

IAB Europe



## Consumers driving the digital uptake

The economic value of online advertising-based services for consumers

September 2010

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## Note and definition

The Internet is an impressive medium by many metrics. In a period of about 10 years, broadband Internet has achieved mass-market levels of penetration, reaching more than 50 percent of households in the OECD countries. In the US, the average amount of time spent on the Internet (accessed by PC) is already about 2 hours per person.

***But how valuable are online applications to an Internet subscriber?*** This is a different question and a challenging one to answer because users who pay a flat access rate have accessible to them a large array of advertising-based online services that are mostly free to use. IAB Europe commissioned this white paper from McKinsey & Company to answer this question. The paper is designed to unbundle Internet use into 16 major domains of online advertising-funded applications. The **user value** of online services has been assessed through the concept of **surplus**, using conjoint techniques.

Specifically:

1. For the user, the **consumer surplus** is the value to the consumer of the online services minus any costs associated with using those services (e.g., costs for paid services, the negative value of advertising interruption, etc). This consumer surplus is to be contrasted with the **producer surplus**, i.e., the profit derived from delivering the service.
2. The **consumer surplus** has been estimated through **conjoint-based market research**. This methodology is largely applied in marketing science, and works by deriving the importance of a service to users rather than asking them to estimate that value directly. The value of online services to Internet users was derived by creating a hypothetical bundle of attributes (service type, price, advertising interruption), describing how the online service would be used, and asking respondents to rank their usage preferences. Statistical methods are then applied to estimate the relative importance of the various attributes – taking into account the fact that some attributes may qualify as disturbances. The two disturbances discussed in this paper are advertising interruption and the collection of private information while Internet services are being used. The extent of the disturbance effect is measured by calculating the amount a consumer would be willing to pay to avoid being exposed to advertising formats and to limit private-information collection while using ad-funded Internet services. Advertising formats include video ads, pop-ups, and banners. E-mail-delivered advertising was considered outside of the scope of this paper.

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The white paper and the underlying analyses have been discussed and reviewed by the IAB European board. McKinsey thanks IAB Europe and the study sponsors for valuable inputs in the preparation of this white paper.

# 1. Executive summary

## 1.1. Genesis

The Internet medium has witnessed rapid user adoption of ad-based services. This has in turn highlighted the issue of disturbance due to advertising format intrusion as well as the risk of data abuse (i.e., consumer privacy issues).

In 2010, IAB Europe asked McKinsey & Company to deliver an independent assessment of the consumer surplus of digital services financed by online advertising. This report provides the main findings of that assessment. The assessment was based on a review of secondary research and on original conjoint-based market research estimates of users' benefits from 16 ad-funded Web services. This research was designed and conducted in the course of Spring 2010 in six major countries: France, Germany, the UK, Spain, Russia, and Italy.

Previous research had already suggested that ad-based Web services provided considerable value to Internet users. We believe, however, that this early research suffered from shortcomings that undermined its validity. Among these shortcomings were a narrow set of application services and/or the methods chosen to calculate the value derived from the Internet (e.g., using time spent as a proxy for value, or directly stated willingness to pay). The other problem with the previous research was that it was several years old and mostly US-centric.

The new research summarized in this white paper offers a more robust and comprehensive method for measuring both product and/or service benefits, as well as the likely disturbance associated with using Web services.

## 1.2 Key finding

Our key finding is that user benefits from Web services are large—very significantly larger than the advertising revenues earned from providing those services, and very significantly larger, too, than any disturbance linked to advertising and privacy issues.

Scaling this finding to the existing broadband population of the IAB Europe countries as well as the US,<sup>1</sup> the estimated consumer service surplus is about €100 billion for 2010, or more than three times current revenue from ad-based services.<sup>2</sup> *In other words, the scale of online advertising revenue significantly underscores the massive value consumers derive from the online services they use.*

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1 "The IAB Europe countries" refers to France, Germany, Russia, Spain, the UK, Austria, Belgium, Bulgaria, Croatia, Denmark, Finland, Greece, Hungary, Italy, Netherlands, Norway, Poland, Romania, Slovakia, Sweden, Switzerland, and Turkey.

2 Using the US/Euro exchange rate as of April 30, 2010.

Further, while the majority of users face advertising and privacy issues, the value they obtain from using Web services, separate from the value of access, is six times larger than the value they are willing to expend to avoid advertising disturbance and privacy risks in 2010. *In practical terms, for each euro an Internet user is willing to spend to limit privacy and advertising disturbance, the user gets a value of six Euros from using current ad-funded Web application services.*

Disaggregating our key finding, we present in the rest of this paper the following three themes regarding the consumer benefits of ad-based Web services:

### **1. The larger-than-expected, and growing, consumer surplus of ad-funded Internet services**

- We have valued the consumer surplus of Internet services, separate from e-commerce, at €100 billion for 2010 in the US and IAB Europe countries. This surplus is close to 40 Euros a month per household, or more than what the household pays for home broadband access;
- In contrast, the producer surplus from delivering those services is estimated at €20 billion for 2010. This means that consumers have to date been taking the majority, or approximately 85 percent (\$100/\$120 billion), of the total surplus linked to Web services;
- The consumer surplus of Internet services is surprisingly similar across countries. Country effects barely explain a deviation of plus or minus 10 percent for the typical broadband user. The remaining deviation is driven by consumer use and attitude. This makes it easy to extrapolate benefits to other countries with relatively little uncertainty;
- The consumer surplus is expected to grow at a sustained compound annual growth rate (the year-on-year growth rate required to achieve any expected total growth over a given number of years) of 13 percent. This will be driven partly by an increase in broadband access. The primary driver, however, will be the consumer value resulting from the extension of Internet services to triple-screen platforms (i.e., platforms that allow services to be accessed on mobile devices and television as well as personal computers) and in improvements in bandwidth speed and volume in the years to come.

### **2. Free ad-funded services generate the bulk of consumer surplus**

- The consumer value distribution is significantly skewed: 20 percent of users capture 60 percent of the value from Web services. These 20 percent tend to use the Web extensively for all the online services surveyed in our research (see below). They embody so-called digital-divide demographics (i.e., that higher value is captured by younger, urban, more affluent users);
- The appearance of a Pareto-type distribution is not atypical of value curves. However, the 80 percent of users in the “long tail” continues to generate a significant surplus from using the Web;
- A minority of users (about 20 percent) is currently paying for some Web services. After deducting their payments, the paying consumer surplus is similar to the surplus generated by the free-only user. This means that the current price paid by users is the maximum they would have paid—otherwise, they would have shifted to free services. From a consumer value perspective, then, the current pay/free mix use manifests a healthy equilibrium.

### 3. Advertising and privacy issues carry relatively little weight as compared to the value of free, ad-based, online services

- Advertising disturbance from pop-ups and banners ads and privacy issues are present among more than half of Internet users. While this is a concern, the perception of advertising disturbance with regard to online services is in line with other media, such as television;
- On average, the price an Internet consumer is willing to pay to avoid those issues is worth only one-sixth of the total value derived from ad-funded Web services;
- Among the forms of disturbance analyzed — advertising interruption and use of personal information—users are most ready to pay for preventing advertising interruption, particularly ad banners;
- There are two segments of users who value their privacy relatively highly. A narrow niche segment—one percent of users—is “privacy concerned,” that is, they put a high value on a strict adherence to privacy. Another, more material group of users (20 percent), values privacy as much as it values Internet use itself. This segment features users who place an average value on privacy *but a particularly low value on Internet use*. It follows that stimulating more rewarding usage is at least as likely to generate higher user surplus as applying a higher degree of privacy controls.

□□□

The picture this new research paints is thus that the current Internet consumer in the US and IAB Europe countries derives significant usage value from ad-funded Web applications—more than has been thought. In fact, advertising effectively finances a consumer surplus on the order of €100 billion for 2010 in the US and IAB Europe countries and this number is expected to grow at a double-digit rate.

While disturbance from advertising interruption and fear of privacy misuse exists and must be acknowledged, more than 80 percent of current Internet users generate significantly more value from using the Web than what they would be willing to pay to eliminate those disturbances. Further, what they would be willing to pay in total is less than current online advertising revenue, making the economic equation of Internet innovation unsustainable. As a result, any potential focus on reducing disturbance should be weighed against the risk of reducing ad-funded user innovations online.

## 2. Background

Internet penetration and use has been impressive, creating a major multibillion dollar economy, according to Hamilton Consultants in a report produced in 2009.<sup>3</sup>

At the same time, because the Internet is largely financed by advertising formats such as ad banners and search, and because the Web makes it easy to search, collect, and combine information, the debate on privacy concerns, especially the need for further control mechanisms, has intensified. This white paper is concerned with providing a broad, up-to-date context for the trade-off between the value of Internet services and the corresponding disturbance cost to the consumer.

