

Content distribution via the Internet

Comments on upload taxation plans

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Abstract

We take the opportunity of recent publications on a minimal price regulation scheme for the upload traffic on broadband internet (upload taxation) to clarify some points regarding the current development of *information and communication technologies (ICT)* and to comment on this proposition which entails, beyond the reinforcement of intellectual property rights and the prosecution of internet users, the disappearance of peer-to-peer networks and the restriction of information exchanges between internet users.

Even when information is free and non-rival, it would be naive to believe that there is no longer scarcity in information distribution. Scarcity is merely displaced from physical supports (CD, DVD,...) and retail networks to the matching between highly differentiated products and more aware and segmented customers. On the internet consumers organise themselves, exchange information on forums or via retail web sites, share files via peer-to-peer networks and freely re-use excerpts from works (text, sounds and images). The unidirectional model of the mass media is gradually evolving towards a model of cultural co-evolution.

Authors, producers, network operators and consumers have to change their practices and build a new business model together. This will certainly call for a fresh definition of intellectual property that is broader, more flexible and certainly not reinforced, as currently the case under pressure from producers who are delaying changes to their business models.

Against this background, the proposal to tax the upload traffic in order to re-establish the rivalry of cultural goods and turn the internet into a mass media is the exact opposite of what needs to be done.

This paper¹ comments on the report "*Economic Challenges and Opportunities Related to Content Distribution*" [January 2004] supervised by Olivier Bomsel, as well as its executive summary entitled, "*Content Distribution via the Internet: an Economic Analysis of Solutions to the Bypassing of Intellectual Property Rights*" [March 8th 2004] by Olivier Bomsel and Gilles Le Blanc.

These two papers, which will be referred to below as ECD and CDI respectively, are part of the Contango project (*Building economic models and tools capable of structuring industrial choices and public policies in the field of content*), financed by the RIAM (Audiovisual and Media Research and Information) and led by the CNC (National Centre for Cinematography). They are available on the site: http://www.cerna.ensmp.fr/cerna_numerique/prog/Contango.htm

The authors of this research must be congratulated on the lengths they go to in order to propose a simple regulatory solution to a complex problem, which can only be solved, however, by the spontaneous invention of new business models.

Cultural industries, and specifically music publishing, have been slow to adapt to new technologies and the technical possibilities opened up by the digitisation of signals. These industries see *peer-to-peer* networks², and the internet at large, as the sole cause of the current declining sales of paying content.

The development of ICTs (*Information and Communication Technologies*) demands that cultural industries change their business models. These models traditionally depended on marketing physical objects (books, records etc.). These goods are now becoming non-rival³ as today's technologies make

¹ The French version of this article was originally published in april 2004 by the *Fondation internet nouvelle génération* [Next-Generation Internet Foundation], <http://www.fing.org/index.php?num=4864,2>.

² Peer-to-peer networks are described in the ECD paper. These networks are based on software that enables internet users to search for and exchange files. This service is obviously legal in that some files (such as MP3 audio files, for example) are copies of records made by consumers, so their distribution falls under the legal notion of a private copy (*fair use*). Courts differ in their judgement of the legality of this type of exchange, described as "piracy" by music producers.

³ Traditionally, and in line with the ECD and CDI papers, a "non rival good" is a good that can be consumed by one individual without depriving other users. A material good, which is destroyed in consumption, is rival (like food, for example). A piece of

it possible to extract, process, copy and transfer information (text, sounds, images and cartoons) at very low costs.

If cultural industries can adapt to new technologies, they will gain access to new markets in the long run but this can only occur in a new economic context.

If the authorities wish to re-establish rivalry between cultural goods, by law or by authorising DRM-type technologies⁴, they will reduce productivity and welfare gains provided by ICTs. By protecting incumbent market players, the authorities risk prolonging the transition phase and increasing related social costs.

In response to the question of extending the notion of private copy to peer-to-peer networks, the CDI paper proposes a tax, or rather a regulated minimal price, for upload broadband traffic, i.e. data sent by users, in order to make file exchange less attractive, to re-establish a certain degree of rivalry for digitised cultural goods and to reproduce the asymmetry of traditional mass media (radio, television etc.) on the internet.

We attempt to argue below that:

- (i) Such a proposal is more prejudicial than attractive to all parties concerned, namely producers, internet access providers and the authorities, not to mention consumers; the authors of this proposal recognise that the latter "are logically going to complain"⁵ (section 1).
- (ii) The arguments provided to justify a minimal upload charge are not based on a convincing economic framework: this is a case of taxing an innovative technology to protect incumbent oligopolistic firms that are obstinately refusing to change their business models, and are currently overestimating the consequences of files swapping on peer-to-peer networks (section 2).
- (iii) The proposal presented in the CDI paper, which could appear harmless at first sight, denatures the very essence of the internet by limiting the free circulation of files on networks, which is certainly one way of re-establishing a certain rivalry between files. However, at the same time, this limits interactivity and destroys the key function of the internet, namely to provide an intermediate mode between unidirectional mass media and bidirectional telecommunication networks. This consequently amounts to prohibiting a forum for free speech and collective dialogue (section 3).

We will conclude not with counter-proposals, but with a few remarks on the changes taking place in the field of the cultural industries (section 4). These industries should view digital files as an opportunity to expand their market and they could adapt by refocusing their activities on their core competency, namely the qualitative matching between demand and cultural products.

It is perhaps worth remembering that, in an age of rapid technological advances, markets force companies to be inventive and regulation, with the best intentions, may costly extend the transition phase. Planners often ruin the inventive efficiency of markets by imposing ceiling-prices here and bottom-prices there, depending on administrative and political balances of power.

1 An ill-conceived proposal that satisfies nobody

The respective positions of content producers, network operators, internet users and the authorities are currently very different because none of these parties are fully aware of the new solutions offered by *information and communication technologies* (ICT):

- Producers want to continue distributing content via physical supports because they believe that this is the only way of stopping copying. They nevertheless realise that excessively

equipment, which is not used all the time or only used once, is partially non-rival e.g. consumers can lend their car to someone, borrow or lend a book after having read it. Producers can consequently try to control the use of a good after its purchase to re-establish its rivalry and, if successful, they are then said to have succeeded in re-establishing a greater or lesser degree of rivalry. A product whose value lies in the information it contains is non rival if this information can be extracted, copied, distributed and reincorporated without costs or at a very low cost compared to initial production costs. Producers can try to oppose the trend towards non-rivalry authorised by information and communication technologies, either on the legislative front (by lobbying to strengthen copyright laws, as recently seen in the USA), or on the legal front (by threatening law-breakers) or technically (by resorting to techniques that make private copying more difficult such as *Digital Rights Management*).

