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Measuring Facebook's economic impact in Europe

Final Report

January 2012

This report has been prepared on the basis of the limitations set out in the engagement letter and the matters noted in the Important Notice From Deloitte on Page 1.

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Executive Summary

Facebook embodies a new generation of social media organisations who have significant global impact and create economic value through enabling ecosystems. This enabling basis means that traditional narrow measures of economic impact are limited and it is critical to consider the broader impact of Facebook in allowing other parties to create value across the economy. To consider the nature and scale of these impacts Facebook commissioned Deloitte to estimate its economic impact across the 27 Member States of the European Union and Switzerland (EU27*) in 2011.

The central estimate of gross revenue enabled by the activities of Facebook is €32 billion. This revenue converts into an economic impact of €15.3 billion and supports 232,000 jobs.

Defining and measuring the economic impact of Facebook

Facebook creates economic impact[1] through both *narrow* effects, caused by its day-to-day activities within Europe, and *broad* effects, accruing to third parties as a result of the Facebook ecoystem.

Facebook's *narrow* economic impacts are the sum of three economic effects:

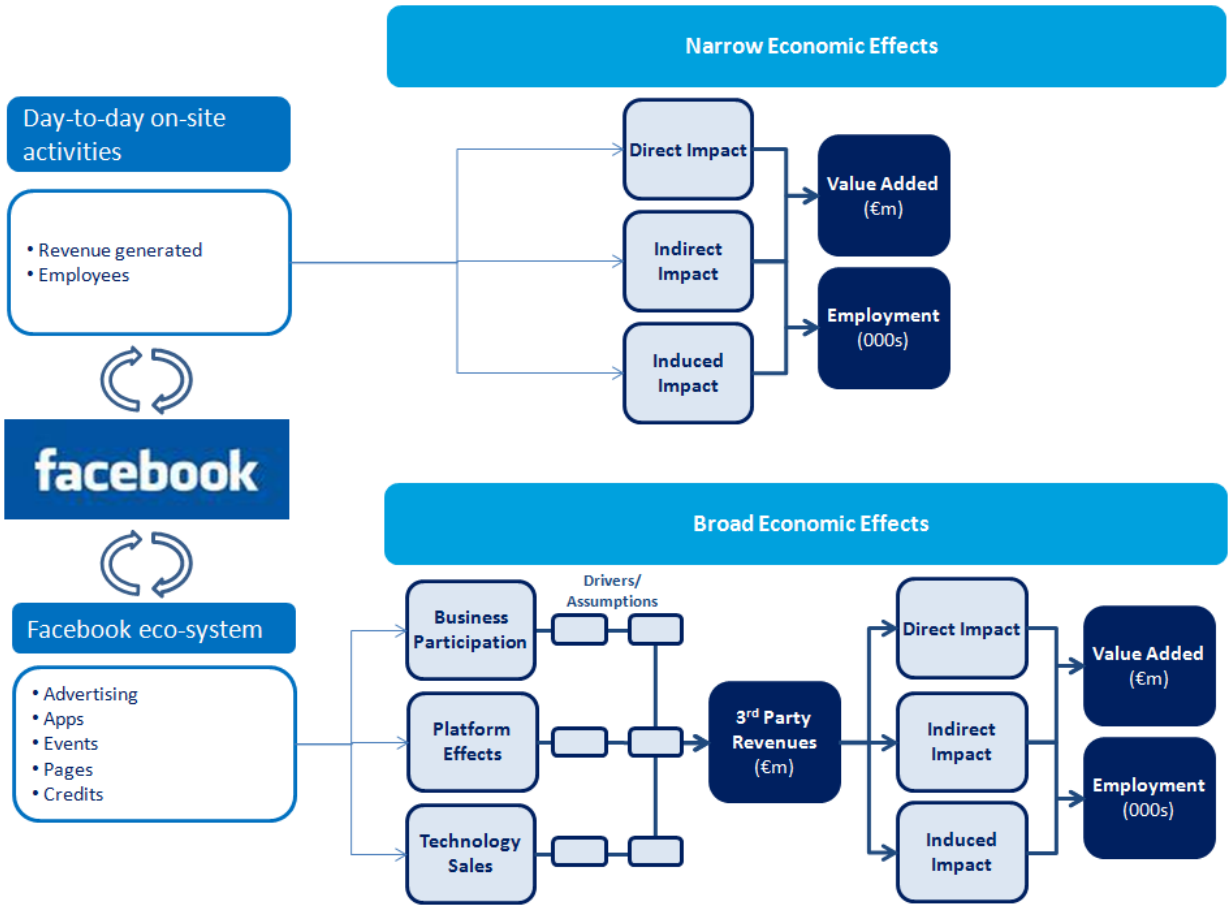
- **Direct effect**: spending by Facebook on its employee wages, on paying taxes, and the profit generated from its activities in 2011.
- **Indirect effect:** value created in associated supply-chain industries resulting from the supply of inputs to Facebook.
- **Induced effect:** value created from spending in the overall economy as a result of direct and indirect effects from the generated economic activity of Facebook and associated industries.

However, internet-based businesses, such as Facebook, are able to enable broader economic activity across a series of economic agents even though they have a small physical footprint. Such *broad* economic impacts can be expected to be far more significant for these types of businesses when compared to the *narrow* economic impact created by traditional businesses. In particular, Facebook is found to have significant impacts upon:

- **Business Participation**: enabling businesses to raise awareness of their products and therefore generating new sales through Facebook business pages, which lead to referrals to websites and brand value supported by *likes*, as well as through paid advertising.
- **Platform effects**: developing a focused specific App community and enabling more frequent and larger *social activities* among users.
- **Technology sales**: boosting the demand for technology through increased sales of devices and broadband connections.

The relationship between the *narrow* and *broad* economic impacts of Facebook is summarised below.

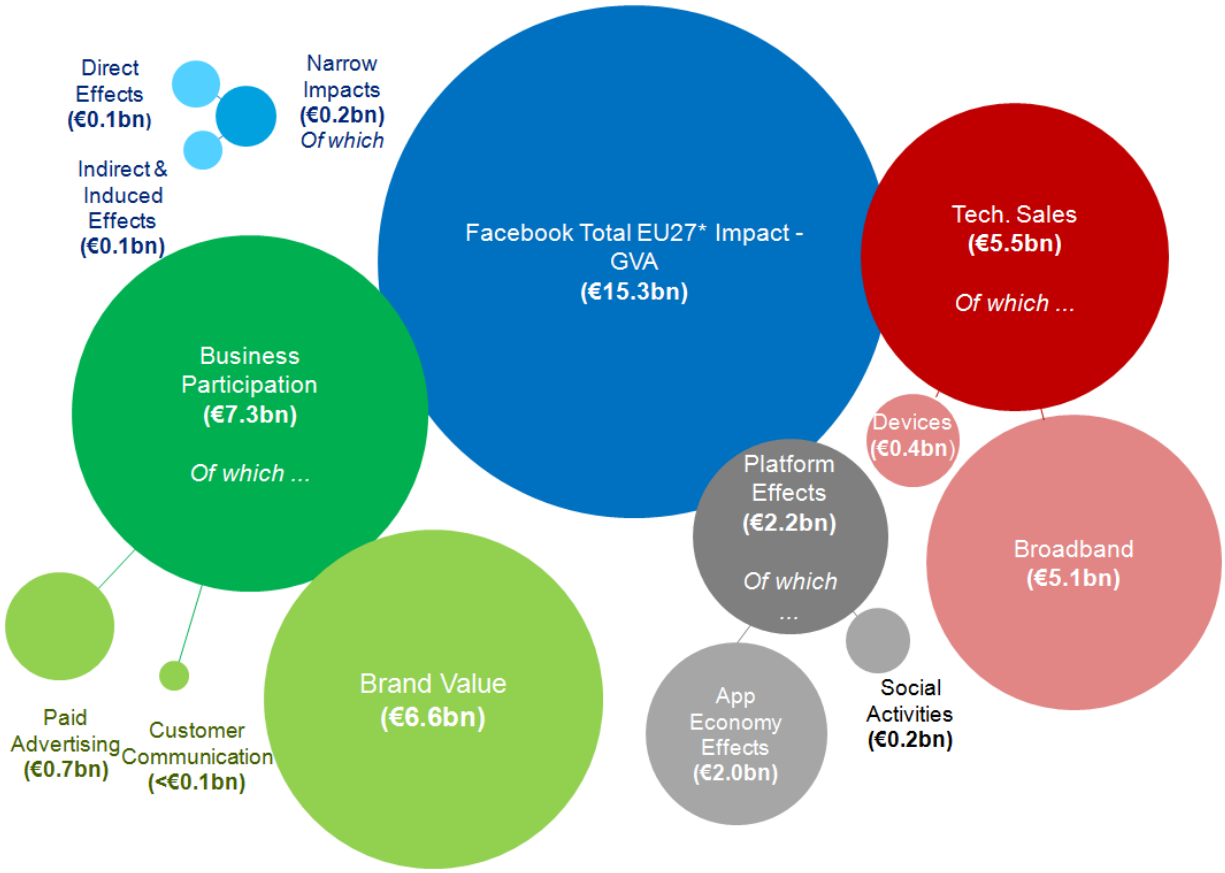
[1] Economic impact (including narrow and broad effects) refers to the total contribution Facebook makes to the economic output of Europe measured in terms of Gross Value-Added (value added) and jobs created. Value added itself represents the value added by an activity at each stage of production and is analogous to GDP contribution.



All economic impact and employment results in this study are *additional*. They represent value created in respect of Facebook users and associated value in the supply chain. Additionality measures the extent to which economic activity can be attributed to Facebook (measured as jobs and additional income) rather than representing displacement/cannibalisation of existing economic activity (for example, through simply transferring where income is spent or redistributing employment between sectors). Additionality is a way of attributing reasonable value to Facebook, but it does not necessarily mean causality.

Facebook's European economic impact

The central estimate of the gross revenue enabled by Facebook in its ecosystem in the EU27* across both *broad* and *narrow* effects is €32 billion in 2011. This revenue is then converted into an economic impact of €15.3 billion as well supporting 232,000 jobs. The sources of this impact are summarised below.



Source: Deloitte estimates

Facebook's *narrow* effects create an estimated €214 million of economic impact and support circa 3,200 jobs. This impact is, however, dwarfed by the contribution of the *broad* economic impacts the platform allows others to make to the economy of Europe. These *broad* effects equate to €15.1 billion of economic impact and allow Facebook to support around 229,000 jobs.

Of these *broad* effects, the impact on business participation where Facebook enables other businesses to advertise, promote their brand, raise awareness and therefore generate new sales is by far the largest and is responsible for nearly half of the company's overall economic impact. Much of this effect is associated with the brand value created for organisations through the social links prevalent on Facebook and the new ways of engendering interest and loyalty that Facebook provides. In particular, small businesses benefit from such a developed Customer Relationship Management platform that is free at the point of use.

Platform effects, notably the *app economy* servicing the Facebook platform and *social activities*, represent 19 per cent of the economic impact of Facebook. The majority of these platform effects (€2 billion) come through activity in the *app economy*, with European firms such as Wooga and King having a major presence. *Social activities* include the positive economic effects of additional and larger events organised through Facebook.

