Auteursrecht en technische voorzieningen : juridische en rechtseconomische aspecten van de bescherming van technische voorzieningen
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Summary

In Chapter 1, the outline for this study is sketched. The book examines how recently-adopted legislation on the protection of technological measures may affect the excludability of information uses. In addition, the changes brought about by the statutory protection of technological measures are analyzed in a law and economics context. What is the likely effect on social welfare of the protection of technological measures?

The second Chapter gives a broad overview of recent technological changes and developments that may have an influence on the information market. Notably, the consequences of the digitization of information products are discussed. The making of perfect copies and the distribution of information products may become cheaper. This results partly from the fact that all types of information – e.g. texts as well as audiovisual works - can be processed by the same apparatus (the computer) and distributed through the same channel (the Internet). Separate investments are no longer needed to process, distribute, receive or copy different types of information. Additionally, the costs of information production and of transacting may come down. Finally, automated surveillance of the Internet may reduce the costs of enforcement of copyright law, as may streamlined 'notice and take-down' procedures which are currently being developed.

There are many initiatives aimed at designing digital rights management (DRM) systems. Such systems may inhibit copyright infringing activities, but they may also enable information uses to be controlled in ways that were previously unimaginable. Typically, DRM-systems are based upon an encryption layer, which ensures that only those who have acquired the proper key can decrypt an information product and use it. Through this mechanism, an information producer is in a position to set his demands. These conditions may concern the apparatus through which the information is accessible, e.g. the producer may require electronics manufacturers to build in copy- or region-control mechanisms, because if they do not, they cannot build the key into their media players, which then cannot read the information and are consequently useless. Additionally, electronics manufacturers may be required to design their equipment in such a way that it reads a license which is embedded – e.g. by watermarking techniques – in a distributed file. A media player will then automatically 'act' according to the license and, for example, refuse to load a file if such an act is prohibited by the license. Thus, an information producer can automatically control what information users can do with his products; only if the user fulfills the conditions for use will the equipment allow him to make that use. The embedded terms may, for instance, concern the conditions for copying an
encrypted work, for decrypting and accessing it, or for using (elements of) it to create new works.

In sum, DRM-systems may enable any use of information products to be controlled and therefore may allow payment to be demanded for any use of such products. Until now, however, all systems that have been applied in practice have been circumvented. Circumvention is relatively easy if a file can be loaded in a computer and a few alterations to the file are enough to bypass the technological measure. After all, computers are specifically designed to process digital files. Some media, like certain computer games, cannot be played on regular computers and the applied DRM-system can only be circumvented by making changes to hardware components. These systems can still be tampered with, but as tampering is more difficult and more expensive than applying a software 'crack', it is likely that they will deter circumvention to a further extent than DRM-systems which are only implemented in software.

In the third Chapter, recently-enacted legislation on the protection of technological measures is discussed in depth. The emphasis is on the protection provided by the European Copyright Directive of 2001, but because it has had a large influence on the European regulation, the United States' Digital Millennium Copyright Act of 1998 is also dealt with. Furthermore, the WIPO Treaties of 1996, on which the relevant European and American legislation is formally based, are also discussed. Additionally, Australian and Japanese legislation is briefly touched upon and compared to the EU Copyright Directive. Finally, existing Dutch law is examined: to what extent does it provide for protection for technological measures?

The above-mentioned legislation is analyzed in the light of two important questions arising from the legal protection of technological measures. First, there is the issue of how a prohibition on circumvention devices might affect producers of consumer electronics. If such a prohibition were to become overbroad, equipment which is currently completely legal might suddenly become unlawful. Even regular PCs could be forbidden, since the number-crushing power of a PC can be applied to break a technological protection scheme. Moreover, a prohibition on circumvention devices might result in a statutory requirement to design media players to respond to a technological measure. Thus, manufacturers would no longer be free to apply the best, cheapest and fastest solutions, but would have to adapt their goods to whichever DRM-systems rightholders would decide to use. The newly-enacted legislation is not too clear on this issue. Both EU and US legislation state that there is no obligation for electronics manufacturers to design their products in order for them to respond to a technological measure, but at the same time it is stated that equipment will be unlawful whenever it fulfills certain criteria mentioned in the law. Because these are new criteria and their meaning and scope are uncertain, it remains to be seen what the position of the electronics producers will be.

