



**Europeana**

Culture on the go



CIBER Research Limited  
30 September 2011

## Culture on the go

Europeana is a gateway to the digital resources of Europe's museums, libraries, archives and audio-visual collections. It is a multilingual space where users come to engage, share in and be inspired by the rich diversity of Europe's cultural and scientific heritage. Europeana is a trusted source connecting users directly to authentic and curated material.

This report is about how Europeana is used, with particular reference to the recent explosion in mobile access.

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# Contents

## Culture on the go

What is Europeana?	4	Who uses Europeana on the go?	19
<b>Overview and key findings</b>	<b>5</b>	Most intensively used mobile platforms	20
Overview	6	What do Europeana mobile users look at?	21
Collecting the data: deep log analysis	7	When do they look at Europeana?	22
Key findings	8	Referrals from other web sites	23
<b>Europeana use and users: all platforms</b>	<b>11</b>	Engagement with Europeana by referral source	24
The power of Google	12	Categorising Europeana users by information seeking behaviour	25
Categories of Europeana users	13	Different interfaces, different experiences 1	26
One shot use	14	Different interfaces, different experiences 2	27
Forecasting numbers of visitors to Europeana	15	CIBER dashboard: fixed and mobile users compared	28
<b>Europeana use and users: mobile platforms</b>	<b>16</b>	CIBER dashboard: mobile platforms compared	29
Context: the growth of mobile platforms	17	CIBER dashboard: are mobile users satisfied?	30
Growth in Europeana mobile use	18	Conclusions	31
		<b>Annex</b>	32
		Terms and definitions used	33



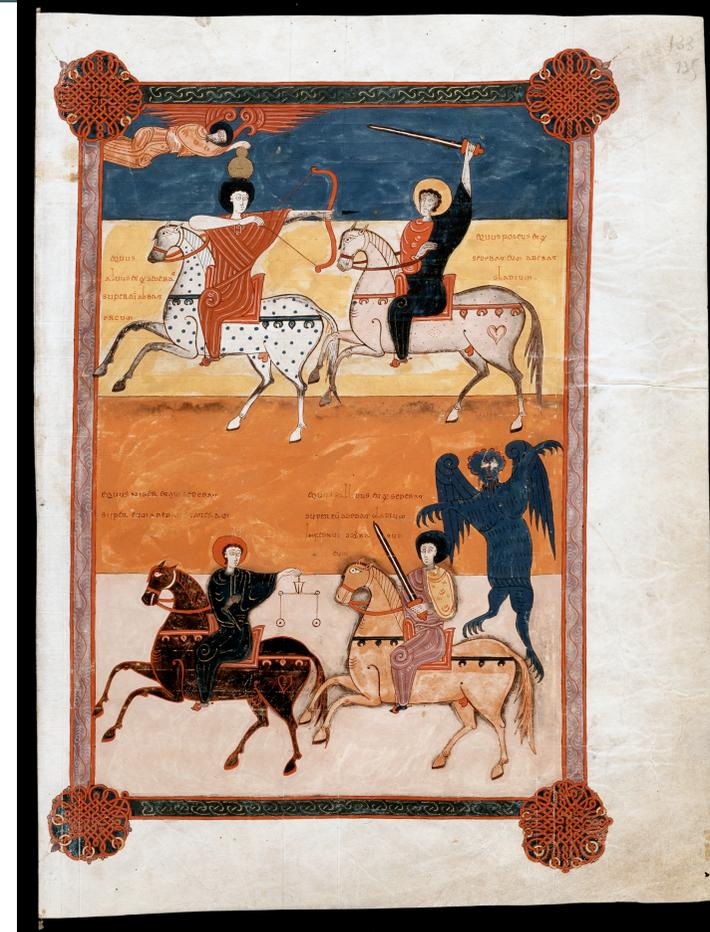
# What is Europeana?

## Culture on the go

Europeana is the common access point to the collections of European libraries, archives and museums from all around Europe.

Europeana is a simple but powerful tool for finding resources from all over Europe. Books, journals, films, maps, photos, music, videos and paintings will be available for everyone to consult – and to use, copyright permitting. For example, Europeana is a rich source of materials for the creative and information industries in developing new products and services, for tourism and for teaching.

**This report explores how Europeana is actually used by millions of online visitors, with particular reference to the thousands of people that access it via mobile devices, like smart phones and iPads. The data upon which the report is based comes from the digital ‘footprints’ that people routinely leave behind them when they use the website, whatever platform they use to access Europeana.**



Comentarios de Apocalipsis, Beato de Liebana, 1047  
National Library of Spain

## OVERVIEW AND KEY FINDINGS

# Overview

## Culture on the go

Internet use via mobile phone and tablet offers a different user experience from the desk-bound PC. This is not just a growing platform: mobile user interface designs are beginning to influence the look and feel of desktops: the tail wagging the dog.

Mobile devices are being used more and more for accessing the Web for information and nobody yet knows what the impact or implications of this will be for web providers and usage. It might be expected that mobiles will extend the reach of websites and draw in a wider range of people (more digital natives perhaps), partly because they are seen to be social and 'cool'. Many of these new users will have little experience of traditional web information services, like Europeana, which owe more to the library world than to the consumer one. This combined with the fact that: a) mobiles enable people to search on the move, virtually anywhere and at any time; b) people are generally searching on smaller devices, which typically have less functionality; and, c) mobile users are comfortable paying to access information on mobile phones, means that we might expect a different form of information seeking behaviour to evolve. If this proves to be the case then websites like Europeana need to change fast or face decoupling from the consumer.

Three years ago, Europeana was prescient in its design for users with mobile phones, but in the past year the growth of tablet devices has been the next big wave. Mobile, touch-sensitive, lacking keyboard and mouse, but no longer a tiny screen; the design of tablet interfaces is feeding back onto the desktop. Europeana needs to anticipate the new ways users will search and navigate, to match expectations viewed 'on the go'.

The most obvious difference between the experience of the PC and mobile user, and the one we can most easily research, is that the latter is presented with a simplified 'lite' interface, without some of the search functionality available to the PC user. Thus, for instance, there is no means of filtering searches by provider, country, type, etc. Logically we might expect that this would lead to differences in information seeking behaviour and, possibly, levels of success or satisfaction. It could be argued that mobiles are leading to a 'dumbed down' form of information seeking, pandering to the demands of the Google Generation.

Of course, not all mobile devices are the same and there clearly is a difference between smart phones and iPads or tablets, which are the size of small laptops although both use the same operating system and are served with the same interface, a cascading style sheet intended for small screen, restricted bandwidth mobile phones. The iPad phenomenon postdates the implementation of Europeana and at present is treated as a mobile phone; Europeana is designed for mobile phones, so information seeking on Europeana via tablets clearly needs researching.

The mobile research presented here also enables us to showcase CIBER's 'footprint' deep log techniques, which create user and information seeking data from a vast and accumulating data set that Europeana gathers as a matter of course from its servers.

# Collecting the data: deep log analysis

## Culture on the go

Because of the scale and speed of the digital transition, driven to new heights by the mobile phone, we urgently need to know what is going on in the virtual space. Interviews, observation and questionnaires, the traditional research methodologies, do not work well because people have poor recall of what they do online. What is needed is a powerful evidenced-based, always-on, methodology and to this end, CIBER have developed a powerful means of collecting the evidence, which we call deep log analysis.

Everyone who uses a digital service leaves a record of their movements on the particular platform they used, be that a mobile phone, laptop or iPad. This record, which is best thought of as a digital footprint, is automatically stored on the computer server as a log. This provides a huge treasure trove for researchers and practitioners who are interested in how people *actually* seek, search, navigate, use and act upon information in the virtual space.

Deep log transforms the *activity* data found in the logs into information seeking and usage behaviour; then transforms that data into user behaviour by relating it to demographic data, and finally turns the resultant data into outcome data, enabling satisfaction and success to be established. Deep log then provides very detailed, bespoke user analyses of digital services and sites and is called 'deep' to distinguish it from log analyses of the kind produced by Google Analytics (GA) which essentially provides one-dimensional activity (hit or download) counts.