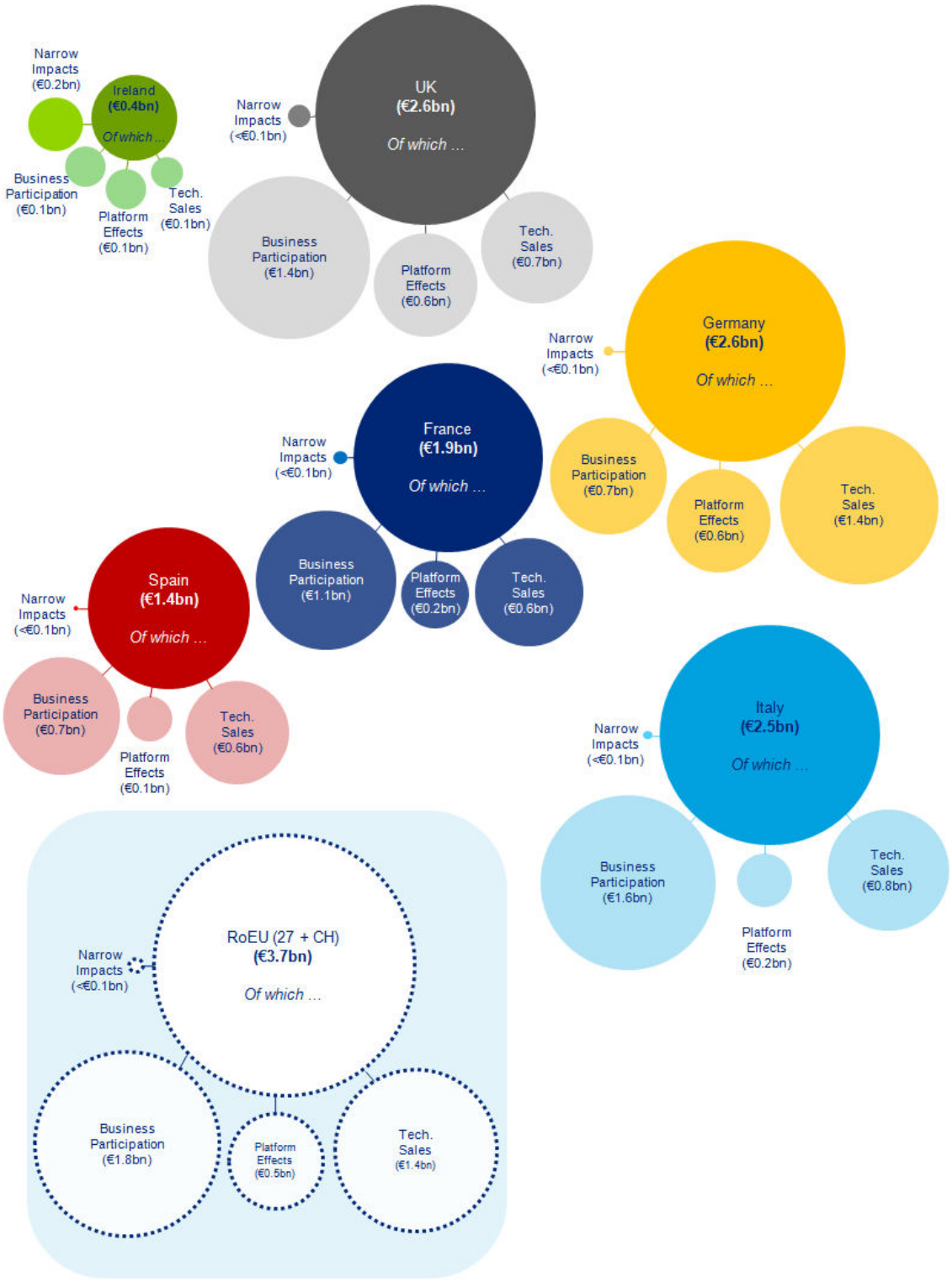
Finally, additional sales of devices and network capacity to facilitate the use of Facebook amongst European users are estimated to represent 36 per cent of total Facebook economic impact. The majority of this is from induced usage of connectivity.

Employment effects are largely reflective of the relative scale of economic impacts. Estimates suggest that over 111,000 jobs are associated with increased business participation; 32,900 jobs associated with platform effects; and 85,300 associated with induced technology sales.

Economic impact at the country level

Over three-quarters of the *narrow* economic contribution of Facebook comes from Ireland as the company has a significant operations centre located there, with the UK accounting for a further 15 per cent of the *narrow* impact due to the location of circa 100 employees there.

However, when both *narrow* and *broad* effects are considered, the economic impacts of Facebook are concentrated in the larger European economies / population centres, with the UK, Spain, France, Italy and Germany accounting for 73 per cent of the total economic impact of Facebook across the EU27*.



Source: Deloitte analysis

1. Introduction

This chapter sets out the context for this study and provides an overview of the numerous ways in which Facebook generates economic value.

1.1 Context

Facebook enables users to communicate and stay in touch with friends, post messages, exchange views and experiences, organise events, interact with products and brands or enjoy games and other entertainment through applications (*apps*) available on the site.

Facebook has about 800 million users globally, a proportion of those in the EU27*. Globally 50 per cent of users log on in any given day[2]. Users are able to access Facebook from their personal computers and, increasingly, mobile devices.

Figure 1.1.a: The Facebook ecosystem

Facebook's ecosystem, powered by users and businesses enables:

- Companies to advertise their products on Facebook and showcase their brands to large numbers of users or user groups, whether through paid advertising or free pages.
- Developers to offer their *apps* to users and generate revenue from those. To access these services users need devices and broadband connections, and in this way Facebook further supports sales and adoption of technology.

[2] Facebook, www.facebook.com/press/info.php?statistics

- Policymakers and other societal organisations to interact with larger numbers of people through the Facebook platform to seek views on a variety of issues and raise awareness and funds for particular causes. Users themselves can also use the platform to organise their social lives, reconnect with lost friends and make announcements to a large number of users.

1.2 Study framework

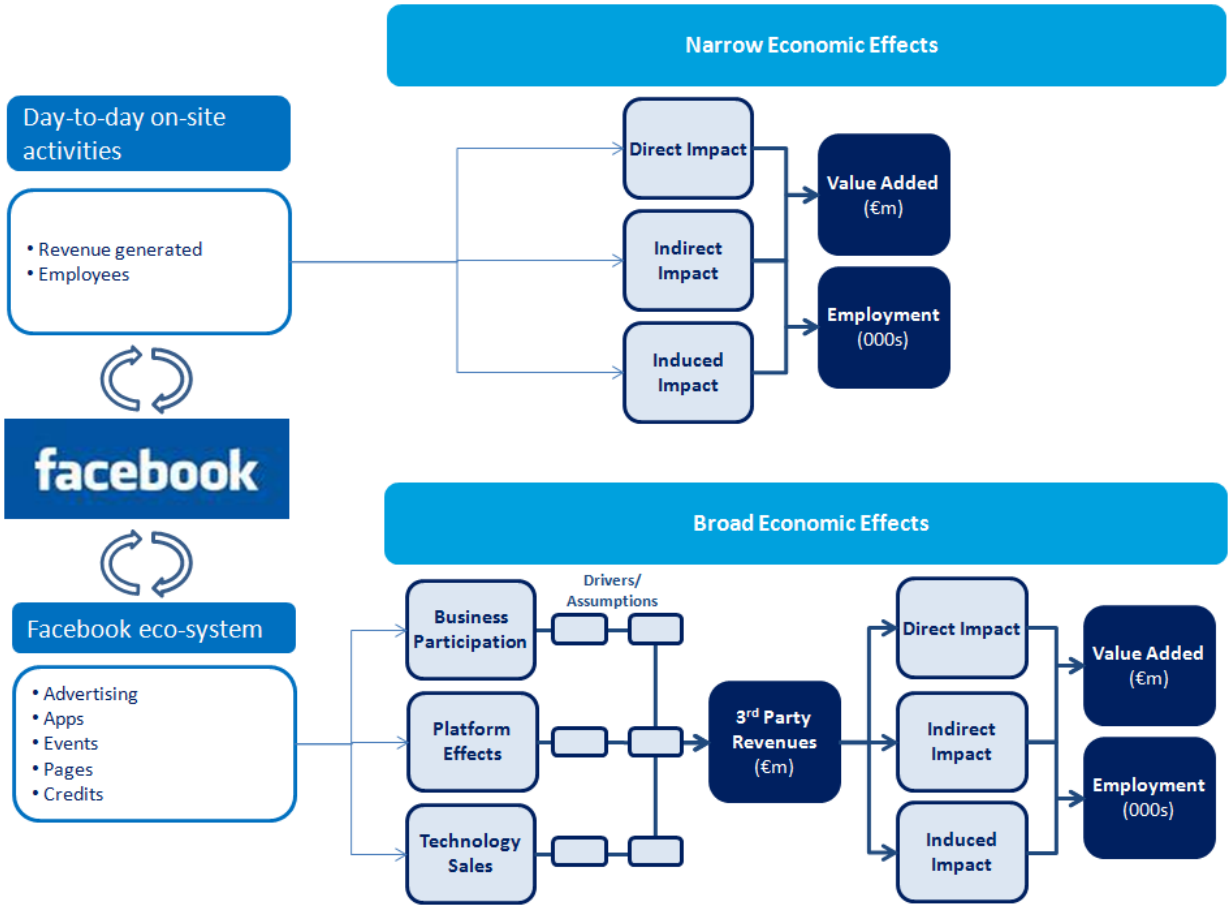
Facebook has commissioned Deloitte to assess its economic contribution in Europe. This study assesses economic value across the EU27* with a focus on United Kingdom, Germany, France, Italy, Spain and Ireland. The value Facebook contributes is assessed for the year 2011. This study, and its associated analyses, were completed between November 2011 and January 2012 and uses data provided by Facebook and from other published secondary data sources.

Economic impact is defined as the total contribution Facebook makes to the economic output of Europe measured in terms of gross value added [3] and jobs created. Throughout the remainder of this report gross value added is referred to as economic impact or value added. Facebook's economic impact can be disaggregated into two categories of effect: *narrow* effects, caused by Facebook's day-to-day activities within Europe; and *broad* effects, accruing to third parties as a result of the Facebook ecoystem. Gross enabled revenue and value added figures are presented, with the former showing the calculated impact prior to additionality adjustments. Only baseline scenarios are depicted.

All value added and employment results in this study are presented as additional, i.e. the extent to which Facebook contributes to economic activity (measured as new jobs and additional income) rather than displacing/cannibalising existing economic activity (through simply transferring where income is spent or redistributing employment between sectors). An example of additionality in this case might be Facebook opening up new opportunities for businesses to engage with customers and participate in markets, which in turn helps drive competition and innovation which subsequently drives economic growth. The economic impact results represent value created in respect of Facebook users and associated value in the supply chain and not necessarily in the wider economy. Additionality is a way of attributing reasonable value to Facebook but it does not necessarily mean causality.

[3] Value added is a measure of economic output analogous to Gross Domestic Product (GDP) – the rationale for using this measure is discussed below.

Figure 1.2.a: Facebook's economic impact



Narrow and *broad* effects are combined to give Facebook's total contribution to economic activity in the EU27*.

Narrow effects

The *narrow* economic effects of Facebook are those traditionally calculated in economic impact assessments. However, such approaches are limited when considering a dynamic platform such as Facebook which enables broader economic activity across the economy.

Narrow effects cover value added and employment. Value added differs from general spending in the economy by only including the relevant value added at each stage of production. As an example, Facebook generates direct value added through the remuneration of its employees in wages and other payments, the operating surplus (profit) it makes, and the taxes it pays. The difference between this estimate for value added and gross output (or revenues) are the intermediate purchases made by Facebook. These are not included in direct value added because they represent the value added by other areas of production in the economy. However, these effects can be included in the overall impact of Facebook, because at other stages of production, the wages paid (and spent), taxes paid (and spent) and profits made (and spent) all have a positive effect on the economy. *Narrow* economic effects can be disaggregated into three constituent components that consider how Facebook impacts on businesses and individuals:

- **The direct effect of Facebook:** those initial and immediate economic activities generated by the company itself as part of its day-to-day on-site activities (often referred to as first-round impacts as they coincide with the first round of spending in the economy).
- **The indirect effect of Facebook:** changes in employment, productivity and income in associated industries that supply inputs to Facebook.
- **The induced effect of Facebook:** spending by households in the overall economy as a result of direct and indirect effects from the generated economic activity of Facebook and associated industries.

The methodology for estimating the size of these effects is described in Chapter 2.

Broad effects

In addition to the *narrow* economic effects of Facebook, this report focuses on three further routes through which Facebook enabled economic activity in EU27* in 2011. These teffects are categorised as being *broad* effects in that they are enabled by Facebook, but are outside the *narrow* effects measured by EIAs for more traditional networks.

- **Business participation:** these are the benefits that accrue to businesses[4] that use Facebook as an advertising medium. Through participating in Facebook, businesses are able to promote their brand, raise awareness and generate new sales.
- **Platform effects:** these are the wider economic benefits that accrue from individuals and communities using Facebook as a communication platform. These effects can include value added arising from the development of *apps*, increased connectivity and time saved through using Facebook.
- **Technology Sales:** these are the benefits that accrue to businesses involved in the supply of ICT infrastructure used to access Facebook. As the number of Facebook users increases, this may induce demand for devices that are used to access it, leading to an uplift in sales revenues for producers and retailers, as well as suppliers of internet infrastructure (such as broadband providers).

The approach employed to estimate these effects is described in Chapters 3 – 5.

The analysis conducted is based on the information available. Where appropriate, assumptions have been made to illustrate the scale of Facebook's economic impact. The analysis is, to an extent, static and may not fully capture dynamic impacts that stem from Facebook. Further, a lack of available data means that it was not possible to reach a quantitative estimate for all the identified impacts. In these cases a qualitative discussion is provided.

1.3 This study

This study is structured as follows:

- **Chapter 2** sets out the approach used to calculate the *narrow* impacts of Facebook and the associated results.
- **Chapters 3-5** detail the approach used to calculate the *broad* effects of the economic activity of others created by the operations of Facebook and the associated results.
- **Chapter 6** summarises the overall economic impact of Facebook across the EU27*.

Further details are provided in appendices to this study.

[4] For the purposes of this study, 'businesses' are defined as both registered businesses and certain individuals such as celebrities who sell own-branded products and services.

2. Narrow impacts

Facebook has economic impact in Europe through its physical presence, its purchases of intermediate inputs from suppliers and induced consumer spending from staff remuneration. This *narrow* economic impact in the EU27* amounts to €214 million and directly supports circa 3,200 jobs.

