

Title: Copyright Exception for Private Copying IA No: BIS1055 Lead department or agency: Intellectual Property Office	Impact Assessment (IA)		
	Date: 13/12/12*		
	Stage: Final		
	Source of intervention: Domestic		
	Type of measure: Secondary legislation		
Contact for enquiries: Robin.Stout@ipo.gov.uk			
Summary: Intervention and Options			RPC Opinion: GREEN

Cost of Preferred (or more likely) Option			
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Measure qualifies as One-Out?
£258.67m	£258.67m	-£27.55m	Yes OUT

What is the problem under consideration? Why is government intervention necessary?

Digital technology enables the copying of creative content like music and video from one device or medium to another. Certain technologies, such as MP3 players, rely on users being able to make copies. Most consumers already make private copies of content they have bought, believing it to be reasonable (and lawful). However, though lawful in many other countries, such copying is unlawful under UK copyright law without permission from copyright owners. Aligning copyright law with reasonable behaviour and normal technological use will make the law fairer to consumers and remove legal risks and costs from UK firms that may currently deter them from developing new consumer technology and services in this area.

What are the policy objectives and the intended effects?

To permit a consumer who has lawfully bought a copy of a creative work to reproduce that copy for their own private and non-commercial use. This would permit format-shifting and back-up of copies, and remove barriers to businesses providing technology reliant on private copying, whether through devices or the cloud. We aim to achieve this by introducing an exception to copyright that aligns with reasonable consumer behaviour, while preserving incentives for the creation and supply of new works with minimal prejudice to copyright owners. The "time-shifting" exception (1988) which allows people to record TV programmes for later viewing created benefits to consumers and created space for new technologies to develop.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

Option 0 - Do nothing, private copying without permission remains unlawful.
 Option 1 - A narrow private copying exception, allowing reproduction of a copy of a work (eg. a CD or ebook) that is lawfully owned (bought or gifted) by an individual onto any medium or device owned or controlled by that individual (eg. a tablet device or MP3 player), for their private and non-commercial use.
 Option 2 - An exception as in Option 1, but also allowing private copying within a family or domestic circle.
 Option 3 - An exception as in Option 2, but where the content being copied does not need to be owned by the individual doing the copying (it could be borrowed, rented, streamed or broadcast).

The Government's chosen option is Option 1, as it aligns with reasonable consumer expectations and removes barriers to business with minimum risk of harm to content creators.

Will the policy be reviewed? It will be reviewed. If applicable, set review date: 04/2020					
Does implementation go beyond minimum EU requirements?			No		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	Micro Yes	< 20 Yes	Small Yes	Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded: N/A	Non-traded: N/A	

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

Signed by the responsible Minister: _____ Younger of Leckie _____ Date: _____ 23 March 14 _____

Summary: Analysis & Evidence

Policy Option 1

Description: A narrow private copying exception, allowing reproduction of a copy of a work (eg. a CD or ebook) that is lawfully owned (bought or gifted) by an individual onto any medium or device owned or controlled by that individual (eg. a tablet device or MP3 player), for their private and non-commercial use

FULL ECONOMIC ASSESSMENT

Price Base Year 2012	PV Base Year 2012	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 46.8	High: 470.54	Best Estimate: 258.67

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0.0	0.0	0.0
High	0.0	0.0	0.0
Best Estimate	0.0	0.0	0.0

Description and scale of key monetised costs by 'main affected groups'

Evidence submitted to the consultation suggests that introducing a narrow exception for personal use could create costs for rightsholders, but this will be minimal as few people currently purchase two copies of the same content and pricing research suggests the value of private copying can be factored in to the prices of content. In addition, much private copying already takes place (albeit unlawfully). The small impact on sales and ability to compensate for losses through pricing-in indicates negligible direct costs to rights holders.

Other key non-monetised costs by 'main affected groups'

Evidence suggests that personal cloud storage is already licensed. The removal of the ability to license cloud storage is likely to mean a cost to rights holders who currently benefit from licensing. This will be equivalent to (or slightly less than) the benefit to cloud service providers from not having to pay licence fees. We have been unable to monetise these costs due to unavailability of sensitive licensing data. Low cost cloud storage licenses are today usually bundled with cloud content licenses which will not be affected.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0.0	5.6	46.8
High	0.0	57.3	470.5
Best Estimate	0.0	31.5	258.7

Description and scale of key monetised benefits by 'main affected groups'

This measure will benefit technology firms (particularly SMEs) by removing barriers and costs and improving entry to technology markets which rely on consumers being able to make private copies. Using existing markets for MP3 players and DVR recorders as a proxy for future markets, we estimate that new technology markets reliant on private copying could generate £31m p.a. for UK firms. Over ten years this gives a total benefit of £258.7m.

Other key non-monetised benefits by 'main affected groups'

The removal of licensing for private cloud storage is likely to benefit providers of such storage. Although cost of such a licence may be low or zero, licences do not have to be made available to service providers by rights holders. Technology companies will benefit from no longer having to pay licence fees – a benefit equivalent to (or greater than) the cost to rights holders. Growth benefits will arise by preventing blocking of the market due to refusal to license or licence bundling. Consumers will also benefit from greater certainty.

Key assumptions/sensitivities/risks	Discount rate (%)	3.5
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This option is assessed to cause minimal harm to rights holders, based on an assumption (supported by research - see below) that the value of private copying to the extent permitted by this extension will be factored in to the market for original copies. An exception that causes minimal harm to rights holders also minimises risks of non-compliance with EU law.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:	In scope of OIOO?	Measure qualifies as
Costs: 0	Yes	OUT
Benefits: 27.6		
Net: 27.6		

Evidence Base (for summary sheets)¹

Problem under consideration

Copyright aims to give incentives to creators and producers to supply new creative works (for example, works of art, literature and music). It does this by giving them the right to control how their works are used and by whom, and to be remunerated for this use. Copyright thus imposes costs on users and consumers of creative works to the benefit of creators and producers, in order to incentivise the future supply of creative works, which in the long run should benefit creators and users alike. However, copyright restrictions – particularly those which go beyond what is necessary to incentivise creation of new works – need to be justified in a wider social, cultural and economic context. Exceptions to copyright in relation to specific acts help to ensure that copyright takes account of this wider context and does not place undue costs on third parties, without undermining overall incentives for the supply of works.

This impact assessment considers the case for the introduction of a new exception to copyright that would allow private copying of creative works. Many consumers already expect to be able to use a copy of a work that they have bought, for example a CD, e-book or DVD, on any appropriate device, and to be able to store it privately, either physically (eg. on a bookcase) or digitally (eg. on a hard disk). However, in order to use and store creative works with certain types of technology it is often necessary to make copies of them. For example, to play a CD using a portable MP3 player it is necessary to copy that CD to a computer hard disk drive (creating music MP3 files) then to copy MP3 files onto the MP3 player in order to play them. Unless specifically authorised by copyright owners, “format-shifting” a copy from one medium to another in this way is unlawful, as it constitutes copyright infringement. Making a backup copy of a work without permission is also unlawful.¹

Most consumers do not know this, assuming that owning a lawful copy gives them the right to copy and use it on the devices they own. Most who are aware of the law believe it is unreasonable and ignore it.² Rights holders do not attempt to enforce against reasonable acts of private copying.³ The result is widespread copyright infringement due to acts of copying that many believe to be reasonable, and believe they have paid for when purchasing a copy. This position is unfair to consumers and brings copyright law into disrepute.

It also makes the position of UK firms attempting to develop new products and services based on the copying and storage of digital content legally uncertain, and potentially subject to licensing costs. These risks and costs may hold back UK-based development of new products and services (both physical and online) and deprive UK consumers of the benefits of these services. It also puts them at a disadvantage when compared to international competitors based in markets where such private copying is lawful (such as the United States, Australia, Canada, and most European countries).

Introducing an exception for private copying in the UK that aligns the law with consumers’ reasonable expectations would deliver greater fairness to consumers and create space for innovators to provide new devices and services that rely on reasonable acts of private copying to operate. The exception should be technology neutral (like the “time shifting” exception) so that it will allow new storage solution like the cloud.

Rationale for intervention and policy objective

- To reduce unnecessary restrictions on the use of copyright content for private purposes, in order to align the law with the reasonable expectations of consumers.
- To put UK firms developing digital products and services that rely on such private copying on a level playing field with international competitors, rather than at a disadvantage.
- To achieve this without undermining incentives to creators, and causing no more than minimal harm to copyright owners.

¹ Except in relation to computer software, which can already be copied for back up and lawful use under existing exceptions.

² Based on consumer surveys, for example Kantar Media on behalf of Consumer Focus. Time to change the tune, February 2010, <http://www.consumerfocus.org.uk/files/2010/10/Consumer-Focus-Time-to-change-the-tune.pdf>, which is discussed below.

³ We are not aware of any rights holders enforcing their copyright against the type of copying described in Options 1 and 2 of this impact assessment. Some, for example the BPI, have stated that they will not pursue consumers for private copying.

Options Considered

The options considered were:

- Option 0 - Do nothing, private copying without permission remains unlawful.
- Option 1 - Introduce a narrow private copying exception, allowing reproduction of a copy of a work (eg. a CD or ebook) that is lawfully owned (bought or gifted) by an individual onto any medium or device owned or controlled by that individual (eg. a tablet device or MP3 player), for their private and non-commercial use.
- Option 2 - Introduce an exception as described in Option 1, but also allowing private copying within a family or domestic circle.
- Option 3 - Introduce an exception as described in Option 2, but where the content being copied does not need to be owned by the individual doing the copying (it could be borrowed, rented, streamed or broadcast).

Costs and Benefits of the options considered

- **Option 0: Do nothing, private copying without permission remains unlawful**

Many consumers already copy content that they have bought for their personal use, regardless of the legal position, because they consider this to be reasonable. Most assume that such copying is lawful. In a recent Consumer Focus survey, 85% of consumers thought that it was already lawful to copy a CD or DVD to an iPod, mobile phone or other mobile device, and 91% thought that it should be. 38% of smart phone and MP3 player owners admitted to format shifting (eg. copying a CD they have bought to their mobile device) in the last 12 months.⁴

The creative industries do not appear to pursue people who reproduce copies they have bought for their own personal use. However, the current legal position is considered unreasonable by consumers, and stifles UK technological innovation in areas reliant on such copying.