Deep log data analysis offers the following benefits:

- a detailed picture of what people actually did online; not what they said they did, thought they did, or hoped they would do;
- a record that comes free of worries about sampling biases and preconceptions;
- provide data routinely and automatically without affecting the user's experience, and we have data from all platforms used, wherever and whenever they are used;
- furnish evidence-based datasets of a breathtaking size, a size that could hardly have been imagined ten years ago; with deep log analysis you are covering tens of thousands or millions of people not tens or hundreds.

We have developed three new bespoke analyses for this study:

- a new way of estimating real user numbers (rather than counting IP addresses and cookies);
- an engagement metric that shows intensity of use;
- a satisfaction metric, 'clickthrough'.

# Key findings

## Culture on the go

### ● **Insatiable demand for Europeana content**

Since it was launched on 20 November 2008, Europeana has delivered nearly 25 million page views and traffic is growing at a remarkable pace, with page views increasing at a compound annual growth rate of 214 per cent (p12).

### ● **The power of Google**

Opening up Europeana to deep indexing by Google has been a major factor fuelling this growth, leading to a six-fold increase in the volume of transactions to the end of July 2011. Google is now responsible for more than half, 57 per cent, of all visits to Europeana. As well as creating a wider audience for Europeana content, search engine indexing has changed the way the site is used. New Google-directed users go straight from their search engine to content rather than navigating their way from the home page (p13).

### ● **Big growth in user numbers as well as activity**

Based on current trends, Europeana is on the brink of a major breakthrough in terms of individual visitor numbers, which we can estimate from unique combinations of IP address and user agent. Over the period September 2010 to August 2011, almost 3 million people visited Europeana and we expect this to grow to 5.5 million during the calendar year 2012 (p.16).

### ● **Culture on the go: the rise of mobile access**

Industry pundits predict that mobile devices will overtake desktops and laptops in terms of their installed base by 2013 (p18). Mobiles, especially Apple's iPad and the iPhone, are proving to be increasingly popular choices for accessing Google content and these brands account for more than 70 per cent of mobile traffic worldwide.

As far as Europeana is concerned, around 69 thousand people accessed it from a mobile device over the 12 months to August 2011. Although relatively small at the moment, page views from mobile devices are growing more than four times faster than from desktops and laptops. Mobiles will take an increasing share of Europeana traffic and become a very significant part of the equation by December 2012 accounting for nearly 18 per cent of visitors (p16).

### ● **France is the main source of mobile traffic**

The French are the main source of fixed and mobile Europeana traffic with a global mobile market share of just under a quarter, 23.6 per cent (p20). They are clearly very keen on the iPad, not just in terms of units sold, but they spend longer and look at more pages (p21). France is the second largest provider of Europeana content (after Germany) with 2.7 million records.

# Key findings

## Culture on the go

- **Mobile use focuses heavily on a few collections**

Unsurprisingly, French content is exceptionally popular for Europeana's mobile users, occupying four of the five top slots in terms of the most popular collections. Use at the collection level is very skewed, as in so many areas of information consumption, with the top ten most popular collections delivering more than half of all mobile page views (p22).

- **Mobile use follows a different rhythm**

Mobile devices have considerably widened access to Europeana content at weekends and outside traditional office hours, mobile phones come into its own. More research is needed to determine whether this use is different qualitatively as well as quantitatively: do users express different personas at these times? (p23)

- **Search engines dominate mobile and fixed referrals**

Search engines, predominantly Google, are the key drivers of visits to Europeana and with important implications since most external searches take the user straight to a record, by-passing the home and other contextual pages. Blogs and social media, representing the wisdom of the crowd, are becoming increasingly important sources of traffic for Europeana and with a greater tendency to land the user on the home page. Fixed and mobile users barely differ at all in terms of their referral patterns (p24).

- **Social media and blogs deliver on engagement**

If we define 'engagement' as the product of the length of a visit and the number of Europeana search queries, then referrals from blogs and social media deliver in spades. While search engines may deliver quantity of visitors and in huge numbers, these are, on average, less fully engaged than those that arrive from a more personal environment like a blog (p25).

- **Different mobile visits, different needs**

People visit Europeana for a wide variety of reasons, from simply finding themselves there as the result of a Google search to a planned and intensive research session. CIBER's cluster analysis shows that about half (52 per cent) of all visits come from Bouncers who view but a single page, a further 42 per cent are Checkers who come in briefly for a single search and who typically view 3-4 pages. The remainder of visits, about 6 per cent, are Explorers who engage in relatively lengthy and heavy research sessions (p26).

- **Mobile-lite interfaces may no longer be appropriate**

Mobile users are presented with a very spartan interface that now seems a bit outdated given the recent and very rapid penetration of the market by tablet devices, especially the iPad, which postdates the implementation of Europeana. Tablet users behave much more like desktop users and now have the resolution and screen estate to benefit from a wider range of functionality (pp27-28).

# Key findings

## Culture on the go

### ● **Mobile users behave differently**

Visits from users on the go are very different in the aggregate to those from fixed platforms. Visits are typically shorter, less interactive, and less content is consumed per visit. The only metric for which mobiles are higher than that for fixed devices is average time per page, possibly a function of their slower speed (p28).

On the other hand, the variation between different mobile devices is huge, with the iPad approaching the kinds of metrics generated from fixed platforms (p29).

### ● **Are mobile users satisfied?**

Logs can tell us an awful lot about information seeking behaviour, but nothing explicit about satisfaction, except perhaps by inference in the case of return visitors. There are however two metrics that suggest that mobile users may not be enjoying the same outcomes as 'normal' visitors. One shot visits, where only a single page is viewed, are nearly twice as common for mobile users (p30).

It is impossible to tell whether this reflects a positive experience (they got what they wanted) or a negative one (they got there by accident and weren't impressed). There is also a big difference in click through rates: the Europeana equivalent of the full text download.

For fixed users, 44 per cent of page views lead to a redirect to a content provider but for mobile users, the click through rate is just under 17 per cent. One possible factor here is that Europeana partner sites vary in how they are adapted for mobile browsers. If the user notices the first time that clicking through to the providers causes an error or leads to a badly laid out page, they are less likely to do so again. Understanding what lies behind these very different outcomes on two key metrics deserves further research and reflection (p30).

EUROPEANA USE AND USERS  
ALL PLATFORMS

# The power of Google

## Europeana use and users

Europeana launched to a worldwide public on 20 November 2008.

Log records are available from October 2009 and they reveal that traffic to the site has grown at a rapid and accelerating pace.

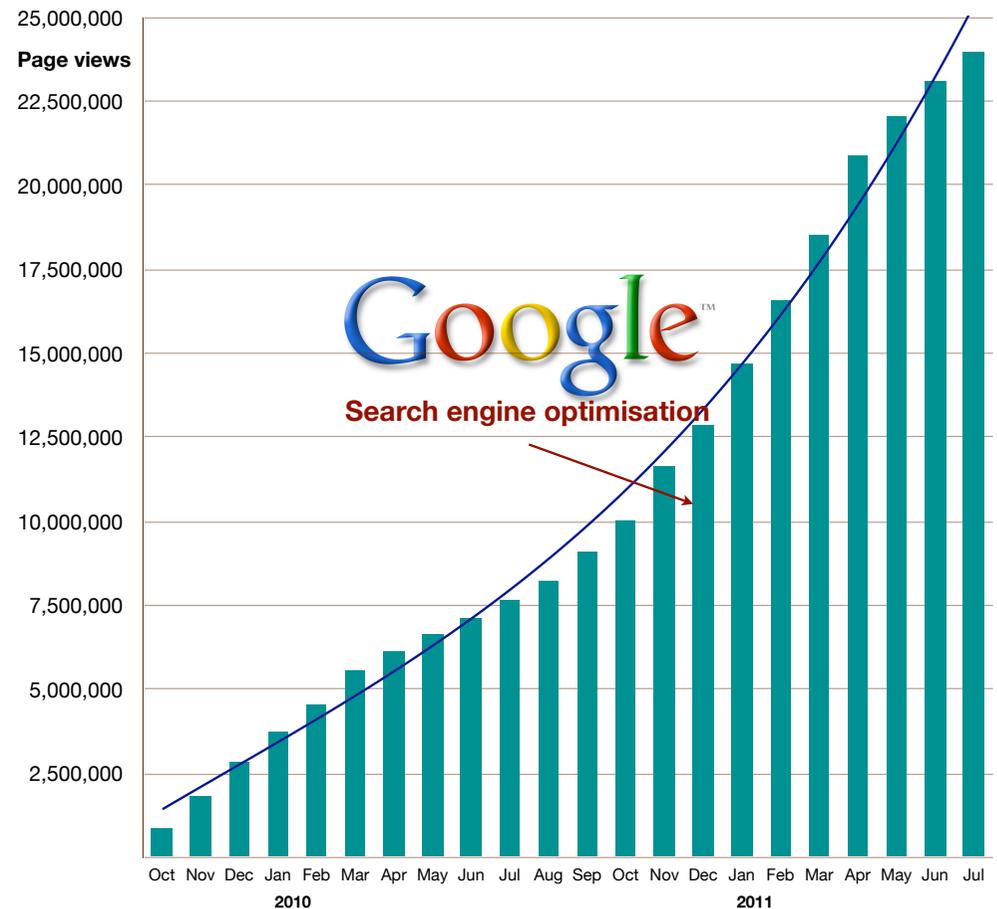
The chart opposite shows the rate at which usage, measured by page views, has cumulated over that period at a compound rate of interest of 214.4 per cent per annum. This is spectacular growth by anyone's standards.