2.1 Introduction

Facebook's initial economic impact on the European economy is through *narrow* economic impacts. These direct, indirect and induced economic effects are created by Facebook's physical presence and operations in Europe; purchases of intermediate inputs from suppliers; and induced consumer expenditure stemming from staff remuneration.

Facebook's direct economic impact in the EU27* amounts to €124 million in value added and the organisation directly supports over 600 jobs. Facebook's economic footprint in Europe increases when including supply-chain effects (business-to-business purchases) and consumer spending effects. These are estimated to account for a further €90 million of value added and support over 2,500 jobs across the EU.

Taken together these *narrow* effects account for €214 million of value added and support circa 3,200 jobs across the EU27*.

2.2 Measuring *narrow* impact

Direct effects

Direct effects refer to the economic effects associated directly with day-to-day on-site activities, in this case those performed by regular and contingent staff of Facebook and contractors supporting Facebook's activities in Europe.

The direct effects of Facebook in the EU27* are estimated using the levels of employment estimates[5] in each Member State provided by Facebook, which are multiplied by a 'computer and related services' industry average per worker productivity in each EU27* country (which varies between €89,000 and €258,000 per annum) to estimate total direct value added[6].

Having estimated total direct value added, it is necessary to convert this into shadow gross output. This conversion occurs by dividing the estimated total direct value added by the value added ratio[7] for the 'computer and related services' industry in each country. This accounts for intermediate inputs to production from that country that do not count towards value added[8]. The shadow gross output feeds into the Input-Output model,

[5] Estimates of employment are used rather than Facebook revenue in each EU27* Member State to drive the calculation of value added, as revenues could lead to spurious estimates of the direct economic impact. This is because Facebook has no direct activity in 17 of the 28 countries analyzed, and revenues generated in those countries do not (in economic terms) represent a contribution to those countries' value added.

[6] The 2009 estimate of value added and employment by sector came from Eurostat (www.eurostat.com). These are the latest available estimates, but given relatively slow productivity growth over the last two years are still likely to represent a valid estimate of 2011 productivity. Member State or 'country' modelling takes place over seven geographies: the UK, Spain, France, Germany, Italy, Ireland and Rest of EU (RoEU).

[7] The ratio of value added to total output.

[8] As an example, if value added in "computer and related services" is 33 per cent of Gross Output in "computer and related services", the *shadow* Gross Output associated with the value added will be three times the estimated direct value added in that country.

which trace the interdependencies between individual sectors and the effects this has on the wider economy to ascertain the multiplier for the indirect and induced effects of Facebook. Input-Output models which trace the interdependencies between individual sectors and the wider economy are then used to estimate these impacts.

In this case, the analysis considers how direct Facebook activity in the 'computer and related services' sector generates wider economic activity (measured in terms of jobs and value added). This is done through the use of *multipliers* which determine how direct effects can have indirect and induced effects[9,10].

A downward adjustment of 10 per cent[11] has been made to the multipliers based on the understanding of Facebook's extra-EU purchasing patterns to ensure that multiplier effects are not overstated. For reasons of confidentiality the make-up of Facebook's intra and extra EU purchasing is not disclosed.

Value added ratios for each industry (as detailed above for the "computer and related services" industry) are used to translate gross output into value added for each country, within the model. For example, if gross indirect and induced output is €1m, and, on average, 45 per cent of that represents value added, the indirect and induced value added impact is €450,000.

Finally, industry value added is translated into employment by way of average per worker productivity across the economy in question. This varies between €33,000 to €75,000 per worker per annum across the EU27* States.

2.3 *Narrow* impact results

Aggregating direct, indirect and induced effects gives the total narrow economic impact of Facebook in the EU27*. This amounts to €214 million across the EU27*of which €210 million is across the EU6 and the majority, €166 million, occurs in Ireland, although there is also a significant contribution of €32 million in the UK.

[9] Type II expenditure multipliers, which include both business purchasing (indirect) effects and consumer spending (induced) effects are used for the countries in question (UK, Spain, France, Germany, Italy, and Ireland). These are based upon published data from each EU country and have been sourced from Eurostat.

[10] The full Input-Output model methodology is involved, but broadly speaking, for each country the Domestic Use Matrix (differentiating between domestic purchases and imports) is used to give a matrix of coefficients, detailing the proportion of inputs sourced by an industry from all other industries and labour. The matrix of coefficients is then subtracted from the identity matrix before being inverted to give the *Leontief Inverse*. This matrix then details Type II multipliers for each country, such that a multiplier of, for example, 1.8 in 'computer and related services' means that for a direct impact of €1 million in Gross Output (revenue) terms, a further €0.8 million would be generated by business-to-business purchases in the supply chain and induced consumer spending for a total expenditure (or Gross Output) impact of €1.8 million.

[11] Based on information from Facebook.

Figure 2.3.a: *Narrow* economic impact, 2011

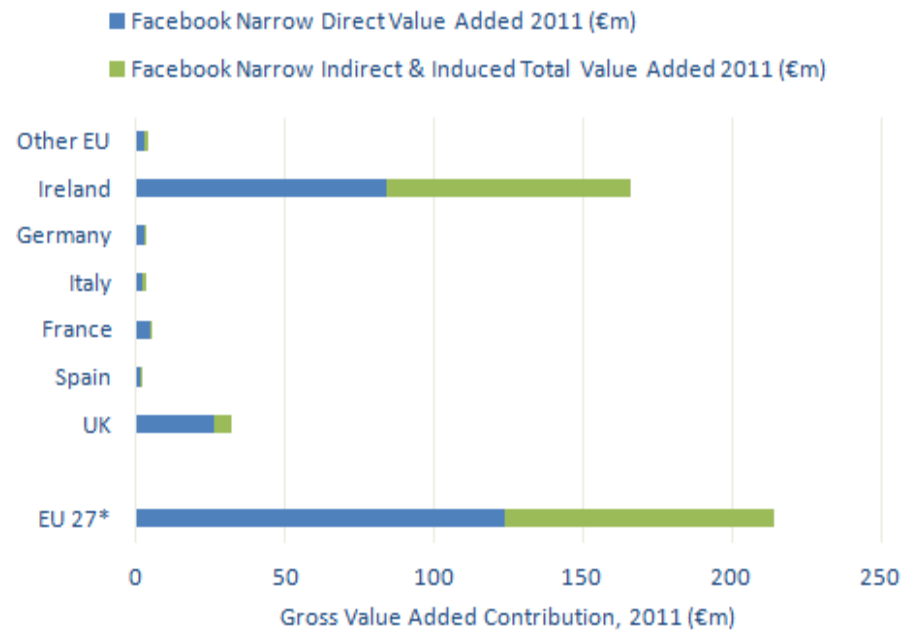
Country	Direct employment 2011 (000s)	Direct value added 2011 (€m)	Indirect & induced employment 2011 (000s)	Indirect & induced value added 2011 (€m)	Total *narrow* employment 2011 (000s)	Total *narrow* value added 2011 (€m)
EU 27*	**0.62**	**123.8**	**2.5**	**90.4**	**3.2**	**214.2**
EU 6	**0.59**	**120.9**	**2.4**	**89.5**	**3.0**	**210.4**
UK	0.10	26.3	0.5	5.6	0.6	32.0
Spain	0.01	1.4	<0.1	0.3	<0.1	1.7
France	0.03	4.5	<0.1	0.3	0.1	4.8
Italy	0.01	2.0	<0.1	1.5	0.1	3.5
Germany	0.02	2.8	<0.1	0.0	0.1	2.8
Ireland	0.42	83.9	1.8	81.8	2.2	165.7
Other EU	0.03	2.9	0.1	0.9	0.1	3.8

Source: Deloitte analysis. Totals may not sum due to rounding.

Facebook's business-to-business purchasing through the supply-chain and the induced consumer spending through remuneration lead to a further economic impact of circa €90 million, supporting a further 2,500 jobs[12]. As may be expected this induced impact occurs in those countries in the EU27* where Facebook has a physical presence. The EU6 (UK, Spain, France, Germany, Italy and Ireland) account for almost all of this activity, although the majority of the impact is felt in Ireland (€84 million) due to the location of Facebook's site operational centre.

[12] Indirect and induced employment effects are some four times greater than the direct employment effects due to relative levels of per worker productivity in Facebook's Narrow activities relative to the wider economy in each EU27* country. In effect, a given level of value added supports a greater level of employment in other industries because they tend to be less productive on average.

Figure 2.3.b: Total *narrow* economic impacts, 2011



Source: Deloitte analysis.

In employment terms the total *narrow* impact is circa 3,200 jobs, with 2,800 of this employment in Ireland and the UK.

As the remainder of this report shows, the *narrow* effects which traditionally determine organisation's economic impact, represent only a very small proportion of Facebook's economic contribution in the EU27*.

3. Business Participation

Through the creation of pages and advertising, Facebook allows firms to promote their brand, raise awareness and generate new sales. This enabling of business participation is estimated to support €7.3 billion of economic impact and 111,000 jobs across the EU27*.

3.1 Introduction

Companies are able to advertise their products on Facebook and showcase their brands to a large numbers of users or user groups, whether through paid advertising or free pages. Businesses can use Facebook in a number of ways, including:

- Advertising: using Facebook to reach potential customers through targeted ads.
- Creating Pages: using Facebook to host a space to interact with customers (*fans*).
- Featuring stories: using Facebook to amplify brand.
- As a platform: using Facebook to invite customers to events, download and use *apps* and do business using Facebook credits.

The business participation effects considered in this chapter focus on advertising and pages with the latter two routes discussed in Chapter 4. Estimates of the economic impact arising from paid advertising, free pages and traffic referrals on Facebook amount to €7.3 billion, supporting c.111,000 jobs, in the EU27*.

Businesses can raise awareness of their brand and activities through creating a dedicated Facebook page. A Facebook page allows businesses to have a dialogue with existing and potential consumers and can provide links to businesses' own websites. By increasing traffic to businesses' own websites, Facebook page referrals can assist businesses to make additional sales. A key benefit of Facebook is that it allows businesses to target advertising to a particular group of users.

Businesses can promote their brands through the use of Facebook. By *liking* a particular brand or business, users of Facebook associate themselves with a particular company, brand or position (by becoming a *fan*). This in turn furnishes businesses with a set of connections to interested Facebook users with whom they can communicate through sending status updates, dedicated advertising campaigns and promotions and, most importantly, capitalise on *fans'* own networks of friends.

Through the creation of pages, encouraging users to post *likes* for products that they are *fans* of, and advertising on Facebook, businesses are able to promote their brand, raise awareness and generate new sales and brand value.

3.2 Measuring the impact of increased business participation

Paid advertising

In order to estimate the impact of paid advertising, the gross revenue that advertisers derive from their Facebook advertising spend is first estimated.

Gross revenue is estimated based on publicly available third party information (Facebook page views, ads per page and click through rates, average ad prices and the number of Facebook users per country) [13] combined with an estimate of advertisers' return on advertising investment (ROI). The estimate of advertising ROI is itself

[13] *Monthly Audience Summary*, UKOM/Nielsen, October 2011

based on the amount bid by advertisers for advertising space on Facebook adjusted to better reflect industry experience[14].

The estimates of gross revenue enabled by paid advertising also include estimates of the revenue generated by advertising agencies from spend with Facebook, who typically take a commission on the advertiser's advertising spend.

Some of the value generated by advertising on Facebook can be expected to be additional or incremental. To estimate additionality in advertising, Zentner's 26 country panel-data displacement estimates for different offline media types resulting from internet penetration are used[15].

Based on information on advertising spend by media type, the resulting total displacement of offline media is calculated. This is expressed as a fraction of the online advertising market in each EU country for which data is available; providing an average additionality figure for online advertising of 35 per cent.

Having calculated the increase to advertisers' gross revenues from paid advertising on Facebook, indirect and induced effects were calculated using Input-Output models in the same manner as described for the *narrow* impacts.

[14] The prices bid by advertisers (*bid prices*) are not the same as the actual prices paid. In general, *bid prices* should roughly reflect the value of an ad to advertiser in terms of additional gross revenue they are expected to generate. However *bid prices* may understate the true value of the ad, as the advertiser may not bid up to the ad's full revenue potential. In a study for Google, Hal Varian (*Online Ad Auctions*, American Economic Review, Varian, Hal R., 2009., 99(2): 430–34) noted that the *bid price* of an online advertiser provides a lower bound on the value of a click and that using these values would understate advertiser value. An advertiser's willingness to pay may reflect the profit impact that advertising would have rather than the full revenue impact. Accordingly bid values are adjusted and a return on advertising investment estimate per € invested is used consistent with industry experience.

[15] *The Effect of the Internet on advertising Expenditures. An Empirical Analysis Using a Panel of Countries*, Working Paper Alejandro Zentner, University of Texas, 2010.

Facebook Impact on Advertising

Facebook has given rise to new advertising agencies specialising in the use of social media. The advantages of the Facebook platform for such agencies exist in the management of client budgets and conversion rates. One such firm is London-based TBG Digital, which has offices in London, Paris, New York, Chicago and San Francisco. TBG Digital works for large clients such as Vodafone, Dell, Heineken or HSBG, as well as smaller clients such as a university offering online graduate programmes, a UK maternity retailer and a provider of laser eye surgery. TBG Digital London reports it employs 51 staff in London with account managers being paid a typical £34,000 a year.