### 2.1. The Internet economy to date

Internet adoption has been relatively fast compared with other media. Today broadband has reached the mass market—more than 50 percent of households—in the OECD countries. Internet access points have been expanding quickly, branching out to TV and to the mobile world through a variety of devices, from smartphones to the iPad. In 2010, people spent, on average, 60 hours of PC use a month on the Internet in the US, making it second only to television in terms of average use time. It also has become the number one medium in terms of time spent for the majority of young people.

Web applications have been growing explosively as well; people enjoy a wide variety of online services, from e-mail and browsing to information services and search, or collaborative services such as wikis, blogs, and social networks. And the diversity of supply has increased dramatically with the rise of third parties' virtual application stores on key Web platforms, such as Facebook, which claimed 550,000 applications as of June 2010, or the iPhone, which hosted more than 225,000 applications as of the same date.

However, these innovations must be financed. The Internet economy, comprising full infrastructure (routers, servers, etc.) and last-mile broadband access, as well as Web-based services and B2B/B2C e-commerce, is a multibillion dollar business, estimated to have generated \$1,700 billion in revenue (\$120 billion in value-added worth) in the US by 2007, and to be growing at a double-digit rate, according to a report by Hamilton Consultants in 2009. E-commerce (including physical delivery) made up the largest part of the value added, contributing close to 45 percent of the total. The next two major contributors were last-mile access and advertising.

Internet access is charged directly to users, with broadband households in OECD countries paying roughly €30 per month for an average access speed of 5 Mbps. In contrast, the majority of Internet applications and services are offered at no additional cost. Rather, they are financed through Web advertising, generating approximately €16 billion in the US and about €15 billion in IAB Europe countries annually by the end of 2009. This is roughly equivalent to €10 to €15 per broadband household per month, or only a fraction of the current access revenue in European countries and the US, respectively.

Intuitively, it is difficult to assess whether the value of Web services should be higher or lower than the advertising revenues generated by Web application service providers. Some will argue that access prices are sufficiently high that they exhaust the will to pay for Internet services. Others will contend that the growth of Web usage and the innovations passed through to users in the form of faster connections, extensions to new forms of access, and the continual flurry and diversity of long-tail applications make access to Web services, even for a fee, an unbeatable deal to users. These opposing positions can only be settled by empirical evidence.

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3 References are available in the "Academic references" section, p. 25, for ease of synthesis.

## 2.2. The disturbance concern

The right to privacy and limited ad disturbance is not a new one. In the US, the FTC reported in 2005 that over 100 million phone numbers were registered through the “do not call” option. In Europe, laws define the maximum minutes of advertising interruption allowed in television programs. The Internet poses a broader and more recent case of disturbance concern. The forms of disturbance are not only advertising or the general risks associated with collecting personal information but also spam, identity theft, credit card fraud, and more subtle forms of disturbance such as self-promotion on social ranking sites. Cases of privacy tension abound as well. For instance, Facebook’s recent privacy glitches forced users to choose between making information about their interests available to anyone or removing it altogether (see “Facebook glitch brings new privacy worries,” *New York Times*, May 5, 2010, p. B7).

Indeed, privacy pushback has been palpable for more than a decade now (e.g., Yahoo! dropping the reverse telephony number search from its site in response to consumer anger). Disturbance issues have also given rise to self-regulation mechanisms, such as consumers using pop-up blockers or Web sites adopting seals of approval and offering opt-out options to users.

However, while consumers are voicing concern, it remains difficult to assess the real value consumers attach to privacy and data protection. This is because the fear being explicitly voiced is not necessarily congruent with actual behavior on the Web: many consumers still seem to take relatively few risk-mitigation actions. For instance, in a seminal contribution to the privacy issue in 2001, Hahn and Layne-Farrar reported that while a majority of US citizens expressed concerns about their data being used for direct-marketing purposes, only 3 percent of US adults at the time actually used the opt-out service provided by the US direct-marketing association that blocks the use of personal information.

Given the discrepancy between explicitly voiced concerns and actual behavior, the actual importance of disturbance risk must be estimated properly, as with the question of value raised above.

## 2.3. White paper hypotheses to test and scope

### 2.3.1. Hypotheses

In light of the above, this white paper is concerned with assessing the magnitude of two major externalities arising from the use of ad-supported Web services.

- **Positive externality:** the hypothesis is that Internet services are generating more value to users than what is generated by advertising revenue alone.
- **Negative externality:** the hypothesis is that, although the privacy concern is real, its monetary burden may be overstated.

That the Web has been so successfully adopted brings up a related hypothesis: that the net difference between the positive and negative externalities is relatively large.

### 2.3.2. Scope

This white paper offers primary market-research-based estimates of both externalities, derived from an online survey administered in the spring of 2010 in six countries—the US, Germany, Spain, France, Russia, and the UK—targeted at the current broadband population. The value of Internet services is estimated from a list of 16 services clustered in three major blocks:

- **Communication:** e-mail, instant messaging, Internet phone, and social networks



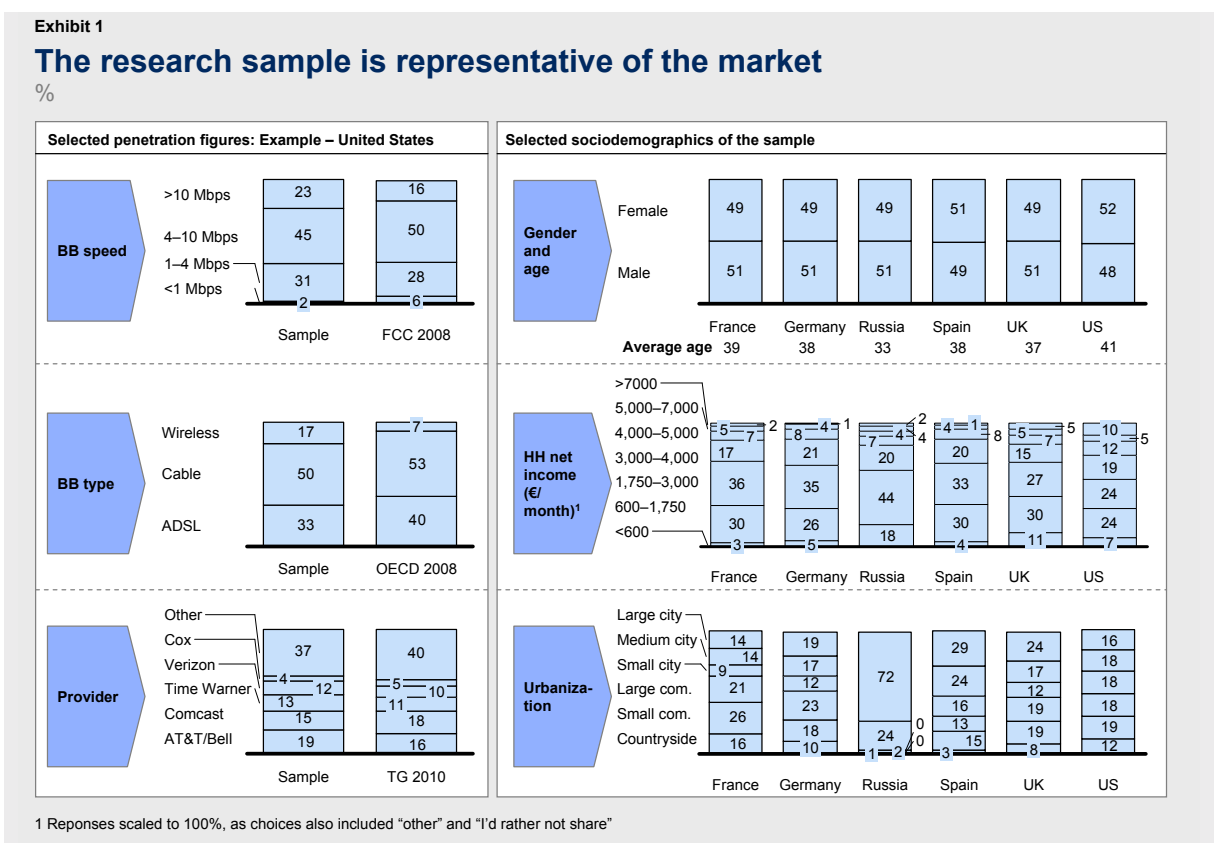
- **Entertainment:** gaming, gambling, virtual worlds, music/video, advanced upload services, podcasts, content reading;
- **Information services:** search/comparison shopping, maps, directories/yellow pages, blogs, and wikis.