In the later part of 2010, changes were made to the structure of Europeana that made indexing of the site at the record level by robots, Googlebot in particular, far more effective. As a result, it is now possible to do a detailed search for Europeana content using a popular search engine like Google.

This process, search engine optimisation, made a dramatic impact on the use of Europeana. It greatly increased traffic to the site, and caused a step change in the rate of growth (see opposite).

Google referrals have increased tenfold in terms of absolute numbers of visits, so Europeana content is now seen by more people around the world than could possibly have been conceivable when Europe's cultural treasures were only available to tourists actually on the spot.

Search engine optimisation has been a great success but it poses a new challenge. Many people using a search engine will scarcely be aware of Europeana as they bounce into the site, view a record, and then bounce out perhaps only seconds later. The challenge now is to find ways to make the Europeana experience even more engaging and increase 'site stickiness'.



Cumulative monthly growth of Europeana page views  
December 2009 to July 2011

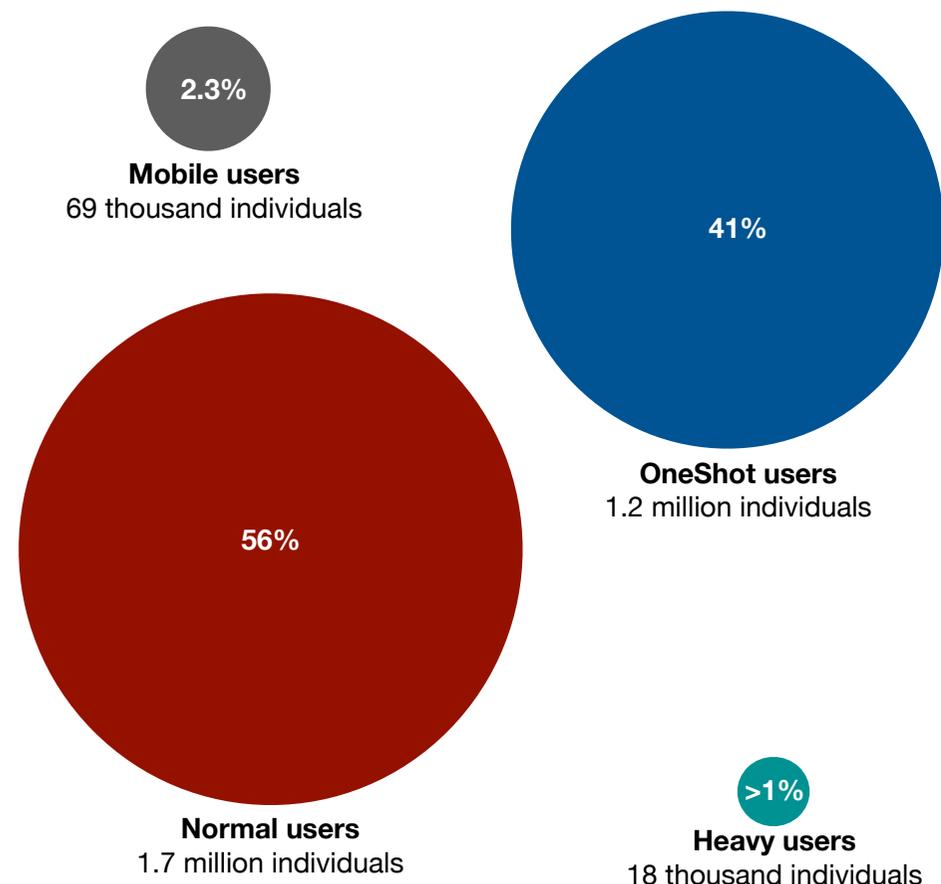
# Categories of Europeana users

## Europeana use and users

As is normal for any web site, indexing by robots accounts for the majority of page requests, up to 90 per cent in the case of Europeana. Robots, like Googlebot and Yahoo, are essential partners in the digital world because they index content and make it searchable for users. After discounting robot use, we then classify the remaining human users into four categories, shown opposite.

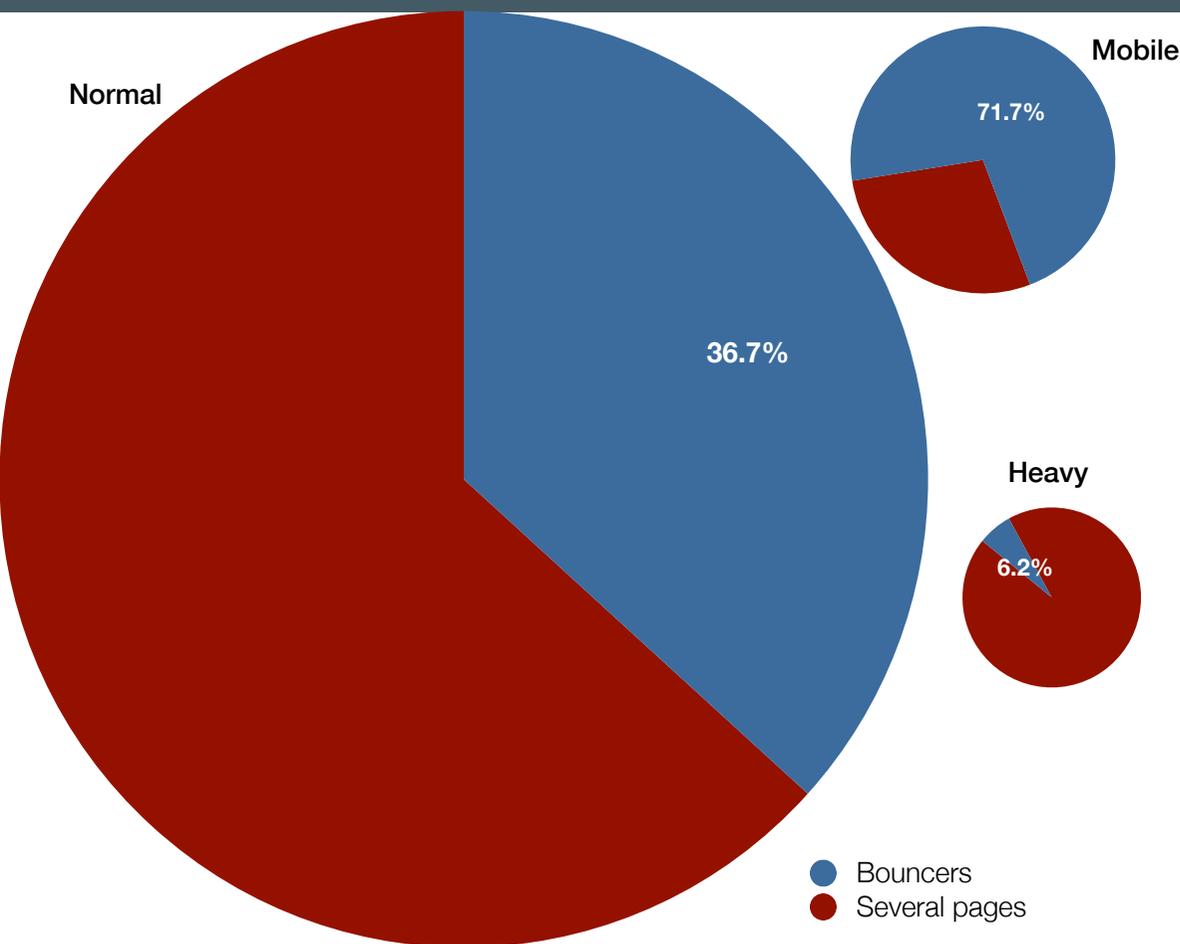
First, we identify 'OneShot' users. These are people who only view one page and who have not yet paid a return visit to Europeana since we began looking at the logs in October 2009. The remaining users are split into three further categories. Mobile users are easily identifiable because of the operating systems that they use. We then classify the remaining users (excluding OneShots and mobile users) into 'heavy' or 'normal' by page views. We constantly review the criteria for heavy users but the broad objective of this division is to select the very heaviest users and set the lower bound at a level that captures the majority of internal (Europeana) use and significant instances of institutional use (museums, libraries, etc.). In many cases the heaviest users are institutions involved with the Europeana project: use here will include both development activity and general use from public kiosks, schools or colleges.