Importantly, Facebook is also nurturing the creation and growth of small businesses. One example is Grape Vine Social Media. Started by Beverly Ames-Rooks, based from home in a small village in England, Grape Vine Social Media manages the Facebook presence of businesses varying from her local shops and pubs to overseas holiday resorts. This extends from managing pages to uploading photos, fan management, event management and promotion. It enables in particular her small business clients to connect with customers to an extent that previously only large firms could do.

Sources: TBG Digital, http://www.tbgdigital.com; Grape Vine Social Media http://www.grapevinesmb.co.uk

Customer communication (pages)

As well as paying for advertisements, businesses can raise awareness of their brand and activities through creating a dedicated Facebook page. A Facebook page can also allow businesses to have a dialogue with existing and potential consumers and provide links to businesses' own websites.

Pages can create an economic impact through two specific routes: referrals to other websites and changes in brand value.

Referrals

By increasing traffic to businesses' own websites, Facebook page referrals have the potential to raise sales for business. The increase in sales will depend on the *conversion rate,* i.e. the number of users who go on to purchase a product or service as a result of the referral.

The approach to valuing links to third party websites varies by type of website[16]:

- Video websites, e.g. YouTube, were valued using an industry estimate of the advertising revenue per thousand impressions that companies receive.
- Social media, blogs and other media were valued using a slightly higher cost per thousand impressions than video websites.

[16] Referrals to websites which individually received a tiny number of referrals from Facebook relative to more popular ones could not be categorised into one of the types of website. Those referrals are attributed the lowest possible value of all three types of website.

- Shopping website *clicks* were valued by assuming that the value of a *click* was the same as that for a paid advert, i.e. the probability that visitors convert from their *click* is similar.

Having obtained a value per *click* for each type of page, these were multiplied by the total number of clicks from business pages and user pages.

Brand value

Whilst brand value represents a less tangible aspect of Facebook's contribution to companies and there is debate as to the scale of brand value created in Facebook's ecosystem, it is clearly critical to the role played by Facebook. Facebook's *fans* feature allows users to clearly associate themselves with and publically signal their *liking* of a company, band, public figure etc. Different studies have sought to estimate the value of a *fan* and produced a variety of estimates. This study takes an estimate of €4.69 for the brand value created per *fan* (which is the average of three studies by Chompon, Vitrue and Social Code)[17]. Whilst the entire value of a *fan* may not be realised in a single year, at least one of the studies referenced indicates that the *fan* value measured is a short-term value[18]. Other studies have suggested alternative *fan* values[19] and this issue remains one of ongoing research. The brand value per *fan* was multiplied by the total number of *fans* (4.2 billion) to derive an approximation of gross revenue impact and then adjusted for additionality at 35%, i.e. the additionality of paid advertising.

Based on discussions with Facebook and companies using Facebook, the incremental impact of Facebook on brand values was varied to reflect the scale of business, with higher incremental value derived by smaller businesses with less known brand or ability to invest in marketing.

[17] Based on the following sources, a central estímate of $6.50 was taken (converted to € at an exchange rate of $1 to €0.7217 (31 October 2011)). Source: *Social Code 2011,* http://adage.com/article/digital/study-facebook-fan-worth-10-average-brands/231128/; *Vitrue 2010*, http://mashable.com/2010/04/14/facebook-fan-valuation/; and Chompon 2011, *What is the value of a social action in online commerce?* http://www.chompon.com/chompon_social_action_value.pdf

[18] *Ibid*.

[19] A source (*The value of a Facebook fan: an empirical review,* Syncapse, www.brandchannel.com/images/papers/504_061810_wp_syncapse_facebook.pdf, 2010) suggested an average Fan value of €98.4, measured as the differential value of 'Fans' and 'non-Fans' in terms of product spending, brand loyalty, propensity to recommend, earned media value and cost offset for fan acquisition for a selection of twenty brands.

Facebook Impact on Brand Value

Companies are using Facebook as a way to market their brand.

Renault used Facebook at the Netherlands' largest automotive exhibition, Auto RAI to make the viewing of its cars a social experience for all the visitors, plus all their absent friends too. It used the latest technology to make it easy as possible.

At its exhibition stalls, Renault installed pillars equipped with an RFID scanner, like those used on public transport networks or door locks. The visitors' exhibition cards had a chip in it and this was linked to the visitor's Facebook account. By tapping their card on the pillars, visitors could *like* the car they were viewing on their Facebook profile and share it with their friends back home on Facebook, allowing them to comment and interact. Pillars were also equipped with cameras posted photos of users to their Facebook walls.

Renault has 160,000 *likes* in its worldwide Facebook page with a disproportionate 26,000 of these *likes* occurring in the Netherlands.

Source: Event Manager Blog http://www.eventmanagerblog.com/facebook/renault-rai

3.3 Business participation results

Business participation enabled by Facebook through paid advertising activity, referrals from pages and on activities that build brand value amounts to €22.3 billion in enabled revenues, or 66 per cent of Facebook's total gross revenue enabled in the EU27*.

Figure 3.3.a: Gross enabled revenue from business participation, 2011

Country	Gross enabled revenue, €m (2011)
EU27*	**22,295.2**
EU6	**16,148.7**
UK	4,378.6
Spain	1,947.1
France	3,035.6
Italy	4,558.1
Germany	2,005.6
Ireland	223.7
OtherEU	6,146.5

Source: Deloitte estimates

Converting this revenue to economic impact, measured by value added, suggests an impact of €7.3 billion through business participation. This activity is estimated to support circa 110,000 jobs. This impact is distributed broadly in line with the size of the national economy considered, although the relative number, and therefore the contribution, of *fans* was higher in some countries such as the UK and Italy.

Figure 3.3.b: Economic impact from business participation, 2011 (€m)

Country	Paid advertising	Customer communication - referrals	Customer communication - brand Value	Total
EU27*	**694.1**	**48.7**	**6,604.0**	**7,346.8**
EU6	**531.8**	**33.1**	**5,026.9**	**5,591.9**
UK	160.8	9.9	1,206.7	1,377.5
Spain	60.1	1.8	659.5	721.4
France	95.8	6.1	972.0	1,073.9
Italy	99.0	3.9	1,549.8	1,652.7
Germany	103.5	10.7	574.5	688.7
Ireland	12.7	0.7	64.3	77.7
Other EU	162.3	15.6	1,577.1	1,755.0

Source: Deloitte analysis. Totals may not sum due to rounding.

Figure 3.3.c: Employment from business participation, 2011 (000s)

Country	Paid advertising	Customer communication - referrals	Customer communication - brand Value	Total
EU27*	**10.5**	**0.8**	**99.7**	**110.9**
EU6	**6.9**	**0.4**	**65.2**	**72.6**
UK	2.1	0.1	16.1	18.4
Spain	0.9	<0.1	9.4	10.3
France	1.1	0.1	11.0	12.1
Italy	1.3	0.1	20.2	21.5
Germany	1.4	0.1	7.9	9.5
Ireland	0.1	<0.1	0.6	0.8
Other EU	3.5	0.3	34.5	38.4

Source: Deloitte analysis. Totals may not sum due to rounding.

Paid advertising on Facebook supports a significant number of jobs and is estimated to create value added of circa €694million. More than two thirds of this total value added occurs within the EU6. The benefits are particularly high for the UK with €160.8m value added.

As ostensibly a free source of advertising for firms, Customer communication (pages) creates €48.7 million of value added throughout the EU27*. Roughly three-quarters (€33.1 million), and approximately 400 of the 800 jobs, created by Customer communication (pages) are within the EU 6. In particular, the €10.7 million value added is created in Germany, which in part compensates for legal restrictions on the *like* feature.

4. Platform impacts

Facebook provides a platform on which applications can run and facilitates easier socialisation between users. Such platform impacts are estimated to support economic impact of c. €2.2 billion and 32,900 jobs in the EU27*.

4.1 Introduction

The preceding chapters have focussed on the benefits of Facebook to individual users and businesses. However, Facebook also creates platform effects. Platform here refers to software architecture (in this case Facebook) that allows other software and applications to run on it. These benefits can occur in the form of greater traffic being redirected to particular sites, innovation in the form of new apps being developed or ideas being *crowdsourced*, making it easier to organise larger social and business events more frequently, giving users and businesses access to a larger pool of potential job opportunities or employees, plus greater engagement in the community through better connectivity and fundraising tools.

Not all of these benefits can be readily quantified. However, on their own, additional consumer expenditure by Facebook organised *events* and the Facebook *app* economy are estimated to create approximately €2.2 billion of economic impact and support 32,900 jobs in the EU27*.

Facebook generates value by giving software developers a platform to develop *apps* for users, generating revenue and stimulating innovation. A secondary, but still significant impact is Facebook generating value add by making it easier for users to organise events and invite larger numbers of attendees, which in turn can lead to greater expenditure than would have been the case otherwise. Both effects will also induce employment in directly and indirectly related industries. These economic benefits are in addition to those occurring due to Facebook referrals as discussed in the preceding chapter.

In addition to these quantified benefits, Facebook can also generate benefits from facilitating and promoting social activities. These are benefits that arise from using Facebook to help organise business, social and community activities. For example, a Facebook group titled "Earthquake Haiti" achieved over 14,000 members who were able to share updates and news, support one another and raise funds[20].

Businesses can also collaborate with users on Facebook and other social networks to *crowdsource* ideas and test new products. The British fashion company Burberry's "Art of Trench" campaign invited users to photograph themselves and link their sites through Facebook to facilitate further collaborations[21]. Facebook also allows users to post single questions to seek rapid feedback on specific issues; news networks often post single questions to seek viewers' thoughts and opinions on specific news stories or coverage.

Through using Facebook, users can also potentially save time in organising events compared to traditional mechanisms such as telephones or email. Whilst these and other *social activities* effects have not been quantified, they should be considered in any discussion of the economic impact of Facebook in the EU27*.

[20] *Impact of Social Media on Society*, http://ezinearticles.com/?Impact-of-Social-Media-on-Society&id=5378885. The New England Journal of Medicine also recently carried research suggesting that social media, such as Facebook, could help emergencies be handled in a 'quicker, more co-ordinated, effective way' (quoted in *Facebook and Twitter help speed up response to national disasters and emergencies*, source: www.impactlab.net/2011/07/28/facebook-and-twitter-help-speed-up-response-to-national-disasters-and-emergencies/).

[21] www.guardian.co.uk/media/pda/2009/nov/09/burberry-art-of-the-trench?INTCMP=ILCNETTXT3487.

4.2 Measuring platform effects

Platform effects are defined as the wider benefits accruing from greater use of Facebook as a platform by society.

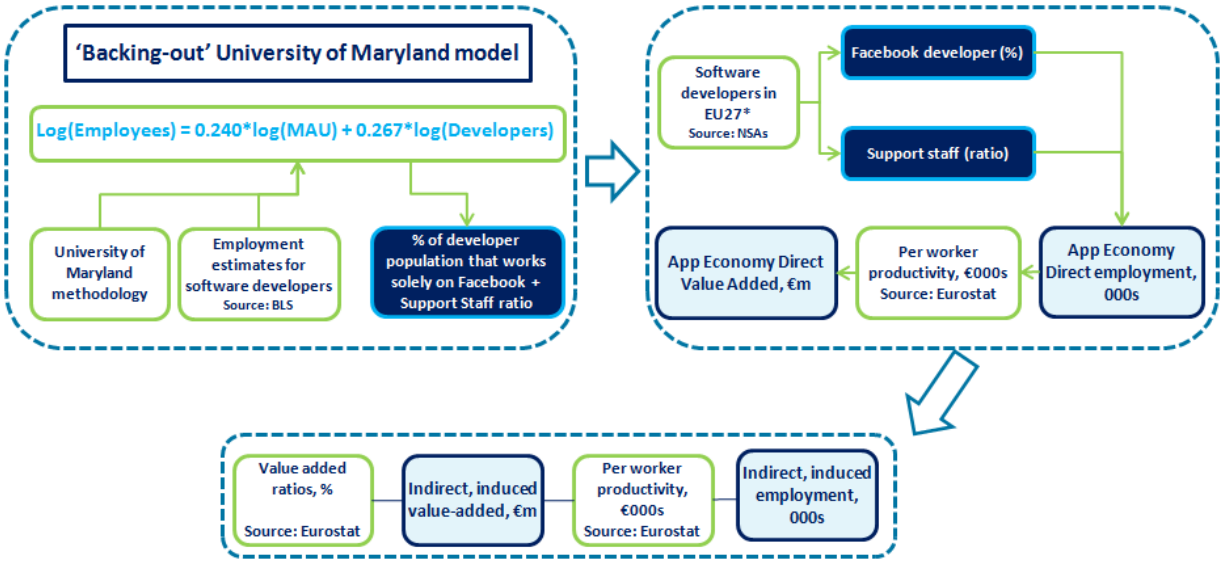
The two sources of platform based economic activity that can be measured are the *app economy,* i.e. software that runs on the platform, and the additional social activity enabled by the use of Facebook.