The second and even more controversial issue is that of how the protection of technological measures relates to the scope of copyright. As stated above, technology enables any use of information products to be controlled. If circumvention were prohibited in
cases where a technological measure inhibits an act which is not a copyright infringement, the control which a rightholder can statutorily exercise over the use of information goods expands. Thus, one could say that the scope of copyright (indirectly) increases, even though it is not the act performed with the work which is unlawful, but the circumvention enabling that act. In any case, the permission of the rightholder will then be required more often in order to lawfully perform a (technologically blocked) act with an information product. Another aspect is that even if circumvention were allowed whenever it serves an activity which is not a copyright infringement, most people would need circumvention devices to be able to circumvent a technological measure. They simply lack the technological abilities to circumvent without assistance. If such devices are prohibited and therefore not available, permitted circumvention is not possible and consequently, the non-infringing act can only be performed with the rightholder's permission. If, on the other hand, circumvention devices were freely available, anyone could easily circumvent and the protection by (and of) technological measures would presumably not be very effective.

It appears, therefore, that a legislator must decide either to maintain the (copyright) limitations on the control that a rightholder can exercise, or to in effect protect technological measures. Nevertheless, in each of the jurisdictions examined for this study, the legislature tried to take account of the copyright limitations in some way or another, while at the same time introducing protection for technological measures. The WIPO Treaties only concern circumvention for performing an infringing act. As the treaties do not cover circumvention devices, the above-mentioned dilemma is avoided. The US Copyright Act does not prohibit circumvention of a technological measure which merely blocks a copyright infringing act, but because circumvention devices are prohibited, it remains to be seen whether this 'right to hack' will have a large impact in practice. Moreover, the much more far-reaching technologies which control access to works are protected against circumvention and if a work cannot be accessed, it cannot be copied either. There are some exemptions to this prohibition on circumvention, but as these exemptions do not concern circumvention devices, they may not be applied too often. The Japanese implementation of the WIPO Treaties suffers from a comparable problem, albeit that circumvention services for non-infringing purposes appear to be allowed. Australia is the only country examined here in which the users' interests take precedence over those of copyright owners. The Australian Copyright Act – which does not contain an anti-circumvention provision, but focuses only on circumvention devices – states that a provider of circumvention devices cannot be held liable, if the person to whom the device is delivered declares in writing that it will be used only for the purpose of performing an act that is exempted under copyright law.

The European Copyright Directive goes the furthest in protecting technological measures. It contains an absolute prohibition on circumvention. Circumvention for non-infringing purposes is also covered. As a consequence, it is probably prohibited to tamper with technologies which control access. Furthermore, the making and distribu-

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tion of circumvention devices is completely forbidden. To accommodate the copyright limitations, the European legislator inserted an obligation for EU Member States to take 'appropriate measures' in order to ensure that rightholders will provide the means which enable the beneficiaries of some of the copyright exemptions (seven of the twenty statutory exemptions which the Directive permits Member States to implement in their national laws) to perform the non-infringing act concerned. However, a rightholder may not be obliged to provide the means necessary to perform an exempted act, if the material is distributed through an on-demand service and the customer agreed contractually not to perform the act concerned. Consequently, under these circumstances the exemptions can be 'overridden' by a combination of technology and contracts. Considering that the latter form of exploitation is expected to become predominant in the near future, it may well be that the copyright limitations will not play a major role in the digital environment. For any use of technologically-protected material, a license will statutorily be required.

Several provisions of the Dutch Penal Code may have as a side-effect that they protect a copyright-holder against the circumvention of technological measures which block access. One important difference with the Copyright Directive, however, is that hacking as such was never unlawful. Only when accompanied by an act which violates a protection-worthy interest – by breaking into a computer system, eavesdropping on private communications or enjoying an online service without payment – was the act of circumvention unlawful. In contrast, under the Copyright Directive circumvention is unlawful, even if no copyright infringement follows. A precedent for the prohibition on circumvention devices may be found in unfair competition law. The Dutch courts have repeatedly held that the unauthorized distribution of circumvention devices for online services (pay-TV) constitutes a form of unfair competition. However, it is not unlikely that the courts will not consider circumvention devices unlawful which may (also) be applied for non-infringing uses. As stated above, the Directive even outlaws devices such as these. In summary, there are some precedents for the newly-introduced protection of technological measures, but there are enough differences with these precedents to speak of a *sui generis* protection.

The broad protection of technological measures under the Copyright Directive is implicitly and explicitly based on economic considerations. Chapter 4 examines whether and how the extensive reliance on market forces that is expressed in the Copyright Directive may be justified. The Directive seems to reflect great faith in the beneficial effects of exclusive property rights. Economists believe that property rights (exclusivity over use of goods) lead to an optimal allocation of the resources in markets for scarce goods; property rights force market participants to negotiate for the use of a good and such trade will, in a perfect market, lead to maximum social welfare. Under the Directive, a license is necessary for any use of an information product, thus encouraging market participants to contract for any use. According to some commentators, this is the appropriate approach, because they believe that transaction costs will come down in the online envi-
ronment and through the application of technological measures. Therefore, it is feasible to bargain over any information use. The (copyright) limitations on the control which can be exercised by a rightsholder then lose their meaning and can be abolished.