⁴ Digital Rights Management.

⁵ In an article in *Le Monde* of March 18th 2004, Olivier Bomsel, who was asked the question: "But aren't we destroying the internet's very attractiveness in this way?" clearly replies, "Consumers are logically going to complain. However, the longer we put off objecting to the everything-for-free internet mentality, the more difficult it will be to get rid of this attitude."

expensive physical distribution will have to give way to file distribution via telecommunication networks in the long run. Their confidence in information encoding technologies (DRM: *Digital Right Management*) is waning and their initiatives to penalise "piracy" risk alienating them from the most dynamic segments of their customer base.

- Network operators and access providers want to connect as many users as possible. Their revenues are not traffic sensitive, which reflects the structure of their costs. They do not wish to reduce the value of their offering through restrictions or taxes on traffic. They eventually plan to move into the field of content aggregation in order to provide their clients with new services.
- Consumers naturally prefer free to paying content. Doing so they enforce pricing at marginal cost, which is economically optimal, at least in the short run, network distribution costs being very low. However consumers are aware that a solution must still be found to cover content production costs. But they also know that the production costs are low (at least in the case of music) compared to the costs of manufacturing, distributing and marketing physical media supports.
- The authorities are stuck in a dilemma: on the one hand, they are subject to pressure from the content industry, which seeks an extension of intellectual property rights (in the USA these industries recently succeeded in extending the scope of copyright) and a reduction of the moral rights of authors (as these rights constitute a barrier to the marketing of cultural works). On the other hand, they are also concerned by the economic health of equipment manufacturers and network operators. They also are aware that digitisation is going to radically transform the rules of the game in the content sector: because digitised works (files) are essentially non-rival and non-excludable the profitable customer bases will be global, so they tend to consider themselves responsible for the protection of national culture.

In an attempt to find a workable proposal, the authors of the ECD and CDI papers chose to completely ignore internet users, their consumption patterns, their welfare and the communities that are forming. They offer the other parties a compromise that they consider a reasonable basis for negotiation.

We outline the compromise offered from the standpoint of each player and try to show that it is based on false premises.

1.1 A detrimental proposal for producers

Producers are offered the following deal: they agree to stop encrypting data and abandon their policy of legal threats thus enabling the free circulation of files⁶, in return for the promise that some of the profits lost due to the non-encryption of files will be recovered thanks to the high price charged for upload traffic. This is an illusion for at least three reasons:

- Firstly, there is no guarantee that the funds collected by ISPs (*Internet Service Providers*) via upload taxation will trickle down to producers: the authors insist that the price-bottom they propose is not a tax⁷ that will be redistributed (such an arrangement would effectively be difficult to set up) but an additional source of revenue for ISPs. As a result, the proposed plan will not change the situation of the producers unless this seemingly harmless upload taxation plan leads to the disappearance of peer-to-peer networks altogether, including their legitimate and socially desirable uses.
- Given that the usefulness of audio files mainly lies in the possibility of copying, editing and distributing them, upload taxation should lower demand for audio files and thus reduce the profitability of paying platforms, even if they were to provide unprotected files.
- This measure would significantly reduce the exposure and attractiveness of French content both in France and abroad. We examine these points more closely in § 1.3.

⁶ The CDI paper (p.8) reads: "*The pricing mechanism [pricing of upload] creates a distribution cost. Content is then economically "trapped" from an access point of view, that is to say, at the frontier of the private domain. In that case, it is less necessary to encode and reduce user-friendliness for consumers to avoid distribution. The private domain is more open and economically cleared up. Decrypted files can no longer be exchanged free-of-charge online. One result is that encryption and decryption can be more open. If the pricing barrier fulfils its function, content becomes steadily more distributable in MP3 and MPEG2 formats that can be read by all media. IT solution providers – and especially Microsoft – will no longer find themselves blocking off access to consumers. Similarly, conflicts of interests and the technical problems related to setting up Digital Rights Management Systems (DRMS) will weaken and no longer encumber distribution. There will no longer be any need for a common security standard to effectively distribute content.*"

⁷ The authors write, "*Charging a different price for upload traffic in excess of a certain volume will make it possible to provide the relevant price signal on the final offering of the access provider. This means that the cost and complexity of collecting and managing a tax can be avoided.*" (cf. CDI paper p.5).

- Lastly, a French law that is not applicable beyond national boundaries is certainly not likely to change the strategy of global companies like Universal, Warner, Sony, BMG and EMI (in the case of music vending). How could these companies renounce their DRM policy for French users only?

1.2 A damaging proposal for access providers

At first Internet service providers (ISPs) and network operators seem to emerge as the winners in the proposal to establish upload minimal prices, with their revenues expected to rise. However, they will rapidly realise the threats that such a proposal poses for them:

- The additional revenues received by ISPs will be very low since the price (which, in reality, is targeting the disappearance of peer-to-peer) will be set in such a way so as to reduce demand for upload traffic to almost zero.
- More alarmingly, the promise of these additional revenues (presumably fictional) is conditional to verification of the extent to which traffic is licit⁸, with high prices charged for illicit traffic and lower or no charge for licit traffic. Such verification poses insurmountable legal (privacy) and technical problems: how can access providers check whether the files sent are "licit" or not? One can be sure that ISPs, which have always refused editorial responsibility for web pages, will hardly be inclined to exchange unlikely additional revenues for an expensive verification process that puts them in an awkward position with their clients⁹.
- Lastly, a minimal price for uploading will reduce demand, not only for peer-to-peer networks, but also for all services that rely on uploading, which are of considerable social value. For example, the flows related to telehealth services (domestic care), remote surveillance, e-learning, web sites hosted on computers in internet users' premises, teleworking, digital photo printing services, networked gaming, exchange of photos or videos made by consumers (sending family films to friends, for example) etc. Thus, upload taxation would lead altogether to a welfare reduction, a loss of revenues for ISPs, as well as a loss of profits for equipment industries (digital cameras, digital video cameras etc.) .