The remaining platform effects identified (time saved, fundraising, innovation and job search) are not empirically estimated due to data limitations and uncertainties. Instead, these economic impacts of Facebook are discussed qualitatively and, where appropriate, through case studies. The methodology for traffic related effects was previously discussed and is excluded from Platform estimates to prevent double counting.

The *app economy*

The Facebook platform allows developers to develop *apps* that users can download on Facebook. This *broad* effect seeks to quantify the impact of this industry. The methodology used adapts an existing methodology developed by the University of Maryland (UoM) to quantify the economic impact of Facebook apps in the USA[22].

Figure 4.2.a: Approach to measuring the app economy



Source: Deloitte illustration of of UoM methodology with adaptations

The regression analysis from the UoM study estimates coefficients for the relationship between the number of developers and MAU statistics with the number of employees working for those firms. By reversing (or backing out) the UoM equation and inserting with US employment estimates for all software developers alongside Facebook estimates of MAU, the percentage of the total software developer population that can be assigned to solely working on Facebook *apps* in the USA is estimated at 1.9 per cent. In addition, the number of other non-developer staff per developer is estimated at 2.2 per developer.

A downward adjustment (of 80 percent) is then made to the 1.9 per cent assumption in the EU27* as the majority of *apps* used in Europe are created outside the EU (predominantly in the USA or Asia)[23].

[22] *The Facebook App Economy*, www.rhsmith.umd.edu/digits/pdfs_docs/research/2011/AppEconomyImpact091911.pdf.

[23] Source: *Google usage data* and Deloitte analysis.

The subsequent adjusted ratio of about 0.4 per cent of the total developer population is then applied to national estimates of the total developer population from respective statistical agencies in Europe to estimate the number of developers of Facebook *apps* in Europe. Combining this with Facebook MAU estimates, European employment associated with Facebook *app* development is estimated. This is then converted into direct value added using per worker productivity estimates, then into direct gross revenue enabled (gross output) using value added ratios. This direct gross revenue enabled is then converted into economic impact in the same manner As described in the previous chapters.

Finally, it was assumed that Facebook *apps* are additional. As social media embedded *apps*, they are very differentiated in content, complexity and target audience to conventional video games (a market which has maintained strong growth).

App Developers Case Study

Many *app* developers have sprung up across Europe solely a result of the platform afforded by Facebook, and other, existing firms, have been able to expand as a result of the platform.

In Europe the largest EU-HQ'ed *app* developers by MAU include Wooga and King.com. These now each employ in excess of 100 people. Major global players such as Zynga also have a significant EU27* presence, and given the ease of building *apps* there is a very long long-tail of small-scale developers

Playfish is an example of economic success in Europe due to Facebook's platform offering. Based in London, Playfish was founded in 2007 predominantly using Facebook as a platform. After launching the successful "*Who Has the Biggest Brain?*" *app* in 2007, Playfish secured venture capital funding and was subsequently purchased by Electronic Arts during 2009. Also in 2009 Playfish were awarded a place in the Daily Telegraph's 100 Best UK Start-ups.

Playfish currently has a suite of games live on Facebook (and beyond), which are freely available on Facebook but which are played using credits paid for in-store and cashed online. In common with most *app* developers Playfish revenues are therefore based on the virtual goods sold in the games using these credits.

Approaching 70 per cent of Playfish users are on the Facebook platform and according to LinkedIn Playfish has grown to around 150 employees in the UK with other offices now open outside the EU (including in Norway).

Sources: Zynga, http://www.jigsaw.com/FreeTextSearch.xhtml?opCode=search&autoSuggested=true&freeText=zynga; BBC News, http://www.bbc.co.uk/news/technology-13739404; Wooga, http://www.wooga.com/2011/11/ich-bin-ein-berliner-monster/; King, http://www.king.com/what_is_king.jsp; Playfish, http://www.playfish.com/?page=company; Linked In, http://www.linkedin.com.

Social activities

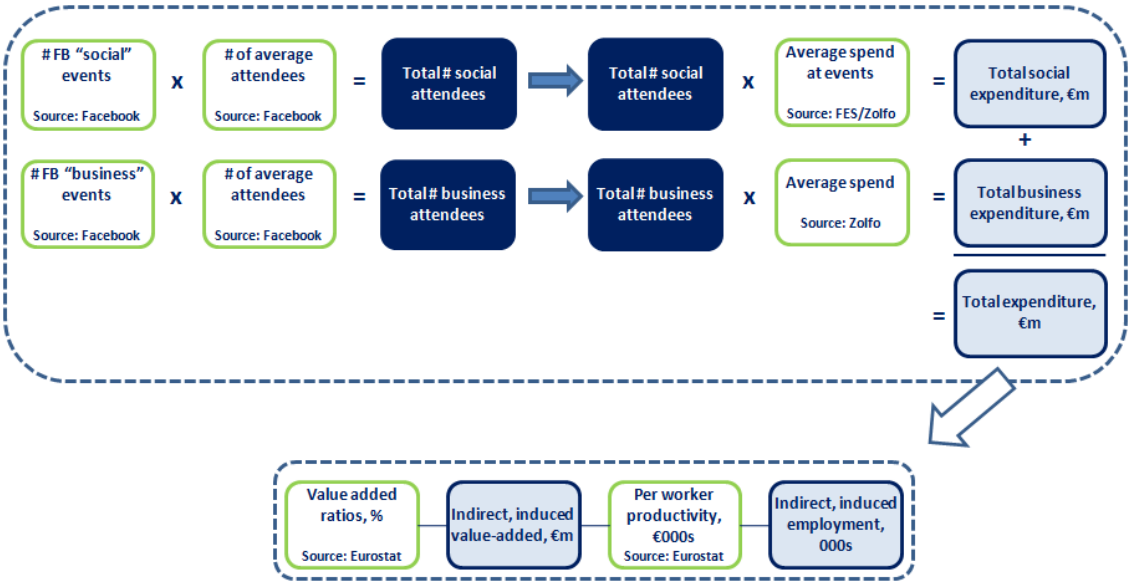
The term *social activities* refers to using Facebook to help organise an individual's social and business life and engage with wider society. There are many potential ways in which the Facebook platform can cause economic impacts:

- **Facebook *events*:** Facebook users (both individuals and businesses) can invite other users to *events*. These *events* can cover a range of activities (such as parties, outdoor excursions, lectures, rallies, club nights and so forth) and typically take place in the physical world, often leading to associated consumer expenditure.
- **Time saved:** by creating *events* or using Facebook as a communication tool, users may also be able to save time as compared to traditional ways of doing the same thing. This time saving may also have an economic value.
- **Fundraising:** through creating a page or creating an *app*, charities can use Facebook as a complementary mechanism to raise donations and raise awareness of causes, often targeted at a particular group of users.
- **Innovation:** businesses can use their Facebook to trial new ideas and products, as well as *crowdsource* ideas from users.

- **Job search:** individual users, companies and recruitment agencies can also use Facebook to connect with each other and use Facebook to find new jobs / employees.

Data issues limit the measurement of economic impact to Facebook *events*, the methodology for which is described below. The other impacts are described qualitatively in section 4.4 below:

Figure 4.2.b: Approach to measuring *events*



This approach uses data provided by Facebook on the number of *events*[24] generated in the EU27* over 10 months in 2011 and scales this up to cover the full calendar year. *Events* are then assigned as either social or business on the basis of their originating source i.e. individual users for social *events* and pages for business events.

The number of *events* is then multiplied by Facebook data on the average number of users saying they will or might attend an *event* to give the total number of *event* attendees[25]. This number is then further adjusted to take account of no-shows to give the total number of Facebook *event* attendees[26].

The total adjusted number of *event* attendees for both types of *events* is then multiplied by the estimated average spend at *events*[27]. This expenditure data is based on a combination of UK data on average expenditure on visits to pubs, restaurants and clubs and additional data from the weekly UK Family Expenditure Survey on leisure spending, UK expenditure figures are then adjusted by Purchasing Power Parity (PPP) data from the World Bank to account for differences in spending power across the EU27*. [28] The total spend on Facebook events is then adjusted to account for additionality. In its central scenario, a conservative assumption is made that 20 per cent of Facebook social *events* are additional and no Facebook business *events* are social. Relaxing the additionality assumption for businesses does not materially affect the results given business *events* represent a relatively small portion of total Facebook *events*.

[24] It is assumed that all Facebook 'events' are social activities that will take place in the physical world and are not used simply to publicise news or some other activity.

[25] Event data was filtered for events with five or more responses, including declines.

[26] There have been a number of commentaries recently suggesting actual attendees to Facebook events may be much lower than the number of invites sent out (Source: *How we are killing Facebook*, www.unmarketing.com/2011/02/15/how-we-are-killing-facebook/).

[27] *Family Expenditure Survey*, 2010

[28] *World Bank PPP Data*, 2010

It is assumed that 80 per cent of those respondents who say they will attend a social *event* do attend and 50 per cent of respondents to business *events* attend. Evidence is not available on the actual numbers of attendees of Facebook *events* (including those who attend but were invited offline). Relaxing these assumptions, to assume 100 per cent attendance, leads to only minor changes to the final results.

The gross revenue estimated to be supported by Facebook *events* is then run through the Input-Output model to give value added and jobs supported figures.

4.3 Platform effects results

The following sections present the results of the modelling exercise for the quantitative impacts of the *app economy* and Facebook *events*.

The gross enabled revenue arising from platform effects enabled by Facebook *events* is estimated to be c. €3.4 billion across the EU27*. The largest revenues accrue to the UK, followed by France and Germany.

Figure 4.3.a: Gross Enabled Revenue from platform effects, 2011

Country	Gross enabled revenue, €m (2011)
EU 27*	**3,394.1**
EU 6	**2,428.9**
UK	800.7
Spain	167.6
France	317.1
Italy	291.3
Germany	737.3
Ireland	114.9
Other EU	965.2

Source: Deloitte analysis. Totals may not sum due to rounding.

Turning to economic impact, the total employment supported by platform effects is around 33,000 jobs and value added across the EU27* of c. €2.2 billion. This is a smaller impact than business participation effects, but represents an important component of Facebook's overall economic impact. Further, it does not include other non-quantifiable effects such as *crowdsourcing*, time saved and fundraising which have the potential to further increase the economic impact obtained through Platform effects in the EU27*.

Figure 4.3.b: Economic impact from platform effects, 2011

	Total		'App ' economy		Social events	
Country	Total employment 2011 (000s)	Total value added 2011 (€m)	Total employment 2011 (000s)	Total value added 2011 (€m)	Total employment 2011 (000s)	Total value added 2011 (€m)
EU 27*	**32.9**	**2,184.4**	**29.3**	**1,952.8**	**3.6**	**231.5**
EU 6	**22.0**	**1,685.5**	**19.9**	**1,522.8**	**2.1**	**162.7**
UK	7.5	561.4	7.0	522.5	0.5	38.9
Spain	1.4	101.0	1.2	82.7	0.3	18.3
France	2.4	213.3	2.1	187.0	0.3	26.3
Italy	2.0	156.0	1.6	120.1	0.5	35.9
Germany	7.7	559.8	7.2	521.6	0.5	38.2
Ireland	0.9	93.9	0.9	88.9	<0.1	5.0
Other EU	10.9	498.9	9.4	430.0	1.5	68.9

Source: Deloitte analysis. Totals may not sum due to rounding.

Unlike other broader contributions, the *app economy* relies heavily on Facebook as it is the only social media site of a scale to allow dedicated *app* development. Across the EU27* the value added created by the *app economy* is just short of €2 billion, supporting almost 30,000 jobs. The most significant *app economy* is in the UK, followed very closely by Germany. Both the UK and Germany contribute over €0.5 billion value added, and have over 7,000 jobs supported by Facebook Apps. The *app economy* in other EU6 countries appears to be much smaller and is a function of the level of software development in the UK and Germany.

Across the EU27* the total economic impact from social activities is €232 million, leading to total employment of 3,600 jobs. The EU6 create the majority of the employment and value added input, reflecting the strength and size of these economies and the use of Facebook by their citizens.

4.4 Other social activity effects

In addition to the *app economy* and social *events*, there are other Facebook platform effects that facilitate *social activities* but whose economic impact cannot readily be measured. These effects may, however, be substantial and are outlined in this section.

Time saved using Facebook *events*

Facebook *events* allow individuals and businesses to create online invitations to *events* that will take place in the physical world (or in some cases also online). By using the Facebook platform, creators of *events* can potentially reach out to a large number of attendees (either registered Facebook users or non-users) simultaneously. Compared to traditional means of distributing invitations (such as email or telephone), there may be a time saving through using the Facebook platform. More specifically, Facebook can save users' time when communicating to their friends and colleagues through status updates and uploads of photos and videos. Focusing on events, the amount of time saved by using Facebook as compared to other platforms may be significant.