Any value coming from e-commerce in the form of price discounts and similar phenomena has not been part of the scope of this research. Privacy and advertising protection issues studied in this paper are those linked to ad display formats as well as to the use of private information for marketing purposes. *Other forms of disturbance, such as e-mail spam, were not evaluated.*

The original sample size encompassed 750 users per country, amounting to a total of 4,500 online interviews. Of those, 3,360 or 75 percent were used in the final analyses, after cleaning for incomplete surveys or inconsistent results. The questionnaire presented in the appendix includes socio-demographic elements, Internet usage, stated services interest, and willingness-to-pay, as well as a conjoint-analysis-based trade-off of services with price and privacy risk.

The sample has been compared with the Internet population of each country and is statistically representative of the population at a normal error rate of plus or minus 5 percent (Exhibit 1). A possible bias exists for Russia, where the sample is weighted toward higher broadband access speeds and more frequent urban Internet users. The sample was not reweighted for Russia in the findings that follow.

Besides this primary research, we also conducted secondary research, both to understand the prevailing research insights and to assess early research limitations. Our secondary research is presented as background in the next section, before we provide a deep-dive into our own research findings.



### 3. Secondary research

Research on the user benefits and costs of the Internet presents several concerns. It is somewhat outdated and mostly centered on the US market. Furthermore, only online basic services are tested in most cases, and the different analytic methods used make determining reliable measures of the externalities of ad-based Web services a bit of a puzzle.

Putting these reservations aside, the emerging, albeit sketchy, picture is that the value of Internet services is material. In addition, it appears that even if people are concerned about privacy and advertising intrusion, they are not ready to pay large amounts of money to secure full protection.

#### 3.1. Secondary research limitation

The goal of the secondary research was not to provide an exhaustive review but to generate an illustrative snapshot as background for our own analyses. For this purpose, we have scanned the main management and economic journals for any published work related to Internet user value and protection value in the last decade (2000–2010). Most of the work is academic in nature; key references are provided in the appendix.

Some limitations are noticeable in this body of secondary research (Exhibit 2). First, it concentrates largely on the US market (71 percent of research reviewed), with some application to the UK and a number of Asian countries (that is, Japan, Singapore, and India). A large part of work published (55 percent) relates to studies conducted before 2005. In general, the only services analyzed are basic forms of communication such as e-mail, and entertainment services such as video and music consumption. Rarely is the full array of traditional services

Exhibit 2

#### The primary research addresses the concerns associated with research in the current literature

Secondary research (literature)	Primary research (McKinsey conjoint methodology)
<ul style="list-style-type: none"> <li>▪ Mainly “light” polling methods using value of time or stated WTP</li> <li>▪ Some research undertaken on privacy value, but not on advertising clutter, on top no survey tests value and pollution of services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conjoint methodology is the most robust survey methodology available and allows groups to measure value of time and the trade-off between value of services and protection at the same time</li> <li>▪ Stated WTP and value of time proved to be only a part of the equation</li> </ul>
<ul style="list-style-type: none"> <li>▪ Most research is US-centric and relies on data as old as 5 years in a majority of cases</li> </ul>	<ul style="list-style-type: none"> <li>▪ 2010 data surveyed in 6 markets</li> </ul>
<ul style="list-style-type: none"> <li>▪ Only basic online services are tested in most cases (e.g., no social networks, Web TV, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Full array of 16 online services tested</li> </ul>
<ul style="list-style-type: none"> <li>▪ Results are presented on an aggregated basis and with relatively high ranges, e.g.               <ul style="list-style-type: none"> <li>– \$10–\$30 per month for services</li> <li>– \$5–\$7 per month to avoid sharing information</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Overall results of €38 WTP plus a –€8 effect of pollution available per               <ul style="list-style-type: none"> <li>– Market</li> <li>– Segment</li> <li>– (...)</li> </ul> </li> </ul>

**First results are converging overall but conjoint methodology allows for a much more precise evaluation of the consumer benefit**

examined, let alone new collaborative Web 2.0 services such as user-generated video, social networks, blogs, wikis, etc.

### **Value of services**

The methods used to estimate user benefits are to some extent subjective—i.e, value-of-time analyses or opinion polls/stated preferences for 70 percent of the cases reviewed. Both methods come with caveats. There is significant evidence that the value of a service is only loosely linked to time usage (for instance, new users will take more time to browse and surf, given learning needs); it is also well known that directly stated preferences are usually a biased indication of true preferences for free services.

The method typically used to alleviate these problems is conjoint analysis, in which people are obliged to make a set of trade-offs of services/products through which they reveal their true preferences.

This method, while common practice in marketing science, has been, to our knowledge, only rarely used in the secondary research reviewed, and is our reference method in our primary research (see hereafter). Specifically, the conjoint methodology is based on a configuration of key attributes that characterize online services (for example, the services included or the monthly price) and which are the basis for the customer to make the decision whether to subscribe to or purchase a product/service. Then the respondent is asked to select among several service options that combine those attributes in different ways. The repeated exercise of selections allows one to determine the precise importance each individual assigns to each one of the attributes.

The primary research also included direct questions on the value of online services as well as time usage. We found that stated willingness to pay is at best a partial proxy for true preferences as derived from conjoint analysis. For example, the correlation between stated and conjoint-based preferences for the total sample was found to be weak, at approximately 20 percent—that is, 80 percent of direct statements as regards willingness to pay were not fully aligned with what emerges from conjoint analysis. This demonstrates that when directly faced with the question, “How much would you pay for this service?”, users do not fully take into account all the critical elements of choice that emerge from forcing users to make an explicit trade off under conjoint technique. Further, we confirmed that stated preferences and time spent are also imperfectly correlated. Hence, conjoint analysis escapes some of the limitations found in earlier secondary research (Exhibit 3).

### **Disturbance**

Empirical research that assigns a monetary value to consumers’ annoyance with advertising, or the value they place on privacy protection, is rare.

Regarding privacy issues, surveys have mostly investigated households’ attitudes and concerns, which reveal a strong desire among Internet users to protect their privacy. Our primary research data also reveal that only 11 percent of the total broadband population is not at all bothered by leaving personal information traces online. However, the consensus from secondary research is that people who state they are “privacy conscious” do not act accordingly. One piece of research reported that close to two-thirds of survey respondents who suggested that privacy should be protected with the help of technology never actually used encryption; 45 percent did not use e-mail filtering technologies; and—to provide a real-world analogue—half of them did not use shredders for documents to avoid leaking sensitive information.

## **3.2. Net benefits of online services from secondary research**

The great variety of methodologies applied and the many differences in geographical scope and types of services investigated make it hard to distill an accurate estimate of the user value of ad-supported Web services from secondary research. A few themes are noteworthy, however:

- **The consumer value of online services ranges between €10 and €30 per household per month.** The high end of the range comes from an analysis of the value of time spent online in countries such as Japan, which already have higher-quality and more broadly available access services (such as optical fiber access), and whose consumers spend more time online as a result than consumers in other countries.
- **US Internet users value protection** against errors, improper access, and secondary use of information **at \$5 to \$7 per month.** The value is slightly higher in Asian markets, such as Singapore.
- **Regarding privacy matters, a large portion (up to 70 percent) of users has concerns, finding two extreme clusters of users.** According to Westin, (2001) testimony suggests that about 25 percent may be regarded as “privacy fundamentalists,” with privacy concerns likely as large as the value they derive from online Web usage. They value privacy five times as much as the average online user does. At the other extreme, a set of various researches led by Hahn and colleagues finds a niche of users (about 10 percent) that can be regarded as “information sellers.” They place a very low value on privacy and in fact feel better off when they can sell their data for extra payments.

□□□

In conclusion, the available research, while heterogeneous and likely not fully robust in method, estimates the net benefits of Internet use to the consumer as rather large. Our own analysis, which follows in the next section, uses a more reliable method to estimate these net benefits. It also sizes the disturbance created by advertising interruption (display ads only) and probes the varying attitudes of different segments of the online population

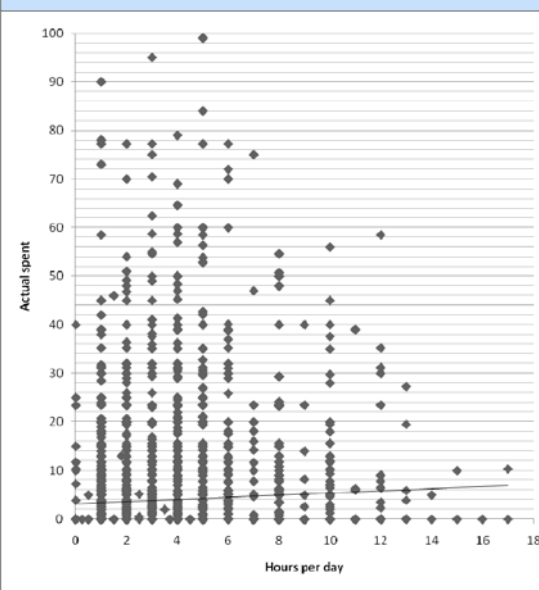
Exhibit 3

### Time spent online, which is one basis of the current literature, is not a determinant driver of consumer value and the actual amount spent

