
ONLINE INTERMEDIARIES

ASSESSING THE ECONOMIC IMPACT OF THE EU'S ONLINE LIABILITY REGIME | JANUARY 2012

INFORMED DECISIONS



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TABLE OF CONTENTS

Preface	4
Executive summary	5
Introduction to the report	6
Scope of the study	6
Online intermediaries – Who are they?.....	6
Chapter 1 The role of online intermediaries	9
1.1. Types of online intermediaries.....	9
1.2. Benefits for users.....	11
Chapter 2 The online liability regime	14
2.1. The EU’s online liability regime	14
2.2. The functioning of EU’s liability regime.....	15
2.3. Importance of the liability regime.....	20
Chapter 3 Economic value of online intermediary activities	22
3.1. Summary of findings	22
3.2. The GDP contribution of online intermediaries	24
3.3. Beyond GDP contribution of online intermediaries	25
3.4. Productivity effects of online intermediaries	26
3.5. This value would not be possible without limited liability	28
Chapter 4 The future for online intermediation in the EU	29
4.1. Growth in online intermediation 2011-2015.....	29
References	30
Appendix: Methodology and Data	32

PREFACE

The European Digital Media Association (EDiMA) has asked Copenhagen Economics to assess the economic impact of the current online liability regime as enshrined in the EU's E-commerce Directive (2000/31/EC).

The goal of the study is to contribute to the debate on the future of Europe's digital economy. The study shall assess the size of the economic contribution of online intermediaries reliant on the protections afforded by the EU's liability regime in terms of European growth and job creation.

A steering group of EDiMA members as well as the broader membership have provided valuable comments during our work, for which we are grateful.

Meetings with various stakeholders have also been held and inputs from European Commission services have been provided on the scope and methodology of the study.

We are thankful for the contribution and comments provided by EDiMA members and European Commission staff for this research.

DISCLAIMER: This study has been funded with support from EDiMA. The report reflects the views only of the authors, and neither EDiMA nor its members can be held responsible for any use which may be made of the information contained therein. The description of the EU's liability regime applying to online intermediaries is only meant to provide a basic understanding of this regime and does in no case constitute a legal analysis of it.

About EDiMA

EDiMA, the *European Digital Media Association*, is an alliance of Internet and new media companies whose members provide online platforms offering users a wide range of online services, including the provision of audiovisual content, media, e-commerce, communications and information/search services. EDiMA represents the interests of the new media and Internet sector in Europe in policymaking and industry cooperative activities.

EXECUTIVE SUMMARY

Every time you conduct a search on the Internet, interact with your friends on a social network, or purchase items on an e-commerce platform, you are making use of services provided by online intermediaries.

Online intermediaries rely on a liability regime in order to provide these services openly and in an efficient manner. This liability regime is enshrined in Articles 12-15 of the EU's E-commerce Directive (2000/31/EC), protecting online intermediaries from liability for the misuse of their services by users and third parties. This enables them to operate open platforms where users and third parties can search and exchange goods, services, and information. At the same time, for certain types of activities, in order to obtain the benefits of this limitation, the intermediary must act expeditiously to remove or disable access to illegal information upon receiving actual knowledge of it. We argue that the limited liability regime is not only necessary for the functioning and growth of online intermediaries, but it is also beneficial to the European economy.

We estimate that online intermediary activities in the EU contributed around €310 billion to European GDP based on latest available data (2009). This consisted of a direct GDP contribution of online intermediaries themselves of €160 billion and an indirect impact of €150 billion through the positive impact they have on other firms and sectors. The year-on-year growth of this contribution has a steep upward trend.

In order to estimate the direct impact, we treat online intermediary activities as a sector, using a narrow definition of online intermediaries comprising online search, e-commerce platforms, social networks and cloud computing services. We thereby derive an annual GDP contribution of €160 billion, which corresponds to 1.4 percent of the EU27 GDP. This is roughly the size of the Irish economy.

The other part of the GDP impact is an indirect productivity effect. We estimate that online intermediaries had a productivity impact on all other firms of €150 billion in 2009. This is an estimate of the additional growth in all other sectors of the economy. Firms in all kinds of industries become more productive by using online intermediaries (e.g. e-sales or e-procurement) and consequently contribute more to GDP than they would absent of online intermediaries.

Furthermore, we estimate that online intermediaries provided a value of free services to European consumers corresponding to an additional €35 billion in 2009. In total, online intermediaries contributed with an economic benefit of close to €350 billion in 2009. There is a clear trend of a steep increase in recent and coming years.

These contributions to the economy would not be possible without the liability regime as it is currently designed. Consequently, any adverse changes to the liability regime – such as increased legal obligations on intermediaries – could have a chilling effect on innovation and the economic activity of online intermediaries, putting this value at risk.

INTRODUCTION TO THE REPORT

Below, we provide a short introduction to the report and define online intermediaries and the liability regime in more detail. The rest of the report is structured in three short chapters. In chapter 1 we introduce the role of online intermediaries. In chapter 2 we present the current liability regime. Chapter 3 goes on to quantify the economic impact of online intermediaries who rely on the current liability regime. Finally, chapter 4 concludes with a short outlook on the future growth of online intermediaries and stresses the importance of effective and appropriate policies.

SCOPE OF THE STUDY

Our analysis is intended to capture the activities of ‘online intermediaries’ as provided for in the E-commerce Directive. The study is focused on online intermediaries in the way that their key activities are defined in the E-commerce Directive, cf. sidebar.



Scope of Study

This study aims at assessing the economic impact of activities relying on the limited liability for online intermediaries as defined by the EU’s E-commerce Directive. The Directive provides for limitations to liability of intermediaries based on their inherent activities: **mere conduit** (Article 12 ECD), **caching** (Article 13 ECD), and **hosting** (Article 14 ECD).

In the study, we will use the term “*online intermediaries*” or simply “*intermediaries*” to denote these activities.

ONLINE INTERMEDIARIES – WHO ARE THEY?

Online intermediaries provide platforms for the exchange of goods, services or information. Online intermediaries perform or provide activities such as search, e-commerce, social networks and cloud computing.

- *Search providers* such as Google or Yahoo! make information supplied by third parties accessible and searchable for other Internet users.
- *Social networks* such as Facebook and LinkedIn are also considered online intermediaries. They allow Internet users to find and exchange information in social circles.
- *E-commerce platforms* such as eBay and Amazon, or European home-grown platforms such as Priceminister and Allegro, allow others to set up shops on their platforms in order to make their products and services available to Internet users in the broadest sense.
- *Cloud computing* activities, whereby IT users get access to distributed data processing via a common Internet platform, are also online intermediaries.

Online intermediaries provide platforms

Common to all these activities is that online intermediaries provide a platform on which others can interact. Online intermediaries provide such a platform for online exchange, without taking title to the items or information exchanged. Items or information are exchanged between two or more third parties via the platform, and the intermediary often has no direct dealings with buyers or sellers on their platform, aside from certain user agreements. In the words of the OECD (2010), online intermediaries “bring together or facilitate transactions between third parties on the Internet. They give access to, host, transmit and index content, products and services originated by third parties on the Internet or provide Internet-based services to third parties.”

In certain cases, their role is similar to a traditional city square marketplace

The role of some online intermediaries can in some respects be compared to that of a traditional marketplace. The city mayor makes a square available to merchants, but the city is not held liable for the items traded on that marketplace. However, if the city mayor is made aware of illegal traders on the city square, he/she is obliged to ensure that they are removed and their trading is discontinued.

The EU’s liability regime relies on a simple, yet powerful principle: it is the person or entity responsible for posting content or goods for sale that has legal responsibility for the content or goods in question, not the intermediary hosting the content or the platform on which the good is traded or the information is exchanged.

There is (and should be) protection from liability for online intermediaries

To provide another parallel example, a telephone network operator is not held legally responsible for crimes discussed over its lines, or forced to monitor all calls for possible crimes. Similarly, the EU’s E-commerce Directive protects online intermediaries from liability for user action and content where the intermediaries have no knowledge of illegality – for example, transactions of illegal products or information exchanged of which the intermediary has no actual knowledge.

It also includes a principle whereby for certain activities, online intermediaries may lose their liability limitation if they do not act expeditiously to remove or disable access to illegal information upon receiving actual knowledge of its illegal nature.