1.3 A hazardous proposal for public authorities

The proposal put forward makes the public authorities responsible for regulating upload traffic: it is the ART that would be in charge of setting the minimal price. The authorities are left to hope that this will lead to reducing copyright violation and to making the French cultural market more regulated and controllable, especially in terms of distribution quotas and timing¹⁰. However, the authorities are unlikely to back down and adopt regulations that contradict their continued and publicised efforts to promote the internet:

- How can they support a proposal that makes no attempt to hide the fact that it is directed "against" consumers, with no concern for their welfare and no account of their expectations?
- How can they put forward a proposal that its own authors describe as a return to Minitel¹¹ and the good old days of the 1980s, when interactivity was limited?
- How can they take the risk, by imposing a minimal price, of reducing competition between ISPs, which was so difficult to create in the first place?
- How can the French public authorities wish to isolate France within the internet network, even if this was the price to pay for a cultural policy? Furthermore, charging for uploading in France

⁸ The CDI paper (p.5) states: "The general principle is that of pricing according to the volume of uploaded traffic. In other words, consumers pay for access in proportion to the files they upload. This price is regulated. It can be calculated to include a free ride, namely a threshold beyond which files can be uploaded for free. Furthermore, a deviation plan enables access providers to offer exchange services at whatever price they like, if the latter promise to check the legality of free exchanges. The effectiveness of their verification will be subject to approval and checks by a public arbiter. Download access is entirely free. It may, in some cases, be subsidized by upload access."

⁹ In the Le Monde interview, quoted above (17/03/2004), Olivier Bomsel, replies to the question: "Have you floated this idea to access providers?" with: "They are like headless chickens. Network operators are in a contradictory position: they have to attract subscribers and "peer-to-peer" is an ideal vehicle for accelerating this process. However, if they continue to think that way, they will pay the price in the long term, as subscribers are going to demand more and more bandwidth capacity at lower prices."

¹⁰ In the CDI paper (p.6) the authors point out that, "Controlling distribution nationally will also make it possible to extend longstanding industrial content-cultural policy tools to the new network, ensuring a competitive balance and complementarity between networks: distribution quotas, contributions to support funds, market differentiation and media chronology."

¹¹ At two points, p.5 and p.7 in the CDI paper the authors cite Minitel as an efficient economic model due to its asymmetrical nature and the low interactivity that it provided p.5 "This principle [of asymmetrical pricing] guided and engineer that success of Minitel in the 1980s" and p.7: "The asymmetry of exchange promotes, as was the case with Minitel, the development of new content offerings that can be distributed via other networks".

would most likely endanger the popularity of French music and handicap its production. In fact, according to a study¹² carried out in the USA, files coming from France account for 3.8% of all downloads by North American internet users (whereas French internet users only represented 2.8% of internet users at the end of 2002). It is clear that, if uploading is taxed in France, French internet users will no longer provide their files, but will continue to download files from abroad.

- How can the ART be made responsible for implementing the taxation suggested by the CDI paper (a minimal price for uploading) without going against European recommendations in terms of regulation? In fact, European directives aim to dissociate the regulation of containers and contents, so as to avoid a bias in favour of any one technology. Network regulation is mostly concerned with monitoring wholesale prices and avoids any interference in terms of retail prices, to give players as much flexibility as possible in their marketing policies. Moreover, it is hard to see how the measure proposed could not have discriminatory effects on players operating different technologies, respectively cable networks and ADSL), as handicapping uploading is tantamount to privileging distribution via cable which offers a reduced uplink and to removing the biggest advantage of DSL technologies, namely the possibility of offering a low cost uplink.
- Lastly, how can one justify the necessity of "pursuing high upload consumers" like criminals given that taxation, according to the authors of the CDI paper, will inevitably lead to threatened checks (by the ART) and proceedings against those who upload "too much"¹³.

It would consequently seem that the proposal of a minimal price for uploading is unlikely to satisfy the various parties concerned. Is there at least an economic rationale behind this proposal?

2 A questionable proposal without economic rationale

In the ECD and CDI papers, upload taxation is based on the following economic arguments:

1. The growth of peer-to-peer traffic directly caused the drop of the CD and DVD sales. This is at least the case for music and this phenomenon will certainly affect the video market.
2. The fact that an efficient distribution network (internet) is replacing an inefficient network (the physical distribution of CD and DVD) represents a *utility transfer* between the players in the two sectors and this transfer has to be reduced.
3. The launch of a performing technology lowers consumers' *willingness to pay*, which represents a destruction of value that must be addressed.

2.1 Is file exchange really the cause of the fall in record sales?

Firstly, the authors offer no proof that the fall in record sales is directly linked to the growth of peer-to-peer traffic. It is assumed without evidence that all losses in the sector of physical distribution (CD, DVD) resulted from growing file exchange between internet users. However, concomitance is not causality and there are several alternative possible explanations for the current fall in record sales.

On page 28 of the ECD report, the authors comment on a diagram showing the contraction in the world record market and the number of peer-to-peer network users (over six years). In both cases, the authors talk of *correlation*, and in the course of their argument, use this word to mean *causal link*. Such simplistic use of econometrics makes it possible to defend any absurd proposal by comparing two variables taken at random.

Moreover, it is worth noting that the record market has not experienced a major crisis recently. The fall in sales in volume is significant, but steady and limited: it is around 10% per year for the 1999 – 2002 period. This recent decline, which follows a period of rapid growth, may simply correspond to the technological cycle of record sales: LPs were gradually replaced by CDs and this mutation of individuals' record stocks is now coming to an end¹⁴.

¹² See study: "The Effect of File Sharing on Record Sales: An Empirical Analysis" by Oberholzer & Strumpf [2004].

¹³ The paragraph "The cost of regulation", (p.10), in the CDI paper reads, "It [the cost of regulation] involves the set up of pricing asymmetry. This measure should be incorporated into the existing regulatory framework under the auspices of the Telecom Regulatory Authority. It aims to make the cost of illicit exchanges higher than that of paying exchanges, in other words, to establish fair competition between distributed content (licit) and exchanged content (illicit). This objective can be achieved by combining the effects of pricing, growing uncertainty over rising consumption caused by P2P usage, the threat of checks and eventual legal proceedings for consumers with high levels of upload traffic."

¹⁴ For a more precise analysis, including audio cassettes, see the study by Stan Liebowitz [2003].

The empirical analyses available are certainly diverse in their conclusions, but they all agree on one point: at least: only a very small share of the fall in sales is due to peer-to-peer networks.