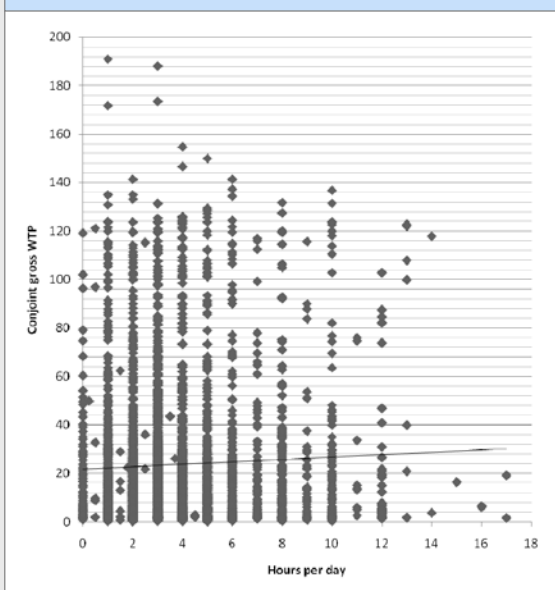
€/month

ALL MARKETS

#### Actual spent on service vs. time spent online for leisure activities



#### Consumer value for services vs. time spent online for leisure activities



with respect to privacy. This segmentation not only examines privacy and advertising disturbance issues but also includes the value linked to a wide range (16) of Internet services, allowing one to get a better grip on the trade-off between the benefits of using the Web and the desire for privacy protection.

## 4. Primary research

The goal of our primary research was to establish a robust estimate of the value both of Internet usage and of protection against advertising overload and data privacy issues, here defined as “disturbance risk.”

Our findings provide a solid basis for the idea that the consumer surplus from ad-funded online services is on the order of €100 billion annually for IAB Europe and US, and is growing rapidly. This ecosystem works well for the majority of Internet users, with privacy issues amounting to only a fraction of the total surplus generated. In other words, current ad-financed services generate significant value for the average Internet user, being an order of magnitude higher than what the same user would be willing to pay for eliminating the related disturbance of advertising and privacy issues.

### 4.1. McKinsey methodology

Secondary research analysis reveals a few important drawbacks. The first drawback is that the quantitative research is rather outdated, focuses on a narrow set of Internet services, and is US-centric. There seems to be no research in high-profile academic publications that directly contrasts the value of usage with the value of protection. The second drawback is that the methodologies used (estimates of the value of time and stated preferences) are significantly vulnerable to bias.

Our research addresses all the above caveats, and as such, complements early research with fresher and more robust estimates. Our research started in the spring of 2010, during which we collected data on a broadband user sample from six major countries: France, Germany, the United Kingdom, Russia, Spain, and the US. The sample was cleaned for data inconsistencies to generate a final working sample that is statistically representative of the online population, at a margin of error of plus or minus 5 percent.

Further, a comprehensive set of 16 online services (from e-mail, social networks, gambling, and gaming to search, wikis, maps, directories, and video/music) was assessed in the research.

A robust and consistent methodology of conjoint analysis was applied to measure both the value of usage and the value of the disturbance risk of Internet services (Exhibit 4). This allowed an assessment of the trade-offs among the value of various service clusters (communication, entertainment, and information), the risk of disturbance (advertising overload and data privacy), and the price that comes with the services used. This derived methodology accurately measures the price elasticity of these different elements.<sup>4</sup>

Special care was taken to ensure that the consumers interviewed actually valued service use over and above any access price. This was made quite clear in the online survey through explicit wording on the question of usage and value of services.

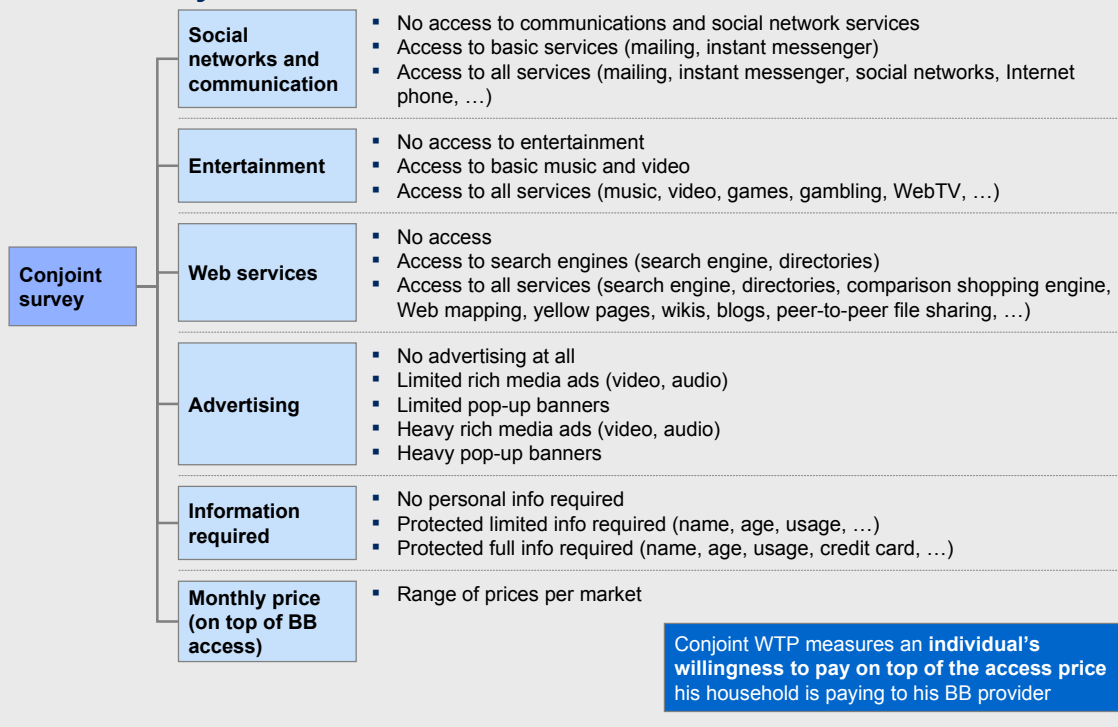
The sample data confirms that there is no significant link between willingness to pay for using services and access price, whereas one would have expected a major negative correlation if consumers included access price

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4 The price elasticity of a service is the change in the percentage of users that would be willing to subscribe to that service for every percent variation in the price of the service. A price elasticity of 1 would indicate a case in which, for a 1 percent increase in price, the demand for the service would drop 1 percent.

Exhibit 4

## The conjoint methodology allows companies to derive precise price elasticity



in their valuation trade-off. Based on conjoint analysis, we also compared the value from using online services to those actually paying the bill for broadband home access with the value of services to those users that do not pay for access. While there is a slightly higher value premium (10 percent) for users that do not pay for access, this difference is not statistically significant when one controls for differences in socio-demographics (non-paying access users are younger) and for the intensity/breadth of Internet usage (non-paying access users are more intense users of Internet services).

## 4.2. Emerging picture of online consumer benefits

The aggregate picture is a confirmation of previous research that the consumer's net benefit from using the Web is significant. If those messages were, at best, implicit and very disparate in the secondary research, they now emerge consistently under one robust methodology applied on a more up-to-date basis to a much broader set of countries and online applications. The three main messages, further detailed below, are:

- *A major prevailing consumer surplus:* The consumer surplus from ad-funded Internet services is large, on the order of about €100 billion, and growing, with similar patterns among the US and IAB Europe countries.
- *The value of free:* Free ad-funded services generate the bulk of this consumer services surplus, highlighting the significant value of the ad-based revenue model for consumers.
- *Significantly more user value from usage than disturbance protection:* While it is a concern, disturbance

from advertising and privacy carries relatively little weight versus the value of usage for the majority (80 percent) of Internet users.

Finally, while our aim has not been to look at alternative business models, the current findings suggest that the ad funded model brings *material* usage value to the *majority of Internet users*. In fact, replacing the current ad funded model with a user pay model that would compensate for the accompanying revenue loss would cut user interest in online usage by half. This clearly illustrates that, in a world of significant network externalities, one must be very cautious as regards any imposed change to a user-based ecosystem.