In the 12 months September 2010 to August 2011, Europeana had around three million unique users. Our 'heavy user' category where many users may share an institutional connection, represent less than 1 per cent of all users, but these account for a far higher proportion of visits and page views. They will score higher in terms of 'engagement' but because this category includes internal use by the Europeana project, such 'engagement' will not be typical. Mobile use accounts for 2.3 per cent of users over the most recent 12 months. The remaining use can be split between 'OneShot' users (41 per cent) who show no evidence of engagement and the rest (56 per cent) to which we can apply an engagement metric.



# Bouncer visits

## Europeana mobile use and users



On the previous page we looked at four categories of user: normal, heavy, mobile and OneShot.

A finer subdivision of the first three of these categories is possible by looking at the proportion of visits that involve just a single page view: we call these 'bouncer' visits.

The difference between a bouncer and a OneShot is that the latter have not revisited the site since we began analysis the logs. So, by definition, there can be no bouncers within the OneShot category.

We cannot measure engagement in the case of bouncers, and in all cases we can only guess the context or motivation that brought someone to Europeana. It is however reasonable to suppose that the nature of the page view will be a significant factor. A single view of a page such as 'aboutus' may provide a satisfactory answer, on the other hand the Europeana homepage, offers little to engage the user who goes no deeper into the site. A notable effect of the search engine optimisation in early 2011 was to greatly increase the number of bounce visits going to a record page rather than the homepage. But Mobile visits are more likely to go to the homepage.

Mobile visits are nearly twice (1.95 times) as likely to be bouncers than is the case for normal users, and more than ten times as likely for heavy users. They are 25% more likely to view the homepage, 25% less likely to view the record. We do not entirely know why this is the case, although there is much variation between Europeana partners in the extent to which they have adapted their offerings for mobile users.

# Forecasting numbers of Europeana users

## Europeana use and users

Using our new technique of estimating unique users, we are able to forecast the numbers that Europeana should expect to pass through its doors during the twelve months ending December 2011 and December 2012.

The mathematical models that underpin these forecasts fit the historic data very well and we can be quite confident that they will generate reasonably accurate short term forecasts.

We predict that five and a half million individuals will visit Europeana during the 2012 calendar year, compared with just under three million in the latest set of figures: the 12 months ending in August 2011.

Mobile visitors are the fastest growing category of Europeana users and their influence will be felt increasingly, and our estimate that they will comprise around 17 per cent of visitors during 2012 is somewhat conservative. Enhancements to the mobile Europeana experience, which is currently quite limited (see later in this report) is likely to change this proportion considerably, since it is likely that the installed base of internet-ready mobile devices will actually overtake that of desktops and laptops around 2013.

User type	ACTUAL	PROJECTED	
	Unique users 12 months to August 2011 (000s)	Unique users 12 months to December 2011 (000s)	Unique users 12 months to December 2012 (000s)
Heavy	18	22	45
Normal	1,663	1,879	2,710
Mobile	69	134	977
OneShot	1,225	1,352	1,818
<b>All users</b>	<b>2,974</b>	<b>3,387</b>	<b>5,550</b>
Mobile as % of all users	2.3%	4.0%	17.6%

EUROPEANA USE AND USERS  
MOBILE PLATFORMS

## Context: the growth of mobile communications

### Europeana mobile use and users

Mobile phones will overtake PCs as the most common web-access devices worldwide by 2013.

It is estimated that the combined installed base of smartphones and browser-equipped enhanced phones will surpass 1.82 billion units by 2013, eclipsing the total of 1.78 billion PCs by then (Gartner 2010).

Research by the European Interactive Advertisers' Association finds that Europeans spend an average of 6.4 hours per week on mobile internet (or 'internet on the move') compared to 4.8 hours reading newspapers and 4.1 hours reading magazines (EIAA 2010).

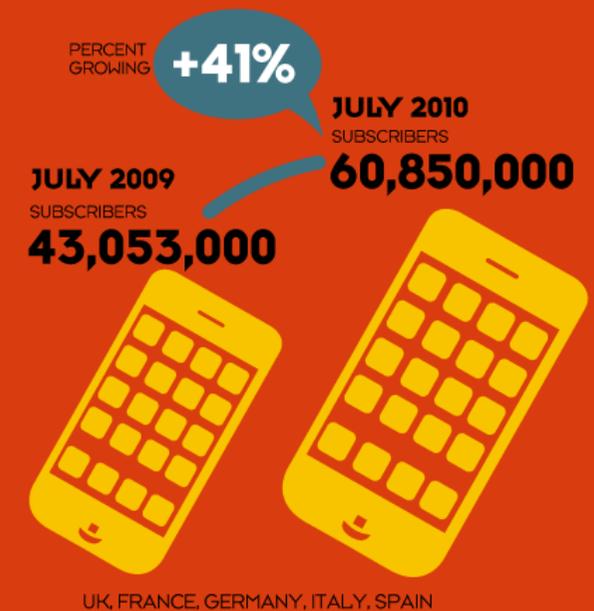
Seventy-one million European users access the internet via a mobile device, averaging nearly one hour of mobile connection per day (EIAA 2010).

#### Sources:

Top Predictions for 2010 and Beyond, executive summary, Gartner Research, January 2011.

European Mobile Internet Use, executive summary, European Interactive Advertisers' Association, January 2011.