1. The analysis by Michael Fine, presented by the plaintiffs during the Napster trial, merely concluded that, after comparing record sales near high schools and overall sales, the use of Napster did have a marked impact. It did not suggest that *all the reduction* in record sales might have been caused by peer-to-peer networks.
2. The study by Stan J. Liebowitz [2003], "*Will MP3 downloads Annihilate the Record Industry? The Evidence so Far*", estimates that MP3 files are not simply replacing CD unit for unit as the RIAA claimed¹⁵, but that at least six¹⁶ files had to be downloaded to reduce record sales by one unit. This study does not use any empirical source on file exchange and merely analyses music sales via physical supports over a long period of time (30 years).
3. The study by Martin Peitz and Patrick Waelbroeck [2004] entitled: "*The Effect of Internet Piracy on CD Sales: Cross-Section Evidence*" estimates that the growth of file exchange via the internet accounts for around 25%¹⁷ of the decrease in record sales at most. For the year 2002, the authors estimate that, out of the 9% drop in CD sales, only 2% could be due to file exchange. They rightly signal that the remaining 7% could be linked to a change in leisure activities, and more specifically to listening to audio and radio clips on the internet.
4. The study "*Consumption Patterns, Digital Technology and Music Downloading*" by L. Molteni & A. Ordanini [2003], highlights the fact that file exchange generates fresh consumption that would not have taken place had peer-to-peer networks never existed. Based on a survey of around 250 Napster users carried out in 2002, the authors show that file exchange makes it possible to inform users (helps in the search for experience goods) and to prepare for the change in tastes (acculturation).
5. The study entitled "*The Effect of File Sharing on Record Sales: An Empirical Analysis*" by Oberholzer & Strumpf [2004] concludes that there is a complete absence of any relationship¹⁸ between record sales and peer-to-peer traffic. This study, carried out over seven weeks at the end of 2002, covers the exchange of 1.75 million music files. The authors conclude that 5,000 file downloads are required to reduce record sales by one unit! Under these conditions, all of the peer-to-peer sales could hardly explain a drop of 2.5 per thousand in record sales, a non significant figure given the accuracy of measures and adjustments.
6. The thesis [2004] by Eric Boorstin (Princeton), "*Music Sales in the Age of File Sharing*", details by age range the degree of substitution in consumption between files exchanged on peer-to-peer networks and sales of physical supports. Based on data for the years 1998, 2000 and 2001, the author concludes that the internet has a negative effect on sales for young people (15-24 year olds) and a positive effect on over 25 year-olds. The consolidated effect is positive: those with an internet connection buy in average more musical products, all things otherwise equal.
7. The study by Kai-Lung Hui & Ivan Png [2003], "*Piracy and the Legitimate Demand for Recorded Music*" compares the positive and negative effects of piracy on music CD sales, with piracy estimated by the producers themselves through an index computed by the *International Federation of the Phonographic Industry* (IFPI). For the 1994-1998 period, namely before the growth of peer-to-peer networks, the negative impact, then only due to illegal engraving of virgin CDs, is greater than the positive impact: the authors estimate that 6.6% of record sales were lost due to piracy in 1998, financial losses being presumably larger as producers would have been in a position to increase their sales prices in the absence of piracy. Whatever, peer to peer, which was hardly born at that time, cannot reasonably be accused for this crime!
8. Lastly, it is worth noting that the IFPI's 2004 report reviews a survey carried out for the RIAA in five countries (the USA, Canada, Germany, Japan and Australia). 27% of those surveyed

¹⁵ Recording Industry Association of America.

¹⁶ The author writes, p.28: "If each download of an MP3 file were to replace a sale, there would no longer be a CD market at all (...). If it took 4 downloads to reduce album sales by one unit, then the market would have contracted by 25%. In view of the decline of the cassette, it would seem that the conversion ratio [downloads to sales losses] is around 5 to 6 to 1. Not huge, but not negligible either."

¹⁷ See table 2 of the article, "*Possible effects of MP3 on CD sales for 2000-2001 (% of lost sales due to music downloading, 2000-2001)*".

¹⁸ Oberholzer & Strumpf write: "We are interested in the effect of file sharing on legal music sales. A sample representing 0.1% of global downloads is compared to sales of a large number of album titles in the USA. In order to establish a causal link, downloads are judged based on technical factors related to file sharing, such as network congestion and the length of songs, as well as school holidays worldwide. The impact of downloads on sales is statistically zero, in spite of the accuracy of these estimates. Furthermore, the estimates show that the economic impact is insignificant and does not support statements suggesting that file sharing is the main reason for the recent decline in music sales."

declared that their CD purchases had dropped since they began exchanging files, *whereas 15% declared that their expenditure had increased.*¹⁹

It would consequently seem hasty (to say the least) to equate the "transfer in revenues" between the two distribution technologies with the *total drop in the revenues* of music producers.

These results are not surprising. To cite the simple and enlightening argument²⁰ put forward by Paul David: if, for example, five teenagers share five CDs that they have bought, each retaining four copies plus the original that s/he bought, it is likely that a strict application of the copyright law, would not only fail to result in the purchase of 25 CDs instead of five, but would also reduce the demand for the 5 illegally copied CDs that were initially bought to that sole purpose. This is why the impact of piracy via peer-to-peer networks probably remains marginal. A little bit of common sense backs up the econometric results reported above.

2.2 Does the "utility transfer" between the two networks have to be reduced?

Let us assume that there is a causal link between the growth of peer-to-peer networks and the drop in record sales, why should it then be necessary to oppose what the authors of the ECD and CDI papers refer to as a "utility transfer" between the two distribution networks?

The "utility transfer" is defined (p.4 of the ECD report) as follows:

"This process [the development of P2P networks] gives rise to a utility transfer between content industries, starting with the music sector, and internet access industries. This transfer precedes a massive content outflow via P2P and the capture of willingness to pay for music through internet access charge.

The thousands of songs (150 billion in 2003) circulating freely on P2P networks are proof of outflow. The resulting competition between paying and free services shortens product life cycles, reduces the capital impact of their market launch, blocks the distribution of paying online content and reduces cultural diversity. This trend, seen in music, is now emerging in the film industry and threatens all types of content.

Capture is shown by the very high penetration rate of broadband internet (150% annual growth rate in France), its rapid replacement of low speed access and the consumer behaviour surveys."