The liability regime provides the basis for online intermediaries to run and develop their activities

A well-functioning liability regime is important for a vibrant digital economy and the properly functioning EU Digital Single Market. By removing legal uncertainty, it has contributed

to making the EU an attractive marketplace in which many businesses have invested and developed Internet-based business models relying on the online intermediary liability regime.

The past 10 years: A change from closed distribution to open distribution

Online intermediaries have been at the centre of the Internet's success as a key driver of economic growth, innovation, creativity, and expression. Before, if you wanted to reach a large audience, you needed to own a broadcast tower; if you wanted to reach consumers around the world, you needed to set up storefronts everywhere. Today, a variety of online intermediaries have dramatically reduced barriers to entry creating the conditions for other businesses to develop. Looking back over the past 10 years, online intermediaries have led to a dramatic change in the way that goods, services and information are being distributed.

There has been a change from closed distribution to open distribution. Just 10 years ago, distribution networks were integrated; producers and rights holders had greater control over the entire distribution chain through ownership of the distributors or through close partnerships. This meant that producers could control the price and service offering all the way to the final consumer.

Today, there are fewer linear and controlled distribution networks. The Internet and the low cost of entry for setting up an online shop on an existing platform or as a new platform have meant that control over the distribution is fragmenting. This is not only the case for goods and services being sold on e-commerce platforms, but also for information, cultural goods such as music and books and many other aspects of modern life.

The change from offline to open online distribution and the resulting changes in the control of distribution networks imply broader and deep economic impacts in terms of efficiency, gains from competition, and more customer-centric distribution models.

The next 10 years: A rapid increase in the economic contribution from online intermediaries

Online intermediaries' contribution to economic growth is projected to increase rapidly over the coming years. As shown in chapter 4, estimates indicate that e-commerce alone will grow by 50-75 percent over the four-year period from 2011 to 2015. By current measures, the already significant economic contribution of online intermediaries is expected to increase markedly over the coming years, not least as a result of the diffusion of cloud computing and a rapid growth in e-commerce.

Adverse changes to the liability regime would, at a minimum, put this growth at risk. Conversely, preserving and improving the regulatory framework governing online intermediaries in the EU will protect the tremendous economic growth derived from online intermediaries.

Chapter 1 THE ROLE OF ONLINE INTERMEDIARIES

The Internet as we know it today depends on online intermediaries who organise the information available online to make it accessible, searchable and useful to users. For instance, the simple tasks of searching for the cheapest television or looking for information on the Internet would become complicated without the aid of an e-commerce platform or a search engine.¹

The numbers also speak to the importance and pervasiveness of online intermediation in Europe: each European who has used online intermediaries services spent on average half a day per month using them.²

1.1. TYPES OF ONLINE INTERMEDIARIES

Online intermediaries provide online platforms for the exchange of goods, services or information.³ Some allow producers to set up shops on their platforms while others make information generated by third parties accessible and searchable online. In economic terms, online intermediaries connect third-party “buyers” and “sellers”. In some instances, there are network effects, so the value of the platform increases with the number of users of the platform. Online intermediaries therefore strive to attract “sellers” to attract the “buyers”, and also strive to attract “buyers” to be attractive to the “sellers”.

The platform function is central

Online intermediaries provide a platform for online exchange, without taking title to the items or information exchanged. Items or information are exchanged between two or more third parties via the platform, and the intermediary may not have any direct dealings with buyers or sellers.

According to the OECD’s definition “*Internet intermediaries’ bring together or facilitate transactions between third parties on the Internet. They give access to, host, transmit and index content, products and services originated by third parties on the Internet or provide Internet-based services to third parties,*” cf. OECD (2010).

Box 1.1 Example of an online intermediary

eBay is a global online marketplace where practically anyone can trade practically anything. In 2nd quarter 2011, eBay Marketplaces reported **97 million** active users worldwide.

Source: ebay website.

¹ More than 40 percent of Internet users in the United States, Germany, and France visited a price comparison Web site in 2010, and in the United States, their numbers are growing at around 20 percent a year according to ComScore data.

² http://www.comscore.com/Press_Events/Press_Releases/2011/7/comScore_Releases_Overview_of_European_Internet_Usage_for_May_2011.

³ We are using the definition of ‘online intermediary’ as provided for in the E-commerce Directive, which is different from the much broader definition of intermediaries in the IPRED definitions.

In the same publication, the OECD (2010) classified Internet intermediaries into six groups:

- Internet search engines and portals
- E-commerce intermediaries, where such platforms do not take title to the goods being sold
- Participative networking platforms, which include Internet publishing and broadcasting platforms that do not themselves create or own the content being published or broadcasted
- Data processing and web hosting providers, including domain name registrars
- Internet access and service providers (ISPs)
- Internet payment systems

These categories are inherently blurry, and intermediaries continue to evolve and change in a variety of ways. For example, Amazon is both an online store; a platform for third parties to sell their products; it allows users to post their own comments and thus host third party content; and, in a sense acts as a product search engine. Social networks are information location tools, and now also provide functionalities directly comparable to search engines.⁴

For the purposes of our quantifications in this study, we will however use five of the six types of online intermediation as identified by the OECD. These include:

- Search (both advertising-financed and others)
- Third party platforms for e-commerce (both B2C, B2G and B2B)
- Participative platforms (such as social networks)
- Third party hosting and processing (such as cloud computing)
- Internet service providers (ISPs)

As mentioned, one should not think of these activities as wholly separate from each other. Google, Facebook, and Amazon for example are all information location tools to some extent. So even though only one is listed as a search engine in the OECD categories, they are all in the same market space.

Internet service providers (ISPs) provide and manage the communications networks and they also rely on the intermediary liability regime. They are consequently included in the scope of the study.

Online payment systems, however, feature some services which are covered by the liability regime but others which are not. Given the difficulty of carving out those specific liability regime dependent services of online payment providers, this category of online intermediary has been excluded from the scope of this study, and we thereby underestimate the coverage of the liability regime.

⁴ A user survey from 2010 in the U.S. showed that one third (up from 13 percent in 2008) of the respondents (13-64 years old Internet users) used social networks to get to the content they read/browse online, cf. McKinsey iConsumer surveys 2008-2010.

Business models for online intermediaries

Internet intermediaries use different business models including advertising, paid subscriptions or renting hosting space, charging for premium services, commission fees, voluntary donations, or combinations of these business models.

In addition, more complex producer-consumer models are emerging where the intermediary platform providers may have one revenue stream but the producer-consumers have another and there is a symbiotic relationship between the two. Examples include application developers on Facebook, vendors in Second Life, mod-makers in World of Warcraft, or individuals licensing photographs via Flickr.

1.2. BENEFITS FOR USERS

Online intermediaries can reduce a number of costs for users, regardless of whether the user is a firm, an individual, or part of government. The kinds of costs that intermediaries reduce are:

- *Search costs*, i.e. the non-pecuniary cost in terms of time and hassle to find an appropriate seller/product, is reduced by online intermediaries, e.g. by using price comparison platforms such as *PriceMinister*, *eBay*, *Ciao* or others.
- *Transaction costs*, i.e. the cost of completing a transaction whether monetary or in terms of time saved, can be reduced by online intermediation, for example by concluding orders online from the home rather than going to a shop.
- *Communication costs* can be reduced by for example posting information on participatory platforms such as *Facebook* or *LinkedIn* rather than writing to many individuals.
- *Investment costs and operating costs* can be reduced by using third party hosting and processing services (such as cloud computing). For SMEs the use of an online e-commerce platform can reduce the cost of online selling. The use of an intermediary platform allows an SME to leverage the intermediary's investments in technology, marketing, payments and fulfilment. The SME has no upfront capital expenditure but rather a *per transaction* cost or fee. This reduces entry barriers for SMEs wishing to sell online and is a scalable model for growth offering variable costs at the outset and no fixed costs.

For buyers this makes it easier to find information. It expands the variety of goods and services to choose from and it puts competitive pressure on prices over time leading to lower prices as well as improved and novel services, cf. Box 1.2. With easier access, lower prices and greater choice, consumer satisfaction increases as a result of this 'matching'. This can then also increase the user base of such platforms, thereby enhancing the platform service and creating a virtuous cycle of improved access, choice, and savings.

Box 1.2 E-commerce reduces prices

There is widespread consensus that e-commerce results in lower prices. Around 40 percent of Internet users visit price comparison websites. Such a degree of search-enabled price transparency inevitably reduces prices in some product categories.

