact, the "asset" has to be described by a non ambiguous identifier such as a DOI[15]. The "party" element represents any kind of party which has relationship to a digital product or service. Example of party in a contract relationship could be rights holder, author, creator, consumer, content provider etc. This represented is a basic model, each REL, however, contains addictional concepts for the purpose of expressing rights relationship in more detail like, for instance, "prerequisites" or "restrictions on permission".

The list of allowable actions varies gratly between RELs, however, normaly rights can be assigned to one of these types: "manage"; "re-use", "transfer" and "use".

Like the contract also the control function represents license terms. Control is distinctive because it is designed to be machine enforceable, therefore it will use a hughly formalized expression. About the control, how anticipated above, it should be specified that in order to exercise control there are two alternatives. The simplest one is to use dedicated devices to facilitate the implementation of the controls as their functionality is already constrained by their hardware. The last is implemented in an open framework that allows users to perform a great amount of actions that should be controlled. Of course, the second one makes the control more difficult. The approach in this case is to develop a trusted system, that is a safe area within general computing environement where such controls can be implemented.

The first REL was developed by Mark Stefik for Digital Rights Management at Xerox PARC in the early 1990's: Marc Stefik developed the idea of categories of rights relating to digital content. In 1998, it was licensed to a company founded by Microsoft and Xerox called Content Guard. Then, its development continued and it was renamed eXstensible Right Mtakup Language (XrML) in 2001.

Many REL projects are implementing now: the concept of rights expression language has been appearing in almost any metadata initiative for digital resources (ONIX, OAI, METS, Dublin Core, MARC etc.). The main actors for a generalized REL today are MPEG-21 REL and ODRL, beside to the Creative Commons. The last one does not impose any control, because of this lack of control mechanism, it has great acceptance in the Web and it is being used to share contents on a free way. ccREL is based on the World Wide Web Consortium Resource Description Framework (RDF)

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[15] See DE KROON, *Protection of copyright management Information*, in HUGENHOLTZ (Ed.), *Copyright and electronic commerce, Legal aspects of Electronic Copyright Management*, UK, 2000, 230.

Research Proposals

Many authors have written about how DRM privatizes and replaces copyright law, how it undermines copyright limitations, threatens the interest of users and the public at large and inhibits creativity and innovation by unjustly extending intellectual property protection[16].

On the other hand, an emerging scholarship, that relies on promises of computing science, does not take the technologic means and particularly the DRM systems as given constants that are exogenous to the policy process, but ask how DRM systems could be altered in a "value - centered design" process so that important policy and legal values are preserved. That idea has recently been seriously studied both by lawyers and computer scientist. For example, whether a DRM system respect the copyright limitations or not, would depend on the design of its rights expression languages and on the metadata[17]. If fair use in US copyright system or exceptions in the European copyright system, other legitimate interests of information users cannot be expressed in a REL, such interests simply do not exist within the system. Therefore, it is of utmost importance that RELs include semantics to express not only the interests of creators and rights holders, but also of information users.

The core of the computers language system are metadata which describe characteristics about the data: they can be descriptive, administrative, structural or expressing rights and constitute one of the development elements of Semantic Web, which poses questions that bring lawyers and semantic web researchers together.

The legal profession is just starting to understand the potential of metadata as means of expressing rights related to content.

Creative Commons provides licensing tools to assist creators in publishing their work under flexible terms which are more generous for the public then the traditional copyright approach. CC proposes a copyleft license and is inspired from the GNU-GPL license. The added value of CC licensing scheme compared to other open content and copyleft licenses is the three layers model: license in legal language; human readable version (summary of the main clauses illustrated with icons); legal metadata in RDF. The last one is the machine readable format, wich allows information retrieval and works data mining according to their legal reusability status. Google and Yahoo integrated this functionality in their search engine,

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[16] See Guibault, Copyright Limitation and Contrancts. An Analysis of the contractula Overridability of Limitation on Copyright, Amsterdam, 2002.

[17] BURK, COHEN, *Fair Use Infrastructure for Rights Management Systems* 15 *Harv. J. Law & Tec*. 41 (2001), available at URL <http://ssrn.com/abstract=239731>;

making it possible to look, for instance, for works that can be used commercially. The use of metadata facilitates the collection and identification of derivative works and samples on a common interface. Creative Commons is the first model to include data mining applications based on semantic web standards: social and political values are included in its design and code.

Using a "value-centered design" approach, however, is complicated by the fact that it requires close interaction between technologists and legal scholars or economists, leading to the usual advantages and limitations of interdisciplinary research. Technologists have to find ways to think about public policy, and lawyers and economists have to find ways to understand technology and its implications.

"Value-centered design" approach towards DRM may have inherent limitations: some policy problems may not be controllable on a technological level, besides, legal doctrines are inherently flexible and vague (ex. fair use), thereby making their technological implementation very hard.

Furthermore, DRM policy problems always involve the balancing of various interests. "Value-centered design" processes may provide a very helpful tool to implement a certain balance of interest, but they do not offer any assistance on how to find this balance. Finally automating policy enforcement by technology has fundamental disadvantages as enforcement has to be reduced to simple yes/no questions, which may not be feasible in all cases of policy enforcement.

Another issue is linked with the management of such a system, which implies the implementation of a trusted system.

The emerging scholarship assert moreover that a DRM system does not only have to be able to express a wide array of rights in its rights expression language. In order to enable bi-directional negotiations between rights holders and users about which rights should be granted under which conditions, a DRM system should include rights messaging protocols (RMPs) that support such bi-directional negotiations. Most current DRM systems do not allow the users to engage in extensive negotiations about usage rights. Although general electronic commerce systems that enable negotiations between contracting partners have existed for some time, researchers have only recently begun to develop DRM systems with such functionality.

This topic is particularly linked to contract and consumer protection law. DRM usage contracts are standardized contracts that are imposed on a mass market: the traditional problems of consumer protection linked to standard contracts are even more serious if we

focus on the market of digital products, where standard terms – above all the End User License Agreements (EULAs) – are digitalized and incorporated in technological architectures in a way that enables firms to take advantage of their position. Often, it happens that before consumers install a particular DRM system or acquire DRM-protected content, they are not fully aware of the specific uses the DRM system allows and prevents. That kind of information asymmetry between DRM providers and consumer causes a market failure and prevents competition between DRM systems that differ in the kinds and numbers of uses they allow.

Businesses can use their knowledge and experience to exploit consumer. Consumers fail to read and understand standard terms, consequently, business have incentives and abilities to induce consumers to accept standard terms that are not in the consumers' best interest. Furthermore the consumers can just take the decision to accept or not accept and they don't have bargain possibility.

The proposal of emerging scholarship offer new prospects that deserve attention in the negotiation aea too, the topic, however, is closely connected with the development of the Semantic Web.

I conclude rising some questions: can legal and institutional infrastructures support rights management systems that enable appropriate access to the works secured by these technologies? Can governements use code to pursue goals they used to pursue through classical legal means? Could legal rules be implemented in software to replace legal rules that are laid down in the traditional laws of a democratic society? Colud the on-line negotiation be facilitated by Semantic Web technologies (e.g. software agents)?