Fortunately, in the past, such *utility transfers* between industries have not been systematically cancelled out by taxation and minimal price regulations in the past or we would still live in the age of the stagecoach. To say that there is a utility transfer from expensive distribution networks to networks that use modern technology is certainly true, if we take "profit" to mean "utility"; and this transfer of profit is a very good thing indeed, since it encourages industries to modernise.

We could paraphrase the definition of the utility transfer quoted above and apply it to railways. Thus in 1850 our authors might have written:

"This process [the development of railways] creates a utility transfer between stagecoach managers and the railway companies: this transfer will result in a massive loss of travellers and the railways capturing travellers' willingness to pay.

Outflow is shown by the scandalous numbers of trips made by individuals on railways.

Capture is shown by the very rapid growth in railway networks."

The CDI report of 1850 would have undoubtedly concluded that it was necessary to tax railway journeys, in order to allow for the survival of all economic activities depending on trips in stagecoaches (inns, staging post, horse breeding etc.), activities that were slowly ruined by this unfair "utility transfer"

¹⁹ In its 2004 report, the IFPI writes (p.11): *"The frequently argued idea that illegal distribution via the internet boosts legal sales is false. Studies of five major music markets in 2002 – the USA, Canada, Germany, Japan and Australia – have shown that illegal recording and downloading clearly had a negative impact on sales. On average 27% of respondents of all surveys declared that their expenditure on CDs and other music-related purchases had dropped since they began downloading illegally, while 15% stated that their spending had increased."* Even if it is true that file exchanges lower revenues (and there is nothing to prove this in the figures), it is very likely that listening habits are evolving and that demand is growing strongly in terms of volume.

²⁰ See *"Does the new economy need all the old IPR institutions?"* by P.A. David [2002].

effected by the wicked railway industry. In the best of worlds, this tax would have been sufficiently high to ensure the pure and simple disappearance of the fledgling railway networks.

2.3 Does consumer "willingness to pay" need to be re-established?

Lastly, can we talk of *destruction* of consumer willingness to pay by peer-to-peer networks? Should this be corrected?

The authors of the ECD and CDI papers seem to play on the expression *willingness to pay*, which can have two very different definitions:

- In microeconomics, *willingness to pay* designates the value, v , expressed in monetary units, that a consumer attaches to a certain good or service, namely the welfare that this product procures him/her. The combined sum of consumer *willingness to pay* forms the demand curve, which is independent of the various technical solutions on offer and their respective costs.
- In everyday language, willingness to pay is the concrete consent to pay a price, p , for a certain product in the market. A new technology that reduces costs also makes it possible to cut prices in a market and thus lower the acceptance threshold of consumers, who choose the lowest price. Of course, the *willingness to pay in terms of welfare* was not reduced by the new technology but remained constant. The *consumer surplus*, $v-p$, on the other hand, has increased since p has dropped down. Moreover, new individuals, who were previously excluded from the market due to high prices, can now consume.

It is consequently strange to suggest hindering the development of a new technology in order to "*build up willingness to pay*" as though this should contribute to public welfare. Page 13 of the DCI paper reads and this argument recurs several times in the text:

"The costs of implementing a pricing structure for uplink access are proportional to penetration rates for broadband internet. It is therefore necessary to arbitrate quickly between uncontrolled deployment – to the detriment of content – leading to mediocre profitability and controlled deployment based on consolidating willingness to pay for content, services and access."

The authors of the ECD and CDI papers implicitly use the false equation $Welfare = Profit$ instead of the correct equation $Welfare = Profit + Consumer Surplus$. Moreover, there is no mention of welfare or consumer surplus in either of the two texts. Arguments are presented from the sole point of view of a monopoly generating maximum profit for which a performing market entrant of course "destroys value." The Internet network massively reduces the distribution costs of cultural goods and certainly lowers the profits generated by companies that use physical object distribution networks. It is consequently worth "reviving consumer willingness to pay" in order to enable incumbent players to survive by having to adapt to new technologies.

Applying this Malthusian argument to all goods and services is disastrous for sectors with increasing returns, in which a drop in profits is often more than compensated for by an increase in consumer surplus (this is the case with network externalities, for example), resulting in a net increase in global welfare. This is precisely the case of cultural goods; they even become non rival goods when digitised.

3 A regressive proposal that would handicap the internet

The upload taxation proposal put forward in the CDI paper aims to turn the internet into a one-way network, a sort of new mass media, in order to restore rivalry between digitised IT goods. This kills two birds with one stone by rendering technical progress in the field of ICTs pointless and by wiping out the internet's major advantage, namely the set-up of symmetrical links between all computers to form an information "commons" promoting innovation.

3.1 ICTs' major advance: the excludability of digital goods

Information and communication technologies (ICTs) lead to productivity gains and consumer surplus improvement by enabling the reproduction, storage, processing and transmission of digital data at a very low cost.

If companies and households equip themselves with computers and hook up to networks, it is mainly to turn all their useful files into *technically* non rival goods that could be copied and widely accessed at very low costs and at almost non-existent marginal costs. That doesn't mean that these files are in the

public sphere and accessible to all, but the possibility of making one's data freely available to a third party is the main service offered by digitisation.

To want to re-establish rivalry between digital data amounts to ignoring technological progress and ICTs development. It is almost like having asked Gutenberg to destroy the printing plate after every copy in order to re-establish rivalry between manuscripts, which alone gives the works their value.

Of course, each major technological breakthrough, as clearly shown by digitisation and the example of the printing press, transforms the economy and shifts the balance of social power. The cultural sectors have to change and to adapt to digital excludability, as all sectors should, because that they are all more or less richer in information and thus challenged by ICTs.

In the CDI paper, its authors write (p.3):

"Rivalry, namely the fact that it is very expensive or impossible for an owner to make his/her good available to a third party, is a fundamental factor in the economic model of the creation, commercialisation and distribution of works. Moreover, this ownership underpins all of institutional mechanisms - copyright, licences, advances, supports – structuring public policies in the content industry. An alternative model would be to consider all content as a public good. In this scenario it is the State that becomes responsible for the production and distribution of goods. We consequently end up with the paradox of the total freedom granted by the internet leading to the nationalisation of artistic creation. To re-establish rivalry, exchange consequently has to have a cost for the party that, offering its goods on a shared basis, becomes its regular distributor."