One study showed that a 1 percent increase in traffic to a leading price comparison Web site decreased price dispersion - that is, the difference between the average and minimum price for a particular good - by 1.1 percent. Earlier empirical studies show a 10-15 percent aggregate reduction of prices as a result of e-commerce.

In a recent study, Frontier Economics (on behalf of eBay), estimated that buyers in France, Germany and the UK save around **17 percent on average** for a range of new products by purchasing on eBay rather than in an offline store. The study covered more than 700 household items from twelve important product categories. The prices were compared inclusive of postage and packing. Estimated savings were highest for telecom products, computers, books and clothing, and lowest for domestic appliances, music, video games, DVDs and movies.

Note: Many other studies have reached similar conclusions.

Source: See Tang, Smith & Montgomery (2010), Frontier Economics (2008), and Brynjolfsson & Smith (2000).

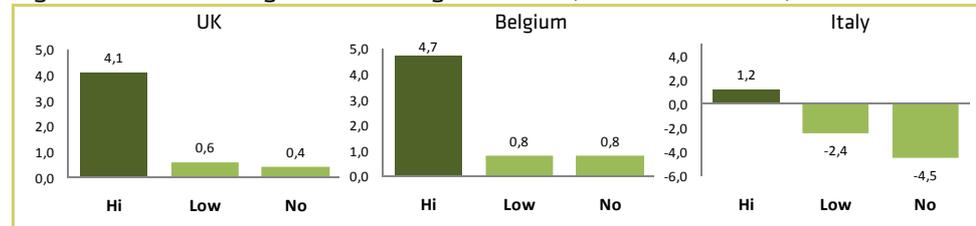
There are also advantages for sellers. Online intermediaries make it easier for a seller to find a buyer. Such platforms lower the start-up cost and lower the cost of communicating with potential buyers while providing advantages such as higher traffic, reach, and expertise, thereby making it cheaper to distribute goods, services and information. Such savings can then allow for improved services and lower costs for consumers.

Consumers save money and time because they can use online intermediaries to look for the best offers, best information or the best user-created content. This is seen particularly in travel, consumer electronics, and books and media. Furthermore, the investment and innovation in the field of search and e-commerce has challenged and provided opportunities for traditional retailers by allowing for shopping without geographical boundaries, empowering consumers through information transparency, thereby increasing competition and leading to price reductions and higher service quality. Online intermediaries provide entertainment and opportunities for social interaction as well, which is also valued by consumers.⁵

Firms benefit from online intermediaries for at least four reasons. First, online intermediaries help create traffic on the websites of firms, in particular SMEs. Second, these user firms save money because online intermediaries are an effective distribution platform; with evidence showing that SMEs will increase sales by placing products or services on an Internet page only, without engaging search and ads services or online selling in some form (see figure 1.1). Third, knowledge-intensive services are deeply dependent on search engines for locating information, and search engines have greatly increased the productivity of these services. Fourth, online intermediaries help firms promote their products and promote a testing ground for new products, e.g. music, videos and movies.

⁵ 30 percent of total queries on Web search engines are for such topics as entertainment, adult content, games, or sports according to data from ComScore.

Figure 1.1 SMEs with high Internet usage sell more (% increase in sales)



Note: The results are based on around 10.000 survey responses from SMEs and sales change is divided by three groups according to Internet usage. "Hi" means web-selling and more. "Low" means website only.

Source: BCG "Connected World" studies for Google.

Governments benefit from online intermediaries for at least four reasons. First, online search makes it easier to find information and thereby increases the productivity of government employees. Second, government procurement platforms make it easier to find the best offers, reducing costs. Third, social media are an increasingly important platform for governments' communication with citizens, which contributes to making government more effective. Finally, online intermediaries improve the availability of government information allowing the public to find such information more easily.

Chapter 2 THE ONLINE LIABILITY REGIME

Intermediaries provide a service for online exchange, without taking title to the items or information exchanged. Items or information are exchanged between two or more third parties via the platform.

The EU's E-commerce Directive (ECD) protects online intermediaries from liability for user action and content – notably, there can be no liability for transactions of illegal products or information exchanged of which the intermediary has no actual knowledge. For certain activities, the Directive conditions the liability limitation to the fact that intermediaries act expeditiously to remove or disable access to illegal information upon receiving actual knowledge of its illegal nature.⁶ In addition, no general monitoring obligation can be imposed on an intermediary nor can an intermediary be obligated to actively seek information about the legality of information transmitted or stored.

2.1. THE EU'S ONLINE LIABILITY REGIME

The EU's liability regime for information society services⁷ aims at striking a balance between the rights and obligations of intermediaries, rights owners, and users when illegal content or products are being distributed over the Internet via online intermediary services.

The liability regime relies on a simple, yet powerful principle: it is the person or entity responsible for posting content or goods for sale that has legal responsibility for the content/goods in question, *not* the intermediary hosting the content or the platform on which the good is traded or the information is exchanged, see Box 2.1.

Box 2.1 Who is liable online?

The E-commerce Directive (ECD) 2000/31 provides for exemptions from civil, "administrative" and criminal liability for certain types of illegal activities initiated by third parties online, such as: copyright piracy, defamation, misleading advertising, unfair commercial practices, child pornography, hate speech etc. It also enshrines a prohibition to impose on intermediaries any general obligation to monitor the information they transmit or store or to actively seek facts and circumstances indicating illegal activity. Activities covered by the liability provisions are:

- **ECD Art. 12 – Mere conduit**
 - > Transmission in a communication network of information provided by a recipient of the service and provision of access to a communication network
- **ECD Art. 13 – Caching**
 - > Automatic, intermediate and temporary storage of that information performed for the sole purpose of making more efficient the information's onward transmission to other recipients of the service upon their request
- **ECD Art. 14 – Hosting**
 - > Storage of information provided by the recipient of the service

Source: Presentation by DG Internal Market of the European Commission at the Seminar on Copyright and Internet Intermediaries held in Geneva on April 18, 2005.

As a result of the provisions in the ECD (Art. 12-15), the intermediary is *not* legally responsible for the content or goods traded nor is the intermediary responsible for monitoring the legality of the content and goods posted or sold on the platform or services. Conversely, for

⁶ What constitutes illegal content or information may sometimes be disputed.

⁷ This is enshrined in the E-commerce Directive (2000/31/EC) in Art. 12-15.

certain activities, if the intermediary has actual knowledge of illegal activity or information, it is required to disable access to the content in question once it has acquired such actual knowledge. Otherwise, the protection provided for by Art. 12-14 in relation to that content ceases to apply.

Protection for certain services, not for certain firms

It is important to note, that the limitations in liability are granted to certain online *activities* (mere conduit, hosting, and caching), *not* to specific firms or groups of firms. The liability regime does not provide protection from liability for all Internet activities or all firms of a certain type, but rather certain types of online activities.

At the same time, it must be acknowledged that the exact coverage of the ECDs liability regime is not easy to define. The Directive attempted to be technology neutral – particularly given the importance of flexibility for innovation and technological developments - but what precisely constitutes these categories, and how flexible the definitions are, continues to be debated. Certainly, the activities of online intermediaries have evolved since 2000, making it more difficult to disentangle what is mere conduit, hosting, and caching activities from others. A number of court cases also suggest that the application of the ECD's liability provisions varies between member states and evolves over time.

2.2. THE FUNCTIONING OF EU'S LIABILITY REGIME

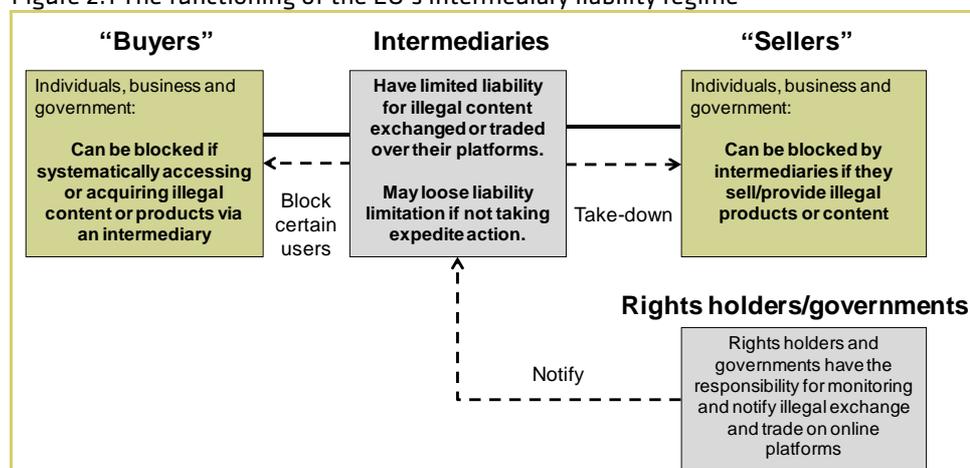
A well-functioning liability regime is important for a vibrant digital economy and properly functioning EU Digital Single Market. By removing legal uncertainties, it has contributed to making the EU an attractive marketplace in which many businesses have invested and developed Internet-based business models relying on the online intermediary liability regime. The online services built on top of the liability regime have provided tremendous benefits to EU consumers and businesses and created European jobs and economic welfare (these are quantified in chapter 3).