## European Smartphone Market Grows 41%



#### Growth of European smartphone market

Source: Metagrafic based on Comscore data, September 2010

# Growth in Europeana mobile use

## Europeana mobile use and users

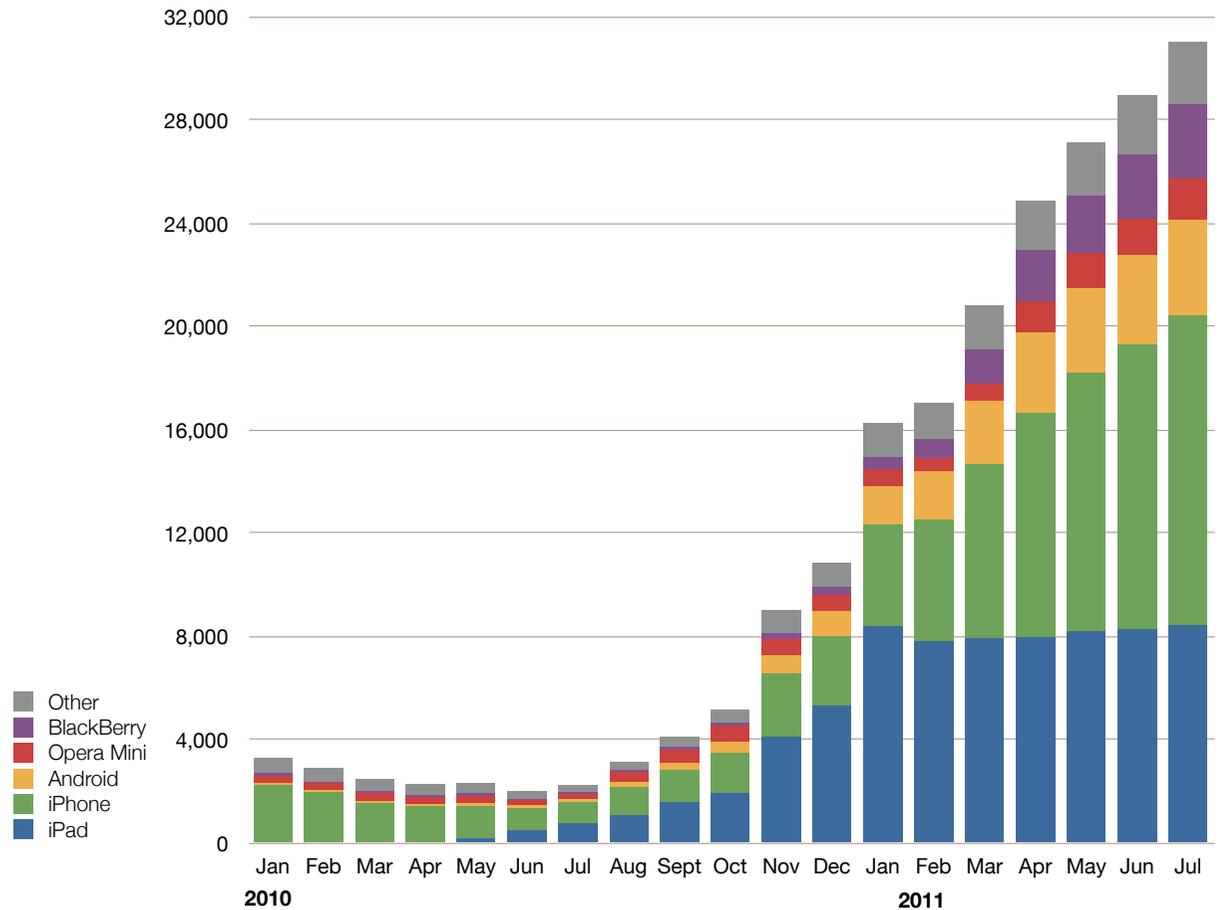
Europeana is proving exceptionally popular for users with mobile devices.

The chart opposite shows monthly (not cumulated) numbers of page views and an exceptionally rapid period of growth following search engine optimisation.

Because we are starting from a very low base (in January 2010, for example, there were fewer than 3,000 mobile page views) it is difficult to predict the future with certainty. However, over the 12 months from August 2010 to July 2011, page views from mobile devices grew at a rate than four times greater than from fixed devices, with the fastest growth coming from the iPhone.

We know that mobiles are now used more intensively for finding and sharing information than for voice traffic, so the seeds of a massive change in user behaviour are well sown.

If these trends continue, as we confidently expect, then mobile access is likely to become a significant component of Europeana's future traffic, with considerable implications for system design.



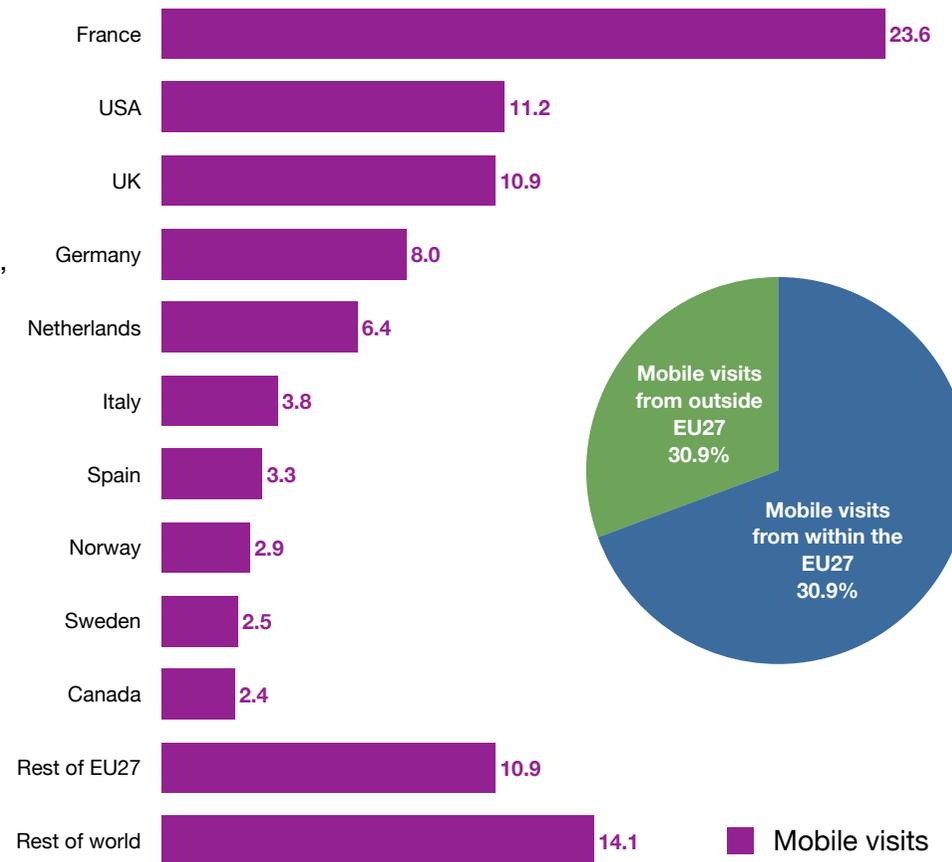
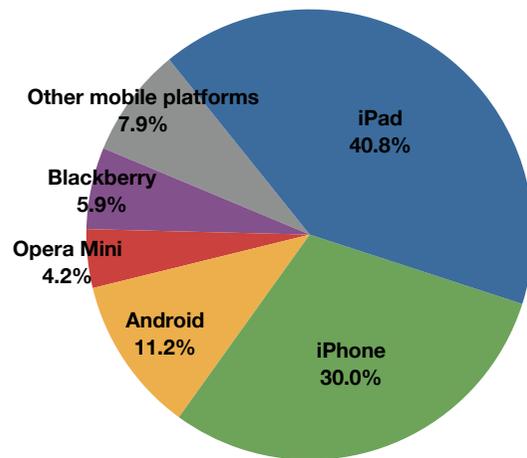
Europeana: Mobile page views by platform  
January 2010 to July 2011

# Who uses Europeana on the go?

## Europeana mobile use and users

Europeana's mobile users are huge fans of Apple cool, with traffic dominated by Apple's iPad and the iPhone which, in July 2011, accounted for more than 70 per cent of all mobile page views. These devices are particularly suited to viewing cultural content because of their very high definition. This has resonance with Europeana's cultural ideals but it also shows the need to ensure that Europeana works well on all mobile devices so as to reduce the digital divide.

French users dominate the mobile market for Europeana content within the EU-27, despite having the second lowest number of mobile subscriptions per 100 inhabitants.