Under these circumstances it is not surprising that the two papers currently discussed cannot even discern the originality of the internet, namely that it is the first ever universal digital network. Instead they consider the web either as a degenerated end-to-end telecommunication network that unduly transports files instead of words or as a misused mass media to which asymmetry must be restored before it can finally fulfil its true role similar to that of television.

When the internet becomes a one-way mass media, thanks to upload taxation, the authors grant that it will be necessary to concede "derogations" for private communication. The CDI paper consequently reads (p. 4):

"The penalisation of uploading will re-establish a de-facto rivalry between accessible files and will promote the distribution of downloaded files. In such a scenario, "derogatory" private communication could benefit from exemptions. The distinction between communication and distribution is inevitable. This is an uncontroversial issue. What does cause controversy, however, are the ways in which it can be implemented."

It is rather paradoxical that the separation between communication and distribution is stated as "an uncontroversial issue" while the authors are arguing at length on this very issue.

3.2 Uploading: the main feature of the internet

Not only is the separation between communication and distribution not inevitable, but, on the contrary, the internet has been characterised as a "intermediate medium" between broadcasting and end-to-end networks since its very conception. This is its distinctive feature, its main innovation, its major interest: the networking of information processing forms an IT "commons"²¹ promoting innovation and open to all users.

The bursting of the stock market bubble in 2000 showed that the "mass media" internet and the "mail order selling" internet were not very profitable. That is rather obvious: digitisation has little to contribute to these old business models, which were barely modified for the internet.

What is really new about the internet, whether it be email, instant messaging or the web, is the growth in interpersonal exchanges: forums, communities, peer-to-peer networks, information sharing, and the building of a non rival common good²². Over three quarters of web pages do not belong to mass media or online commerce models. This "commons" of texts and images, already set up outside the

²¹ To use the fitting expression of Lawrence Lessig in *The Future of Ideas* [2001].

²² A blog is a personal web site that is regularly updated: this site forms a kind of diary or collective memory. A blog usually offers a space for collaboration: readers can react, as in a forum, through comments that form the threads of a conversation.

strict framework of copyright, has recently been extended to music files (MP3) and video files (DivX). Uploading is consequently the very essence of the internet. Its architecture and its protocols presume that each computer is a potential server. In technical terms, there are no central and peripheral servers and broadband gives a new and deeper meaning to this architecture.

It is still possible, at least for some time, to destroy what technology offers; that could be done through commercial, legal and regulatory measures. Some would like to see this happen. The IFPI (*International Federation of the Phonographic Industry*), for example, claims that internet access providers have to throttle upload traffic and to stop end-users from behaving like servers²³.

It is obvious that the cultural "commons" authorised by the internet annoys the dinosaurs that Lawrence Lessig refers to when he writes,²⁴ *"The cultural dinosaurs of our recent past are moving to quickly remake cyberspace so that they can better protect their interests against the future. Powerful conglomerates are swiftly using both the law and technology to "tame" the internet transforming it from an open forum for ideas into nothing like cable television on speed."*

In his work *The Future of Ideas* published in 2001, Lessig again mentions the attempt to throttle the internet through upload taxation. North American literature on this topic includes research about cooperation patterns in peer-to-peer communities. Cooperation, which is so difficult to obtain with rival goods, is easier to implement in on line communities when sharing isn't expensive for contributors that make an information good available to others. Under such conditions, destroying internet-based communities merely involves making information sharing expensive, either through upload taxation – as suggested by Lior Strahilevitz, for example²⁵ – or by technically thwarting upload traffic, as suggested by Michal Feldman²⁶.

Such proposals are at least honest, or cynical enough, to openly state their targeted goal, namely to undermine cooperation, to make altruism impossible and to destroy communities. The authors of the ECD and CDI reports should have emulated such frankness, rather than promoting an idealised model of Minitel and proposing its extension to the entire world, beginning with Europe²⁷.

4 Internet: the key to growth in cultural industries

If we follow the arguments of the ECD and CDI papers upload taxation is essentially justified by the fact that cultural goods, when digitised, can no longer finance their invention and production because they are essentially non rival.

This type of argument appears in different forms in the text. A very clear passage is quoted above, namely that of page 3 of the CDI report, which begins as follows, *"Rivalry, in other words the high cost*

²³ The IFPI 2004 report (p.14) thus reads: *"The contracts of most ISPs expressly forbid their clients from counterfeiting or operating servers (like peer-to-peer servers) using their individual subscription. Contracts also generally stipulate that ISPs can delete, block or take any measure necessary to prohibit such activities and ensure that they cooperate with the authorities' initiatives in this respect."* It is worth noting that it is obviously not in the best interests of ISPs to reduce their offerings; the quotation above shows *"wishful thinking"* on the part of the IFPI.

²⁴ Lawrence Lessig, in *The Future of Ideas* [2001], writes, *"The burst of innovation that we have seen unleashed by the internet did not originate in some magical, previously unknown technology, but is rooted in an ideal as ancient as the nation [American, N.d.T.]. Creativity flourished because the internet protected a common space for innovation. The very architecture of the internet gave birth to a neutral platform providing a testing lab for a huge range of creators. The legal architecture surrounding the internet protected this free domain enabling culture and information – the ideas of our age – to circulate freely and inspiring their unprecedented expression. However this cultural architecture is changing – legally and technically. This change will destroy the possibilities for creation and innovation initially engendered by the internet (...). Once again, innovation will be managed from the top down, and increasingly controlled by network owners, those possessing the largest patent portfolios, and more insidiously, by copyright collectors."*

²⁵ See Strahilevitz L. [2003], *"Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks"*. The author suggests that rights owners should convince Congress to pass a law obliging ISPs to price the uplink based on use, while recognising that this pricing does not correspond to costs. *"It is likely that the most effective "gentle nudge" from rights holders would be to convince Congress to force access providers to abandon flat-priced uplink traffic pricing for their residential subscribers. [Access providers] could see themselves obliged by law to bill users for each emission of data based on the quantity of data transferred."*

²⁶ See Feldman M., Lai K., Chuang J., Stoica I. [2003], *"Quantifying Disincentives in Peer-to-Peer Networks"*.