In order to estimate the value of time saved using Facebook it is necessary to have estimates of the time required to set up Facebook events and comparable events using telephone and email. This data is not readily available without primary research and is outside of the scope of this study.

Fundraising using Facebook

The Facebook platform provides an opportunity for charities and other community organisations to raise awareness and funds for their activities and campaigns. These organisations can establish a profile on Facebook through a dedicated page or make *apps* available to users. They can also harness the social network nature of Facebook to encourage users themselves to promote campaigns, fundraise and generate awareness, e.g. linking their status to their personal fundraising page. This fundraising route is becoming increasingly important and the Quarterly Online Giving Index reports that social giving on social networks increased in Q2 2011 by 25 per cent compared to Q2 2010[29].

Fundraising on Facebook

Facebook assisted in raising funds for the National Society for Prevention of Cruelty to Children (NSPCC) in the UK. An individual NSPCC supporter noted that whilst changing Facebook profile pictures to cartoon characters might be effective in raising awareness on violence against children, it did not necessarily translate into increased donations. This supporter established a JustGiving donation page for the charity, linking it to the Facebook campaign. In doing so the initial target of raising £2,000 in 24 hours was easily exceeded and at the last count 6,400 people had clicked on the Facebook 'recommend' button further generating awareness and traffic. Subsequent analysis of the traffic found that 6 per cent of visitors from *recommend* links from Facebook went on to donate (higher than the typical advertising conversion rate) and that on average, one *recommend* was worth £5 in donations.

Facebook is a particularly effective tool for individuals to raise donations, leveraging their existing friends, generating new publicity and taking advantage of new techniques and apps. There are numerous examples of such cases, with some recent small-scale examples using Facebook (and other social media networks) listed below:

- '*Wallasey charity Stick 'n' Step receives £6,000 fundraising boost after winning online vote*'.
- *'Ringland man aims to raise £10,000 in Grandad's memory'.*
- *'Kenilworth estate agent's Facebook campaign helps school'.*
- *'Volvo uses Facebook for charity campaign'.*

Sources: *Fundraising goes viral with Facebook and JustGiving*, NSPCC, http://justgiving-charity-support.zendesk.com/entries/361330-nspcc-case-study-fundraising-goes-viral-with-facebook-and-justgiving; www.southwalesargus.co.uk/news/gwentnews/9448804.Ringland_man_aims_to_raise___10K_in_grandads__memory/; www.wirralnews.co.uk/wirral-news/local-wirral-news/wallasey-news/2011/12/21/wallasey-charity-stick-n-step-receives-6-000-fundraising-boost-after-winning-online-vote-80491-29984472/; www.coventrytelegraph.net/news/coventry-news/2011/12/12/kenilworth-estate-agent-s-facebook-campaign-helps-school-92746-29939047/; www.nma.co.uk/news/volvo-uses-facebook-for-charity-campaign/3032791.article.

A report[30] by the Institute of Fundraising, MissionFish and eBay for charity, further reveals that over 70 per cent of charities in the UK use Facebook to engage with supporters (by far the most popular social network used by charities). The report suggests that while online donations still significantly lag behind other channels, the percentage of total donations raised online have risen 85 per cent from 2 per cent to 3.7 per cent in three years.

Innovation arising from using Facebook as a platform

Facebook is a Web 2.0 platform which facilitates user participation, sharing and collaboration through a virtual community. One of the features of such a platform is its ability to facilitate *crowdsourcing*, i.e. calling upon a group of users to address a particular task or problem. The revenue associated with new products or services (or new ways of doing things) created through *crowdsourcing* on Facebook may also have an economic impact. More generally, through using Facebook as a tool for collaboration and better working, there may also be further economic impacts through changes in productivity.

A wide range of companies use Facebook to *crowdsource* ideas. Often these are food manufacturers seeking views on new flavours or products. For example, Walkers crisps 'do us a flavour' campaign in the UK used

[29] *The Network for Good Online Giving Index,* www.onlinegivingstudy.org/sites/default/files/userfiles/files/OnlineGivingIndexQ1%26Q22011.pdf, Q1 and Q2 2011.
[30] *Passion, persistence, and partnership: the secrets of earning more online*, 2nd edition, www.nfpsynergy.net/includes/documents/cm_docs/2011/p/passion_persistence_partnerships_2011_v2.pdf.

Facebook (and other websites) to ask users to choose a new crisp flavour. Subsequent research claimed that this campaign raised brand equity by 6 per cent and year-on-year sales grew by 14 per cent[31].

Innovation and *Crowdsourcing* on Facebook

The confectionery maker Cadbury introduced the Wispa chocolate bar in the UK in 1981 and the Wispa Gold bar in 1995. While these bars were popular, the decision was taken in 2003 to cease production of both bars.

In 2007, Facebook users began to establish user groups to petition Cadbury to re-introduce Wispa bars. It was estimated that there were over 90 'bring back Wispa' groups with approximately 14,000 members. In response, Cadbury began production of Wispa bars again, and in November 2011 confirmed that Wispa Gold bars would also permanently return (after returning for a limited period ending in 2010).

The official Cadbury Wispa Facebook page also regularly interacts with customers, running competitions, polls and offering recipes. For example, in 2010 it ran a competition for users to pick descriptions of Wispa bars that could subsequently be used in newspaper and magazine ads.

Sources: Cadbury Wispa Facebook page, www.facebook.com/wispa; Bring Back Cadbury's Wispa Gold Facebook page, www.facebook.com/group.php?gid=2311634209.

In the time available it has not been possible to quantify the economic impact arising from Facebook's collaborative nature across the EU27*. To do so would require disaggregating individual companies' revenues to identify what is attributable to Facebook and exploring how particular *crowdsourcing* campaigns have been run.

Using Facebook to find new jobs

Social networks are increasingly important recruitment channels. A survey by the recruitment platform Jobvite in 2010 found over 90 per cent of firms actively hiring used, or planned to use, social networks with over half of employers using Facebook for recruitment[32]. The same survey found that spending on recruitment through social networks is also expected to increase by 50 per cent (though subsequent macroeconomic difficulties may blunt this spending increase). A subsequent survey by Jobvite found that 16 per cent of employees had used social networks to find their most recent job and nearly 90 per cent of active jobseekers have a social network profile[33].

There are now dedicated recruitment *apps* available on Facebook that allow prospective employers to post opportunities and access a wider pool of potential recruits. One such example is Work for Us that allows candidates to apply for jobs through Facebook and allow employers to automatically generate ads and post jobs to *fan* pages. It currently has 60,000 active users[34]. Employers can also use Facebook to redirect users to their own dedicated recruitment websites and profile candidates' user pages (though this can also have negative consequences). The BeKnown Facebook *app* (developed by Monster Worldwide) also allows users to create professional networks on Facebook and access job searches, keeping professional and personal contacts separate.

Facebook's share of the online job-recruitment market remains small, albeit growing. Facebook has been estimated as accounting for only 1 per cent of total company hires[35], although this requires further verification.

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[31] *Do Us a Flavour,* Walkers case study, www.utalkmarketing.com/Pages/Article.aspx?ArticleID=18384.

[32] *Facebook and Twitter becoming more important for job recruitment*, www.webpronews.com/facebook-and-twitter-becoming-more-important-for-job-recruitment-2010-07. Facebook is only second to LinkedIn in terms of popularity of social media recruitment tools (55 per cent compared to 78 per cent).

[33] Jobvite, http://recruiting.jobvite.com/resources/social-job-seeker-survey.php.

[34] Work for Us, www.facebook.com/WorkForUs?sk=info.

[35] *Recruiters Troll Facebook for Candidates They Like,* http://online.wsj.com/article/SB10001424053111903885604576490763256558794.html .

5. Technology sales

Facebook creates demand for, and therefore generates value through, the sale of devices and broadband to access its services. The economic impact of technology sales supported by Facebook across the EU27* is estimated to be c. €5.5 billion and to support over 85,300 jobs.

5.1 Introduction

The online nature of Facebook's operation and its large user base combine to mean that the company's operations generate value added through increased demand by users for devices to access Facebook on the move and greater demand for the underlying broadband connections to access Facebook.

The scale of this impact is driven by the prevalence and use of Facebook. Currently more than 350 million global monthly active users currently access Facebook through their mobile devices, with more than 475 mobile operators globally working to deploy and promote Facebook mobile products[36].

Various devices are available to consumers which are able to access the internet and website content such as Facebook and there is recognition in the electronics industry that Facebook is driving sales of these devices. Jim Elliot, a senior executive of Samsung Electronics, is quoted as saying: *"Social networking and particularly Facebook is so impactful on people's usage patterns and daily lives and this is having a huge impact on infrastructure and device sales"* and also notes that "*owners of mobile devices are more likely to interact with Facebook than non-mobile users*" [37].

Facebook is also a major contributor to broadband consumption. Research conducted by the mobile operator 3 revealed that in July 2010, 2,500 terabytes of data were used across 3's UK mobile broadband network of which Facebook users accounted for 7 terabytes (0.28 per cent)[38]. This made Facebook the top data user, above the likes of Google, Apple and Yahoo. The increasing incidence of social gaming and videos on Facebook is likely to increase further Facebook's total share of data consumption. In the first half of 2011, Facebook's global mobile bandwidth usage increased by 166 per cent compared to the last half of 2010; compared to a 77 per cent increase for mobile data usage as a whole[39].

5.2 Measuring impact on technology sales

Sales of devices[40]

The total stock of devices used to access Facebook in each country is estimated. This is based on Facebook data on the number of users who interacted with Facebook by device type, adjusted to obtain unique users and to exclude devices used by multiple users[41]. An adjustment is then made to the number of devices used to access Facebook to obtain the number of those devices purchased in 2011.

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[36] http://www.facebook.com/press/info.php?statistics.

[37] Jim Elliot, Techpulse360, http://techpulse360.com/2011/03/23/samsung-facebook-has-huge-impact-on-device-sales-electronics-industry/.

[38] *Facebook and Farmville dominate 3's mobile broadband data*, www.guardian.co.uk/technology/pda/2010/oct/26/facebook-farmville-3 .

[39] *YouTube Hogs 22 per cent of world's mobile bandwidth*, www.pcmag.com/article2/0,2817,2389194,00.asp.

[40] This analysis only considers mobile devices, such as Smartphones and tablets, and therefore excludes desktops and laptops.

[41] The Facebook data does not represent unique users as a user may access Facebook on multiple devices. Furthermore, a device may be counted more than once if it is used by multiple users. The total number of Smartphone devices used to access Facebook was estimated to be approximately 29 million in Europe in October 2011.

Figure 5.2.a: Number of users interacting with Facebook and number of devices used to access Facebook in the EU27* by Smartphone device type, October 2011

Smartphone device	Number of users interacting with Facebook across EU27*	Number of devices used to access Facebook across EU27*
Apple iPhone	33,356,412	8,584,630
Nokia	10,120,990	5,946,816
HTC/Android phones	20,969,167	4,479,492
Samsung	14,935,923	4,050,884
Blackberry	11,476,830	2,563,030
Sony Ericsson	2,643,478	2,218,311
LG	1,287,853	949,351
Other	976,485	460,334
Total	**95,767,138**	**29,252,849**

Source: Deloitte analysis based on information provided by Facebook.[42]

An assumption is then applied to provide Facebook's additionality to obtain the number of devices purchased to access Facebook. This assumption is based on the results of a survey by Ofcom[43] that illustrates the relative importance of different Smartphone services such as making phone calls, social networking and internet browsing, to Smartphone owners of different ages. This gives an additionality percentage of 16 per cent. A further adjustment is then made to reflect Facebook's share of time spent on social media.

Sales volumes attributable to Facebook are then multiplied by Smartphone prices (adjusted to reflect the value of services specific to Smartphones versus basic phones) to calculate revenues. Finally, it is assumed Smartphone production in Europe is minimal and therefore a retail margin (consisting of VAT, a retail profit, operational costs including wages and corporation tax) is applied to gross revenue to obtain value added in Europe .

Broadband consumption

Modelling of the impact of Facebook on broadband consumption needs to consider both mobile and fixed line broadband. Monthly prices for standalone mobile and fixed-line services were obtained from an international benchmarking exercise performed by the UK communications regulator Ofcom with an average of available prices applied to countries where no price information was available.

[42] Figure 5.2.a indicates that approximately 96 million users interacted with Facebook on Smartphone devices in the EU27* in October 2011. This does not represent unique users as a user may access Facebook on multiple devices. Furthermore, a device may be counted more than once if it is used by multiple users. This is adjusted for by estimating the total number of Smartphone devices used to access Facebook to be approximately 29 million in the EU27* in October 2011.

[43] Ofcom, http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/smartphone-tables-teens.pdf; http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr11/smartphone-tables-adults.pdf.