Doing nothing to change this situation would have little impact on consumer behaviour – as the majority of consumers who wish to format shift content already do so despite the law. However, those who do follow the law will no longer be at a disadvantage when it comes to using content compared to those who do not. Leaving the law as it is will mean the copyright system continues to lack credibility in the eyes of many consumers, and barriers to innovation and market entry arising from the current law prohibiting private copying will remain. These costs and barriers are discussed in more detail below.

In view of the above, Option 0 has been ruled out.

- **Option 1: Introduce a narrow private copying exception, allowing reproduction of a copy of a work (eg. a CD or ebook) that is lawfully owned (bought or gifted) by an individual onto any medium or device owned or controlled by that individual (eg. a tablet device or MP3 player), for their private and non-commercial use**

This option would permit an individual to copy any content that they own (eg. a CD, DVD, MP3, eBook, etc.) from one medium or device to another (eg. onto a personal media player), for their own private and non-commercial use. In particular, this option would permit someone to format-shift (shift content from one format to another, for example from CD to WAV format, WAV format to MP3 format etc), space-shift (move content to different personal devices or media) and back-up copies that they have bought. The option only envisages copying by an individual of content they have lawfully acquired (have bought or been gifted) for their own use. It would not permit other individuals – for example friends or family – to make or otherwise acquire private copies. It would not permit the copying of rented, borrowed, streamed or broadcast content. It would not permit the copying of illegally-acquired content (eg. obtained via illegal filesharing), and it would not permit any distribution of copies. It would apply to storage by the owner on any device or media over which they have control (eg a cloud locker)

⁴ Kantar Media on behalf of Consumer Focus. Time to change the tune, February 2010, <http://www.consumerfocus.org.uk/files/2010/10/Consumer-Focus-Time-to-change-the-tune.pdf>

European law prohibits the circumvention of effective technological measures which are commonly used to prevent copyright infringement – for example digital rights management (DRM) on music and video files, copy protection on DVDs, etc. It will continue to be possible for rights holders to apply such measures when a private copying exception is introduced. We therefore expect a private copying exception to have a greater impact in relation to unprotected formats compared to protected formats.

BENEFITS TO CONSUMERS

This option aims to legalise current, widespread activity considered reasonable by consumers. To the extent that the law is currently followed, the main direct benefit to consumers will be from lawfully being able to use content they have bought in more ways – getting greater value from it. To the extent that consumers already format shift in breach of the law, the main benefit will be from making these acts lawful, so aligning the law with reasonable behaviour. Consumers will also benefit indirectly from new products and services that are developed or are able to launch in the UK as a result of the exception.

Social benefits to consumers and wider society

Consumers will benefit from the alignment of copyright law with their expectations of reasonable use of a work. This will create greater clarity by drawing a line between copying that is reasonable, and copying that is not. At the moment the law does not make this distinction in relation to private copying, creating confusion among users of copyright materials about acceptable use of copyright materials.

There is a strong consumer rights argument that copyright should permit reasonable uses of copies that people have bought, in line with their expectations when they buy those copies, to the extent that this does not undermine the wider copyright framework or the incentives it provides to creators.

Many consumers do not know that format-shifting or backing-up content they have bought can infringe copyright, assuming that owning a lawful copy gives them the right to do these things. In a recent Consumer Focus survey, 85% of consumers thought it was already lawful to copy a CD or DVD to an iPod, mobile phone or other mobile device, and 91% thought it should be. 38% of smart phone and MP3 player owners admitted to format-shifting (eg. copying one of their CDs to their mobile device) in the last 12 months.⁵ Rights holders do not attempt to enforce against reasonable acts of private copying.⁶ The result is widespread copyright infringement due to acts of copying that most consumers believe to be reasonable and fair, and believe they are entitled to do as a result of having paid for a copy.

Most consumers expect to be able to use a copy of a work that they have bought, for example a CD, e-book or DVD, on any appropriate device,⁷ and to be able to store it privately using any type of physical or electronic storage. Ordinary and routine acts that people perform with physical copies of creative works often cannot be performed in the digital environment without copying. For example, moving a digital document from a hard disk to an e-reader will entail copying, whereas moving a book from a bookshelf to a desk will not. Playing a CD on a CD player does not involve copying, but playing an MP3 on an MP3 player does. Consumers expect to be able to use digital copies they have bought in a similar way as they are able to use physical copies.

This exception will benefit all consumers by aligning the law with the reasonable expectations of consumers. It will also draw a clear line between copying something you own, which causes minimal harm to rights holders, and copying something you do not, which can cause harm to rights holders and which the Government seeks to discourage.

⁵ Kantar Media on behalf of Consumer Focus. Time to change the tune, February 2010, <http://www.consumerfocus.org.uk/files/2010/10/Consumer-Focus-Time-to-change-the-tune.pdf>

⁶ We are not aware of any rights holders enforcing their copyright against the type of copying described in Options 1 and 2 of this impact assessment. In 2006 the BPI, which represents the British recorded music industry, told the Culture, Media and Sport Select Committee that “we believe that we now need to make a clear and public distinction between copying for your own use and copying for dissemination to third parties and make it unequivocally clear to the consumer that if they copy their CDs for their own private use in order to move the music from format to format we will not pursue them.”

⁷ In a recent survey submitted to the Government’s copyright consultation by Consumer Focus, 73% of consumers agreed that when you have paid for a copy of music, a film or ebook, you expect to be able to listen to it, watch it, or read it on the different devices that you own. This is supported by other submissions to the consultation.

Economic benefits to consumers

As described above, private copying for personal, non-commercial use is already widespread and infringement is not pursued suggesting that much of the copying this exception will permit is already taking place despite the legal position, and that rights holders already factor in format-shifting to some extent when copies are sold.⁸ To the extent that private copying does not take place due to the current law, those consumers who currently follow the law and do not make private copies will benefit from being able to do so, thus getting greater utility from the content they buy and the devices and services they use that content with.

The impact on consumer behaviour following introduction of this exception is, however, likely to be relatively small due to the following factors:

- Evidence suggests that the great majority of people who would like to format shift copies are already doing so, regardless of any law or licence that forbids it.
- Most digital copies are sold under user licences which already permit copying to the extent that would be covered by this option (ie. personal, non-commercial use). For example, digital music downloads are usually sold under such licences, so would be unaffected by the exception.
- The use of content sold under more restrictive licences (such as video downloads) is usually controlled using copy-protection technology,⁹ which also would be unaffected by this exception.
- Where copyright prohibits copying for personal, non-commercial use (for example music CDs, which are sold “all rights reserved”), industry appears to accept such copying is reasonable and does not act to stop people doing it, despite it being unlawful.¹⁰
- Those consumers who currently do not format-shift due to the law (likely to be small given consumer views above) are unlikely to buy more than one copy of the same work to use on different devices, due to the cost of doing so. The number of people who routinely buy two or more copies of a work (and will not need to following introduction of this exception) is expected to be small.

Copyright restrictions are not the only reason for buying duplicate copies of works. Duplicates will continue to be sold regardless of an exception, for example:

- Some people will never format-shift copies regardless of the legal position, as they may not have the knowledge or time to format-shift.
- When duplicate copies are bought, this may be for value-added features that cannot be captured by copying, so these will continue to be bought regardless of an exception – for example a signed LP, CD box-set, or first-edition book might be bought as well as digital download equivalents.

These factors taken together mean:

- It is likely that most of the benefits of format-shifting and other private copying are already being enjoyed by consumers, to the extent that technology allows, despite the law.
- The consumers who will experience direct economic benefit from introduction of this exception will be those who currently wish to format-shift, but do not as they do not wish to break the law – likely to be a small number.
- Given the mix of copy-protection technology and licensed use in relation to different media, the main beneficiaries will be those consumers who follow the law and wish to copy materials that are a) easily copyable, b) not explicitly licensed for copying, and c) not protected against copying by technological measures – such as CDs, digital documents, videocassettes, etc.

In view of the evidence that most people who wish to format shift already do so despite the law, our initial impact assessment assumed that the impact of this exception on consumer behaviour would be minimal, so did not attempt to quantify benefits to consumers. We did not receive any data from the consultation which would help us to quantify these benefits, and continue to consider that the total benefit to

⁸ See Rogers, Mark, Joshua Tomalin and Ray Corrigan. 2009. The economic impact of consumer copyright exceptions: A literature review. London: Consumer Focus. <http://www.consumerfocus.org.uk/files/2010/11/The-economic-impact-of-consumer-copyright-exceptions-Rogers-Tomalin-Corrigan.pdf> and Kretschmer, Martin. 2011. Private Copying and Fair Compensation: An empirical study of copyright levies in Europe. London: A report for the UK Intellectual Property Office (October). <http://www.cippm.org.uk/pdfs/copyright-levy-kretschmer.pdf>

⁹ Such as the iTunes “Fairplay” technology

¹⁰ See above

consumers will be small. However, it is clear that this exception will deliver a small net benefit to some consumers – the minority who currently follow the law on private copying.

Economic benefits to consumers greater than economic costs to rights holders

Rogers et al note that consumers consider total benefits when they purchase content (which includes format shifting that content). Among the (small) group of consumers who do not make copies for their own personal use due to copyright law, the exception will benefit not only those who currently buy multiple copies, who will save money from no longer having to, but also those who would like to have multiple copies but do not buy duplicates due to the additional cost.¹¹ When the former group format-shifts under the new exception, rights holders will experience lost sales of duplicates; but when the latter group format shifts, rights holders will not experience lost sales of duplicates, as duplicate copies would not have been sold to this group anyway. Therefore, this is not simply a transfer between rights holders and consumers. In a static model, benefits to consumers will be greater than costs to rights holders.