²⁷ The CDI paper, p.13, reads: *"France has every interest in being the first to embark upon the standardisation process. Weak horizontal and vertical integration in the European cultural industry, the dominant role played by ADSL and the telecom industries in internet deployment, argue for State harmonisation of the relations between content and networks. The U.S. content industry, more concentrated, more integrated and based on cable operators – the traditional infrastructure for content distribution – for internet deployment, is in a better position to agree on the solutions to put forward to regulators when the time comes. The set-up of the new European framework also offers the opportunity to rapidly extend this arrangement to other countries in the Union (according to the national regulatory initiative principle)."*

or impossibility of one owner making his/her good available to a third party, is a fundamental condition for the economic model of creating, commercialising and distributing works."

If we understand this argument correctly, scarcity and rival goods are necessary to the functioning of the economy. It is imperative to dispel the looming spectres of free goods, communities and nationalisation. This is a simplistic view of technical progress, which usually changes the scale of production costs, disposes of old industries that have become inefficient, attracts new consumers, creates new industries and *displaces scarcity*.

4.1 Technological progress does not eliminate but displaces scarcity

In the case of books, the manuscript was the essential scarcity prior to the invention of the printing press and value was created by the work of copyists and illustrators. With the advent of the printed book, scarcity was transferred from the physical object, whose production costs dropped, to the *variety* of the works available for, in the production of physical books, it is the number of *different* works that is the main source of cost. For copyists, who almost always copied the same texts, the printing press created quasi-gratuity. They did not see that the industry was going to move towards the large-scale distribution of a wide variety of texts; they could not imagine the development of literature.

In the same way, digitisation today enables the physical creation, copying and distribution of a text to all computers connected to the internet at an almost negligible cost. Scarcity is again displaced, from the variety of texts to the *formation of a link* between the author of the text and its reader. For readers, the primary scarcity consists in finding the text that best matches their tastes, the text that they are not even aware of needing, which will further their education and improve their acculturation. For authors, the primary scarcity consists of contacts with potential readers; the internet enables these interactions that could lead to joint creation. In short, the industry is moving from the logic of distribution to that of matching. Even if a cultural product is non rival and freely copyable, its value is created at the source of the new scarcity, namely the reader's attention and the author's relevance.

For simplicity's sake, the analysis above referred to books. Similar trends are also emerging in other cultural industries such as music, cinema etc. In all events, matching plays a key role. Given that cultural goods are experience goods (i.e. whose quality remains unknown prior to consumption), relations between consumers (in the case of books and records on a site like Amazon.com) reduce general uncertainty regarding the utility of a given good and greater knowledge of consumer tastes can help distributors, developers and the authors themselves (in the case of video games, for example).

4.2 Cultural industries change business models

Cultural industries are currently adapting to non-rivalry and changing their business models. By doing so, they are going to discover new sources of value that will more than compensate for the profits currently generated by physical distribution (retail networks for CD and DVD) and by the protection of works (*Digital Rights Management*). We shall attempt to describe the changes underway, which will certainly take time, all the more as some actors will try to hinder the innovative approach of other players through taxation systems that explicitly aim to preserve the status quo.

To characterise the current transformation of the cultural industries, we assume that the algorithm {*production – consumption*} of works (books, records, movies, etc.) can be broken down into four key stages:

1. Conception and production of works, which generate fixed costs, i.e. independent of their subsequent distribution.
2. Edition and promotion, in the broadest sense of these terms; these activities generally aim to ensure that the products match the various customers' tastes; this adjustment is difficult (i) because cultural products are experience goods (whose utility is unknown to consumers prior to purchase), (ii) because demand forms and grows gradually (acculturation), (iii) because authors do not generally have a clear idea of their clients' tastes.
3. Distribution, which ensures that users (readers, listeners, viewers etc.) can access the diverse cultural products. This access can either be provided in theatres (live performances, movies etc.) or at home when it is equipped with reception, reproduction and emission material.
4. The distribution of derivative products whose consumption is induced by cultural products and which are at least partly composed of rival goods the value of which can be easily collected.

Before the development of digital networks, distribution (phase 3) accounted for the bulk of costs. Rivalry between cultural products was ensured by rivalry between physical supports. The revenues generated in the end market for cultural objects financed not only retail networks, but also conception, edition and promotion (phases 1 and 2). Furthermore, conception and production (phase 1) only accounted for a moderate fraction of total costs (15% for music up to 40% for certain films), with the costs of manufacturing the supports and distributing them in physical circuits generating the largest part of costs.

The digitisation of works and the growth of ICTs are in the process of changing the phases described above in the following way:

1. Conception and production costs of works are plummeting: for both music and video, these costs sometimes change in scale. ICTs will soon render music and movie production similar to writing: these activities will only involve, at least technically, an initial investment affordable to the mass market²⁸.
2. Edition and promotion, refocused on the matching process, will come to the fore. In fact, the huge variety of digital cultural products, which represents a major gain for consumers²⁹, calls for new information procedures, reviews and comments by early adopters on retail web sites like Amazon, files exchanges on peer-to-peer networks; these exchanges will take place between consumers and between consumers and authors.
3. Physical distribution will progressively become obsolete; it will be replaced by online distribution of files, namely nonrival goods. In fact, as current attempts to make files rival (DRM and/or threats of legal action) would completely destroy the interest of digitisation in the long term, they won't survive beyond the transition phase during which new business models are setting up. However, this does not mean that the distribution of nonrival files cannot be profitable. In fact a large number of consumers would prefer to download open files (i.e. that can be copied) for a small fee (or for a minimal subscription), rather than waste their time looking for them on a peer-to-peer network. In all events, edition and promotion (phase 2) will constitute the main source of value, even within peer-to-peer networks.

It is worth noting that digital distribution can be used to finance content through the taxation of supports used for copy and recording equipment. Such a solution is certainly unperfect since it distorts the choice of consumers and leads to sub-optimal situations; an efficient redistribution of this tax to producers also calls for complex audience measures (as shown by television). In spite of its defects, such a tax is, on the whole, preferable to upload taxation, because it does not endanger the very existence of the internet, its "commons" and its emerging communities.

Growth in digital file distribution will change relations between producers and authors. To-date producers (majors, labels, publishers,..) have succeeded in convincing authors of the convergence of their respective interests. But now, the internet makes it possible for authors to establish direct contact with their public: the book sold at EUR 20 will start to compete with the text file that the author can provide on the net at EUR 1 or 2 without lowering his/her revenues. This is also true for music and video files (competition between CD and MP3, between DVD and DivX files, etc.). In the particular field of scientific publishing, it can already be observed that authors are in the process of getting rid of the traditional journals in order to escape the Malthusian policy of their publishers.