# Most intensively used mobile platforms

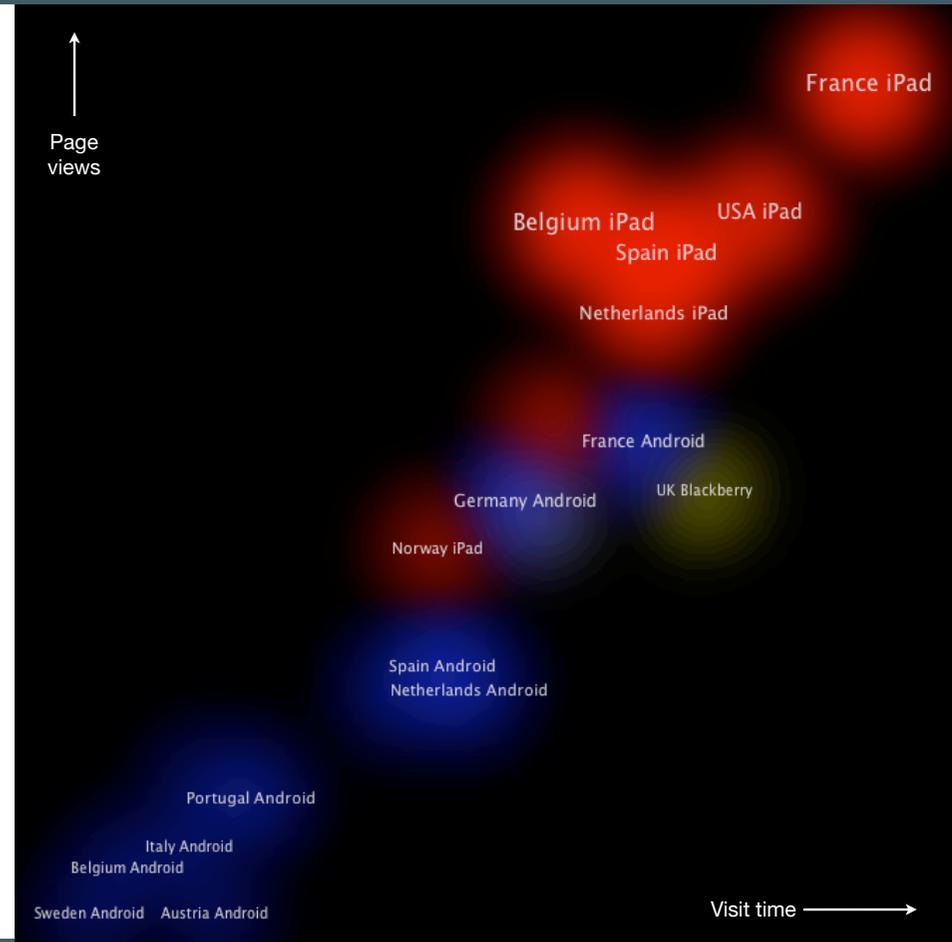
## Europeana mobile use and users

This graphic identifies the mobile platforms and countries that make the most intensive use of Europeana.

Intensity of use is defined here as a function of the number of pages viewed (vertical axis) and the time spent online (horizontal axis). The blobs are scaled to the number of individual users and the colours represent the iPad (in red), iPhone (in blue) and Blackberry (in yellow).

The message is very clear: the iPad tablet provides a user experience that encourages longer, deeper sessions in Europeana and this represents a step change in behaviour compared, for example, with Android users.

French iPad users have pulled away from the pack as the largest group and the most intensive consumers of Europeana on the go.



Average page views and visit time by country and mobile platforms  
VOS data visualisation, October 2010 to July 2011 (one shot users excluded)

# What do Europeana mobile users look at?

## Europeana mobile use and users

The ten most popular destinations for Europeana users on the go are shown opposite, with French materials highly represented in rank positions 1, 3, 4 and 5. France contributes the second largest amount of content to Europeana, so this is quite interesting.

As in so many other areas of information consumption, use of Europeana is highly skewed. These top ten collections which represent a little under three (2.8) per cent of all collections serve up just over half of all the page views made by mobile visitors (53.7 per cent).

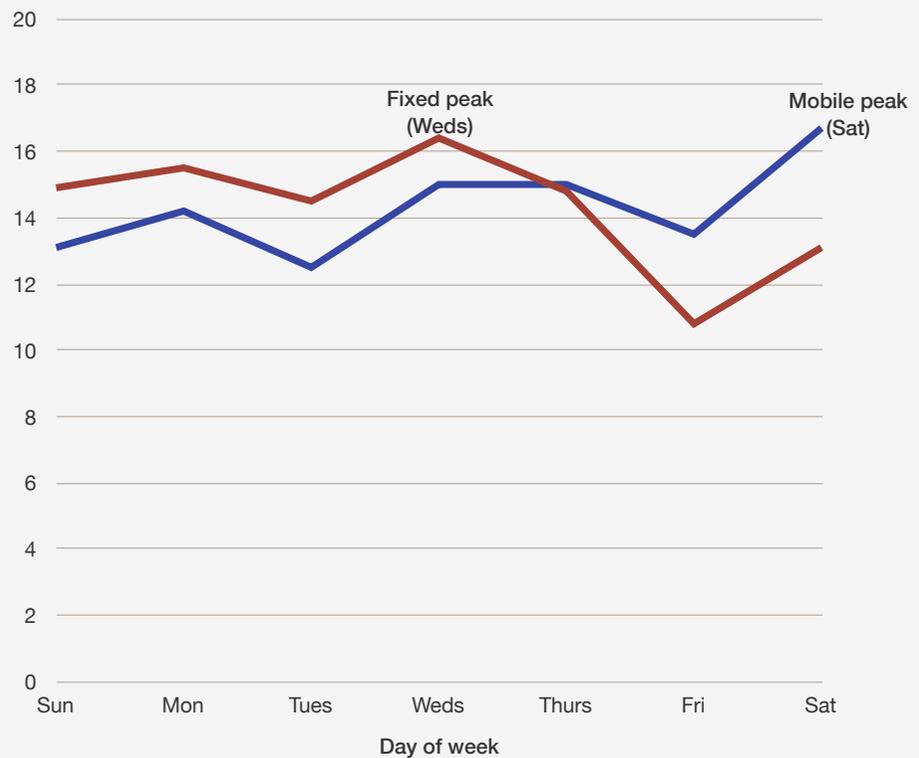
Far from being a negative, the mirror image of this distribution is a long tail of lower intensity use across a large number of collections, providing users with fantastic diversity and choice and opportunities for even the most specialised and esoteric tastes to be satisfied.

Collection	Provider	% mobile page views
<b>Joconde</b> (French museums)	Culture.fr	10.1
<b>SCRAN</b> (Scottish museums)	SCRAN	9.0
<b>RMN Grandpalais</b> (French art)	Culture.fr	6.5
<b>INA</b> (French TV and radio archive)	Institut national de l'audiovisuel	5.5
<b>Gallica</b> (French monographs)	Bibliothèque nationale de France	4.6
<b>Deutsche Fotothek</b> (German picture archive)	Sächsische Landesbibliothek	4.5
<b>DigitaltMuseum</b> (Norwegian museums)	ABM Utvikling	3.8
<b>Ga het na</b> (Dutch national archive)	Nationaal Archief	3.7
<b>Digitale Bibliothek</b> (Bavarian digital library)	Bayerische Staatsbibliothek	3.0
<b>IMC</b> (Irish census records)	Irish Manuscripts Commission	3.0
<b>Total</b>		<b>53.7</b>

Top ten most popular Europeana collections viewed by mobile users  
EU-27 percentage market shares by page views, January to July 2011

# When do they look at Europeana?

## Europeana mobile use and users



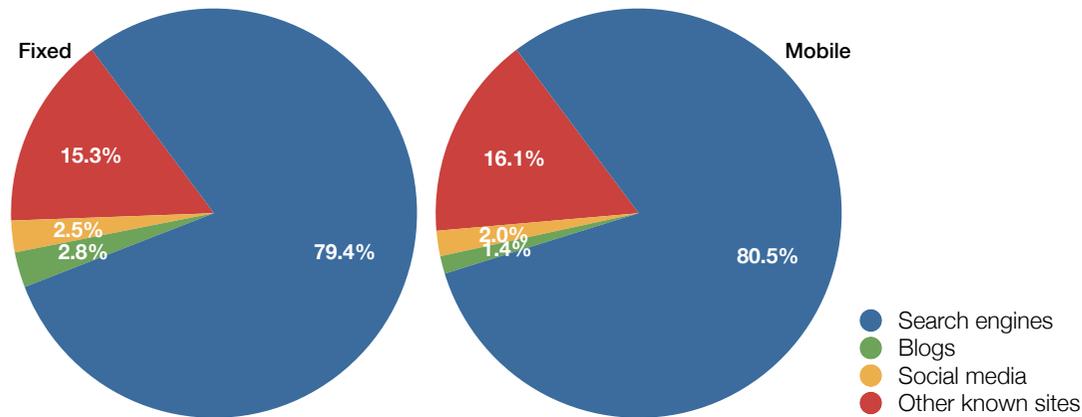
Unsurprisingly, the intensity of Europeana use, as expressed by page views, varies between the week and the weekend and at different times of the day as people shift between different contexts and personas, from the professional to the personal perhaps. This is a question for further user studies and persona development. Clearly, mobile devices have considerably widened access to Europeana at weekends and outside of traditional office hours.

# Referrals from other web sites

## Europeana mobile use and users

### Referrals to Europeana

Percentages of known referred visits, January to July 2011 (one shots excluded)



Websites of different types direct traffic to Europeana. The bulk of referrals come from search engines, notably Google. The remainder from institutional sites and via the wisdom of the crowd through blogs and other social media. There is some Twitter traffic but it is not important quantitatively speaking, however, it is a good metric for social engagement and one of the platforms that Europeana are targeting.