At the same time, it is acknowledged that these online platforms can be misused (e.g. distributing illegal content, organising music piracy or selling counterfeit goods, etc). Increases in copyright infringements and counterfeiting obviously have negative consequences for the economy and for society at large.

In simplified terms, the EU's liability regime works in the following way. The online intermediary has no general obligation to monitor information that it transmits or stores. The rights holders or governments can notify intermediaries of any illegal products or content, and request take down. For certain activities, and if the intermediary is made aware of specific illegal conduct on its services, it may lose the benefits of its liability limitation if it does

not take action to remove or disable access to the content or product in question.⁸ In certain cases, and based on their own policies, intermediaries can also suspend access to the service for the “sellers” or “information providers” in question, or, in case of systematic and repeated abuse, they can also block “buyers” in question, cf. Figure 2.1. It should be noted that, in certain cases, removing or blocking of content by online intermediaries raises the issue of their potential liability for damage suffered by parties as a result of that removal.⁹

Figure 2.1 The functioning of the EU’s intermediary liability regime



Source: Copenhagen Economics.

The liability regime as a foundation for online intermediary business models

The liability regime provides the necessary regulatory foundation for online intermediaries. According to a European Commission impact assessment of the E-commerce Directive, the limited liability is “*the single most important provision of the directive*” for online intermediaries, because it provides legal certainty in a crucial area where there was uncertainty before, namely the situation when online intermediaries cannot be held liable for user activity and content. An expert group also assessed that in 17 out of 18 member states, there was no specific legislation concerning the liability for intermediaries prior to the transposition of the E-commerce Directive, cf. Copenhagen Economics (2006).

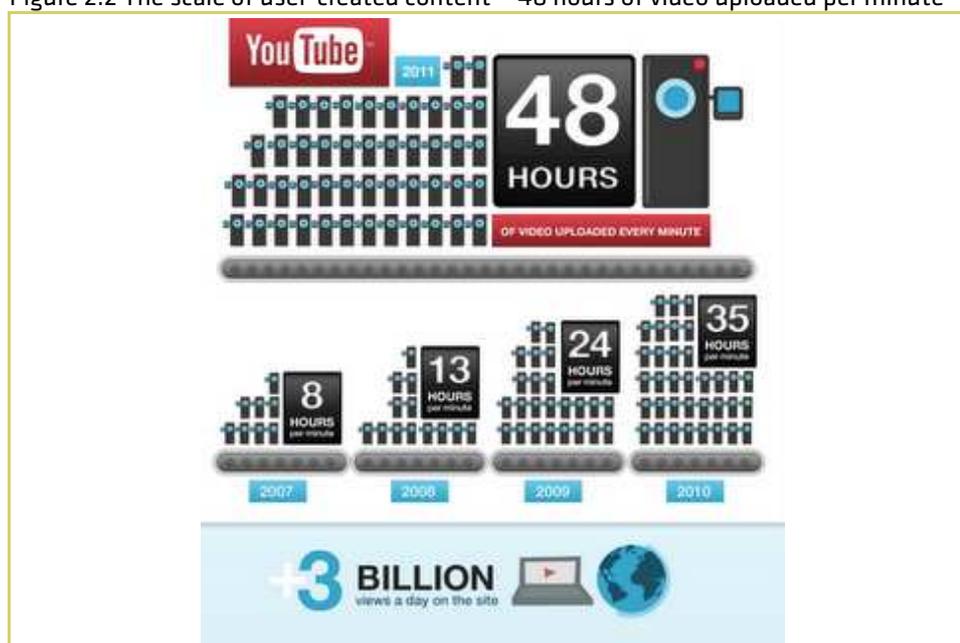
⁸ It should be noted that what constitutes actual knowledge is somewhat contested and in some cases it is more than a mere notice.

⁹ This could also give rise to concerns about private censorship and abuse, if intermediaries simply took down legitimate content upon receipt of a notice, without further verification. e.g. some countries have implemented ECD provisions with requirements for a court determination of illegality, and recitals 9 and 46 of the Directive refer to freedom of expression: “(46) In order to benefit from a limitation of liability, the provider of an information society service, consisting of the storage of information, upon obtaining actual knowledge or awareness of illegal activities has to act expeditiously to remove or to disable access to the information concerned; the removal or disabling of access has to be undertaken in the observance of the principle of freedom of expression and of procedures established for this purpose at national level; this Directive does not affect Member States’ possibility of establishing specific requirements which must be fulfilled expeditiously prior to the removal or disabling of information.”

Many online intermediaries would not function without the limited liability regime or would not be able to provide services as widely and as freely as possible. We see two main reasons why the liability regime is fundamental to the operation and growth of online intermediaries:

- First* of all, in many cases it would not be possible to monitor the legality of the content online. In many instances there would be no way for an intermediary to adjudicate the legality of the content in question. Consequently, in many cases it is not possible to monitor and therefore, in such cases, it would not be possible to operate an online intermediary businesses without the liability limitations enshrined in the regime. Consider the scale of the Web today, as illustrated by figure 2.2. Taking the example of uploaded videos on YouTube, there is no method to automatically and effectively monitor all the videos being uploaded and to determine whether the content is legal or not. Similarly for messages and goods sold online, there is no such thing as a “judge on a computer chip” that could automatically determine whether every piece of content is legal or not.

Figure 2.2 The scale of user-created content - 48 hours of video uploaded per minute



Source: www.geek.com

- Second*, even if monitoring the legality of each piece of information against all applicable legislation by intermediaries would be possible or desirable, the cost might be prohibitively high and would still expose intermediaries to legal risks. The legislation in the E-commerce Directive struck a carefully thought-out balance between all stakeholders - e.g. users, intermediaries and IP rights owners. It was believed that without the liability regime, many internet services would not be commercially viable. The concern was that even in areas where monitoring could be theoretically feasible, the costs of such monitoring could in many cases be so high that it would

make such services non-viable. If online intermediaries were required to monitor content of the data uploaded by their users, the costs of such monitoring will put the existence of the whole business model in question, cf. Box 2.2 below. Furthermore, a high cost of monitoring would increase the entry barrier, and would prevent entry into the provision of online intermediary services, which would harm competition and stifle an otherwise dynamic growth sector.

Box 2.2 Case Study – Monitoring of a social networking site – Nasza Klasa (Poland)

To illustrate the challenge and economic implications of potential monitoring for a startup firm, the social networking site Nasza Klasa (www.nk.pl) from Poland provides an example. Nasza Klasa has expressed concerns about the amount of manpower it would require to monitor all traffic on their site.

According to assessments provided by Nasza Klasa, they would need to employ several thousand employees if they were obliged to monitor all of the content uploaded by users on their sites without any automated filtering, and without relying on some form of random sample controls.

To grasp the scale of the problem one has to know that each day, users of the Nasza Klasa service upload a large number posts (written, pictures, comments to pictures, movies etc.) for which Nasza Klasa has no a priori control.

Amount of information uploaded by users every day

- Users on Nasza Klasa upload around 14 million posts daily
- or approximately 10.000 posts per minute.

Nasza Klasa has made the assumption that reviewing one post would take around one minute for an employee. Even if such monitoring was economically feasible for such a firm, it would still not provide the necessary legal certainty for the operator and potentially expose it to liability.

See also:

<http://www.internetstandard.pl/news/373912/IAB.Polska.protestuje.w.sprawie.regulacji.spolecznosciowej.aktynosci.Polakow.html>

Source: Information provided by Nasza Klasa.