Figure 5.2.b: Average broadband prices

Country	Single service mobile broadband pricing per month, €	Single-service fixed-line broadband pricing per month, €
UK	9.1	12.3
Spain	16.9	34.4
France	13.4	12.3
Italy	6.9	26.7
Germany	17.2	26.5

Source: Deloitte analysis based on Ofcom, *International Communications Market Report 2010*, http://stakeholders.ofcom.org.uk/binaries/research/cmr/753567/icmr/ICMR_2010.pdf

For mobile broadband, prices are multiplied by the total number of device owners who access Facebook on their devices, whilst for fixed-line broadband prices are multiplied by the number of fixed-line connections which are used to access Facebook. In order to then obtain the value of broadband attributable to Facebook, adjustments are made for additionality (16 per cent of gross revenue) and the percentage of time on social networks which is spent on Facebook.

5.3 Technology sales results

Gross revenue enabled from the sale of devices and broadband services across the EU27* attributable to Facebook is estimated to be €6.5 billion in 2011.

Figure 5.3.a: Gross enabled revenue of technology sales, 2011

Country	Gross enabled revenue, €m (2011)
EU 27*	**6,498.7**
EU 6	**4,627.4**
UK	931.52
Spain	582.04
France	731.37
Italy	813.90
Germany	1,498.43
Ireland	70.17
Other EU	1,871.27

Source: Deloitte analysis. Totals may not sum due to rounding.

The largest impact, €1.5 billion, is in Germany. Whilst the UK has the highest number of Facebook users in Europe, as well as the highest number of users who access Facebook via a mobile device, it has relatively low broadband prices. Furthermore, Germany in particular has a significantly higher number of fixed-line broadband connections and the total value of fixed-line broadband services is therefore higher.

Converting revenue to value added leads to an estimate of total economic impact of €5.5 billion, which in turn supports 85,300 jobs. These impacts are mainly driven by broadband sales as devices are typically manufactured outside of the EU27*. At a country level Germany continues to receive the largest impact.

Figure 5.3.b: Economic impacts of technology sales, 2011

	Devices		Broadband		Total	
Country	Total employment 2011 (000s)	Total value added 2011 (€m)	Total employment 2011 (000s)	Total value added 2011 (€m)	Total employment 2011 (000s)	Total value added 2011 (€m)
EU 27*	**6.0**	**412.2**	**79.2**	**5,120.6**	**85.3**	**5,532.8**
EU 6	**4.3**	**335.3**	**49.9**	**3,777.2**	**54.2**	**4,112.5**
UK	1.7	128.5	7.1	531.3	8.8	659.8
Spain	0.3	22.0	8.1	563.8	8.4	585.8
France	0.7	66.5	6.6	581.0	7.3	647.4
Italy	0.6	46.7	9.5	731.9	10.1	778.6
Germany	0.9	64.5	18.1	1,316.4	19.0	1,381.0
Ireland	0.1	7.0	0.5	52.9	0.6	59.9
Other EU	1.7	76.9	29.4	1,343.4	31.1	1,420.3

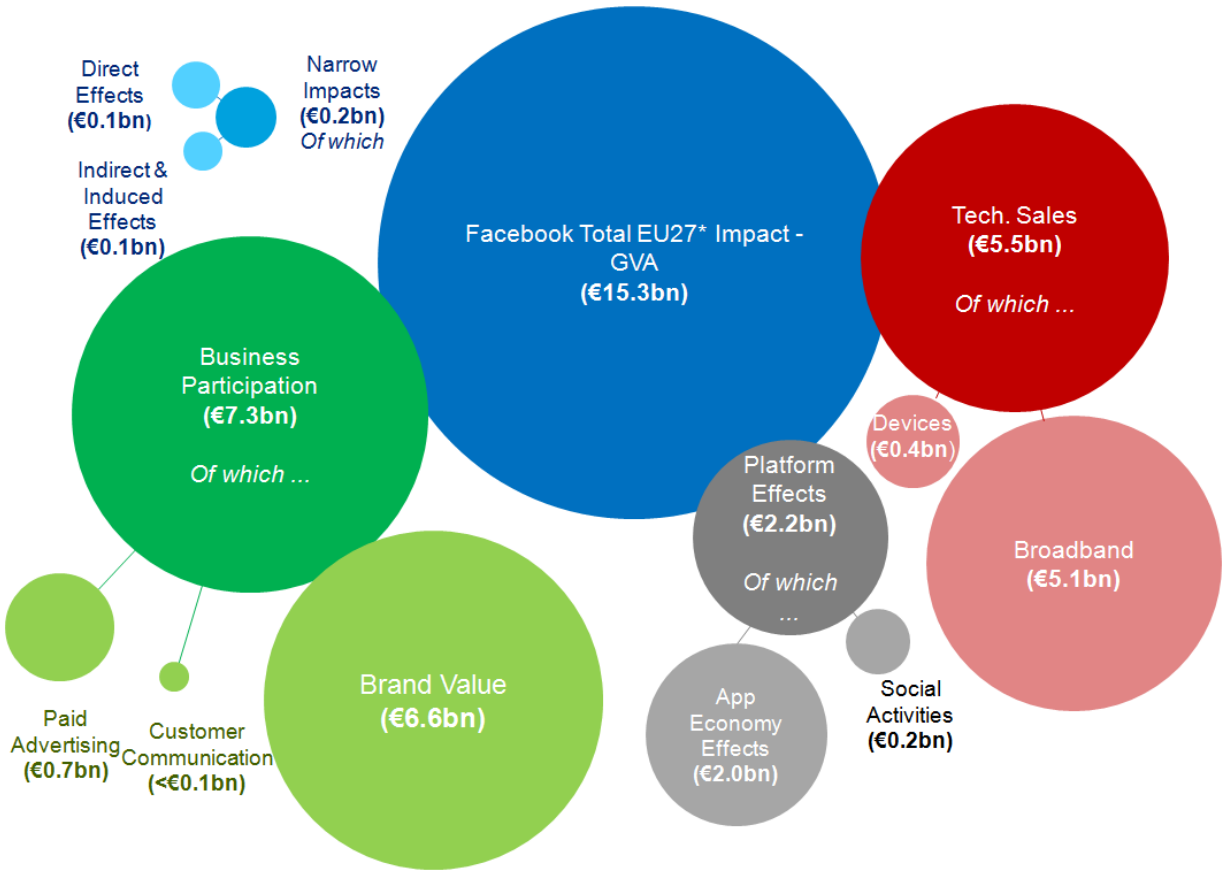
Source: Deloitte analysis. Totals may not sum due to rounding.

6. Aggregated economic impact

6.1 EU 27* economic impacts

The estimated total economic impact of Facebook across the EU27* is presented below, disaggregated to show the impacts of the different components of this impact.

Figure 6.1.a: Economic impact by effect, 2011



Source: Deloitte analysis. Totals may not sum due to rounding.

Of the total economic impact of €15.3 billion, narrow impacts of circa €0.2 billion represent only 1.5 per cent. As throughout this study, the estimates only capture additional economic activity created by Facebook.

The most significant impacts are those created by Facebook enabling business participation. This includes advertising activity on Facebook and activities that build Brand Value. Collectively, this is estimated to provide c. €7.3 billion in the value added created by those organisations, their suppliers and through the expenditure of those benefitting from associated jobs.

Platform effects such as the *app economy* servicing the Facebook platform and *social activities* notably the economic effects of additional and larger events organized through Facebook, total €2.2 billion. The majority of platform effects come through activity in the *app economy*, with European companies such as Wooga and King and non-European companies such as Zynga (creators of the *FarmVille* game) having a major presence.

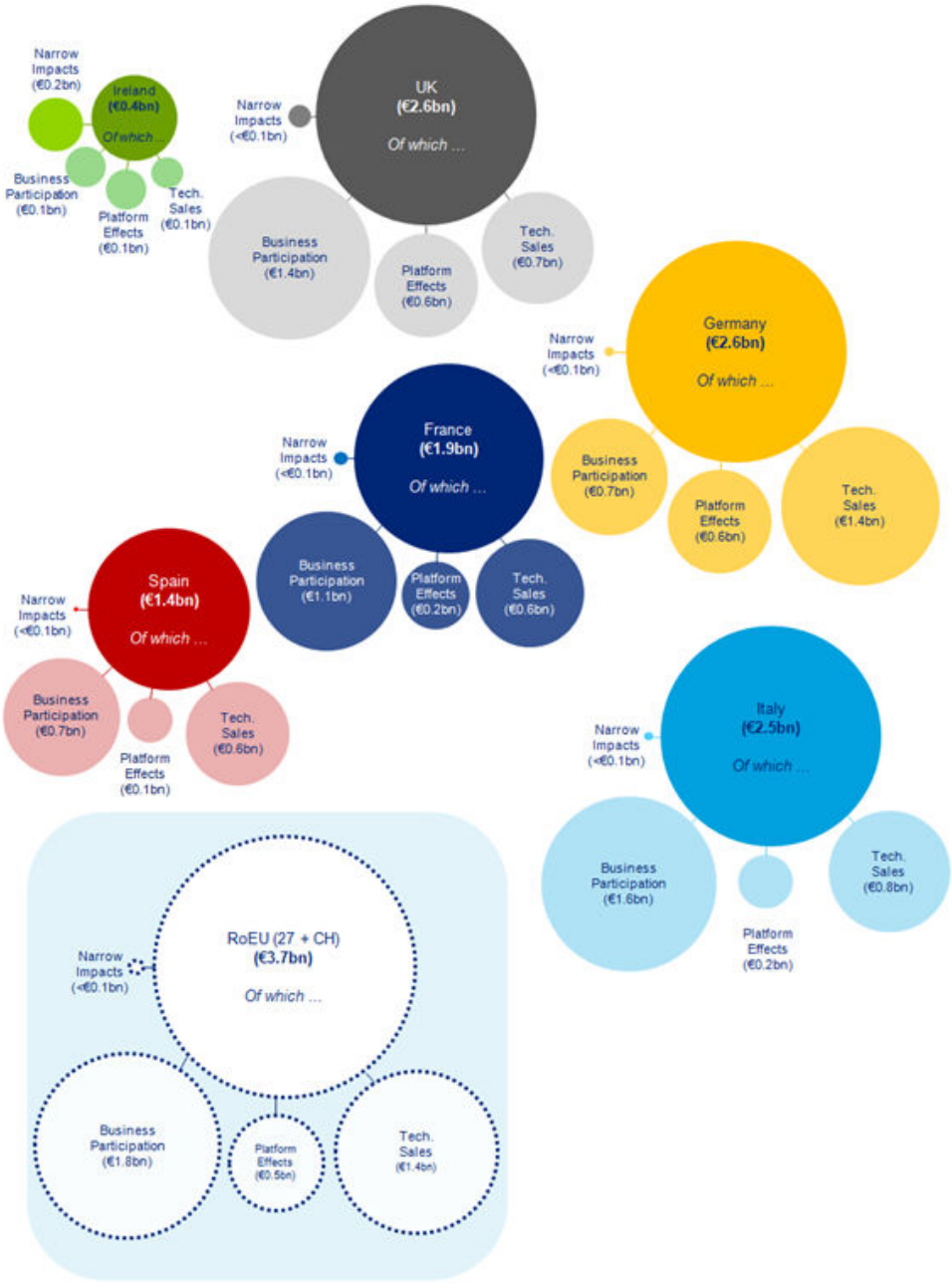
Finally, sales of devices and network capacity to facilitate the use of Facebook amongst European users are estimated to total €5.5 billion in value added terms, mainly through the purchase of the connectivity required to access Facebook.

It is estimated that there are around 232,000 jobs associated in some way with Facebook throughout the EU27*, with the vast majority of these (circa 229,000) related to *broad* effects. Of these, 111,000 are estimated to be connected to business participation and 85,000 to technology sales.

6.2 A country level comparison

Facebook's economic impact in each of the countries assessed is shown below in value added and employment terms by country in 2011. Again these estimates are adjusted for *additionality* such that they represent activity that has been created by Facebook in Europe.

Figure 6.2.a: Economic impact by country and effect, 2011 (€bn)



Source: Deloitte analysis. Totals may not sum due to rounding.

Across the EU27*, economic impacts are greatest in the UK (€2.6 billion), Germany (€2.6 billion), Italy (€2.5 billion), and France (€1.9 billion): together these four countries account for two-thirds of the total impact across the EU27*.

Ireland sees the most significant *narrow* impacts due to the concentration of Facebook's total European on the ground presence there (over 400 employees work at the Irish headquarters), but other *broad* effects are much lower in Ireland. The UK also has a proportionately higher direct impact due to circa 100 employees, based mainly in London.

In other EU27* countries the *narrow* impact is negligible, and the vast majority of impacts stem from *broad* effects. Business participation effects are largest in Italy (€1.7 billion), platform effects are most significant in Germany and the UK (€0.6 billion in each), and technology sales are highest in Germany (€1.4 billion).

Other differential effects include relatively low business participation effects in Germany (driven by low levels of consumer *liking* in Germany relative to other EU countries) and relatively small scale platform effects in Italy (where the developer population is smaller).

Germany, the UK, and Italy account for more than 100,000 of the estimated 252,000 employment created by Facebook across the EU 27*.