However, others stress that the legislator has overlooked the fact that information products are not really scarce goods. They are (to some extent) public goods, which implies that they are non-excludable and non-rival. The additional use of non-rival goods has no additional costs. Excluding such use – for instance, by enabling it only against payment – is inefficient. On the other hand, some excludability may be necessary as an incentive to create. Because public goods are non-excludable, people are unlikely to pay for such goods as they can take them for free. Since no one will buy the goods, no one will invest in them. Thus, no information products would be produced. Some exclusivity may therefore be required. In theory, the optimal level of excludability may be found by balancing the social loss of excluding non-rival uses with the gain in welfare that follows from the incentive to create. However, in fact it is impossible to know which equilibrium between incentive and non-rival use is optimal, but it is unlikely that the (almost) absolute statutory excludability of information uses that results from the protection of technological measures is economically justifiable.

Moreover, the enhanced exclusivity in relation to second-generation creators may hamper information production instead of fostering it. If potential competitors will have to pay more for the re-use of existing information products, the cost of information production will rise and fewer products will be created. Furthermore, as the higher costs will be passed on to the end-user, information use will become more expensive and more non-rival use will therefore be hampered. Of course, for information to be (re-) used, it has to be accessed first. Therefore, technological access control may allow a rightsholder to set conditions for re-use (of non-copyrightable elements) that cannot be demanded on the basis of copyright law. Thus, the protection of technological measures may be counter-productive; it may hinder non-rival use without this being compensated by an increase in information production.

It may well be argued that the legislator should set limits upon use-restrictions which may technologically or contractually be imposed on second-generation competitors. It is less clear, however, that such limits are also necessary in the relationship with the end-user. Some commentators believe that market forces will match the demand for information uses with the technological use-restrictions that information producers will apply. They expect producers to compete, not only as regards the price and the quality of the product, but also as regards the terms of use. Other commentators, however, state that account should be taken of the information asymmetry which may occur in consumer transactions. They believe that consumers will not take the time to read complicated licenses and will therefore not know the terms of use that are automatically enforced by technological measures. If end-users do not read the license, there is no reason for information producers to compete in respect of terms of use. Thus, reliance on market forces may not be justified.
Clearly, the view according to which the positive effects of property rights are emphasized conflicts with the perspective in which the non-rival nature of information products is to the fore. According to some scholars, however, the contradiction may be solved when the phenomenon of price discrimination is introduced into the analysis. Price discrimination enables to serve customers who have low value for the product against their reservation price. Therefore, non-rival use, which would be hindered if the producer applied the same (above-marginal) price for all customers, will not be excluded if a producer can price discriminate. At the same time, the producer is able to recoup his investments by charging more of buyers who value the products higher. Thus, he has an incentive to create. Everybody gets what he wants: buyers get the product at the price which they are willing to pay; the producer makes more profit and those who believe in the beneficial effects of property rights and feel that all uses must be excludable and contracted for, as well as those who stress that the public good aspect of information products must be taken into account, have their way. Broad excludability and contracting for any use, which will be the result of the protection of technological measures, facilitate price discrimination. That protection may therefore be desirable. However, another group of commentators argues that price discrimination may not be the solution for all the problems of the information market. They state that, although price discrimination may mitigate the social loss of excluding non-rival uses to some extent, it will not diminish that loss completely, because of the costs of implementing discriminating pricing schemes — e.g. the costs of applying technological measures. Also, if price discrimination against second-generation competitors will cause the cost of information production to increase, which is to be expected, again, non-rival use will unjustifiably be hampered.

Economic theory does not provide a clear-cut answer to the question of which level of exclusivity over information use is the most efficient. Arguments can be made both for and against a broad protection of exclusivity based on technological measures, but even though the welfare effects of the application and use of technological measures may be unclear, it is likely that the established information industries will benefit from the protection of technological measures. Rightholders are statutorily in a position to exclude more uses and therefore to demand payment in more instances. Moreover, they may be able to apply price discrimination to a further extent and to hinder competitors more often than they could on the basis of 'traditional' copyright law. This, in turn, allows them to charge higher prices and make larger profits. It is doubtful whether other market participants — end-users and second-generation competitors — will benefit equally.

The concluding Chapter 5 sums up the results of the study. The new legislation on technological measures expands the statutory excludability of information uses. There is no fitting precedent for this legislation. The economic basis on which the broad protection of technological measures appears to be grounded is narrow and one-sided. In fact, a social experiment is quite light-heartedly conducted, the results of which are uncertain and, from a law and economics perspective, may well be undesirable.