In a dynamic model the market will also factor in the increased utility of copies sold to consumers. This may be reflected in rights holders being able to charge higher prices for content in reflection of its added value to consumers, or by selling more units at the same price (see Box 1 below). Prices and demand would be expected to settle at a level which maximises both consumer and producer surplus so that, in theory, both consumers and producers would benefit.

In addition, in a dynamic model, some of the savings that consumers make from no longer having to buy duplicate copies of the same content is likely to be spent on alternative copies. So rather than buying an MP3 and CD of the same album, a consumer might buy two albums by different artists.

Overall, therefore, although we are unable to estimate the level of benefits to consumers, we expect that these benefits will be greater than costs to rights holders (if there are any costs at all – see discussion under Costs and Benefits to Rights Holders below).

Box 1: Consumer “pricing-in” of the value of copying

A standard economic assumption, which we have made in this impact assessment, is that a consumer anticipates the various benefits they will gain from a purchase, and places a value on these benefits when they make a purchase. Some of these benefits may be difficult to assess – such as whether or not they or their family will enjoy a particular DVD or CD – but the assumption is that the consumer is best placed to make this valuation. The consumer’s assessment of the benefits of a product will affect their decision whether or not to buy a product at all, and how much they are prepared to pay for it, and this will be reflected in a demand curve. This IA refers to this process as “pricing-in”.

One such consumer benefit is the extent to which the consumer is able to copy the content they buy, so being able to use it with more devices and services and getting greater utility from it. It is important to note that, based on the available consumer surveys (mentioned above), the potential illegality of such personal copying is unlikely to feature strongly in such a valuation. Consumers are more likely to consider their practical (rather than legal) ability to make a personal copy when they make this assessment.

For example, many consumers routinely rip CDs in order to listen to them on a mobile device, and it is easy to do so. So this is likely to be an important consideration in any purchasing decision. If it were not so easy (or were impossible) to rip a CD, the value that a consumer places on CD purchases is likely to be lower. They may be prepared to pay less for a particular CD, and may decide not to buy the CD at all (perhaps buying a more flexible download format instead).

As regards other formats, it is also the ability to make copies in practice, rather than in law, that we would expect to be relevant to the consumer’s valuation when they consider buying a copy. Compared to digital formats such as ebooks, it is relatively difficult to format-shift analogue formats, such as hardback

¹¹ Rogers, Mark, Joshua Tomalin and Ray Corrigan. (2009) *The economic impact of consumer copyright exceptions: A literature review*. London: Consumer Focus. Available at: <http://www.consumerfocus.org.uk/files/2010/11/The-economic-impact-of-consumer-copyright-exceptions-Rogers-Tomalin-Corrigan.pdf> pp. 20.

books or a vinyl records. Digital copies of audiovisual works, notably DVD and Blu-Ray discs, may also be protected against copying through the use of technological measures.

These physical factors, which make it more difficult, or time-consuming, to format-shift copies, mean that consumers are likely to value them less than equivalent copies which are not constrained in the same way.

Economic benefits to consumers using certain technologies

Consumers are expected to experience further economic benefits arising from a greater choice of technologies that rely in some part on private copying. This is because of the positive impact that we expect an exception to have on growth in the technology sector. The benefits of any reduced licensing costs to providers of cloud-based storage would also be expected to be passed on to the users of that storage. These benefits are described in more detail in the following section.

BENEFITS TO TECHNOLOGY FIRMS

Benefits to device providers

The established UK legal position is that the sale of a device that may (or may not) be used for copyright infringement, such as an MP3 player, does not in itself infringe copyright, and the provider of a device is not liable for infringement that takes place using it. This means that, although the UK does not currently have a specific copyright exception for private copying, manufacturers of devices such as mobile phones are not liable for private copying done by users of those devices.

However, the introduction of a private copying exception is still expected to have an impact on manufacturers of these devices, for the following reasons:

First, makers of such devices cannot advertise their products for purposes such as format shifting. The Hargreaves Report gave the specific example of the Brennan J7 music player, which enables consumers to store music from CDs they have bought onto a hard disk for easier playback. Brennan, the British SME that makes this device, was ordered by the Advertising Standards Authority to include a warning in its advertisements that its use involved copyright infringement. This is despite assurances from the music industry that consumers would not be sued for such use. As well as the legal costs involved in the case, Brennan has to reassure potential buyers that they will not, in fact, be sued for copying CDs they have bought. The current law thus creates uncertainty and legal risk for manufacturers of such devices, as well as uncertainty for buyers of these devices.

Second, many devices use a mixture of local and remote storage. This has long been true of networked computers, and is an increasing trend in mobile devices. For example, most high-end smartphones come with internal storage and remote “cloud” storage to enable users to store more files on them. Local and remote storage are often closely integrated and may be indistinguishable to users. Unlike device storage, the legal position in relation to provision of cloud storage is unclear, and providers of such storage and apps that make use of cloud storage may face licensing costs. These costs are discussed further in the section below.

To the extent that the current law on private copying creates a barrier to entry to these devices, the exception will remove these barriers. However, the legal position on device liability means that these barriers will be weak when compared to those facing providers of online storage.

Benefits to online service providers

Unlike device-based storage, rights holders consider providers of private online “cloud” storage to be liable for infringement caused by their service – including infringement caused by format-shifting / space-shifting of lawfully owned copies. Private cloud storage is currently provided by a number of companies, such as Dropbox, who provide this storage on behalf of subscribers. These services are often targeted towards user-generated materials. When they are designed to store and play third party materials, such as music or video files, rights holders seek license fees for this, on the basis that uploading a file to such

a cloud infringes copyright. This means providers of remote storage are expected to pay for the right to store copies their users have uploaded, even if these copies have been made from legally-acquired originals – eg. CDs or legal downloads. Storage providers also face administrative costs associated with negotiating licences, and licences may contain ongoing requirements to provide data, thus adding further costs. If these costs are passed on to consumers, they will end up paying more for the use of such a service, and will effectively pay rights holders again for content they have already paid for. Rights holders are also able to refuse to license services and so block the launch of certain services entirely.

Benefits to providers of private cloud storage are therefore expected to arise from:

- a) reduced costs due to not having to pay for, or reduced licence fees for, storing copies in a private cloud;
- b) reduced admin costs due to not having to negotiate licences;
- c) reduced legal risk and uncertainty;

To the extent that this exception removes the need for private cloud storage providers to pay for licences, then it will directly benefit providers of this technology (and its consumers), and cost rights holders (a transfer).¹² To the extent that this exception removes a barrier to launch new online services – either because licences cost too much or are not made available to businesses – it is expected to support innovation and economic growth in the technology sector.

Licensing costs and benefits

Due to commercial sensitivity, we do not have accurate data relating to the cost of licences that cover the acts falling within the proposed exception. In their consultation response, PRS for Music stated that:

“Our conservative estimates project that, if the proposal was applied, the reduction in online revenues from cloud services over the next five years could amount to at least £40m [£8m p.a.] in lost revenues for songwriters, composers and music publishers alone.”

The methodology used to derive this figure is unclear, however. If this figure covers all cloud-based services then it will include many which are not covered by the exception. In particular, cloud-based services which provide new content to consumers (such as Spotify or iTunes Match), will be unaffected by the introduction of an exception and will continue to require appropriate copyright licences. The exception will only apply to copies which consumers have already paid for, and will cover storage and use of those copies. Any other cloud service – such as a cloud-based store, cloud-based streaming etc. – will continue to require appropriate copyright licences to operate.

The main cloud service which will be affected is online storage. PRS stated that:

“We can offer discretionary zero-charge online storage licences if the service is linked to the original sale of licensed content. PRS for Music has offered exactly that to Tesco for a licence for DVD sales and additional copies linked into a dropbox ... ”¹³

It appears that zero-charge licences for online storage are available, but only within a bundle. The cost or availability of such a licence outside a bundle is unclear. Licence bundling – which means that licences may in fact be unavailable without paying for a licence covering additional services which a business may not wish to provide – can create a barrier to market entry for cloud storage providers, even though licences may technically be available to them.

As described above, we expect there to be a transfer between rights holders and cloud service providers. We expect this is unlikely to be as high as £8m p.a. (as estimated by PRS), as this estimate appears to cover services which will not be covered by the exception. On the other hand, it is unlikely to

¹² It should be noted that the amount paid in licensing fees will always be slightly higher than the amount of these fees distributed to rights holders, due to inefficiencies in distribution. As such, although essentially a transfer, the benefit to technology companies from not having to pay for licences will be slightly higher than the corresponding cost to rights holders due to lost licensing revenue. See, as an example, the PRS for Music Accounts 2010, p5

¹³ It should be noted that neither the sale of the DVD nor the direct provision of an additional digital copy in this example would fall within the ambit of the private copying exception (as neither is an act of private copying but is an act of distribution which is, and will continue to be, restricted by copyright), so this particular licence is expected to be unaffected by the exception.

be as low as £0m as, although licences for private cloud storage are hypothetically available at this price, they do not appear to be available outside of bundled licences.

Due to a lack of data – which is largely a result of commercial sensitivity over licensing information – we are unable to estimate the size of the expected transfer between rights holders and cloud storage providers which will result due to the removal of the ability to license this particular use.

Although a reduction or removal of license fees will benefit technology firms, the main benefit to them is expected to be due to the removal of barriers to entry which are currently present as a result of rights holders not issuing licences for cloud storage of content, or only issuing them as part of bundled licences. The positive impact of removing these barriers on economic growth is assessed below.

In addition to technology providers benefiting from reduced/removed licence fees, they will benefit from the reduction or removal of administrative costs associated with negotiating licences. Start-ups and micro businesses are expected to benefit in particular from any reduction in administrative cost, as they will be least familiar with the licensing process.

Benefits from growth in new private copying technologies and services, £6m-£57m p.a.

The main benefits to business and the wider economy as a result of this exception are expected to arise due to the removal of barriers to growth in the technology sector. As described above, these barriers are weak in relation to device providers (which may face costs but are not prevented from launching), but stronger in relation to online service providers (which may be unable to afford licences, or may be refused a licence so be blocked from launching at all).