Cultural industries are naturally going to gear themselves towards the valorisation of edition and promotion (phase 2), which is indeed their core competence. In this field, internet and ICTs bring about powerful ways of providing both a greater variety of goods and better matching these goods to the tastes of a more segmented public. Interactions between consumers within online communities are necessary to the working of markets for the provision of experience goods, while interactions between consumers and authors are essential for an efficient co-evolution of tastes and cultural products. Online distributors started this type of dialogue (the Amazon.com and FNAC web sites provide examples of such communities). It is down to producers to refocus their activities on this key phase, for which they need to invent a viable business model.

As a result, digitisation and lower processing and transport costs of information are gradually changing players' strategies and alliances: authors are realising that their interests no longer match those of

²⁸ Of course, this does not mean that ICTs cannot offer, for higher development costs, the special effects that feature heavily in certain films. However, it is worth noting that such software programs, once developed, are themselves technically excludable and can subsequently be used by everyone (if they have been developed as open source software).

²⁹ On this topic, see the attempts to measure surplus consumption from an increase in the variety of goods on offer in the framework of a "digital economy": "*Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety at Online Booksellers*" by Brynjolfsson E., Smith M.D., Hu Y. [2003].

producers, while the latter are clinging to the rivalry of cultural products. Producers are irritated that network operators and ISPs do not wish to help them control content (DRM). ISPs, which seek the larger-scale distribution of works, hope to participate in designing tools to inform and orientate demand like portals, search engines, etc.

As for consumers, who are treated as pirates, their need is threefold: they wish to (i) take advantage of the non-rivalry brought about by digitisation (ii) access information services for experience goods (iii) be given the opportunity to take part in the production process, namely the right to re-use cultural products freely. It is time to realise that cultural industries are made for consumers and not the other way around.

4.3 Intellectual property faces long term redefinition

Once such restructuring has run its course, the legal definitions of a cultural product and an author will have had to change, to account for the fact that cultural products are, to a lesser degree than others, separable from their environment. Consumer feedback requires that cultural products should be open to reuse and tinkering; as a result, the creation of a cultural product will generally involve several parties, notably its readers or spectators.

However, it could be hazardous to prematurely change copyright laws. It is worth waiting for new consumption and production practices to take shape before redefining the rules appropriate to the new value chains of the cultural industries. In the short term the existing rules should be relaxed, as they have been in the past each time that a technological breakthrough has changed the valorisation of IT goods. The legislator has then always limited the rights of authors and producers, but provided for compensation based on use, which in the long term, is in the interest of all concerned. A system of *compulsory licensing right*, namely the replacement of property rules by liability rules (right to compensation in the case of a commercial use³⁰) has, in many cases, made it possible to achieve an acceptable balance between the interests of producers, authors and consumers.

The example of mechanical pianos, reported by Lawrence Lessig³¹, can serve as an archetypal pattern in the sense that we find the same arguments, and, in the end, the same type of solution in other historical cases as radio, cable distribution networks, audio cassettes, record players, etc. Mechanical pianos, invented in 1870, constituted the only way of mechanically reproducing music³² between 1900 and 1910, the first phonographs being of a very poor quality. At the time music authors and producers complained that music reproduced in this manner had been stolen from them by pirates. The Supreme Court ruled against them³³ in 1908, but Congress changed the law, so as to find a middle ground between the interests of each party by instituting a right to copy³⁴ and a very low level of compensation for each copy.

A discussion of diverse scenarios for intellectual property rights evolution is beyond the scope of this paper, which aims to criticise upload taxation plans. We will merely highlight that the protection of authors, which is presented in the ECD and CDI reports as an absolute objective justifying the re-establishment of the rivalry for files and, thus, the denaturing of the internet, can certainly not be achieved through tougher copyright regulations but, on the contrary, calls for more relaxed rules.

³⁰ It is a question of replacing the absolute right to prohibit *a priori* usage with the relative right to *a posteriori* compensation, see the article by Guido Calabresi and Douglas Melamed [1972] on the definition of "property rules" and "liability rules" (rules of property and responsibility). See also chapter 6 (An Alternative Compensation System) of the work by William Fisher: *Promises to Keep: Technology, Law, and the Future of Entertainment* [2004].

³¹ In *The Future of Ideas* [2001].

³² Lawrence Lessig writes (p.108): "Let us take the example of rolls for mechanical pianos. AT the beginning of the 1870s Henri Fourneaux invented the mechanical piano, which recorded music on a perforated roll while the pianist played a piece. The copy was of a high quality (compared to phonography at the time) and could be copied and played limitlessly on other machines. In 1902 there were around 75,000 mechanical pianos in the USA and over a million rolls had been sold. The authors of the pieces played complained, claiming that their rights had been violated. In terms that echo those used by the record industry today, rights holders insisted that the roll producers were making money from their contents in violation of copyright laws."

³³ *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1, 21 (1908).

³⁴ Lawrence Lessig writes: "Congress reacted rapidly to the legal decision by changing the law. However, the change reflected an interesting compromise. The new law did not give rights holders full control over their works. By giving authors a "mechanical reproduction right," Congress gave the latter an exclusive right to decide whether and on what terms their music could be recorded. However, once a recording had been made, others had the right (by paying 2 cents a copy) to make other recordings of the same music without requesting permission from the original author. Congress gave those who copied the protected music an "obligatory licensing right" in order to ensure that they did not exercise excessive control over future innovations based on the works. By limiting the rights of the original authors, the effect of this compromise was to broaden the creative possibilities open to others."

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To conclude, the proposal of a minimal price for uploading traffic is a regulatory innovation that threatens the future of the cultural industries. This proposal explicitly aims to re-establish the rivalry between cultural goods and to transform the internet into a mass media, which is the exact opposite of what needs to be done.

The ECD and CDI papers also raise *a contrario* two major issues:

- The internet is an intermediary mode between personal interaction (point to point network) and mass media. It is a network based on the model of collective constitution of a non rival information good, cultural or scientific. That is its fundamental characteristic, the aspect that must be preserved.
- The non-excludability of cultural goods, brought about by ICTs, constitutes, directly or indirectly, a source of productivity gains and consumer surplus. The cultural industries have to take technical progress into account, change their business models and, undoubtedly, generate profits by adapting cultural products to demand, namely by focusing on their editing core competencies.

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