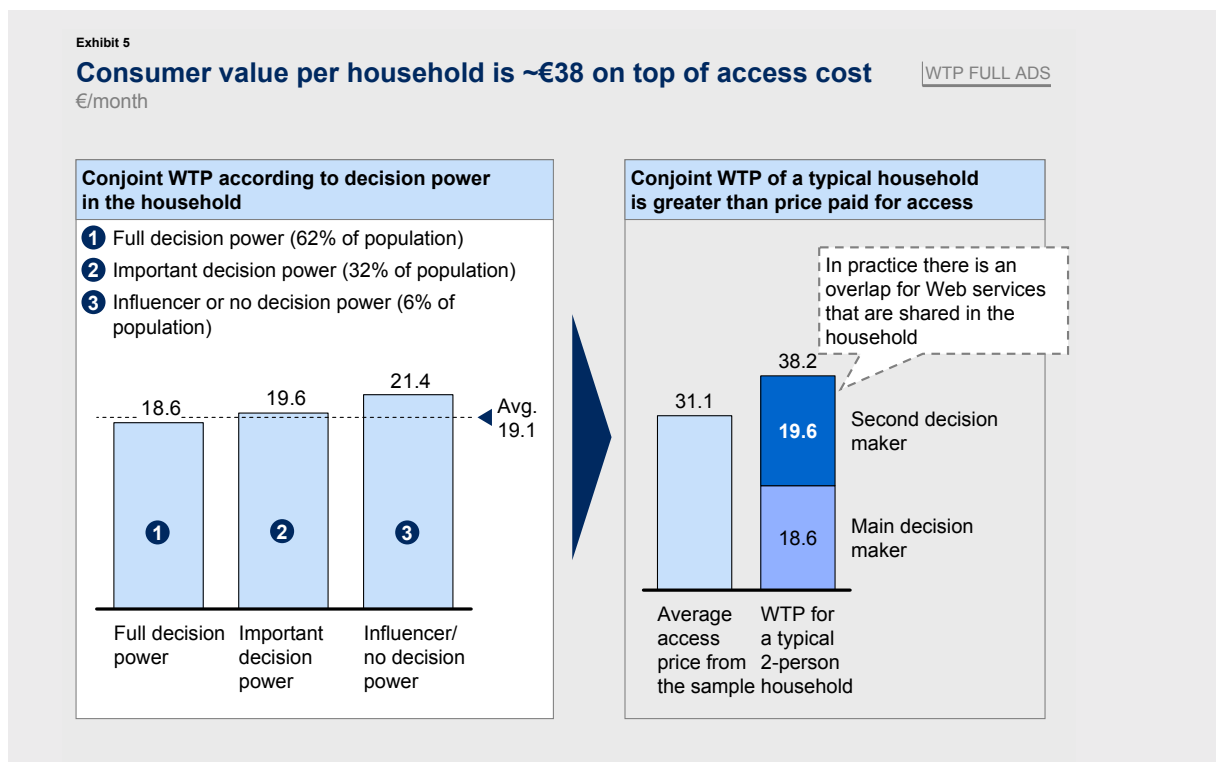
### 4.3. A major prevailing consumer surplus for Web services

#### **Total consumer surplus for online Web services will be running at about €100 billion for 2010 in the US and IAB Europe countries**

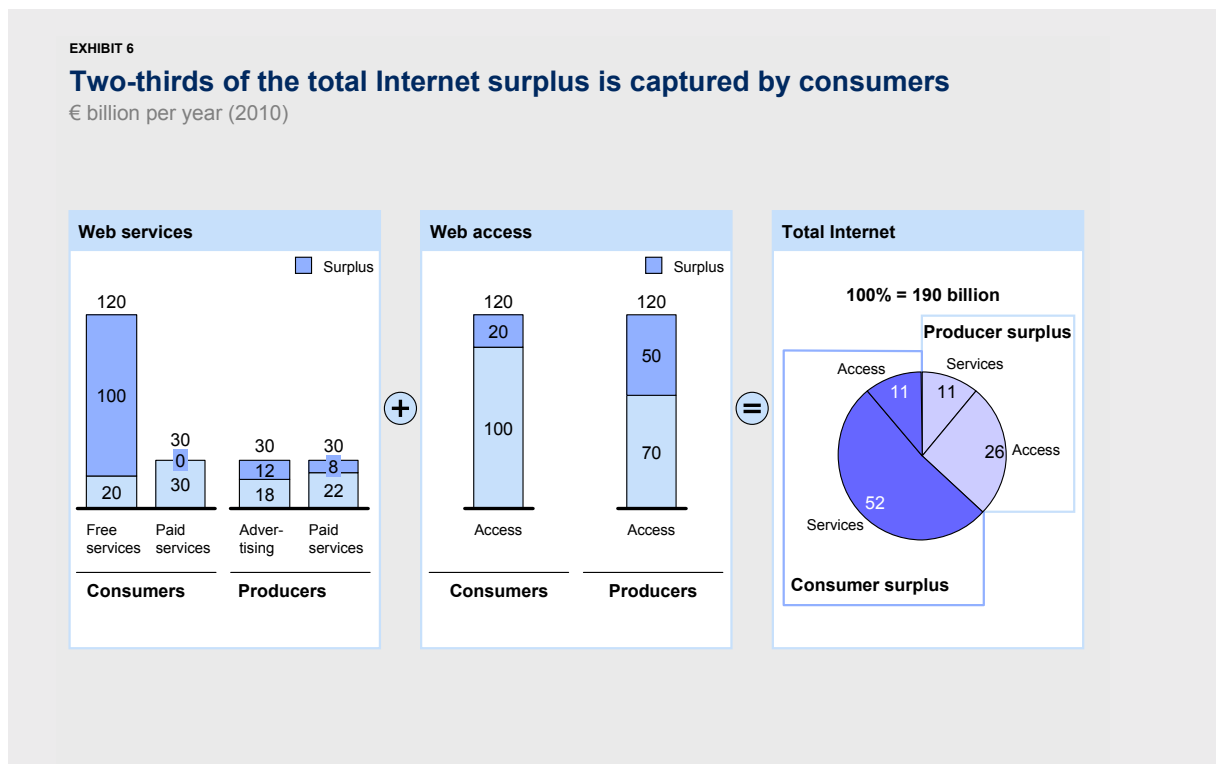
The willing-to-pay level per month per household is estimated to be approximately €38 per month (Exhibit 5). This is above what a household spends for television services. This is also roughly 40 percent of the bill a household pays for mobile and fixed telecommunications services.

Scaling this to the 23 IAB Europe countries and the US alike for the year 2010, the conjoint-based consumer value from using online services is estimated to be €150 billion. This service value is currently concentrated on the PC platform (90 percent) with other platforms only now beginning to emerge in any significant way (i.e., mobile and Internet TV).

Subtracting the value of protection against disturbance (see below, about €20 billion), as well as that of current paid services (about €30 billion), a measure of consumer service surplus can be computed, that is, all the value



remaining over and above costs incurred by online users. Net of costs, €100 billion of surplus is being created in 2010 within the US and IAB Europe countries alone (Exhibit 6).



Putting these figures in perspective:

- By 2010, we estimate that the total providers' advertising revenue will be worth €30 billion online, with access revenue at €120 billion. At €100 billion, this makes the consumer surplus from Web services almost as large as the access revenue and more than three times the amount of the online advertising revenue currently generated.
- Estimating consumer surplus for access is not within the scope of this paper. Taking the most recent and robust estimate in the academic literature from M. Dutz *et al.* that consumer surplus for access is roughly 16 percent of access revenue, we can extrapolate a consumer surplus for access of €20 billion in 2010. This means that the consumer surplus for online services is five times the size of the surplus created from Internet access.
- The average value-added margin in the Internet economy is about 40 percent in the US. Taking this as the benchmark, the total producer surplus for advertising services is about €12 billion (40 percent of €30 billion revenue online) in 2010, about €8 billion for paid services, and about €50 billion for access, for a total of €70 billion online. As stated earlier, the total consumer Internet surplus had been estimated to be worth €120 billion in 2010. This means that, on average, the total Internet economy provides more consumer than producer surplus, with the provision of ad-funded services contributing about two-thirds of the total Internet surplus (€190 billion total surplus of web services and access).



### **Consumer service surplus shape is similar by country**

The pattern of consumer-surplus distribution is a traditional long-tail distribution, with a lot of users willing to pay little for services and a minority willing to pay quite extensively. In fact, the bottom 50 percent of users make up only 20 percent of the total consumer surplus. However, this consumer surplus still amounts to €10 per month per household, or equivalent to what people in Europe pay for financing the public service broadcaster or for their basic analog cable tier in Northern Europe.

The relative value generated per user is also similar by country (Exhibit 7). In general, Anglo-Saxon countries generate slightly more user value than other countries. Russian consumer value is on average higher, while Germany is somewhat lower than other countries.