To estimate these benefits we have taken two different current technology markets. These are used as proxies for potential new technological markets that may occur as a result of introducing an exception.

We derive a high estimate by looking at the private copying market and the development of MP3 players, which benefit from private copying exceptions in other countries, notably the US. Our low estimate comes from the UK market for Digital Video Recorders – such as Virgin's TiVo box and the Sky+ box. These benefit from the existing UK exception for "time shifting", which allows people to record broadcasts for private viewing at a later time.

As the private copying exception would not prevent content providers from using technological measures to prevent copying (e.g. digital rights management), we assume that most technological development will take place in areas where technological protection measures permit. Benefits will be greater if rights holders make it easier to copy content for private use, in response to consumer demand.

High estimate

For the high estimate we have calculated potential benefits using the MP3 market as a proxy for the new technological markets that could develop over the coming decade as a result of the exception. It should be noted that the MP3 player market is a well established market, and while the exception will benefit providers of MP3 players, the main benefits to British companies are likely to be felt in new technology markets based on private copying, such as the cloud-based services described above.

In our consultation stage Impact Assessment¹⁴ we used Apple's iPod as a case study. This device relied on the ability to format shift music (permitted under US "fair dealing" copyright law) from CDs, but preceded the digital music download market. During our consultation we received comments that this estimate was unrealistic and unachievable as a result of the private copying exception due to Apple's market advantage. To take account of this, and to provide a more conservative estimate we have looked at the market shares of other players in the MP3 market to better illustrate the potential new market.

The market Apple created on the back of the iPod has gone on to capture 78% of the US market¹⁵. There is limited data on the global market shares for the mp3 market; therefore we have used these US market shares to proxy the global market shares, and intend to treat a potential UK product as receiving the equivalent of the second biggest single firm in the market, Sandisk with its 8.6% market share.

¹⁴ See <http://www.ipo.gov.uk/consult-ia-bis1055.pdf>

¹⁵ <http://www.geckoandfly.com/10095/ipod-touch-alternatives-sony-walkman-vs-samsung-galazy-vs-philips-gogear/>

US market share of mp3 players (2008)	
Apple	78.0%
Others	15.4%
Sandisk	8.6%
Microsoft	2.3%

We think this is a reasonable illustration as all the big players are global companies and it addresses the consultation responses to moderate the potential market for a UK format shifting device.

Using this information we return to the market value calculations from the consultation Impact Assessment to estimate the potential value to the UK of creating a new innovation which becomes the second or third in the international market. We have good data on Apple sales and gross margin, so estimates are based on scaling down by an order of magnitude from this.

Working out Apple's revenues

Estimates of Apple's earnings from iPod sales from 2006 to 2007 suggest that the value of the market-leading product in the MP3 player industry was worth around \$8bn. The iPod benefitted from being early to market and creating devices which consumers wanted to buy and which they could use lawfully (in the US at least). In 2007 iPods made up 27% to 48% of all Apple revenue, and have been a significant factor in the firm's success. Over their financial year 2007 (Q4 2006 – Q3 2007) the total earnings from iPods were \$8.2bn, similar to the calendar year 2007, which saw earnings of \$8.8 bn. This is equivalent to a range of £ 4.4bn to £ 4.8bn in 2010-11 prices¹⁶.

Calendar quarters	Total Apple Revenue	Percentage attributed to iPod sales	Revenue from iPods alone	Revenue in pounds, at 2010-11 prices
Q4, 2006	\$7.1bn	48%	\$3.4bn	£1.8bn
Q1, 2007	\$5.2bn	32%	\$1.7bn	£0.9bn
Q2, 2007	\$5.4bn	27%	\$1.5bn	£0.8bn
Q3, 2007	\$6.2bn	26%	\$1.6bn	£0.9bn
Q4, 2007	\$9.6bn	42%	\$4.0bn	£2.2bn

Sources: Apple reports of quarterly results 2006, 2007¹⁷

Estimating the gross margin, as we need to know value added not revenue

Financial reporting statements for Apple show that an average of 40% of world revenue accrues to the company as gross margin, the best estimate we have of Value Added attributable to the firm in its home country. This figure is based on a representative set of Apple accounts for 2007 and 2009 quarters¹⁸

There are two separate studies of Apple's supply-chain which suggest this figure is broadly right, and the point is emphasised for the iPad, as for the iPod, that:

It is a common misconception that China, where the iPad is assembled, receives a large share of money paid for electronics goods. That is not true of any name-brand products from U.S. firms that we've studied¹⁹

¹⁶ Taking an average of the 2007 \$/£ exchange rate 0.503511 sampled on 1/1/07, 2/7/07, 31/12/07; and using the Treasury GDP deflator for 2006-07 – of 90.401 – to get 2010-11 prices

¹⁷ An example of such a report can be found http://images.apple.com/pr/pdf/q207data_sum.pdf

Note that Apple's financial year is from Oct-Sep, so their Q1 is from Oct-Dec, equivalent to a calendar Q4.

¹⁸ <http://www.apple.com/pr/library/2010/01/25Apple-Reports-First-Quarter-Results.html>

¹⁹ Linden, Greg; Jason Dedrick and Kenneth L. Kramer. 2011b. "Capturing Value in Global Networks: Apple's iPad and iPhone." The Center for Research on Information Technology and Organizations Working Paper, at University of California: Irvine, <http://pcic.merage.uci.edu/papers/2011/Value iPad iPhone.pdf> Pp5

In this and other studies of Apple, Linden, Dedrick and Kramer²⁰ show that the majority of revenues from high tech products that are designed in the US but often manufactured or assembled abroad, earn the majority of their returns for the US based firm. The information for three devices is summarised below, setting out the value (meaning returns) accrued to the innovating country, the foreign assembly or supplier country, or material costs which are not identified by country. Taking the iPod alone appears to bias the value to the home country as all suppliers were identified by country, and the US received a disproportionately large percentage for iPods compared to iPads and iPhones.²¹

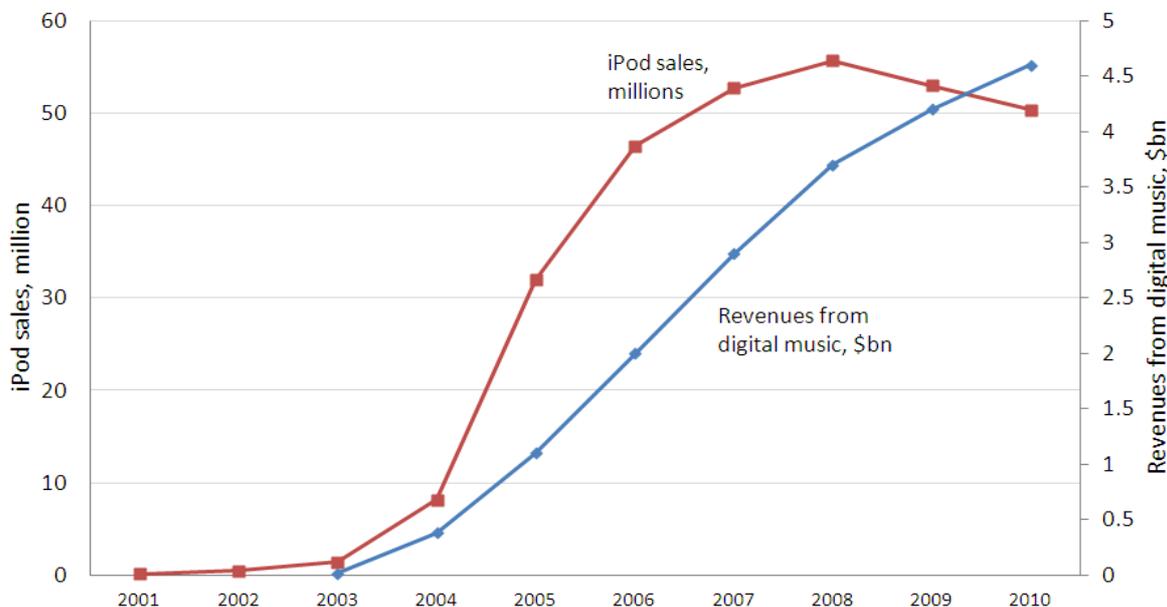
iPod			iPad			iPhone		
Home	Foreign	3rd Party	Home	Foreign	3rd Party	Home	Foreign	3rd Party
86%	14%	0%	47%	22%	31%	61%	17%	22%

For a representative figure, we take the average of the home market returns to approximate expected total spend plus home nation margins from an i-like innovation. This is approximately 65% of sales value $[(86\% + 47\% + 61\%) / 3]$. This is a better based assumption than relying on estimates for a single product; allowing for 25% of input costs to be consumed in other UK purchases and direct costs, leaves a gross margin of 40% from total revenue (65%-25%), which approximates to value added.

How fast would a similar market grow to maturity?

We look to the development of the mp3 player market – which is outlined below and which it can be seen grew before the legal digital download music market (so was based primarily on format-shifted CDs). This market matured in seven years, which is what we use for our estimate of this new global market. This estimate may be conservative, as penetration typically speeds up in sequential innovations using similar technology. Internet based innovations can spread faster still.

Global iPod sales and digital music market development



Given the projection of £2bn per year by the seventh year, we treat that as the iPod-like market leader which captures 78% of the market. Therefore we have to scale that figure up to represent the total market size. The total market size is then £2.564m when rounded up $[(2000/78)*100]$. We assume that the market grows linearly over seven years, which yields the following trajectory:

²⁰ Linden, Greg; Jason Dedrick and Kenneth L. Kramer. 2011a. "Innovation and Job Creation in a Global Economy: The Case of Apple's iPod." *Journal of International Commerce and Economics*, <http://pcic.merage.uci.edu/papers/2011/InnovationJobCreationiPod.pdf>

²¹ Linden, Greg; Jason Dedrick and Kenneth L. Kramer. 2011b. "Capturing Value in Global Networks: Apple's iPad and iPhone." The Center for Research on Information Technology and Organizations Working Paper, at University of California: Irvine, http://pcic.merage.uci.edu/papers/2011/Value_iPad_iPhone.pdf and Conway, Edmund. 2009. "What the iPod tells us about Britain's economic future." The Telegraph blog service, <http://blogs.telegraph.co.uk/finance/edmundconway/100002310/what-the-ipod-tells-us-about-britains-economic-future/>

£m	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Average
Total market	321	641	962	1282	1603	1923	2244	2564	2564	2564	1667

The value added is then estimated as 40% of the total market sales, which is £128m (321 × 40%) in the first year, and we get our high estimate by taking 8.6% of the value added, which represents the gross margin of the second biggest firm in the market.