6.3 Comparison of Facebook's economic impact to other industries

A number of previous research studies on the economic impact of the internet and broadband have been conducted. A review of this literature suggests that, whilst caution needs to be taken in making direct comparisons, the estimates provided for the economic impact of Facebook across the EU27* appear to be broadly in line. In particular, studies suggest that the results for Facebook represent:

- Approximately 5 per cent of the total EU-wide economic contribution of broadband; and
- Employment impacts are around 7 per cent of broadband jobs in Germany and up to 16 per cent in the UK. These percentages are also of a similar proportion to the amount of internet traffic accounted for by Facebook.

Further detail of these studies is included in Appendix B.

Appendix A: country level estimates

UK

Figure A(i): Economic impacts of Facebook in the UK, 2011.

Impact	Jobs (000)	Value added, 2011 (€m)
Direct	0.1	26.3
Indirect & Induced	0.5	5.6
Narrow Total	**0.6**	**32.0**
Paid Advertising	2.1	160.8
Customer communication	0.1	9.9
Brand Value	16.1	1,206.7
Business Participation Total	**18.4**	**1,377.5**
App Economy Effects	7.0	522.5
Social Plumbing Events Effects	0.5	38.9
Platform Effects Total	**7.5**	**561.4**
Technology Sales - Devices	1.7	128.5
Technology Sales - Broadband Consumption	7.1	531.3
Technology Sales Total	**8.8**	**659.8**
Grand Total	**35.2**	**2,630.7**

Source: Deloitte analysis. Totals may not sum due to rounding.

France

Figure A(ii): Economic impacts of Facebook in France, 2011.

Impact	Jobs (000)	value added, 2011 (€m)
Direct	<0.1	4.5
Indirect & Induced	<0.1	0.3
Narrow Total	**0.1**	**4.8**
Paid Advertising	1.1	95.8
Customer communication	0.1	6.1
Brand Value	11.0	972.0
Business Participation Total	**12.1**	**1,073.9**
App Economy Effects	2.1	187.0
Social Plumbing Events Effects	0.3	26.3
Platform Effects Total	**2.4**	**213.3**
Technology Sales - Devices	0.7	66.5
Technology Sales - Broadband Consumption	6.6	581.0
Technology Sales Total	**7.3**	**647.4**
Grand Total	**21.9**	**1,939.4**

Source: Deloitte analysis. Totals may not sum due to rounding.

Germany

Figure A(iii): Economic impacts of Facebook in Germany, 2011.

Impact	Jobs (000)	value added, 2011 (€m)
Direct	<0.1	2.8
Indirect & Induced	<0.1	<0.1
Narrow Total	**0.1**	**2.8**
Paid Advertising	1.4	103.5
Brand Value	0.1	10.7
Business Participation Total	**7.9**	**574.5**
	9.5	688.7
App Economy Effects		
Social Plumbing Events Effects	7.2	521.6
Platform Effects Total	**0.5**	**38.2**
	7.7	559.8
Technology Sales - Devices		
Technology Sales - Broadband Consumption	0.9	64.5
Technology Sales Total	**18.1**	**1,316.4**
	19.0	1,381.0
Grand Total	**36.2**	**2,632.3**

Source: Deloitte analysis. Totals may not sum due to rounding.

Italy

Figure A(iv): Economic impacts of Facebook in Italy, 2011.

Impact	Jobs (000)	value added, 2011 (€m)
Direct	<0.1	2.0
Indirect & Induced	<0.1	1.5
Narrow Total	**0.1**	**3.5**
Paid Advertising	1.3	99.0
Customer communication	0.1	3.9
Brand Value	20.2	1,549.8
Business Participation Total	**21.5**	**1,652.7**
App Economy Effects	1.6	120.1
Social Plumbing Events Effects	0.5	35.9
Platform Effects Total	**2.0**	**156.0**
Technology Sales - Devices	0.6	46.7
Technology Sales - Broadband Consumption	9.5	731.9
Technology Sales Total	**10.1**	**778.6**
Grand Total	**33.8**	**2,590.8**

Source: Deloitte analysis. Totals may not sum due to rounding.

Spain

Figure A(v): Economic impacts of Facebook in Spain, 2011.

Impact	Jobs (000)	value added, 2011 (€m)
Direct	<0.1	1.4
Indirect & Induced	<0.1	0.3
Narrow Total	**<0.1**	**1.7**
Paid Advertising	0.9	60.1
Customer communication	<0.1	1.8
Brand Value	9.4	659.5
Business Participation Total	**10.3**	**721.4**
App Economy Effects	1.2	82.7
Social Plumbing Events Effects	0.3	18.3
Platform Effects Total	**1.4**	**101.0**
Technology Sales - Devices	0.3	22.0
Technology Sales - Broadband Consumption	8.1	563.8
Technology Sales Total	**8.4**	**585.8**
Grand Total	**20.2**	**1,409.9**

Source: Deloitte analysis. Totals may not sum due to rounding.

Ireland

Figure A(vi): Economic impacts of Facebook in Ireland, 2011.

Impact	Jobs (000)	value added, 2011 (€m)
Direct	0.4	83.9
Indirect & Induced	1.8	81.8
Narrow Total	**2.2**	**165.7**
Paid Advertising	0.1	12.7
Customer communication	<0.1	0.7
Brand Value	0.6	64.3
Business Participation Total	**0.8**	**77.7**
App Economy Effects	0.9	88.9
Social Plumbing Events Effects	<0.1	5.0
Platform Effects Total	**0.9**	**93.9**
Technology Sales - Devices	0.1	7.0
Technology Sales - Broadband Consumption	0.5	52.9
Technology Sales Total	**0.6**	**59.9**
Grand Total	**4.5**	**397.2**

Source: Deloitte analysis. Totals may not sum due to rounding.

Other EU Member States

Figure A(vii): Economic impacts of Facebook in other EU Member States (including CH), 2011.

Impact	Jobs (000)	value added, 2011 (€m)
Direct	<0.1	2.9
Indirect & Induced	0.1	0.9
Narrow Total	**0.1**	**3.8**
Paid Advertising	3.5	162.3
Customer communication	0.3	15.6
Brand Value	34.5	1,577.1
Business Participation Total	**38.4**	**1,755.0**
App Economy Effects	9.4	430.0
Social Plumbing Events Effects	1.5	68.9
Platform Effects Total	**10.9**	**498.9**
Technology Sales - Devices	1.7	76.9
Technology Sales - Broadband Consumption	29.4	1,343.4
Technology Sales Total	**31.1**	**1,420.3**
Grand Total	**80.5**	**3,678.0**

Source: Deloitte analysis. Totals may not sum due to rounding.

Appendix B: Comparable studies

The economic impact of the internet on the UK economy

The Boston Consulting Group (BCG), on behalf of Google, conducted research to understand the nature and size of commercial activities on the internet in the UK[44]. It estimates that in 2009, the internet contributed approximately £100 billion (or 7.2 per cent of GDP) to the economy. The benefits of the internet included in this estimate include cheaper goods and services for consumers and the consumption of 'free' online content. Not included in the GDP estimate were increased productivity effects, online advertising and business-to-business e-commerce. Broader social impacts also identified included social networking, user-generated content and fraud and piracy. BCG forecast that the internet economy will grow to represent 10 per cent of GDP by 2015.

As a point of comparison, the analysis in this report suggests that Facebook contributes £2.2 billion (€2.6 billion) in value added in 2011 in the UK. However, as the previous paragraph indicates, a direct comparison to BCG's estimates of the economic contribution of the internet is not possible. The BCG estimate appears to be in gross terms only, i.e. it does not seem to take account of additionality. Further the BCG estimate does not seek to quantify the effects of social activities and considers the internet as a whole rather than a single company such as Facebook. Further, Deloitte's preferred impact measure of value added, while analogous to GDP, is not equivalent.

Facebook's share of time online in the UK was 17 per cent in September 2011[45]. The Facebook contribution estimated in this report would represent approximately 2 per cent of the internet's UK GDP contribution. However, as noted above both studies are not necessarily comparable. Further, the BCG study does not appear to report the 'additionality' of the internet which may mean once displacement and deadweight effects and other effects are considered[46] the actual additional contribution made by the internet in the UK may be much smaller, and Facebook's share of that contribution higher.

The economic impact of broadband

Quiang et al (2009)[47] estimate the economic impact of broadband across a number of countries, including those in Europe. They identify the economic impacts as including enhancing knowledge, skills, networks, productivity and competitiveness. Broadband is also seen, in a similar manner to Facebook, as an enabling technology to increase investment payoffs and facilitate trade. As part of their analysis, the authors cite research by Accenture in 2003 that broadband has the potential to contribute between US$300 billion and US$400 billion to the European economy.

While similar caveats around comparison apply as in the case of the BCG research, Deloitte concludes Facebook has a EU27* wide contribution of US$19.2 (€15 billion), which represents approximately 5 per cent of the total Europe-wide contribution of broadband.

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[44] See *The Connected Kingdom: how the internet is transforming the UK economy*, BCG October 2010, www.bcg.de/documents/file62983.pdf.

[45] Google vs. Facebook: display advertising, Enders Analysis, December 2011; reporting information from Comscore

[46] Displacement effects refer to the proportion of outputs accounted for by reduced outputs elsewhere in the economy. Deadweight effects consider the level of economic activity that would have occurred in the absence of the particular business decision. If the additional impact of the internet were known, then it would be possible to use the time spent online on Facebook to generate a rough alternative comparator estimate for the economic impact of Facebook in the UK.

[47] See Chapter 3, Economic Impacts of Broadband in *2009 Information and Communications for Development: Extending Reach and Increasing Impact*, World Bank.

Other academic studies have also considered the impact on employment in EU27* Member States from broadband investment. Research by Liebenau (2009) and Katz (2008 and 2010)[48] suggests broadband investment programmes ranging from €5 billion to €20 billion can have the following total employment effects:

- Germany: 407,000 – 561,000 jobs induced from €15.7 - €20.2 billion investment; and
- UK: 215,500 jobs induced from €5.6 billion investment.

While care should be exercised in making any comparisons (due to different multiplier ratios used and additionality assumptions), taking the ratio of jobs directly and indirectly attributable to Facebook calculated by Deloitte and the number of jobs attributable to broadband investments by academics suggests that in Germany Facebook-related employment impacts are around 7 per cent of broadband jobs and up to 16 per cent in the UK. In Germany Facebook is reported to account for 16 per cent of time spent online, broadly similar to its share in the UK.

[48] Cited in *The impact of broadband in Eastern and Southeast Europe*, May 2010 by Frontier Economics on behalf of Telekom Austria Group. See also *Broadband: a platform for progress*, June 2011, UNESCO for further estimates.

Appendix C: Definitions

C.1. Economic definitions

Direct Impacts: The initial and immediate economic impacts (e.g. jobs, economic value, etc.) generated by Facebook through their physical presence in Europe.

Value added: A metric similar to Gross Domestic Product (GDP) used to measure the output of a smaller entity.

Indirect Impacts: The economic impacts (e.g. jobs, economic value, etc.) generated up the supply-chain for businesses as a result of demand arising from Facebook direct activities.

Input-Output Model: A quantitative economic technique that is used to calculate the economic impacts of something on a given economy using tables that quantify inter-industry relations and consumer spending patterns.

C.2. Facebook & social media definitions

App: an application. In a Facebook context such an application is a small and cloud-based, i.e. it does not store data on a user's computer or mobile device being used to access Facebook, but instead stores data on Facebook's servers. These apps have a heavy reliance on social interaction with users (particularly a user's Facebook friends). They are also by and large game, lifestyle related (e.g. personality quizzes) and typically light-hearted.

CPC: Cost per Click is a remuneration basis for the small adverts displayed on the right hand side of Facebook pages (or alternatively on Google search) by which an advertiser only pays a fee each time a user clicks on the advert, and not each time a user sees an advertisement. It is typically less than $1.

Crowdsourcing: refers to an open invitation to a large group of individuals to perform tasks once confined to a more limited group.

CPM: Cost per Mille (from the French meaning thousand) is a an alternative remuneration basis for the small adverts displayed on the right hand side of Facebook pages where the advertiser pays a fee for every thousand users who see, or have an "impression" of the advert.

CRM: Customer Relationship Management describes the science of managing a firm's interactions with its customers. In a Facebook context, this comprises for example the *fans* institution, free pages and sharing functions.

CTR: Click through Ratio is a statistic describing the proportion of impressions of a Cost per Click (CPC) advert which are clicked upon. It is typically around 0.05%, or one in two-thousand.

DAU: Daily Active User is a user of an application, device or service who uses it at least once per day. It is a common benchmark to describe the intensity of a user's usage.

MAU: Monthly Active Users is a user of an application, device or service who uses it at least once per month. It is a common benchmark to describe the intensity of a user's usage.

RFID: Radio Frequency Identification describes a technology capable of creating for example contactless credit cards, biometric Passport chips, public transport (e.g. London's Oyster) or Company Door Cards.