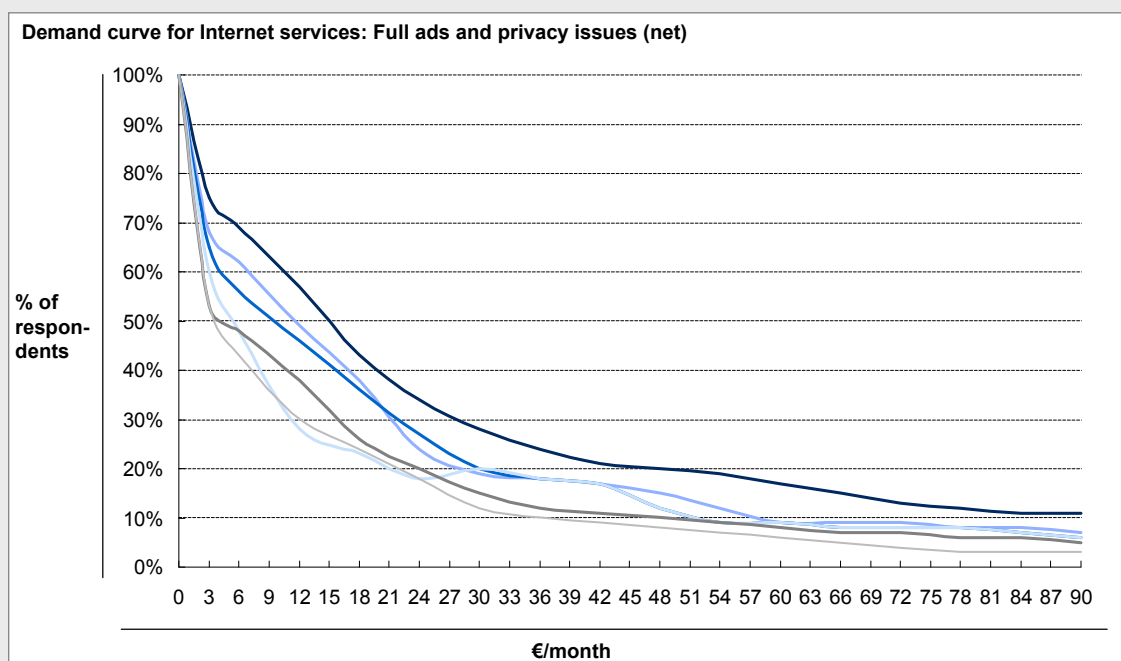
Differences in the state of Internet development in different countries can explain these disparities, although it should be noted that specific country effects account for deviations of less than 10 percent from typical user value. The fact that the pattern and size of consumer surplus is converging among different countries makes it possible to extrapolate benefits to other IAB Europe countries, controlling for the extent of usage and time spent on the Internet.

**Consumer service surplus will continue to grow at a fast pace, fuelled, among others drivers, by the fact that Internet use is morphing to multi-screen**

We believe that the consumer surplus will continue to grow at about 13 percent annually, reaching about €190

Exhibit 7

### **The demand curve has a similar shape and size in different countries, allowing one to extrapolate to other markets**



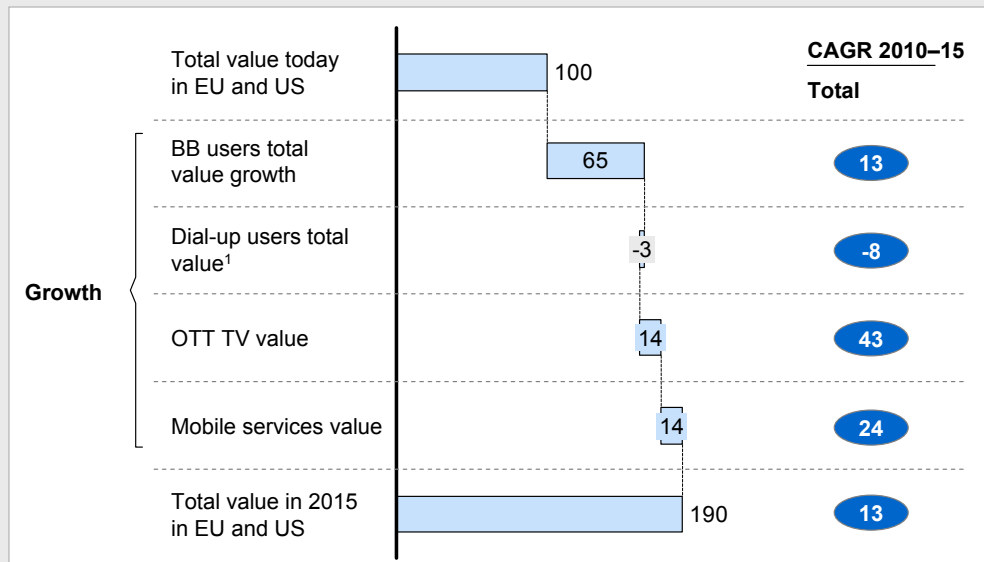
billion by 2015 in Europe and the US. This continued growth is the result of multiple effects, which we present in increasing order of importance (Exhibit 8):

- Internet penetration will likely continue to grow at an average rate of 4 percent per year until 2015, from a total of 500 million broadband internet users to 630 million in 2015. These numbers come from a combination of new adopters of the Internet as well as the conversion of the 80 million on dial-up to broadband usage in the US and IAB Europe countries. While US and Western European markets are likely reaching a saturation point of penetration, there is still growth potential in many other countries, especially in Southern and Eastern Europe.
- The current surplus per user on the PC platform will likely continue to grow at 4 percent a year due to the more extensive and intensive use of online services—namely social networks—and richer media.
- There is clear growth arising from the diversification to multi-screen, essentially mobile Internet on top of mobile data access, and television over the Internet. This adds 5 points of annual growth to the total.

Exhibit 8

### Internet consumer surplus will continue to grow at ~13% per year, rising to ~€190 billion in 2015

€ billion



<sup>1</sup> Includes WTP for the following services: mailing, IM, social networks, search, comparison, Web mapping, directories, yellow pages, blogs, wikis