£m	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Average
Total market	321	641	962	1,282	1,603	1,923	2,244	2,564	2,564	2,564	1,667
Global market value added	128	256	385	513	641	769	897	1026	1026	1026	667
2 nd biggest firm value added	11	22	33	44	55	66	77	88	88	88	57

On this basis the second firm in such a market would earn on average £57.3m annually and £470.5m over a ten year period. This estimate assumes that another market which relies on private copying will reach a similar market size as the global market in MP3 players (in 2008), and that – as a result of a private copying exception permitting market entry – a UK firm could capture the second largest share of that market. In order to calculate this estimate we have taken half the annual revenues earned by Apple iPods rounded down to £2bn by the year 2020, worked out the gross margins and then scaled this down to the market shares discussed above. For the purposes of this impact assessment we set out the benefit as rising over time and reaching incomes of £2bn in the seventh year, which assumes that legislation will be laid by 2014. Given Government’s timetable for implementation this seems reasonable and it coincides with the growth pattern observed for the iPod. This provides our high estimate.

Low Estimate

To approximate a low estimate we have taken the market for Digital Video Recorders, the set-top boxes supplied by the likes of Sky, Virgin, BT, Humax, as a proxy. The Digital Video Recorder (DVR) market in the UK was supported by an exception to copyright law, permitting time shifting of recordings. The time shifting exception was introduced to the UK in 1988, and meant it was legal to record a broadcast for later viewing. The DVR is only one particular technological product that uses this exception, others include the video recorder and DVD recorder. Time-shifting is similar in nature to format-shifting, and we consider it to be a useful proxy for the behaviour of a market reliant on a private copying exception.

In 2011 approximately 94% of households had digital television²², which equates to 24.7 million households²³ and 9.6 million of those households have a DVR²⁴.

Given that the DVR market is supported by a time shifting exception, without which consumers would not be able to lawfully record broadcasts, we are interested to understand how this type of market grows: DVRs were first put on the UK market in 1999, and by 2005 there were three million DVRs in UK households²⁵. Given these three data-points we can interpolate an approximate market development.

Year	99	00	01	02	03	04	05	06	07	08	09	11
Million DVRs in UK	0	0.5	1.0	1.5	2.0	2.5	3.0	4.1	5.2	6.3	7.4	9.6

In a sample of over 100 DVRs the median price for a DVR in 2012 was £209.99²⁶. When a technology is initially released its cost is considerably higher than its average over time due to economies of scale

²² <http://media.ofcom.org.uk/facts/>
²³ Given there are 26.3m households in the UK, according to the ONS: http://www.ons.gov.uk/ons/dcp171778_251357.pdf
²⁴ http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/UK_Doc_Section_2.pdf
²⁵ P103 http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/UK_Doc_Section_2.pdf
²⁶ This was ascertained by considering the price of over one hundred DVR players from a five well known online retailers the sell electronic products. The median price for the sample was £209.99 and the average was £219.14. As a small selection of DVRs had higher specifications, offering 3D for example, which put upward pressure on the average, for this reason the median has been used. (The data file with this analysis is part of the documentation accompanying this IA)

and decreasing production costs. For prudence we shall consider the cost of DVRs over time to have been £210, rather than try and scale this upwards. The gross margin on Virgin's TiVo box²⁷ is 56.7% which equates to £119²⁸.

So we estimate the annual market for DVRs, assuming other players have a similar cost to the TiVo box (the benchmark product for which we have data) to be £1.1m (£210 per box × 56.7% gross margin).

The market for DVR boxes is largely dominated by TV subscription providers, such as Sky and Virgin, who offer DVRs at reduced prices as part of the subscription. It is assumed that such companies recoup the loss from selling the boxes at reduced prices through the subscription, much in the same way as telecommunications companies recoup the cost of the free handset from the contract. In the US TiVo is a company that sells boxes independently. They launched their first DVR in 1999²⁹ and by 2008 they held 6.5% of the market³⁰. We use that as a representative statistic to estimate the share a UK firm might get at the low end of the spectrum in a market that utilizes private copying.

	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9
Market Growth (new sales)	0.5	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.1
Gross margin per DVR player: £119; multiplied by new sales to get market gross margin										
Market gross margin, £m	60	60	60	60	60	60	131	131	131	131
UK firm margin (6.5% market share), £m	4	4	4	4	4	4	8	8	8	8

The table above shows if a market were to grow in a similar manner to the DVR market and UK firm/s entering attained 6.5% share over this market, then this would equate to £56m over ten years and on average £5.6m per year.

Best Estimate

As we have a range from low to high, the standard method for arriving at a best estimate is to take the mean as an approximation. Given the very wide range, and because of the uncertainty about how future business models could emerge and the chances of a British firm creating a globally successful device in a relevant sector, we have already halved the high estimate. Given this, we get a best estimate for average benefits of £31m p.a. (the average of our low estimate, £5.6m, and high estimate, £57.3m).

£m	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Average
High	11	22	33	44	55	66	77	88	88	88	57
Low	4	4	4	4	4	4	8	8	8	8	6
Best Estimate	7	13	18	24	30	35	43	48	48	48	31

Potential growth of and substitution by cloud storage services

Some of the storage used by consumers already comes from cloud services. A recent survey³¹ found that 21% of UK based adults have between 2 and 50GB of cloud storage space. 17% have more than 50GB, and 6% have more than they can count. The market for dumb storage has grown, despite the fact that its use is usually covered by combined licenses which bundle the right to use storage with other licenses for the use of content. This type of bundling limits the ability of third parties (apart from the licensor and the storage provider) from developing value added services for consumers to be able to organise manage their content and develop cloud based equivalents to the Brennan

It is in principle possible to value the cloud storage services in terms of their benefit to consumers, which by reference to subscriptions for Dropbox, an existing cloud service, would imply a value of around

²⁷ A DVR recorder sold in the US and supplied in the UK as part of the Virgin TV subscription.

²⁸ [http://www.wikininvest.com/stock/TiVo_\(TIVO\)/Data/Gross_Margin](http://www.wikininvest.com/stock/TiVo_(TIVO)/Data/Gross_Margin)

²⁹ <http://en.wikipedia.org/wiki/TiVo>

³⁰ <http://thenumbersguru.blogspot.co.uk/2008/08/tivo-market-share.html>

³¹ University of London for Rackspace Hosting. (2011) *Generation Cloud: A social study into the impact of cloud-based services on everyday UK life*. Available at: http://www.rackspace.co.uk/uploads/involve/user_all/generation_cloud.pdf Pp 5-9

£200m. Part of this value is currently being extracted by licenses which do not allow separation of storage and content use rights, which change under the proposed exception. Under the exception it would become easier for new firms to supply new web and software based solutions to help consumers create more value from content they have uploaded to clouds, which may result in the purchase of more content.

There are therefore two additional sources of growth from applying the exception to cloud storage; the creation of new services to add value to stored material, and the additional content that users will buy to enjoy in more convenient system. The precedent of the VCR suggests these could be large, but how far they will be additional to possible device innovations (quantified above) and how far they will substitute is difficult to estimate. What is clear however, is that more – possibly all - the gross margin created by a UK based innovation of this type will stay in the UK. The effect of cloud services, although not quantified here, is likely to increase the value of the exception to UK suppliers and consumers.

COSTS AND BENEFITS TO RIGHTS HOLDERS

Costs and benefits to rightsholders – lost sales and pricing in

Currently, the absence of a private copying exception means that if someone owns a CD and wants to play it legally on their MP3 player they have to buy second, digital copy of the same content. If consumers act lawfully and purchase duplicate copies of the same content in order to use it on different devices, the introduction of a private copying exception would be expected to reduce sales. In practice, personal copying generally appears to take place regardless of the law, so this effect is likely to be small (see the reasons discussed above under consumer benefits).

A static model assumes that rights holders are unable to appropriate the value of private copying, so a lost sale resulting from private copying results in lost income. However, the theory of indirect appropriability, first proposed by Stan Liebowitz³² and since developed by him and others,³³ shows that rights holders ought to be able to benefit from the additional value that consumers derive from private copying, as it will be priced in to the market through increased prices or sales. The nature of this “pricing-in” is described above (Box 1). The ability of the producer to capture this added value is described below (Box 2).

Box 2: Producer benefits from pricing-in.

The pricing-in hypothesis is described in Box 1. Essentially, a copy of content that can be format-shifted has greater utility than one that cannot. In theory, this will shift the demand curve and a rights holder can charge a higher price for this copy (or sell more copies at the same price), and capture revenue they otherwise would have lost.³⁴ Liebowitz illustrates this point using the example of someone who buys an audiocassette copy of a musical work to play in the car as well as a CD copy of the same work to play at home.³⁵ A private copying exception would permit them to buy the CD copy and make their own audiocassette copy instead of buying two copies. The buyer of the CD will value it more, as it is more useful to them, which means the seller of the CD would be able to charge more for it, indirectly capturing the value of the CD and the audiocassette in the price of the CD alone. The utility of copying thus raises the demand curve for content.³⁶ The outcome is that right holders do not lose income from such copying. Liebowitz describes certain situations in which the rights holder is able to capture more value by permitting such private copying than they could by restricting it.