Mobile and fixed users do not differ in any significant way in terms of their pattern of referral to Europeana, as we can see above.

Different types of referring sites have a big impact on where people land once they get to Europeana. Search engines typically take them straight to a record page, blogs to the homepage, and social media to a wider variety of entry page types.

### TYPE OF REFERRING WEBSITE

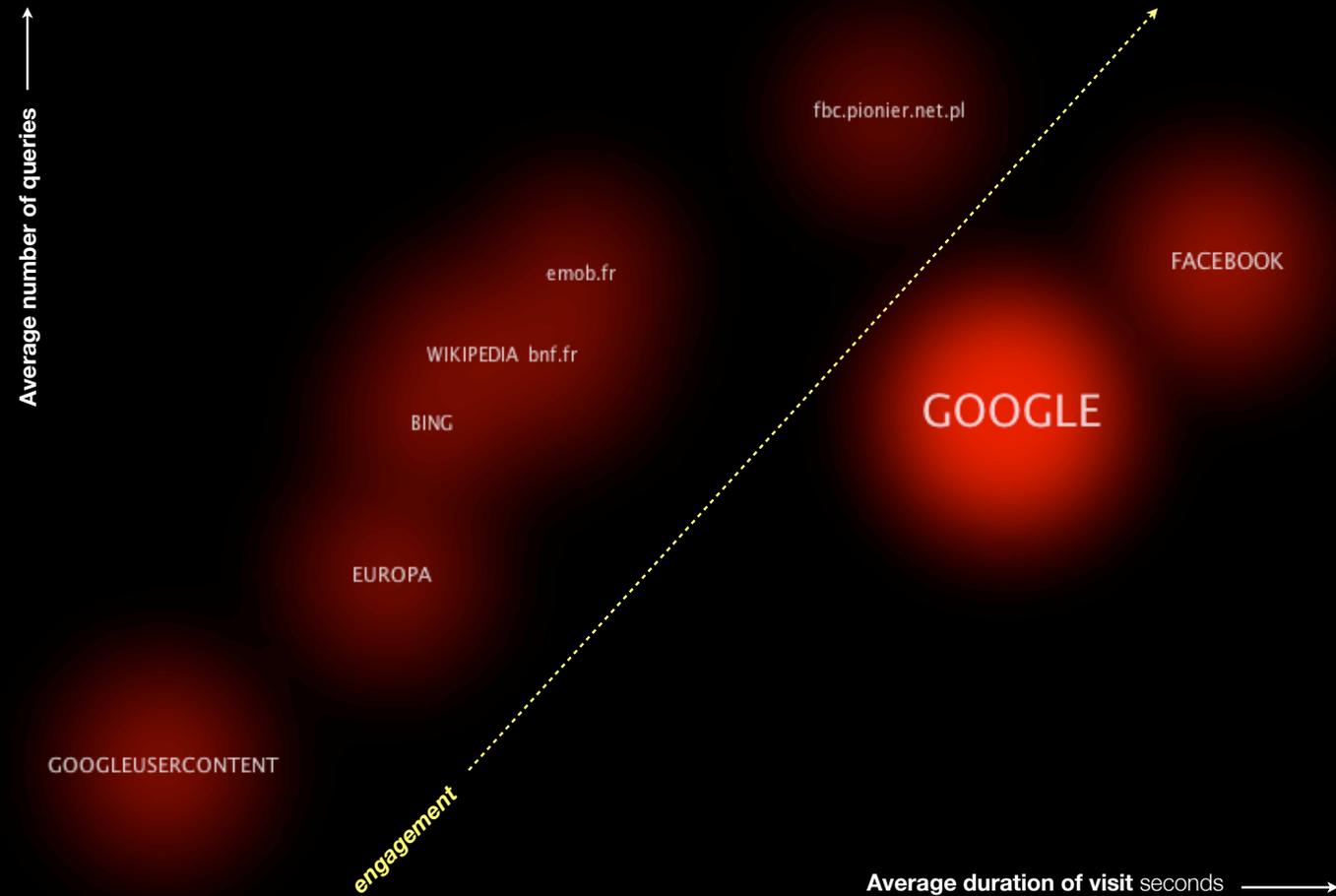
ENTRY PAGE	Search engines	Blogs	Social media
homepage	18	90	55
search	-	1	12
record	82	1	23
redirect	-	4	5
other	-	4	5
<b>All entry pages</b>	<b>100</b>	<b>100</b>	<b>100</b>

# Engagement with Europeana by referral source

## Europeana fixed users

We now introduce a new concept: 'engagement', by juxtaposing the average duration and number of queries in a visit. High values for both (top right) suggest a positive user experience and highly engaged use of the service. The referring site delivering the highest level of engagement overall is the Polish PIONIER Consortium, [fbc.pionier.net.pl](http://fbc.pionier.net.pl). Google scores highly and the wisdom of the crowd also seems to provide a highly effective filter for Europeana, with social media such as Facebook and Wikipedia bringing in significant numbers of highly engaged users. Looking in more detail, we can see that Facebook and [emob.fr](http://emob.fr) average around the same number of queries per visit, but visits referred from Facebook are significantly longer. By pairing metrics in this way, we see a much more nuanced picture than we do looking at metrics in isolation.

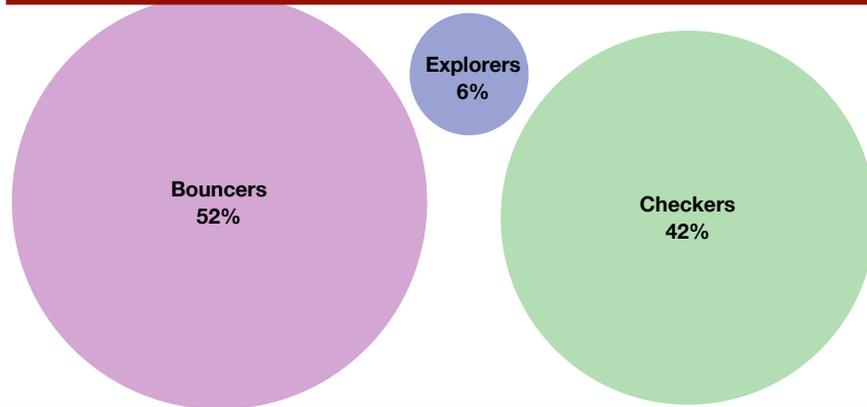
This particular analysis reveals different levels of engagement for visits referred from various web sites (the sites here are the top ten referring sites for *fixed* users for the first seven months of 2011). The text size scales to the volume of traffic. Once we have enough data we shall perform the same analysis for mobile users: early signs are that we do not expect things to be much different.



# Categorising Europeana users by information seeking behaviour

## Europeana mobile use and users

Cluster	% of mobile users	Nickname	Brief description
I	52%	<i>Bouncers</i>	Visits that involve a single page view only
II	42%	<i>Checkers</i>	Relative brief (1 min 51 secs) visits involving a single search and viewing 3 or 4 pages
III	6%	<i>Explorers</i>	Relatively long (10 mins) research-intensive sessions characterised by 4.5 searches and viewing 12.7 pages



People visit Europeana for a wide variety of reasons, from simply finding themselves there as the result of a Google search to a planned and intensive research session. The digital footprints that visitors leave behind are clearly structured and suggest that there are three basic types of mobile user interaction with Europeana. These clusters are summarised opposite and described below.

Many visitors (52 per cent) are 'bouncers' who only view a single page, very likely having been swept there courtesy of a general search engine like Google. A possibly high proportion will never return, but that is not to say that they may not have extracted valuable facts or information from that visit.