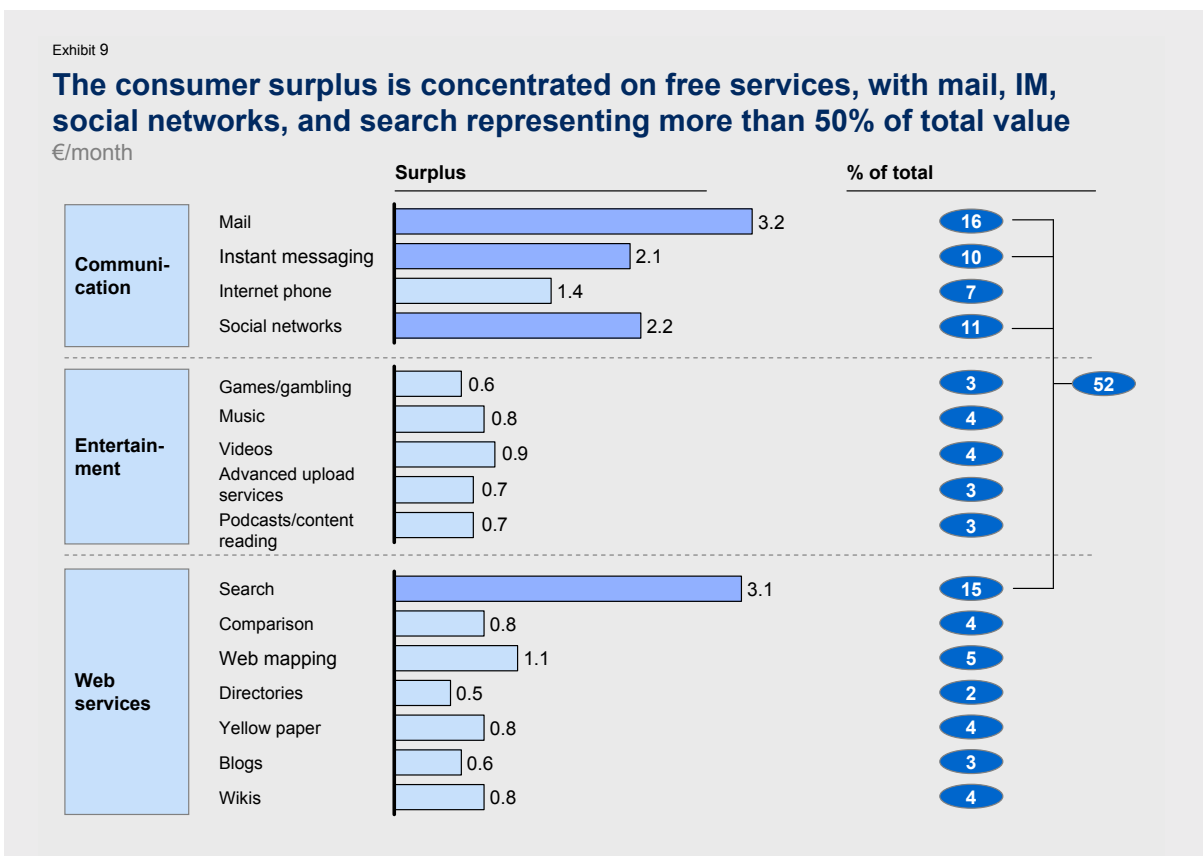
### 4.4. The value of free

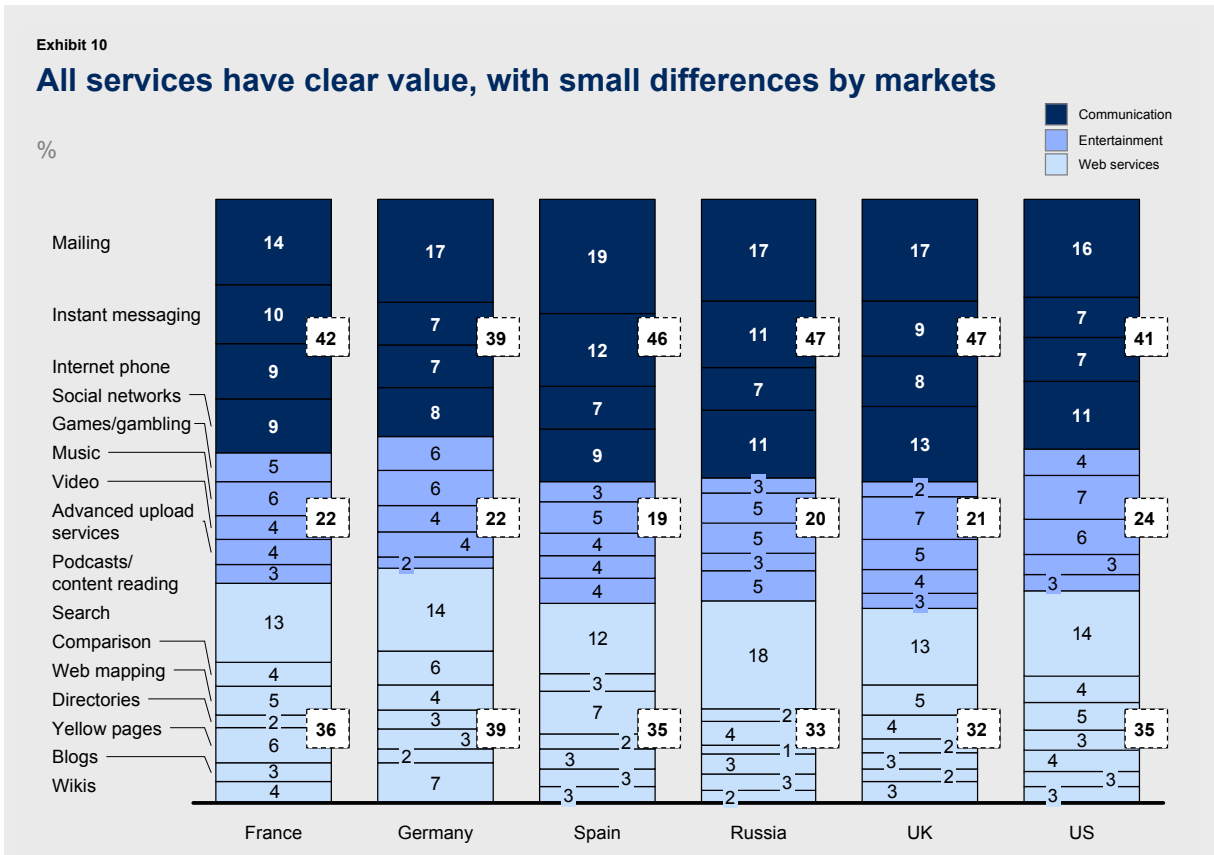
**All services contribute to consumer surplus. The greatest contributors to date are search (information-based services), e-mail and social networks (communication-based services).**

Three services generate the largest consumer surplus: e-mail, search, and social networks contribute on average 45 percent of the Internet user surplus (Exhibit 9). Not surprisingly, the first two, both Web 1.0 services, have established both high reach and a consistent frequency of online usage. Social networks are the Web 2.0 darlings in terms of penetration and usage. Online video (both clip streaming and basic Web TV) is already a close fourth.

The consumer value of each of these services should also be taken in isolation. In particular, we estimate that search alone contributes up to €20 billion of consumer value in the US and IAB Europe countries. Comparing this to the total online search market to date shows how significant some services are in generating value in the Internet ecosystem.

In addition, the research emphasizes that the three most valuable services affecting consumer surplus also consistently appear as top contributors across countries. Some differences appear in the long tail of other applications. There is, for example, a higher surplus on entertainment services in the US, obviously driven by the fact that the most important rights in video and music in our sample are Anglo-Saxon-based; information services such as directories generate more value in Germany than in other countries; and Russians seem to be fonder of social networks (Exhibit 10).





***Pay/free mix is likely in an equilibrium state***

A mix of pay and free services is offered online, with pay services still a minor part of Web services and generally more concentrated in entertainment. While most services are free online, about 22 percent of Internet users pay for some services, and a majority pay for entertainment services and Internet phone.

There has been a recent debate as to whether a more extensive shift to pay will be a way to increase total industry revenue. Our research suggests that the current pay/free mix is already in equilibrium.

On the one hand, we find that paying customers are also the ones that generate the greatest value from Internet use and are willing to pay a hefty premium (67 percent) versus free-services-only users. Calculating this willingness-to-pay premium in Euros per month suggests that it matches exactly what customers actually pay for paid services, leaving them with roughly the same consumer surplus as that captured by free-only users. This means that, on average, paid service price points are at their maximum, and only a decrease in price charged per service will increase the proportion of people paying for online Internet services.

On the other hand, given the number of non-paying users, free services generate the largest part (80 percent) of the total user surplus.

### ***Users value online services differently: Six user segments***

The value of services is not homogenous among users. The market splits into 40 percent of Internet users who gain relatively high surplus against 60 percent who gain more limited (but still material) value from the use of Web services.

The 40 percent of Internet users who generate the greatest value can be further divided into five clusters, among which are three niche “domain premium” segments (Exhibits 11 and 12):

- ***Premium entertainment:*** This is a niche segment (1 percent of total market) of users assigning a much higher value to consuming entertainment services (approximately 65 percent of their total surplus versus approximately 20 percent market average). This niche segment is focused on TV/videos and music and is characterized by a higher percentage of single urban Internet users (73 percent live in urban areas versus 59 percent for the full-sample average; 45 percent versus 31 percent are single).
- ***Premium information Web services:*** This niche segment (2 percent of total market) assigns more value to information Web services (approximately 65 percent of their total surplus), especially search and map-direction services. In general, this segment is characterized by more highly educated couples (68 percent versus 58 percent on average have college degrees, and 65 percent versus 59 percent live as a couple).
- ***Premium communication services:*** This niche segment (4 percent of total market) assigns a strong value to communications, particularly e-mail, social networks, and instant messaging (approximately 70 percent of the total surplus value). This segment is characterized by a propensity toward young, urban, female Internet users (67 percent versus 53 percent are less than 35 years old; 40 percent versus 29 percent live in large cities; and 59 percent versus 50 percent are female).
- ***Complete Internet offer:*** This segment represents 7 percent of the market, and generates value equally from using intensively all types of services (entertainment, information and communication). This segment is slightly more female and single.
- ***Traditionalists:*** This sizeable segment of 26 percent of Internet users represents the average profile and preferences of the rest of the market.

In general, socio-demographics are such that younger, wealthier users tend to derive more value from using the Web. This is already well known and is usually referred to as the “digital divide.” This divide is not linked to disturbance risk but more to lower value (and lower usage) of all types (entertainment, information and communications) of advertising-based Web services.

## 4.5. Significantly more value from usage than from disturbance protection

### ***Disturbance is a legitimate mainstream concern***

Our research concentrated on two disturbance risks: the abuse of personal information and advertising intrusion. Both genuinely bother users. The majority of Internet users clearly state that they would be troubled by having someone improperly use specific data, especially financial data. This sentiment is more prevalent in Germany (up to two-thirds of online users interviewed) and in the US. Only 11 percent do not see material issues.

Similarly, advertising overload risk is also visible; in our quantitative research 70 percent of users claim they stop audio or video ads; 50 percent do not read banner ads; and 60 percent close pop-ups before reading them.