Theory only predicts overall benefits for rights holders as a result of indirect appropriability in certain, limited cases. When a consumer copies an original copy they have bought, as would be the case under

³² Liebowitz Stan. 1985. Copying and Indirect Appropriability: Photocopying of Journals. *Journal of Political Economy* 93(5): 945-57

³³ For example see Varian, Hal R. 2005. Copying and Copyright. *Journal of Economic Perspectives*. 19:2:121-138

³⁴ Liebowitz Stan. (2003) Back to the Future: Can copyright owners appropriate revenues in the face of new copying technologies? In Gordon, W & Watt, R. (2003) *The Economics of Copyright: Developments in Research and Analysis*. Cheltenham, United Kingdom: Edward Elgar Publishing Limited. Pp. 6.

³⁵ Ibid.

³⁶ Rogers, Mark, Joshua Tomalin and Ray Corrigan. (2009) *The economic impact of consumer copyright exceptions: A literature review*. London: Consumer Focus. Available at: <http://www.consumerfocus.org.uk/files/2010/11/The-economic-impact-of-consumer-copyright-exceptions-Rogers-Tomalin-Corrigan.pdf> pp. 34..

Option 1, we would expect the value of this copying to have been factored in at the point of purchase. But we would expect indirect appropriability to break down if the exception were to permit excessive sharing of copies – the most extreme example being if it were to cover illegal online file sharing. In such a case, so many copies would become available at minimal cost, flooding the market, that prices would cease to reflect the value consumers place on them and would be driven down to the marginal cost for copies.³⁷

Evidence for copying being priced in

The question of whether additional copies are priced in to the final price, or indeed the wholesale price charged by producers, is ultimately an empirical one. Respondents to the Government's consultation made a number of suggestions as to how this hypothesis could be tested.³⁸

One approach is to compare downloads sold under different usage restrictions, in particular those whose use is physically restricted by DRM technology.³⁹ An example of pricing reflecting additional consumer value was observed when iTunes introduced DRM-free music downloads (which can be copied freely for personal, non-commercial use) in 2007.⁴⁰ Previously, iTunes music downloads could be copied reasonably freely, but only on to 10 approved devices. When DRM-free copies were introduced they were priced at a higher price (\$1.29) than copies which could be copied to a more limited extent due to DRM (\$0.99). Thus, tracks that could be copied onto 10 devices (already quite permissive) were priced 30% higher when restrictions were removed to allow any copying for personal non-commercial use, in reflection of their added value to consumers. This example appears to show strong evidence of pricing-in, as theory predicts.

Subsequent to the first publication of this impact assessment in December 2013, some music stakeholders have commented on this example, noting that iTunes dropped its DRM-free download prices from \$1.29 to \$0.99 in October 2007 (to the same price as DRM-protected copies),⁴¹ and arguing that this demonstrates that consumers are not prepared to pay more for the ability to copy music. We do not consider this to be the case. "Pricing-in" does not simply mean a producer will be able to charge more for more useful product. It also means that a producer which chooses to maintain the same price, for an improved product would expect to sell more units of it. In either scenario, overall revenues to the producer would increase.

So if freely-copiable downloads are made available at the same price as DRM-protected download, we would expect overall demand for copies to increase. This is what we would expect to be the result of the iTunes price change, and is consistent with iTunes' own explanation for it.⁴²

iTunes no longer sells music in DRM-restricted format⁴³ and most music download licences now permit copying for personal non-commercial use⁴⁴ so it is difficult to base any comparative analysis on the current music download market. However, other download formats (eg. video) continue to use technological measures to restrict the number of copies that can be made, and responses to the

³⁷ Johnson and Waldman (2005), *The Limits of Indirect Appropriability in Markets for Copiable Goods*, Review of Economic Research on Copyright Issues, vol 2(1), pp 19-37

³⁸ See, for example, the BPI response to the Government's consultation on copyright, 2012, p17

³⁹ We expect that end-user licences considered unreasonable by consumers are ignored to a similar degree as copyright restrictions, so different licence terms are unlikely to have a strong impact on pricing. DRM, on the other hand, which physically prevents certain acts of copying, is likely to have an observable impact on prices that can be charged. See Box 1 for a discussion of this.

⁴⁰ "EMI takes locks off music tracks", BBC News, April 2007, <http://news.bbc.co.uk/1/hi/technology/6516189.stm>

⁴¹ "iTunes Plus now offers over two-million tracks at just 99 cents", Apple press release, 19 October 2007, <http://www.apple.com/pr/library/2007/10/17iTunes-Plus-Now-Offers-Over-Two-Million-Tracks-at-Just-99-Cents.html>

⁴² iTunes said that DRM-free tracks were "incredibly popular" with their customers, and market testing had demonstrated both consumer willingness to pay more for such tracks, and an increased demand for it. A transcript of the Apple/EMI press conference announcing this move is available at <http://www.techradar.com/news/portable-devices/mp3-players/internet/web/audio/hi-fi-radio/computing/apple/emi-joins-apple-says-no-to-drm-164588>

⁴³ All iTunes music downloads are now sold in the "iTunes Plus" format, which means they are free from DRM and can be copied for personal, non-commercial use. Video, e-book and other download formats continue to be protected by DRM and copies are restricted to 10 approved devices. See the iTunes Store terms and conditions <http://www.apple.com/legal/itunes/uk/terms.html#SERVICE> ; and usage rights statement: <http://support.apple.com/kb/PH1714> .

⁴⁴ The average price point offered by retailers appears to be 99p per track, following the standard set by iTunes, the market leader. Amazon offers MP3s at 89p, presumably in order to undercut its competitors, but does not restrict usage of MP3 downloads more than other services.

Government's consultation suggested that rights holders in this sector expect as a consequence to charge more for formats which physically permit more copying.⁴⁵

The IPO commissioned independent research based on a comparison of prices of copies of different media sold under different usage restrictions. This research, which is summarised in Annex A, appears to confirm that pricing-in is possible, and is taking place.⁴⁶

As noted above, "pricing-in" is expected to impact on demand as well as price. Therefore, another approach to research in this area could be to look at impacts on consumer demand and sales of copies. As noted by contributors to the Government consultation, without format shifting it is becoming increasingly difficult to play CDs on portable devices, as MP3 players (including mobile phones) become widespread, and demand for portable CD players declines⁴⁷. This suggests that many people buying CDs do so with the expectation that they will format shift in order to play their CDs on a portable device, and that sales of CDs (and prices) would be lower if they could not do this (for example, if CDs came with copy-protection). A consumer survey on purchasing considerations would be a way to investigate this effect.

Two further ways to examine the effect of pricing in were suggested by stakeholders. One was to compare the price of an average digital download album and the price of an average CD album. As the licence attached to a digital download album (licensed for unlimited copying for personal, non-commercial use) permits greater copying than the CD album (not licensed for personal copying), some stakeholders argued that the digital album ought to cost more if there was pricing in. We do not think this conclusion is consistent with the pricing-in theory, however. CD copying for personal, non-commercial use is widely considered to be reasonable and takes place regardless of copyright. Therefore, the value of being able to make private copies from CDs is likely to already be factored in to the market, and should be similar to the value of making copies from MP3s.⁴⁸ Moreover, other factors raise the price of CDs compared to downloads, including the fact that a CD costs more than a download to manufacture and distribute and the value that buyers of CDs are likely to place on physical aspects including packaging. Therefore, average CD prices are higher than MP3 download prices,⁴⁹ and this appears to be consistent with the pricing-in hypothesis.

Stakeholders also proposed to compare pricing between countries with different private copying exceptions, including those with device-based levies and those without. We do not consider such an analysis to be very useful, however, due to a number of factors affecting pricing in different markets, including exchange rate fluctuations.⁵⁰

In view of the above, and the independent research commissioned by IPO, we expect that the value of the private copying which is permitted by this exception will be factored in to the market, at least to some extent. This will mean that, to the degree that rights holders experience lost income due to lost sales of duplicate copies, they will be compensated for this to – at least to some extent – via a positive impact on prices or sales of content.

In addition, some of the savings that consumers make from no longer having to buy duplicate copies of the same content is likely to be spent on alternative copies (see consumer benefits, above).⁵¹

⁴⁵ See, for example, the response from the British Screen Advisory Council, 21 March, <http://www.ipo.gov.uk/response-2011-copyright-bsac.pdf>

⁴⁶ This independent research was published in March 2013, and is available here: <http://www.ipo.gov.uk/ipresearch-private-150313.pdf>. A summary of it is at Annex A.

⁴⁷ A quick search on the Currys website (www.currys.co.uk) shows a single portable CD player on offer compared to 14 MP3 players (including multimedia players but not including mobile phones, which also usually operate as MP3 players).

⁴⁸ As ripping from a CD will create an MP3 album identical to a download album, whereas a CD created from a download album will not be an exact replica as one bought from a shop (it will not have the same packaging, etc.), one might actually expect the value of CD to digital copying to be slightly higher than digital to CD copying.

⁴⁹ The average price of a physical CD album in 2011 was £7.19, higher than the average price of a digital album, at £6.43.

⁵⁰ At the time of preparing this IA, the bestselling album "21" by Adele was cheaper in Spain than in the UK, and more expensive in France (€8.99 in Spain, €9.51 in the UK, €10.99 in France, using 3/8/12 exchange rate). Spain and France have private copying levies, whereas the UK does not. It is not possible to determine the extent to which these price differences arise due to the presence of private copying exceptions and levies, or are due to other national factors.

⁵¹ See Rogers, Mark, Joshua Tomalin and Ray Corrigan. (2009) *The economic impact of consumer copyright exceptions: A literature review*. London: Consumer Focus. Available at: <http://www.consumerfocus.org.uk/files/2010/11/The-economic-impact-of-consumer-copyright-exceptions-Rogers-Tomalin-Corrigan.pdf>

No useful data was provided to the consultation to enable us to monetise any costs and benefits to rights holders arising from this exception. However, based on the above analysis, we expect that costs to rights holders due to lost sales will be minimal or zero.

Costs to rights holders – lost licensing income

As described above, we expect there to be a transfer between rights holders and cloud service providers due to service providers no longer having to pay licence fees to rights holders. This would result in a benefit to service providers and equivalent cost to rights holders. However, we do not have sufficient data to make a reliable estimate of this potential costs to rights holders.

