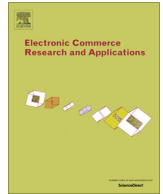


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## Analysis of an advertisement based business model under technological advancements in fair use personal recording services



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### ABSTRACT

In 1982, Betamax, the world's first personal recording service was ruled as a fair use in court. Although the copyright holders of TV content claimed that Betamax was an infringement of copyright, the court determined that the benefits of personal recording services were significant and that the copyright holder's profits could be protected because the original service was of better quality and had a better cost structure. It also ruled that the loss from manual advertisement skip was minimal. However, recent advancements in information technology have allowed new kinds of personal recording services such as a cloud DVR that provides unlimited storage and flawless quality, and an Auto-hop feature that automatically removes embedded advertisements. This paper introduces a microeconomic model for reviewing the copyright holder's business model and social welfare under the court's decision in relation to newer personal recording services powered by information technologies. Before cloud DVR existed, applying fair use to personal recording services increased social welfare while protecting the copyright holder's profits; however, after the introduction of cloud DVR, it may no longer do so.

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### 1. Introduction

Innovations in information technology have greatly helped content providers with low copy and distribution costs (Shapiro and Varian 1999, Davenport 2013). Ironically, the same information technologies are now threatening content providers' major business models by automatically removing advertisements from content. In March 2012, Dish Network Corp., a satellite TV provider, introduced an Auto-hop feature that allows users to automatically skip commercials when playing TV content recorded with its Hopper Digital Video Recorder (Bauder 2012). TV networks such as Fox, CBS, and NBC who hold the copyright of the broadcasted content considered the service a threat to their business models, which they claim are supported by advertising, and filed against Dish in May 2012 for copyright infringement (Jeffery 2012). According to CBS spokesperson Shannon Jacobs, "this service takes existing network content and modifies it in a manner that is unauthorized and illegal." In response, Dish CEO Joe Clayton pointed out that about 50% of viewers had already been skipping advertisements with VCR and DVR technology while watching their recorded content. Since the VCR and DVR technologies were already ruled as personal fair use under copyright law, he claimed

that Auto-hop is only a "slightly complicated version of a fast-forward button." The court subsequently denied Fox's request for a preliminary injunction against Auto-hop in November 2012 (Flint 2012), which was confirmed by the U.S. Court of Appeals in July 2013. The court also came to the same conclusion for ABC Television's request on September 2013 (Jeffrey 2013). Disney finally settled with Dish, who agreed to "postpone" enabling the Auto-hop feature for selected Disney digital content (Palmeri and Moritz 2014).

The Auto-hop legal dispute is not the first battle between fair use personal recording services (PRS hereafter) and TV content copyright holders. When Cablevision Systems Corporation launched its cloud based digital video recording service (cloud DVR hereafter), which stores personal recordings in central server storages and plays them back via Internet streaming, in March 2006, copyright holders sued Cablevision for copyright infringement, but ultimately lost the case (Albanesius 2008). The Supreme Court agreed with Cablevision's argument that their cloud DVR should be treated the same way as customer-owned fair use devices such as a Betamax, because only its storage location differs. The fair use doctrine of copyright law, which has thus far been applied to PRS, should protect both social welfare and the copyright holder's incentives by allowing some personal copies to be free of copyright infringements (Cooter and Ulen 2011). When Betamax first entered the market in 1982, a similar legal dispute between Sony Corporation of America and Universal Studios went to court and the service

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was eventually ruled to be a fair use. The court ruled that the copyright holders' monetary incentives could still be protected, because the risk of zapping the advertisements embedded in the TV content was minimal (*Sony Corp v. Universal City Studios* 1984). From the copyright holders' viewpoint, applying fair use doctrine to PRS is done in order to achieve better social welfare at the expense of potential profit, however minimal it may be.

It was not until around the year 2000 that copyright holders finally acquired another major technology with the potential to greatly extend their business model to the realm of fair use: video on demand (VOD hereafter). VOD allowed copyright holders to provide their content via digital streaming and it did not require any specific hardware or storage medium, gaining higher ground against PRS such as DVR, because earlier versions of DVR still required individual hardware, individual installation, upgrade costs and were limited in storage size (*Bertolucci* 2009). The cost structure difference between VOD and early DVR was significant. It followed the traditional law and economics assumptions that state that the producer has a better cost structure when copying and distributing the copyrighted materials (*Novos and Waldman* 1984). Because of VOD technology, the copyright holder's business model was extended and protected against PRS by two important technological barriers: (1) The copyright holder can provide time-shifted material with better cost structure; and (2) The copyright holder may still generate revenue from the advertisements embedded in the recorded content.