Exhibit 11

## The value is concentrated in 5 subsegments with clear preferences

€/month

Size (%) Low High ALL MARKETS

Segment		Willingness to pay					Net WTP
		Communication	Entertainment	Web services	Advertising	Privacy	
High-value segments	Premium services (2)	21.0	17.5	67.6	-1.8	-1.2	103.1
	Premium entertainment (1)	18.9	66.0	18.2	-1.7	-0.4	101.0
	Premium communication (4)	69.2	15.0	18.3	-1.5	-1.2	99.9
	Complete Internet offer (7)	29.1	12.0	20.3	-2.9	-1.8	56.7
	Traditionalists (26)	11.6	4.6	9.1	-2.3	-1.1	21.9
Low-value segments	Ads and privacy-concerned (1)	20.0	16.0	19.3	-29.5	-9.1	16.7
	Fair-deal users (19)	3.9	2.2	3.9	-5.5	-4.5	0
	Price segment (40)	2.7	1.4	2.4	-1.0	-0.4	5.0
Average		10.3	5.0	8.1	-2.7	-1.6	19.1

### *For most, disturbance prevention weights relatively lower than user value*

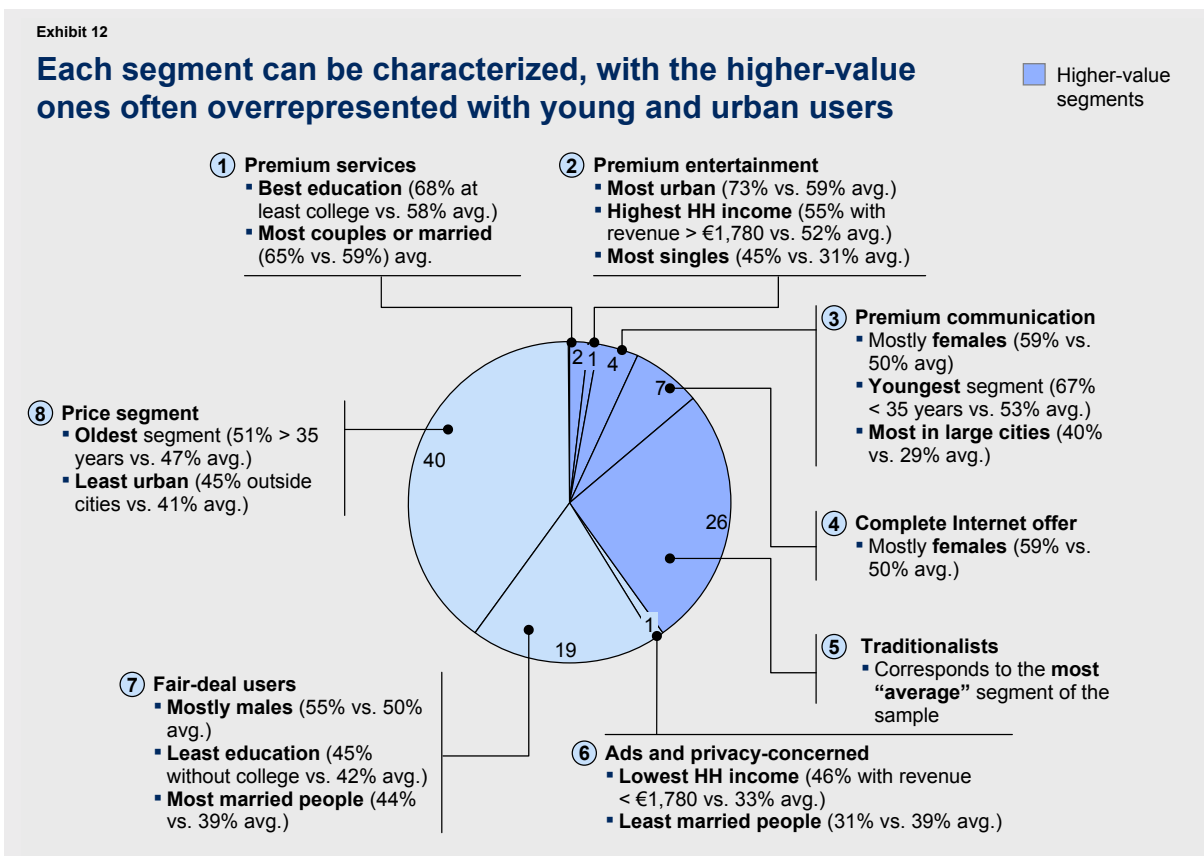
Consistent with the fact that people are concerned about ad disturbance, they are willing to pay to protect against this nuisance. In fact, the more concerned they claim to be, the more they are willing to pay. The price they are willing to pay for protection is slightly higher to date for advertising interruption than for data information misuse. More crucially, however, the price for protection is only a portion—about 16 percent—of total surplus, or €20 billion in total.

This makes it clear that making people pay to avoid advertising and information-usage nuisance will not transfer a large amount of consumer surplus generated from ad-based Internet services to providers—€20 billion is only one-sixth of the €120 billion in value that users receive from using—and in part paying for—Web services.

Hence, one needs to be very cautious in imposing too many restrictions on current ad services businesses, given their very large positive externalities and their dominant contribution to the Internet economy surplus.

### *Disturbance protection is valued differently by users*

At the household level, the price of protection is estimated to be about €10 per month per household, and is rather homogenous among Internet users, except for a niche segment of 1 percent of the market that both assigns a strong value overall to Internet services and exhibits a very strong aversion to privacy breaches and advertising disturbance.



More importantly, a material share of Internet users (19 percent) derives as much value from the Web as it is bothered by disturbance risk. Free services are the only way this group will continue to use the Web. Crucially, the segment is not more bothered by privacy than the market is—the real difference is that this segment also places a relatively low value on using Web services. This may suggest that one promising solution for this segment is to harness the value of ad-based Web services. One approach would be to offer access to better bandwidth speed to enjoy entertainment services online.

#### 4.6. A working ecosystem?

While our aim was never to look at prescribing the best revenue model for surplus maximization, the above messages taken together depict an apparently well working ad-funded based ecosystem and call for being very cautious in proactively changing it.

For example, by 2010, conservatively speaking, online advertising generates roughly 6 Euros per month of revenue per Internet user in IAB Europe and US. As is visible in Exhibit 11, almost *all users* would want to pay less than the revenue loss in order to compensate for no advertising exposure, causing online ad-funded business models to suffer. More worrisome, the biggest of all user segments identified, which is composed of 40 percent of the online user population, is also very price sensitive. If this segment were to have to compensate for advertising revenue loss by paying for services usage, it would likely drop out of, and shrink the size of, the Web.

## 5. Synthesis

In response to an IAB Europe request to McKinsey & Company, this white paper has offered an independent assessment of the consumer surplus of digital services currently financed through online advertising. Confirming previous academic research that suggests ad-based Web services have been providing great value to Internet users, this new research has offered a fresher and arguably a more robust method to measure the benefits as well as costs of using ad-funded online services for the total Internet population of the US and IAB Europe countries.

By all metrics, the consumer surplus linked to ad-funded service is large—more than €100 billion for 2010 and expected to grow to about €190 billion by 2015. This is several times larger than what the online advertising industry generates and much larger than the producer surplus for services or access. This means that, currently, the bulk of the Internet economy surplus linked to those services is accruing to consumers. Further, while there is a clear signal from users that advertising and privacy issues matter, the value obtained from using Web services remains six times larger than what users are willing to spend to avoid such disturbance. This means that the current ecosystem works quite well and that caution must be exercised in challenging the current system because of the risk of creating other imbalances. This risk is not theoretical—in our analysis, we find that 40 percent of users may choose to limit Web usage if they are obliged to compensate producers for the loss of advertising revenue by paying for services that would otherwise be free.

**The above picture is not anecdotal. It is consistent across countries analyzed, and for the majority of Internet users.**



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## 7. Consumer surplus per market and service

2010 values, billion euros, estimates

Country	Total surplus	Communication surplus	Entertainment surplus	Web services surplus
<b>United States</b>	<b>32,2</b>	<b>13,3</b>	<b>7,6</b>	<b>11,3</b>
<b>IAB-Europe</b>	<b>68,9</b>	<b>30,8</b>	<b>14,4</b>	<b>23,7</b>
France	7,5	3,2	1,6	2,7
Germany	6,9	2,7	1,5	2,7
Russia	12,1	5,6	2,5	4,0
Spain	4,9	2,3	1,0	1,6
United Kingdom	7,8	3,6	1,6	2,5
Austria	0,5	0,2	0,1	0,2
Belgium	1,3	0,5	0,3	0,5
Bulgaria	0,8	0,4	0,2	0,3
Croatia	0,7	0,3	0,1	0,2
Denmark	0,6	0,2	0,1	0,2
Finland	0,7	0,3	0,1	0,2
Greece	0,5	0,2	0,1	0,2
Hungary	1,4	0,6	0,3	0,5
Italy	5,6	2,6	1,1	1,9
Netherlands	1,7	0,7	0,4	0,7
Norway	0,8	0,4	0,2	0,3
Poland	4,6	2,1	0,9	1,5
Romania	2,3	1,0	0,5	0,8
Slovak Republic	0,8	0,4	0,2	0,3
Slovenia	0,4	0,2	0,1	0,1
Sweden	1,7	0,8	0,4	0,5
Switzerland	1,1	0,5	0,2	0,4
Turkey	4,4	2,0	0,9	1,5
<b>Total</b>	<b>101,1</b>	<b>44,1</b>	<b>22,0</b>	<b>35,0</b>

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