Although it is not possible to estimate the size of this transfer, we do know that, as it will be a transfer between business sectors, the overall cost to business will be zero.

Option 2: Introduce a private copying exception as described in Option 1, where private copying includes copying within a family or domestic circle.

This reflects the approach taken in some other European countries (e.g. France). The benefits delivered by this option are of the same nature as those under Option 1, although a wider exception would mean that more consumers would benefit from it so benefits to consumers would be greater. It may also enable a wider range of innovative products to be developed. However, costs to rights holders are expected to be greater than under Option 2. As our aim is to introduce an exception in line with reasonable consumer expectations while keeping costs to rights holders to a minimum, this option has been rejected. A brief analysis of costs and benefits is provided below.

BENEFITS TO CONSUMERS

Many respondents to the Government's consultation⁵² argued that an exception that extends to familial or domestic copying and use would be more in line with consumer behaviour and expectations than one that extends only to copying by the lawful owner of an original copy.

This option would also be likely to deliver economic benefits to consumers who would no longer have to buy copies as a result of being able to acquire free copies from family members. However, there may be costs to consumers and society in the longer term as a result of an exception which endorses this type of behaviour, which could potentially be seen to endorse more damaging acts of sharing such as peer to peer file sharing online.

COSTS TO RIGHTS HOLDERS

The potential for lost sales

We disagree with respondents to the consultation who argued that allowing someone who has not paid for a copy of a work to acquire one by copying from a family member (for example copying an e-book) can be considered the same as borrowing a physical copy from a family member (for example borrowing a physical book). When a CD is borrowed, the owner of that CD can no longer listen to it until it is returned. On the other hand, when a digital album is copied, several people are now able to enjoy that album whenever and wherever they like.

Therefore, copying within a private circle is more likely to substitute for sales than lending of physical copies. It is also more likely to substitute for sales than personal copying as permitted under Option 1, as it would permit people to acquire free copies that they had not paid for.

Pricing-in of shared copies

⁵² See for example contributions from the University of Leeds "Communicating Copyright: An Exploration of Copyright Discourses in the Digital Age" Research Project; Brunel University London Intellectual Property, Internet and Media Research Centre; and a number of submissions by private individuals.

As noted above, evidence suggests that the value of private copying can be priced in to content under certain conditions. This includes situations where copies are shared - for example it is argued that pricing-in is possible for books which are sold to libraries and are photocopied for library users, and videos/DVDs sold to rental shops. If this is possible in a family or domestic circle then it may be possible to compensate for lost sales through the purchase price. It seems likely that some of the value of sharing will be factored in by families when copies are bought, as groups such as families often discuss purchases and are prepared to pay more for a product in view of its shared utility. An example is an expensive television, bought from a joint household budget and benefitting the whole household, which is justified by its shared benefit to the household and would not have been bought by any single individual in that household alone.

However, in many situations, it is clear that in many cases sharing copies leads to lost sales which cannot be compensated for through the purchase price of content. As described above, the greater the degree of sharing, the less we expect pricing-in to be able to compensate for lost sales caused by copying.

Although we have received no useful evidence of actual harm from such copying, the risks of such harm are higher with regard to Option 2 than Option 1. In view of these risks and the Government's aim to keep costs to copyright owners to a minimum, this is not our preferred option.

REASONS FOR REJECTING THIS OPTION

The Government wants to draw a clear line between legitimate and illegitimate copying, and intends to draw this line at sharing copies with third parties who have not paid for them. Although this option may benefit consumers, it would permit behaviour that the Government does not wish to encourage. In particular, there is a risk that the copying permitted by this exception could result in lost sales and income to rights holders which it might not be possible to compensate for through increased prices. As the Government wants to minimise harm to rights holders arising as a direct result of a private copying exception, this option has been rejected.

Option 3: Introduce a private copying exception as described in Option 2, but where the content being copied does not need to be owned by the individual doing the copying.

Option 3 would cover any copying done for private, non-commercial use. It would allow private copying, including within the family or domestic circle, from any source (bought, borrowed, etc.). Such exceptions exist in many other European countries (e.g. The Netherlands, France).

COSTS AND BENEFITS TO CONSUMERS

The short term consumer benefit from this exception is likely to be higher than under Option 1 or 2 – as more types of content will be freely and easily available – but in the long term losses to copyright owners are likely to significantly damage incentives to create and provide new creative content, leading to a reduction in the diversity and quality of content, to the detriment of creators and consumers alike.

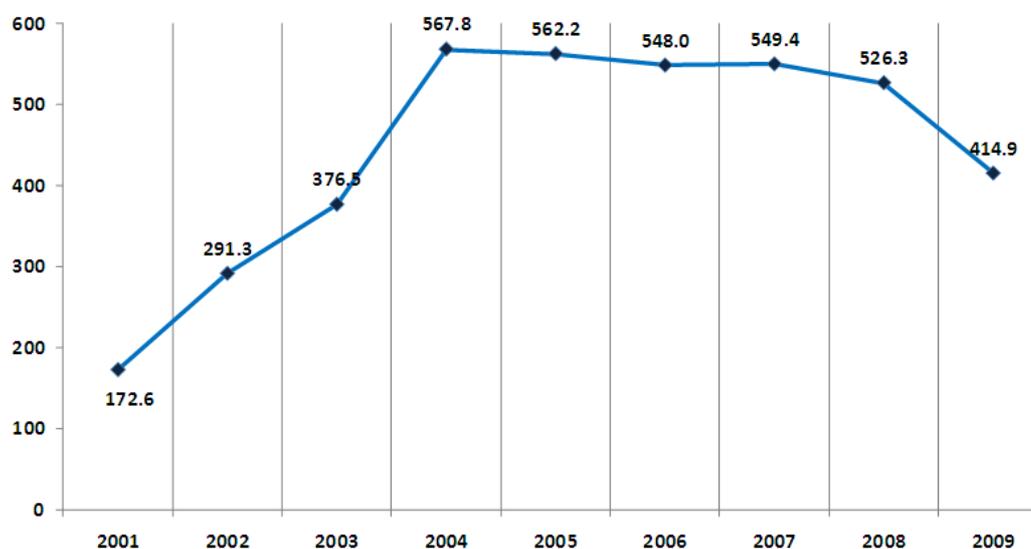
COSTS TO RIGHTS HOLDERS

The harm caused to copyright owners due to lost sales is likely to be significant. People could acquire a copy of a work for free without ever owning a paid-for version by copying a version that belongs to anybody else. If the availability of free copies makes it difficult for sellers of content to recover their costs and invest in new content, creators will see their income and financial incentives to create reduced.

In order to compensate copyright owners for the harm caused to them by private copying exceptions similar to the one proposed under Option 3, many EU countries have introduced levies on blank media (such as CD-Rs and DVD-Rs) and copying devices (such as MP3 players, mobile phones, laser printers), which are distributed to copyright owners. These are supposed to compensate for the harm that arises from unrestricted private copying. Alternatives to levies include tax-based compensation (as provided by some EU countries) or statutory licences.

Levy rates vary widely between different countries, and are not a very accurate reflection of actual harm caused by copying.⁵³ However, the below figures give an idea of the order of magnitude of the harm to copyright owners that might arise from Option 3.

**Aggregate Revenues in Europe from Copyright levy schemes
(2002-2009) (in € millions)**



Source: [6, p.8] Data from European Commission; de ThuisKopie; Business Software Alliance

REASONS FOR REJECTING THIS OPTION

The lack of connection in Option 3 between the person who has bought content and the person who is entitled to copy it means that it is highly unlikely that this copying could be priced in. To avoid damaging incentives to creators, a separate system of compensation would therefore need to be put in place. In advance of its consultation, the Government ruled out providing a levy or similar system to compensate for this harm, due to the cost and inefficiency of such systems.⁵⁴

Therefore, in view of the harm to rights holders likely to be caused by this exception, and the damage to incentives to the creation and supply of new works likely to result from it, this Option has been rejected.

Chosen option

The Government has ruled out Option 0, do nothing, as it would not deliver the intended benefits. Option 2 has been ruled out because copying in the domestic circle could lead to lost sales by rights holders, and there is a risk that the value of such copying cannot be factored in at the point of sale. The Government has also ruled out Option 3, in view of the substantial harm to rights holders likely to arise from it, and the potential damage to incentives for creators.

The chosen policy option is Option 1. The Government believes that a private copying exception that is narrowly defined would cause minimal harm to rights holders, align the law with reasonable behaviour and reduce barriers to businesses seeking to launch innovative technology and services, thus creating opportunities for innovation and economic growth.

One-In-One-Out (OIOO)

For the purpose of OIOO this impact assessment only considers the benefit to firms as the net profits they can earn from participating in markets affected by this measure, not the economy-wide impact that

⁵³ Kretschmer, Martin. 2011. Private Copying and Fair Compensation: An empirical study of copyright levies in Europe. London: A report for the UK Intellectual Property Office (October). <http://www.cippm.org.uk/pdfs/copyright-levy-kretschmer.pdf>

⁵⁴ See Kretschmer, above.

the change could have. These benefits derive from an exception to the current copyright law, where firms and consumers will now be able to undertake new activities, and therefore we classify the exception as de-regulatory. No additional costs are imposed on business, although there may be transfers between firms as a result of freeing some cloud storage from licensing.

As described above, best, low and high estimates have been derived through analysis of similar markets that rely on private copying or similar exceptions. The specific examples are the DVR and iPod markets. The best estimate is an average of the high (iPod) and low (DVR) estimates.

The method of calculation for each of the relevant net profits is described in detail under the policy option. The table below shows the summary of these calculation; the total present value (PV) for each estimate in the right hand column.

£ million	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	PV
Low	4.0	4.0	4.0	4.0	4.0	4.0	8.0	8.0	8.0	8.0	46.8
Best	7.5	13.0	18.5	24.1	29.6	35.1	42.6	48.1	48.1	48.1	258.7
High	11.0	22.1	33.1	44.1	55.1	66.2	77.2	88.2	88.2	88.2	470.5

We have calculated a net benefit to business of £258.7m over ten years and on average £31.5m per year for our preferred option. For this reason this exception qualifies as an OUT.