Therefore, in summary, we see the liability regime as a crucial underpinning for the development and growth of online intermediaries in Europe. As we shall show next, there is also a sound economic rationale for the liability regime, since it addresses some of the key market features of online markets.

The economic rationale for protection from liability

There are sound economic arguments for limiting the liability for online intermediaries. We highlight three features, which constitute an economic rationale for the current liability regime, keeping in mind that there are other arguments for limited liability as well:

- Network externalities
- Asymmetric information
- Efficiency of monitoring

Network externality

The network externality refers to the positive circular effects which occur when many buyers and many sellers use the same platform. To take the example of an e-commerce platform: online sellers want to put their products on sale on platforms with many potential buyers, and buyers want to spend time searching for products on platforms with many sellers. Buyers and sellers both benefit from a larger volume on the platform. This implies that buyers

benefit from other buyers and sellers on the platform and sellers benefit from other buyers and sellers on the platform in a positive and self-reinforcing circle – a phenomenon which is denoted as a network externality.¹⁰ The same logic holds for other types of platforms.

The online intermediary solves the market failure by setting prices and access conditions right, such that many users on both sides of the platform make use of its services. Accordingly, the intermediary helps create benefits to both buyers and sellers that would not occur without the platform. As a result of the positive information externality, the online intermediaries are more useful to everyone; but, without a well-functioning intermediary, there will be underinvestment in the online intermediary services, with too low a quantity and too low a price charged relative to the social optimum.

Because of the low transaction, search, and access costs, online intermediaries reduce costs for buyers and sellers and facilitate exchanges that would otherwise not be viable in a comparable offline environment. This allows so-called “long-tail” content to be made accessible, whereby specialised products or rare, small scale items can be sold online, often in small quantities, but over a long period of time or across many territories at once. It also allows small and medium-size enterprises to expand their presence and reach customers across borders.

Information asymmetry

There is an initial hurdle for getting these kinds of activities rolling, however. The challenge is the information asymmetry between sellers and intermediaries. Sellers have (or should have) information about the legitimacy of their product or content, which the intermediary does not have. Online seller and product characteristics cannot always be verified prior to a transaction. This implies that it can sometimes be difficult to assess product condition and seller integrity. The seller will have much better information about the product than the buyer or the intermediary.

Asymmetric information often implies a suboptimal volume of trade.¹¹ One standard reason for why transactions may break down despite the existence of gains from trade is that parties have different information about, for example, product characteristics. This information asymmetry can lead to adverse selection and moral hazard problems, as pointed out by Akerlof (1970). Without a regime protecting online intermediaries from liability in certain circumstances, these problems of information asymmetry will be transferred to the intermediary and the incentive to provide such services will decrease.

If the intermediary is held liable for the goods or information exchanged over the platform without it having knowledge of any illegality, the intermediary will be reluctant to let third-

¹⁰ The same logic applies to search engines, where there is a similar self-reinforcing positive circle between the number of users and the number of advertisers and content providers.

¹¹ See Rochet & Tirole (2005) for a further discussion of two-sided markets, and Halaburda & Yehezkel (2011) for a discussion of information asymmetry in two-sided markets.

party sellers on board the platform, and the platform will be less attractive to buyers, and the positive circle may never begin.¹² If the intermediary is protected from liability in situations when it has no knowledge about unlawful content or activity by its users, this concern is reduced, and the initial hurdle (i.e. difficulties overseeing potential risk for liability) for getting the online platform started, is removed.

Removing this risk element does not guarantee the online intermediary any success in itself. The online intermediary will still have to struggle to set prices, service levels and conditions right in order to generate an attractive platform. Legal certainty on liability is only a starting point, not a silver bullet.

Efficiency of monitoring

Specific conditions as to when there is no liability are important elements in the liability regime. The non-obligation to monitor is another, and in the current liability regime, there can be no legal obligation for the intermediary to monitor in a general manner the legitimacy of the goods or information being exchanged on the platform.

While the technical feasibility and legal validity of monitoring for different types of services is highly questionable, shifting responsibility for monitoring to intermediaries would in any case be economically inefficient. Intermediaries are experts in intermediation. Intermediaries are not experts in determining whether products or information (in many different fields) are illegal or not. From an economic efficiency standpoint, this is best left to brand owners/rights holders or other specialised groups.

2.3. IMPORTANCE OF THE LIABILITY REGIME

If the current regime is changed in such a way that online intermediaries are forced to incur additional costs in order to meet increased obligations, this will significantly decrease their use and value. Or, if online intermediaries are not provided with economic incentives to advance current technological means, their users would not be able to receive the most advanced services.

¹² When the platform is up and running, online user reviews may provide additional consumer trust in online shops.

Through low start-up and operating costs the current liability regime is an important determinant for high growth rates and the significant size of, for example, European e-commerce today.

If the current liability regime is changed to a stricter regime with greater intermediary obligations, it would require intermediaries to pre-determine the legitimacy of content or remove as much content as possible to avoid the imposition of liability before it receives notices from owners. This would harm legitimate activities online and will significantly lower the use and value for Internet users, both through smaller consumption savings and through decreased positive externalities.

Chapter 3 | ECONOMIC VALUE OF ONLINE INTERMEDIARY ACTIVITIES

In estimating the economic contribution of online intermediaries, we have used an approach similar to that which is used by McKinsey (2011) to quantify the economic impact of the entire Internet economy, and by Boston Consulting Group (2011) to quantify the economic impact of Internet services in individual member states.

The main contribution from this report, besides highlighting the importance of the liability regime as fundament for online platforms, is that we have carved-out an estimate of the economic contribution of the online intermediaries relying on the liability regime in order to function and grow. We have done so by assessing the share of economic activity over so-called third-party online platforms. In doing so, we take a conservative approach, and we only include so-called “pure-play” e-commerce platforms, relying on a third-party platform model. This implies for example that Apple’s iTunes store is *not* included, while eBay’s activities are. We consider three types of value. The first is the value which consumers pay for, summarised in the GDP contribution of the third-party online platforms. The second is the value which consumers do not pay for, summarised in the consumers’ willingness to pay minus what they actually pay for the services of third-party online platforms. The third is the value which spills over to other sectors through productivity gains generated by the activities of the third-party online platforms.

Therefore, the economic values presented below are based on estimates of the economic activities of online intermediaries which can be linked to the intermediary liability regime. In the following sections we provide more details on each of these three numbers.¹³

3.1. SUMMARY OF FINDINGS

Online intermediaries provide value to the entire economy, not just the users and the intermediaries themselves. We distinguish between three aspects:

1. Intermediaries’ contribution to GDP

Q: If online intermediation were a sector, how big would it be?

A: We estimate a GDP contribution of online intermediaries for the entire EU27 of around **€160 billion per year** (based on 2009 data).

2. Intermediaries’ contribution beyond GDP

Q: Beyond what is measured by GDP, how much other value is generated?

A: We estimate a value creation beyond GDP by online intermediaries of around **€600 billion per year** for the entire EU27 (based on 2009 data).

3. Intermediaries’ contribution to productivity

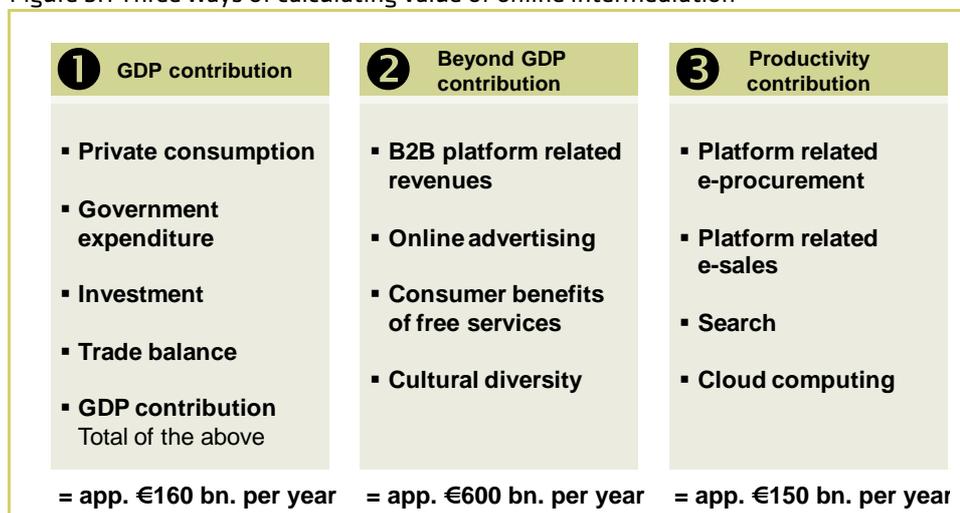
Q: Beyond what is generated here and now, how much does online intermediation contribute to long-term growth, i.e. productivity growth?