However, recent developments in information technology are removing the two technological barriers that justified the fair use doctrine applied thus far on PRS. Theoretically, cloud DVR has the same cost structure as the copyright holder's most advanced form of time-shifted content, VOD, and Auto-hop is surgically removing embedded advertisements from TV content. Both of the copyright holders' business models are being threatened by new information technologies and are now dependent solely on legal protection. Cloud DVR is again determined to be a fair use because the court could not find any legal difference between it and the previous fair use PRS. In addition, Auto-hop is currently the subject of a fierce legal debate, as some law professors recently urged the court to give up fighting technological evolution with the law, which would save needless legal costs (*Gershman* 2013). *Table 1* shows the development of PRS and related court rulings.

Therefore, it is imperative to generate economic implications for both lawmakers and business managers, because information technologies that are applied to PRS have made rapid advancements in the last few years to the point where these are now threatening the copyright holders' business model and social welfare. While some previous Information Systems (IS hereafter) papers focused on business implications from information technologies used on PRS and piracy of digital content (*Chellappa and Shivendu* 2005, *Regner et al.* 2009, *Margolina et al.* 2011), these relatively newer information technologies and their interactions with fair use doctrine are not yet fully addressed. This paper aims to provide a link between law and economics research and IS research on new technological development regarding the fair use doctrine and PRS. It suggests a microeconomic model that describes the interaction between both business models in conjunction with technological characteristics of PRS.

The research objectives are: (1) Review previous court rulings on PRS to date, to examine social welfare and copyright holder's profits, taking into consideration the technological advancements of PRS and copyright holder's business models, and (2) Generate economic implications for the court over the Auto-hop legal dispute. In *Section 2*, the related literature is reviewed. *Section 3* presents and analyzes the economic model. In the final section, the limitations of the paper and future research opportunities are suggested.

## 2. Literature review

Once PRS was allowed as a fair use, the copyright holders of TV content gained two additional business models that could contribute to their profit. The first is by directly selling copyrighted content to potential viewers with PRS. The second is by exposing viewers to advertisements that are embedded in the private recordings. In this section, through a review of related literature, it is explained how the new PRS is different from descriptions in previous literature, and why a link is needed between law and economics research and IS research. The summary of the literature regarding the economic analysis of fair use and advertisement based strategies is in the *Appendix*.

For the first business model, the competition between original and private copy was enabled by the fair use doctrine, drawing much attention in the fields of law and economics. Before Betamax, there were no practical means to distribute TV content apart from live broadcasting, which in turn imposed strict time and space constraints on viewers. Once the potential viewers have access to PRS, the copyright holders can produce their own version of time-shifted content in the appropriate medium and compete with the viewer's own personal recordings. *Klein and others* (2002) pointed out that the new time-shifting market can be beneficial to the copyright holders. Moreover, in terms of competition, it has usually been assumed that the copyright holder who is the producer of the content is protected by technological barriers that allow better quality and cost structure compared to an personal copy (*Novos and Waldman* 1984). At this point, understanding the performance and characteristics of the technologies used in fair use is essential to balancing the costs and benefits of the fair use ruling. *Johnson* (1985) showed that if the cost of private copying is too low, reducing the scope of the fair use doctrine might be necessary. *Besen* (1986) even argued that consumers do not benefit from inefficient private copying in the long run. *Liebowitz* (1981, 1982, 1985) investigated how a technology may change the application of fair use for photocopying, while *Gordon* (1982) analyzed how time-shifting technology such as Betamax may hamper market structure. *Miceli and Adelstein* (2005) claimed that the optimal level of fair use is determined by the level of technology, implying that courts may have to adjust their rulings as the performance and characteristics of technologies evolve (*Adelstein and Peretz* 1985, *Klein and others* 2002).

However, when PRS moved from using analog tapes to the digital medium, the quality difference between the original and personal recordings was at first removed. Subsequently, cloud DVR eliminated the difference in cost structure, because viewers no longer had the need for specific devices installed in their homes,

**Table 1**  
Historical development of PRS and related court rulings.

Private recording	Year introduced	Quality	Time shifting feature	Space shifting feature	Advertisement removal feature	Court decision
TV only		Original	No	No	No	
Betamax VCR	1982	Limited	Yes	No	No	Fair use
DVR	1999	Perfect	Yes	No	No	Fair use (assumed)
Cloud DVR	2006	Perfect	Yes	Yes	No	Fair use
Auto-hop	2012	Perfect	Yes	Yes	Yes	Under debate

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