Micro Business impact

Micro businesses will be covered by the exception, and will be among the firms most likely to benefit. Small innovative firms in content services are those which we expect to develop products and services to meet new needs for digital consumers. Small firms are least well equipped to deal with complexities of licensing and potential copyright infringement which this exception will avoid. If micro firms were exempted they would suffer disadvantage as a result.

Risks and assumptions

Pricing-in and risks from sharing content

Theoretical arguments⁵⁵ show that, although fewer copies of a work may be sold if greater private copying is possible, it is likely that the value of private copying can be appropriated – at least to some degree – by producers in the purchase price of content, since a consumer derives greater value from content they can do more with. If willingness-to-pay for the right to copy exceeds losses from reduction in sales, the seller will profit from allowing the act of copying. In a free market, demand and supply will settle on a price for goods where consumer and producer surplus are maximised. It is therefore possible for both consumers and producers to benefit from permitting private copying – consumers from being able to do more with content and producers from being able to charge more. However, these effects are likely to be weaker if the sharing of copies is possible. The degree to which sharing is permitted, and the circumstances, will affect the amount of value the producer is able to capture.⁵⁶

The above analysis assumes that pricing-in is indeed likely to occur, at least under Option 1, and to some extent under Option 2. This is supported by research commissioned by the IPO.

Legal framework and risks

The scope of this exception is limited by EU law. In particular, the Information Society (Infosoc) Directive provides that exceptions for private copying can be introduced “on condition that right holders receive fair compensation” from consumers for copying they do under the exception. However, when harm caused is minimal, or when a payment has already been made for the act in question, the Directive does not

⁵⁵ See, for example, Hal Varian developing Liebowitz’s concept of “indirect appropriability”,

⁵⁶ Varian, Hal R. (2005) Copying and Copyright. *Journal of Economic Perspectives*. 19:2:121-138.

require additional compensation. As described above, many countries with wide private copying exceptions provide compensation via a levy on copying media and devices.

As described above in relation to Option 1, we consider that the price mechanism will provide adequate compensation to rights holders. To the extent that pricing-in does not fully compensate for lost sales, harm is anyway expected to be minimal. We consider that the exception as outlined in Option 1 is the least likely to cause more than minimal harm to rights holders. Option 2 is also unlikely to cause significant harm but carries greater risks than Option 1. Option 3 – if implemented without a levy – is likely to cause significant harm to copyright owners, and has been rejected on this basis.

In view of the Government's intention to implement this exception without introducing a levy or similar mechanism, we have made every effort to minimise harm caused by it. However, European case law on this exception and the meaning of "fair compensation" is far from clear. At implementation stage, it may be necessary to build further safeguards into the exception in order to further minimise legal risk.

Evaluation

A full evaluation strategy and Post Implementation Review is being developed for the introduction of the Hargreaves recommendations. The Post Implementation Review will detail the benefits associated with the introduction of the copyright reforms and will include input from external stakeholders. The plan will also set out how and when the benefits will be measured, which will depend on the type of benefit, as some benefits will be measured by applications and take-up that can be measured from the first year of operation, whereas others will depend on information that will take several years. The evaluation strategy will set out the activities that will be undertaken in order to evaluate the policy, drawing on management information collected through the copyright system, as well as research that is commissioned in order to measure the benefits.

The main source of data available for evaluation will be collated using industry figures. These statistics, alongside other management information on the operation of the system will be used by Government to assess the impact of the copyright reforms, including assessing whether benefits have been achieved and how policy or operations can be developed to realise benefits more effectively.

***Note:**

This Impact Assessment (IA), which is one of a series of IAs concerning copyright exceptions, was originally published in December 2012 alongside the policy statement "Modernising Copyright". It was republished to accompany the publication of the secondary legislation that implements the chosen options set out in the IAs. Since the original publication of the IAs the Government has engaged extensively with stakeholders both formally (through a technical review of the draft legislation) and informally. No new evidence has been provided that has led the Government to alter the overall numerical assessment of the costs and benefits contained within this IA.

However, since the IA was originally published the government has become aware of some additional narrative evidence that is of relevance to arguments discussed in the IA and hence the narrative section has been updated. In addition, boxes setting out certain key concepts have been added, and further comment has been made on the independent research discussed at Annex A.

Annex A: Pricing-in - a detailed description of the research

What data has been collected?

Music: 18,958 observations, of which all digital albums and CDs were considered in the analysis which covered 17,272 albums.

Film: 3,515 products which includes blu-ray, digital copies (both direct download and 'ultraviolet'), DVD, VHS and bundles where a film is offered in multiple formats within one package.

Books: 2,071 observations on books (534) and e-books (1,537) sold by five on-line retailers: Amazon, GooglePlay, iTunes, Kobo and Waterstones, selected according to top-100 sales and review lists.

Software: 1,008 observations across several types of software in operating systems, productivity, utilities, design & publishing, photography, music & audio, finance and other software types.

What we can analyse

Some of the data does not have a lot of variability, so the number of copies allowed in certain industries varies little, but we try to compensate for this by collecting large samples and testing for product characteristics as well as copying permissions.

Music: break down by album and number of tracks per album because there is a significant difference in the price of digital and physical albums, but on a per-track basis that price difference is no longer statistically significant. So we consider both, using album or per-track price as the dependent variable.

Film: We consider the number of discs in a pack, the format a film is sold in, the type of bundle and type of additional copy with the price as the dependent variable.

Books: Problematically for running tests on this data all retailers offer six copies as part of an e-book purchase except for Amazon which offers five. Similarly all the retailers name four devices for reading an e-book, except iTunes which only name two. This means there is very little variability in the data.

Software: These are collected with information on number of copies allowed by the licence, prices, publisher, whether it is an update, and the delivery method (download, CD/DVD or Download with back-up disc).

What the data suggests

Music: The most significant finding of the research on music came from the work to try and understand the copying conditions contained in the terms and conditions of sale of different types of music. More than in any other type of content there was real difficulty in interpreting the 'small print' in the terms of different suppliers and formats. Often the terms were confusing (for our researchers let alone ordinary consumers) and in some cases internally contradictory. In part we suspect this reflects two basic facts of the music market:

- The ability to control copying as part of the business model, through DRM, is absent from most of the digital music market
- Most consumers do not accept (from the research cited earlier) that there should be limits on their ability to copy for personal use

Variation in prices which might indicate 'pricing in' of the ability to copy is difficult to find in music content. This could be because private copying for personal use is so widespread in this sector that it is already largely or fully priced in. Consumers and producers of music appear to expect that music will be copied for personal non-commercial use, and all downloads are explicitly sold on these terms; so we would expect to see little variation in prices compared to other types of content, particularly those which physically restrict and permit different degrees of copying such as film downloads and ebooks.

We note that, when attempting to draw conclusions from their pricing analysis, the researchers appear to make the assumption that a CD which does not, by way of a licence, expressly allow its owner to make

personal copies will not be copied, so the value of copying will not be priced-in. Given that consumers commonly format-shift CDs, regardless of the law, we do not consider this to be a valid assumption. As explained above, the current law on private copying, and the terms of use attached to copies, are unlikely to factor strongly in purchasing decisions as most consumers are either unaware of them, or ignore them because they consider them unreasonable.

If we instead assume that consumers do expect to be able to copy CDs, regardless of licence terms (which is what consumer surveys suggest) the data gives the result we would expect. Both the CD and the download have similar copying utility, so this does not noticeably affect the price differential. Instead, the higher cost of the CD is likely to derive from its physical appeal to consumers and higher manufacturing costs.

Films: There is a positive correlation between the retail price and number of physical copies included in a bundle, but the relationship appears to be different for the number of copies allowed. This is explained by differences in the price premiums charged in bundles for different formats. So when an additional standard DVD or Blu-Ray disc is added, the average price of film bundle is negative or statistically insignificant ; the price rises with an additional digital copy (£3.33), 3D Blu-Ray discs (£4.30) and Ultraviolet licences (£5.42). Ultraviolet is particularly interesting as it offers a very broad license with options to watch films on multiple devices, with up to five copies in some cases, and a possibility to share the license with up to five other people. These regressions explain 28% of the variation in price, and running the same tests for the natural logarithm of prices (testing to see if there is a percentage change in the average price) produces much the same results with the same explanatory power.

As described above, this is consistent with the pricing-in theory. Consumers take into account their physical ability to make a copy, rather than their legal ability. Unlike music CDs and downloads, it is difficult to copy a DVD, Blu Ray disc, or video download. They are commonly protected by technological copy protection measures, and copying is less convenient for consumers due to hardware limitations, such as memory size. Because of this, less general pricing-in of private copying is expected, and pricing-in is instead expected to more closely follow the physical number of copies allowed by the copy protection technology. This is indeed what we see from the analysis.

Books: There is a statistically significant average price difference between physical books (£12.87) and e-books which allow 6 copies (£6.69) and those which allow five copies (£5.43). The premium for a physical book is of course likely to be explained by manufacturing costs and the value consumers place on physical features, rather than the number of copies that can be made from it. The number of allowable devices does not appear to influence the price, and regression analysis on the price does explain 34% of the variation in price. That said, while the number of copies for e-books appears significant, it could be driven by Amazon's strategy to offer lower cost books (similar to Amazon results for software), and the number of copies allowed may have no bearing on this. Similarly differences between retailer and publisher can change the copy permissions on individual books, but these conditions are usually only available on purchasing each book, and so not useful for analysis without further publisher figures.

Software: This market case is partly a control case as it would not notionally be affected by a private copying exception, but it is a sector which actively tries to price additional copies. Regression analysis which explains 55% of the variation in price suggests that an additional copy is associated with a 1% increase in price holding all other criteria constant. Moreover, when adding the fact that the price increase seems to diminish with more copies a quadratic term is introduced into the regression which confirms that hypothesis, and does not change the model except to increase the pricing-in association to 3%.

The IPO has published the full market studies, datasets and statistical tests on its website to accompany this impact assessment.