¹³ The methodology and data used for the calculations are provided in the technical annex.

A: We estimate a productivity impact for the entire EU27 from online intermediaries of around **€150 billion per year** (based on 2009 data).

These are economic values based on the activities of online intermediaries dependent on the intermediary liability regime. It is important to note that the three numbers above should *not* be added together to one single total, cf. figure 3.1. Each number provides a particular angle on the value created. Each is important in its own right.

Figure 3.1 Three ways of calculating value of online intermediation



Source: Own calculations based on data from Eurostat, studies from BCG, McKinsey, Hal Varian and Eurostat.

Adding up the numbers

It is desirable to add as much of the above together as possible in order to provide an estimate of the total economic value of online intermediary activities. However, many of the types of values overlap. One example of an overlap is that B2B e-commerce is already handled in GDP, because it represents trade with intermediary inputs. Another example is that some of the productivity effects caused by e-sales benefit the intermediary sector itself, and can be expected to be included in the GDP measure of the intermediary sector. We, therefore, need an approach which sums up the relevant contributions without double-counting the individual contributions.

Our approach is that for each category of value we estimate the value generated. We find that the GDP effect and the productivity impact on other firms outside the intermediary sector can be added to provide one single estimate of a GDP effect. This addition results in adding the direct GDP impact of €160 billion with the €150 billion productivity impact, and consequently arriving at a total impact of a €310 billion contribution to GDP from online intermediaries in EU27. The value of free services of €35 billion can be added to this

number to achieve an annual value impact of close to €345 billion for 2009.¹⁴ We explore the individual numbers in more detail below.

3.2. THE GDP CONTRIBUTION OF ONLINE INTERMEDIARIES

The first number, €160 billion per year, is the value of online intermediary activities as an economic sector, that is, its contribution to gross domestic product (GDP). The GDP contribution has three components:¹⁵

- **Private consumption:** The services produced by online intermediaries can be consumed by private consumers. For example, when you buy a book via an online bookshop you are consuming online intermediary services. This part of the contribution of online intermediaries to GDP was about €140 billion in 2009.¹⁶
- **Government consumption:** The services produced by online intermediaries can also be consumed by government. For example, when government employees perform online searches they are consuming online intermediary services. Another example of government consumption of online intermediary services is when government uses third-party platforms for e-procurement. We estimate this part of the contribution of online intermediaries to GDP was about €30 billion in 2009.
- **Investment:** We have no basis for assessing how big a share of this investment comes from intermediary services, so we do not include it in the estimate of the GDP of the digital intermediation sector. Depending on the share of Internet investments which involve digital intermediation services, we will underestimate the GDP contribution of digital intermediation by a large or small number.
- **Net export:** The services produced by digital intermediaries can also be exported or imported. In this case, foreign consumers and government are using services produced by domestic online intermediaries and domestic consumers and government are using services produced by foreign online intermediaries. In 2009 there was a minor deficit of about €4 billion on trade with online intermediary services in EU.

The GDP contribution of the digital intermediation was about €160 billion in 2009 – about 1.4 percent of the EU27 economy, which is about the same size as the Irish economy.

¹⁴ Summing the GDP impact and the value of the free services does not result in a GDP-number, but rather an estimate of total economic surplus to consumers and firms.

¹⁵ The GDP of the sector is the value of online intermediaries' sales less their costs of purchasing material inputs. However, we do not have the data available to calculate GDP as sales less material costs, so we calculate GDP by tracing how the sectors' services are used, according to the national accounting identity.

¹⁶ We developed these estimates using estimates from a series of country reports by BCG for a set of European countries. We transferred the estimates to remaining EU countries on the basis of the countries' GDP, share of the population, which uses Internet.

3.3. BEYOND GDP CONTRIBUTION OF ONLINE INTERMEDIARIES

The second number, €600 billion per year, summarises values that are not included in the traditional GDP numbers. We have estimated three such benefits, though there are many others (e.g. improved innovation in the longer term):

- *The value of B2B platform related e-commerce.* This value is not captured in traditional GDP numbers, because it does not represent final consumption, but rather consumption by other business sectors as an input to other final products. However, part of the value it creates for firms is captured in GDP, so to avoid double-counting, it should not be added to the GDP impact of the digital economy. We have estimated the EU27 value of B2B e-commerce, which is generated by online intermediaries, to be around €530 billion in 2009.
- *The value of online advertising.* Like B2B commerce, this is not final consumption and therefore not included in GDP, but it does contribute to the GDP of the sector, so it should not be added to GDP for the risk of double-counting. This block of value constitutes approximately €45 billion in 2011.
- *The value of services that are delivered without a charge.* For example, when users conduct a search on Google, there is no direct payment to the search engine. Of course, many services that are free of charge are financed by online advertising. So even if users do not pay directly for the service, there is still a cost, because users have to accept ads on the webpage; but, the value of the services consumed when conducting free online search is still not measured anywhere. Based on what European consumers say they are willing to pay for these services, we estimate the value of the services to be about €35 billion in EU27 in 2011 (see Box 3.1 below). This value can be added to the GDP estimate above without the risk of double-counting, although the result cannot be interpreted as GDP, but is rather an indication of the welfare created by online intermediaries.

The total value of B2B platform related e-commerce, online ads and free services is in the neighbourhood of €600 billion per year in EU27, according to our estimates.

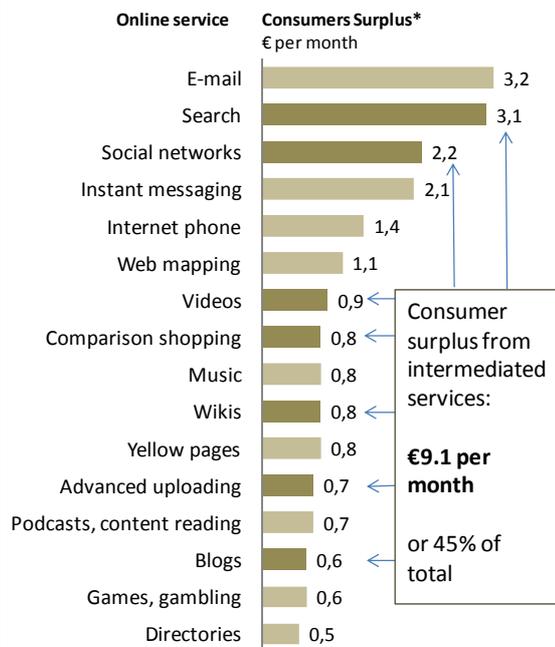
Box 3.1 Consumer surplus from free services

McKinsey (2011) conducted a consumer survey to estimate EU and US consumers' willingness to pay for free services.

They found that consumers are willing to pay €20 more per month than they actually pay.

Close to half of this surplus (€9 per month or 45%) relates to services predominantly supplied by intermediated services such as:

- Search,
- Social networks,
- Videos,
- Comparison shopping,
- Wikis,
- Uploads and
- Blogs.



Note: Consumers Surplus from free services = what you are willing to pay minus what you actually pay.

To gauge a more precise social benefit value, one should take the “disbenefits” of advertising into account by deducting the willingness to pay to avoid online advertising.

Source: Own calculations based on McKinsey (2011) “The Web’s €100 billion surplus”.

3.4. PRODUCTIVITY EFFECTS OF ONLINE INTERMEDIARIES

The third number, €150 billion, addresses the key point that online intermediation also has another type of effect which goes beyond that measured in the sector’s GDP. The sector’s services contribute to increase the general level of productivity in the entire EU economy. Part of this is captured in the GDP effect of the sector, because the sector gets paid for part of the benefits, but other parts of the benefits go to the rest of the economy. There are many ways in which this occurs. Here we present three ways in which online intermediary services increase the general productivity level of the economy:

- *Productivity effects of e-sales.* Online intermediaries allow firms to sell their goods and services more effectively, increasing the productivity of the sales force leading to more sales and reduced costs of selling. Eurostat has estimated that a one percentage point increase in the share of firms which do e-selling (e.g. from 30 percent to 31 percent) increases productivity in the service industry by 2.1 percent. We estimate that the total productivity effect on the EU economy from e-sales through online intermediaries in 2009 was about €80 billion.

- *Productivity effects of e-purchases.* Online intermediaries allow firms to purchase inputs cheaper, which increases productivity. Eurostat has estimated that a one percentage point increase in e-purchases leads to almost two percent increase in productivity in manufacturing. We estimate that the total productivity effect on the EU economy from e-purchases through digital intermediaries was about €40 billion in 2009.¹⁷
- *Productivity effects due to lower costs of information search.* Online search has dramatically reduced the costs of finding information. This has increased the productivity of Internet-using firms in the economy, in particular knowledge services, which have grown significantly since the arrival of online search. A recent study by Varian (2011) estimates time savings to be about 4 minutes per day per person. For a worker this corresponds to almost a one percent increase in productivity per working day. The value of this productivity gain to the EU economy is about €30 billion per year.¹⁸

When summarising the productivity gains of e-purchases, e-sales and search, we find that online intermediary activities, as a whole, have productivity effects in the neighbourhood of €150 billion per year.

Benefits from cloud computing

Besides the productivity gains mentioned here, cloud computing has an enormous potential for increasing business productivity, but there is still too little basis for assessing the economy-wide impact of cloud computing.

According to a recent research paper, Etro (2011), cloud computing will allow firms to rent computing power and storage from service providers and to pay on demand, with a profound impact on the cost structure of all industries, turning some of the fixed costs into marginal costs of production. Such a change, Etro argues, will have “*a substantial impact on the incentives to create new business, and through this, on investments and macroeconomic growth, job creation in all industries and job reallocation in the Information and Communications Technology (ICT) sector, and public finance accounts, through the direct impact on the public sector spending and the indirect one on the tax revenues.*”¹⁹

A similar conclusion is also reached in another recent research working paper, saying that “*advances in cloud computing likely will extend the IT induced economic growth in developed economies and foster growth in economies where IT penetration is not yet fully mature*”, cf. Iansiti & Richards (2011).

¹⁷ See Eurostat (2008).

¹⁸ See also McKinsey Global Institute (2011): Measuring the value of search. http://www.mckinseyquarterly.com/Measuring_the_value_of_search_2848. They found the world wide value of online search to be 780 billion dollars in 2009, equivalent to the GDP of Netherlands.

¹⁹ For more documentation on how search saves time for consumers, see e.g. Forrester Research (2010): How Consumers find Websites in 2010.

www.forrester.com/rb/Research/how_consumers_find_websites_in_2010/q/id/58484/t/2

In a study for the World Economic Forum in 2010, Accenture conducted a global survey on the impacts of cloud computing.²⁰ Survey participants said a major benefit of cloud computing is reducing IT costs. Other benefits often cited were greater IT flexibility and more efficient business processes. But the study also found that cloud computing has the potential to benefit organisations, whole industries, and even entire economies by *“dramatically accelerating the way companies create new products and services, in part through enabling product development professionals around the world to collaborate more effectively and access more powerful and economical computer resources”*. According to the same study, cloud computing could also increase *“the ability of organizations to mine their data for important trend information, such as customers’ changing needs and competitors moves in the marketplace”* and it could furthermore level the playing field between large and small companies by *“giving companies of all sizes access to information technology that previously was affordable for only the largest of companies”*. Finally, the study pointed to the implication for emerging economies to *“leapfrog to higher levels of technological development by providing more immediate and affordable access to next-generation applications, tools, and infrastructure”*.

3.5. THIS VALUE WOULD NOT BE POSSIBLE WITHOUT LIMITED LIABILITY

The significant contribution of online intermediaries to the economy would not be possible without limited liability. First of all, it would not be technically feasible to operate the current online intermediary businesses without the liability limitations. Secondly, the current online intermediaries would not be commercially feasible without the liability regime. Finally, the costs of potential general monitoring would prevent new online intermediary firms from starting-up and this will harm competition and stifle an otherwise dynamic and impactful future growth sector.

The significant contribution to economic growth and consumer welfare from online intermediaries shows that intermediary/cloud computing based business is part of the solution for the way forward for the digital economy and its contribution to the creation of sustainable growth and jobs in Europe. Combating online piracy and counterfeit goods is important, but may be dealt with in other ways than by changing the liability regime. Part of the answer to piracy and the sale of counterfeit goods online is to ensure that legal online intermediary services can continue to operate and grow.

Shifting responsibility for monitoring to intermediaries would be economically inefficient. From an economic viewpoint, shifting responsibility for monitoring to intermediaries is not the most efficient solution; intermediaries are experts in intermediation – they are not experts in determining whether products or information, often across many different fields, are illegal. From an efficiency viewpoint, this is best left to brand owners/right owners or specialised groups.

²⁰ Accenture (2010), “Exploring the Future of Cloud Computing: Riding the Next Wave of Technology-Driven Transformation”, a study conducted in partnership with the World Economic Forum.
http://www3.weforum.org/docs/WEF_ITTC_FutureCloudComputing_Report_2010.pdf

Chapter 4 THE FUTURE FOR ONLINE INTERMEDIATION IN THE EU

As is shown below, forecasts of some of the key online intermediary services are presenting very high growth rates indicating that the future contribution of online intermediaries will increase markedly in the coming years. As described above, this contribution of online intermediaries to the economy, however, would not be possible without the legal certainty provided by the liability regime as to when intermediaries must be protected from liability for user content and activity. As such, there are vast growth opportunities and incentives for policymakers to preserve and improve the regulatory framework governing online intermediary activities in the EU.

4.1. GROWTH IN ONLINE INTERMEDIATION 2011-2015

Internet use has grown rapidly in recent years, and a majority of this growth has taken place on online intermediary platforms. For example, the number of Facebook users grew from 1 million in 2004 to 750 million in 2011,²¹ the number of YouTube views increased by 50 percent from 2010 to 2011.²² These growth rates are nothing like other sectors, and it makes it difficult to make predictions of future developments.

There have been some attempts to assess the future growth of online intermediary activities. For example, Forrester Research, Innopay, Goldman Sachs and Internet Retailer have published estimates of the growth of e-commerce towards 2015. In Western Europe, e-commerce is expected to grow by 10-11 percent per year toward 2015.²³ The estimates are that e-commerce will grow by 50-75 percent over the four year period from 2011 to 2015. BCG (2011) estimates a 10 percent average annual growth rate of the U.K. Internet economy.

By current measures, the already significant economic contribution of online intermediaries is expected to increase markedly over the coming years, not least as a result of the diffusion of cloud computing and a rapid growth in e-commerce.

²¹ Source: Facebook (<http://www.facebook.com/press/info.php?timeline>).

²² Source: Geek.com.

²³ Source: eMarketer (<http://www.emarketer.tv/Article.aspx?R=1008541>).

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APPENDIX: METHODOLOGY AND DATA

In this appendix we explain how we estimated the economic importance of online intermediary activities, why it depends on the intermediary liability regime, and why we chose the approach we did. First we explain our approach. Next, we explain why we chose this approach by linking it to that of related analyses and mainstream economic approaches. Finally, we explain in some detail how the estimations were developed. Generally speaking, it is difficult to assess the economic importance of online intermediaries because they are not defined as an economic sector, and there is no corresponding systematic collection of economic data occurring for their activities. The following is therefore our best attempt to carve out as much of this information as possible.

WHAT IS OUR APPROACH?

The quantitative estimates of the economic importance of online intermediary activities consist of three parts:

- A. How big would online intermediary activities be, in terms of GDP, if they were an economic sector?
- B. How much economic value do online intermediary activities provide, which is not captured by GDP?
- C. How much do online intermediary activities contribute to productivity?

We estimate this on the basis of the relevant literature and official data.

We assess the importance of the liability regime using a “value at risk” approach. That is, we find out, how much activity could be lost due to changes in the liability regime – and that is the entire economic contribution of the sector. Of course the resulting effects depend on the precise initiatives. So it is possible that some changes will have little impact. However, it is most likely that changes in the liability regime will lead to a loss of the economic value which the sector generates. How big the loss is, we cannot say, as we do not know precisely which initiatives may be taken. With our approach we have established a range in which the effects will be found.

WHY DID WE CHOOSE THIS APPROACH?

We chose to estimate the size of the online intermediary sector in terms of GDP, because it is a standard economic way of finding out the economic importance of an activity. Therefore, we estimate the GDP of online intermediary activities (A). However, GDP has some shortcomings in terms of not capturing consumer welfare and not capturing the external effects of an economic activity. Therefore we supplement GDP by consumer surplus and other indicators of value generated by online intermediaries for their clients/users (B). Finally, online intermediaries improve the productivity of its business users (C).

The three quantities, A, B and C overlap to some degree. So they should not be added together, but rather seen as three supplementary ways of assessing the economic importance of online intermediary services.

This approach to assessing the economic importance of online activities has previously been used by Boston Consulting Group (BCG) and McKinsey Global Institute in studies of the value of the internet for different economies.

Why do we say that the entire economic value of online intermediary services is at stake when the liability regime changes? The answer is that past experience shows that intermediary activities can be stopped completely, for example the ending of some file sharing platforms following lawsuits.

A MORE DETAILED EXPLANATION OF THE ESTIMATES

A. HOW BIG ARE ONLINE INTERMEDIARY ACTIVITIES AS AN ECONOMIC SECTOR?

This approach to measuring the economic value of online intermediation follows Boston Consulting Group (2010), which in a series of country reports estimates the economic value of the internet.

Using this approach, the online intermediary sector's GDP contribution consists of the following elements:

A.1 e-commerce spending by private households, which is done using online intermediaries

A.2 e-commerce spending by governments, which is done using online intermediaries

A.3 Private sector investment as intermediary share of internet investments

A.4 Exports of intermediary related goods, services and equipment and e-commerce minus imports

Using the national accounting identity, the GDP contribution of the online intermediation sector can be calculated as

$$\text{GDP} = A.1 + A.2 + A.3 + A.4$$

Though this approach has been used before, it is not a standard way of estimating the GDP contribution of a sector. Normally the GDP of a sector is calculated in a three-step procedure: 1) Define the firms which are active in a sector. 2) For each firm calculate the value added, equalling sales minus costs of material inputs. 3) Add the value added of the firms together. However, we do not have the information to identify all the firms which conduct

online intermediation and to find out how big a share of the activities have to do with online intermediation. Therefore we use the approach of looking at the uses of the output of the online intermediation sector.

The national accounting identity states that all value created has to be used in some way. It can be consumed by households (A.1), it can be consumed by government (A.2), it can be invested (A.3), or it can be exported (A.4).

We then take the estimated internet-based consumption, government consumption, investment and net exports which were estimated by Boston Consulting Group and McKinsey Global Institute and multiply by the share of their relevant Internet activities which are due to intermediaries.

The elements are calculated in the following way:

A.1 e-commerce spending by private households

E-commerce spending for households can be found for Belgium, Czech Republic, Denmark, Spain, France, Italy, Netherlands, Sweden and UK. It is contained in country reports made by Boston Consulting Group and McKinsey Global Institute. We scale the numbers from the study-countries up by the relationship between the study-countries' GDP and EU27 GDP. We do this generally when we use the Boston Consulting Group and McKinsey Global Institute-studies.

We assume that 70 percent of households' e-commerce takes place through an online intermediary. This assumption is based on information presented in Internet Retailer 2011 – Top 300 Europe, page 25, where there is a table stating that the top 10 web only internet retailers sell 67.5 percent of total e-commerce retail sales. We have gone through the ten companies on the list and assessed whether they perform online intermediary services. We find that about 90 percent of the web-only sales are made by online intermediaries. This, in combination with some e-commerce platforms that offer both intermediary services and sell their own products, lead us to make the assumption that 70 percent of all e-commerce activities by consumers go through an intermediary.

Based on the information for the selection of EU countries analysed by Boston Consulting Group, we estimate the relationship between consumer e-commerce, GDP and percentage of households that shop online. We use this empirical relationship to estimate the e-commerce by households in other EU countries.

A.2 e-commerce spending by governments

We use a similar approach for A.2, however, we assume that only 30 percent of governments' e-commerce takes place through an intermediary. We assume this, because we assume that government is similar to firms with respect to e-commerce. Evidence from the US Bu-

reau of the Census finds that about 70 percent of firms' e-commerce goes through Electronic Data Interchange (EDI), which we do not consider to be intermediary-based.

A.3 Private sector investment

We have no evidence to back assumptions about the intermediaries' share of internet investment, so we choose not to place any value on this item. This leads in the direction of underestimating the GDP contribution of the online intermediary sector.

A.4 Net exports

To estimate the net export of EU27 which is due to online intermediation, we use the net export numbers from the Boston Consulting Group and McKinsey Global Institute reports. Part of the net exports of each country goes to other EU27 countries. We correct for this using Eurostat data on how big a share of each country's exports and imports go to other EU27 countries. We assume that half of net exports have to do with private consumers; the other half has to do with firms and government. Then the intermediary share is 0.5. We multiply the intermediary share by net exports.

B. HOW MUCH ECONOMIC VALUE DOES ONLINE INTERMEDIATION PROVIDE, WHICH IS NOT CAPTURED BY GDP?

We estimate this quantity using three sources of information:

- A recent study by McKinsey Global Institute²⁴ in which consumers are being asked what they would be willing to pay for online services, above what they pay today (if they pay anything).
- A study by Google's Chief economist Hal Varian on the economic value of Google,²⁵ estimating the value which Google provides to online advertisers, above what they pay for the online ads.
- The country reports by Boston Consulting Group.

Using these sources we calculate three values provided by online intermediaries, which are not captured by GDP:

B.1 Business to Business platform related revenues

B.2 Value to online advertisers

B.3 Consumer benefits of free services

²⁴ McKinsey Global Institute (2011): The Web's €100 billion surplus.

https://www.mckinseyquarterly.com/The_Webs_100_billion_euro_surplus_2724.

²⁵ Varian, H. (2011): Economic Value of Google.

B.1 Business to Business platform related revenues

B2B e-commerce spending can be found for Belgium, Czech Republic, Denmark, Spain, France, Italy, Netherlands, Sweden and UK. It is contained in country reports made by Boston Consulting Group and McKinsey Global Institute. We multiply the total B2B e-commerce by the intermediary share for business e-commerce, which we assume is 0.3 based on the study by US Bureau of the census.

B.2 Value to online advertisers

We take the value estimated by Hal Varian, which covers U.S advertisers, publishers and non-profits. We assume that the relationship between the economic value of Google and the size of GDP is the same for EU and USA. We furthermore assume that the value of Google is representative of the total value of the online advertising. Based on these assumptions we can multiply up the estimate by Hal Varian to obtain an estimate for EU.

B.3 Consumer benefits of free services

McKinsey Global Institute (2011) estimates willingness to pay per consumer per month. We combine this with information on the number of e-consumers in EU27 (from Eurostat) and multiply up.

C. HOW MUCH DOES ONLINE INTERMEDIATION CONTRIBUTE TO PRODUCTIVITY?

We estimate this based on Varian (2011) and Eurostat (2008).²⁶

We estimate three components:

C.1 Productivity effect of e-procurement

C.2 Productivity effect of e-sales

C.3 Productivity effect of search

C.1 Productivity effect of e-procurement

We estimate this based on Eurostat (2008), which estimates the effect of firms' e-procurement on productivity. The estimate states the percentage effect on productivity from increasing the share of procurement, which is done electronically. We assume that 30% of B2B e-business is done via an intermediary. This assumption is based on evidence from the U.S. Bureau of the Census on the channels through which companies do e-business (c.f. <http://www.census.gov/econ/estats/2009/all2009tables.html>). We multiply the percentage effect by the increase in business e-procurement from 2009 to 2010.

²⁶ Eurostat (2008): ICT Impact Assessment.

C.2 Productivity effect of e-sales

This is done using the same method as C.1, because Eurostat (2008) has estimates of the effect of e-sales on productivity.

C.3 Productivity effect of search

We estimate this using Varian (2011). He quotes evidence of how much time is saved per worker per day due to search. We translate this estimate into a productivity effect assuming that the saved time is used for other productive purposes. The effect of this productivity gain is converted into EU value using data from Eurostat on how much an average EU worker produces per day and per year. We adjust the number by the number of individuals who use the internet as part of their work.