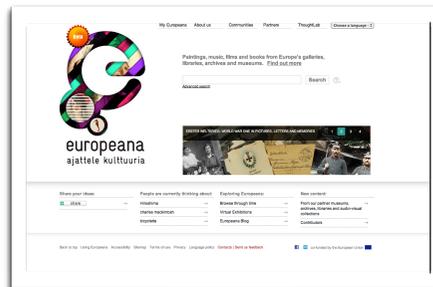
A large minority of mobile users make relatively brief visits of just under two minutes and engage in real interaction with Europeana, typically conducting a single search and viewing several pages of content. A small but relatively high proportion of these visits are referrals from social media or blogging sites (a third more referrals than expected) and this indicates interesting potential for the social media plus mobile use combination. We are provisionally associating these kinds of visits with a form of 'checking' behaviour - they appear to be fact-finding or checking in nature, short and sharply focused. This leaves a small minority, around six per cent of visits, that are characterised by considerably longer duration (around ten minutes) and much higher degrees of interaction with Europeana software and content. This is the kind of behaviour that one would associate with a need for more in-depth research or perhaps users who are simply exploring the website to see what Europeana can offer them.

# Different interfaces, different experiences | Europeana mobile use and users

Depending upon the platform they use, visitors see a different interface and have a very different experience of Europeana, as these screen shots indicate.

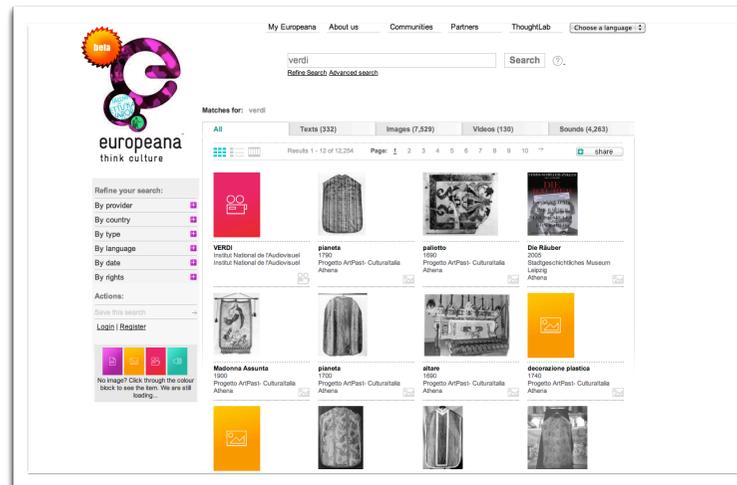
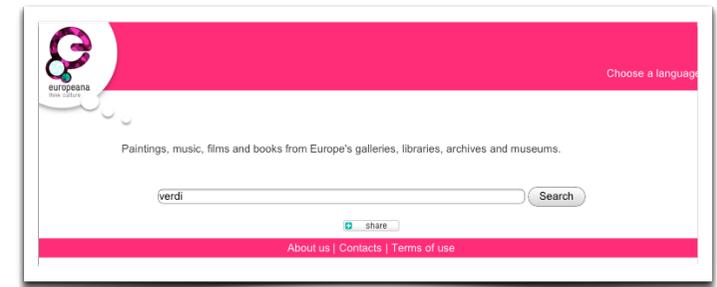
A consumer-style comparison of the functionality of the two interfaces follows on the next slide.

## FULL INTERFACE

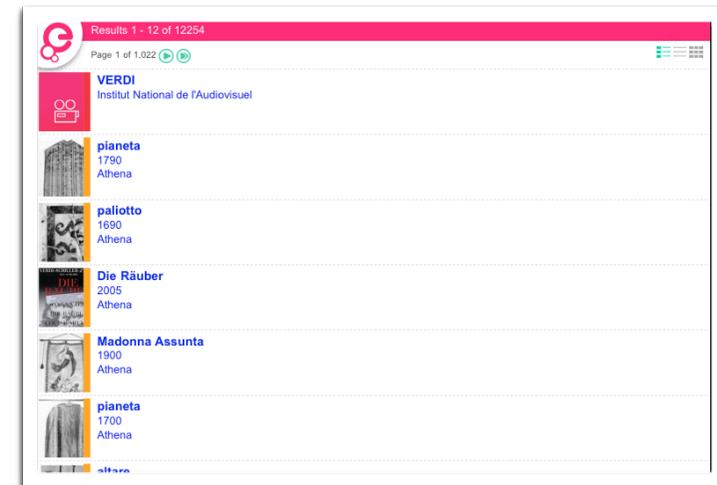


Home page

## MOBILE INTERFACE



Results page



# Different interfaces, different experiences II

## Europeana mobile use and users

Before the arrival of tablets, mobile devices were very limited in terms of the size and resolution of their screens, the lack of a keypad or mouse, and relatively slow processing speeds. Many internet-enabled phones still suffer from these limitations and so a simplified interface, 'Europeana-lite', is essential to provide reasonable access.

This comparative table shows how limited is the functionality that is available to mobile users compared with accessing the service from a desktop machine or laptop. Many of the items on this list are static pages and not functions. Having all of them present for mobile users would seriously overwhelm the limited screen estate.

This is bound to colour the online experience and impact upon user behaviour: that is clearly reflected in this report, with major differences both between how Europeana is used on fixed and mobile platforms, but also between smartphones and tablets. The table shows that the mobile experience is much less engaging.

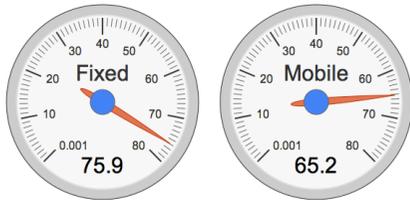
Europeana plan to re-haul the mobile version of the interface and the ability to filter search results is part of the requirements, along with many other features. In the new Europeana design that will be launched in October, tablet users will no longer be directed to the mobile access version but to the desktop version.

	Fixed	Mobile
Simple search box	✓	✓
Choose a language	✓	✓
Bookmark and share	✓	✓
About us	✓	✓
Contacts	✓	✓
Terms of use	✓	✗
Advanced search	✓	✗
Send us feedback	✓	✗
New content	✓	✗
Exploring Europeana	✓	✗
People are currently thinking about	✓	✗
MyEuropeana	✓	✗
Communities	✓	✗
Partners	✓	✗
ThoughtLab	✓	✗
Using Europeana	✓	✗
Accessibility	✓	✗
Privacy	✓	✗
Language policy	✓	✗
Back to top	✓	✗

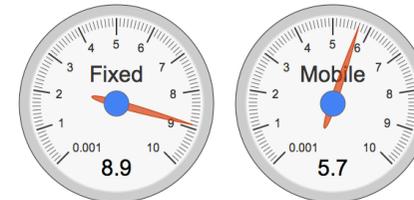
# CIBER dashboard: fixed and mobile users compared

## Europeana mobile use and users

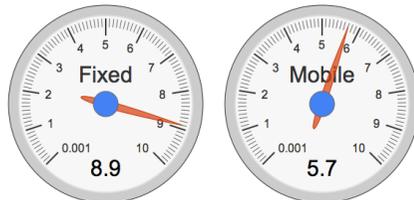
**Duration of visit (seconds)**



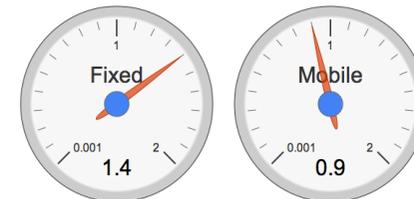
**Search page views per visit**



**Page views per visit**



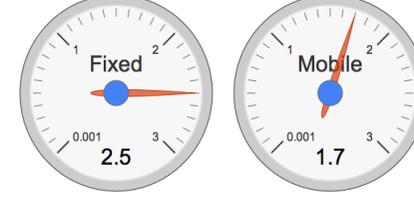
**Queries per visit**



**Time per page (seconds)**



**Record views per visit**



Visits from mobile devices are much less interactive than those from fixed platforms. Fewer pages are viewed, and fewer searches are conducted.

Mobile users spend on average more than twice as long per page, but this is only to be expected given the relatively slow performance of these devices in many situations.

# CIBER dashboard: mobile platforms compared

## Europeana mobile use and users

### Duration of visit (seconds)



### Search page views per visit



### Page views per visit



### Queries per visit



### Time per page (seconds)



### Record views per visit



Another dashboard, this time comparing three popular mobile platforms, shows clearly that the behaviour of Europeana users on the go is heavily influenced by the kind of device they use. The limited screen real estate and slowness of the BlackBerry is clearly a limiting factor for in-depth research. On the other hand, the tablet iPad generates usage metrics that are not hugely dissimilar from desktops or laptops.

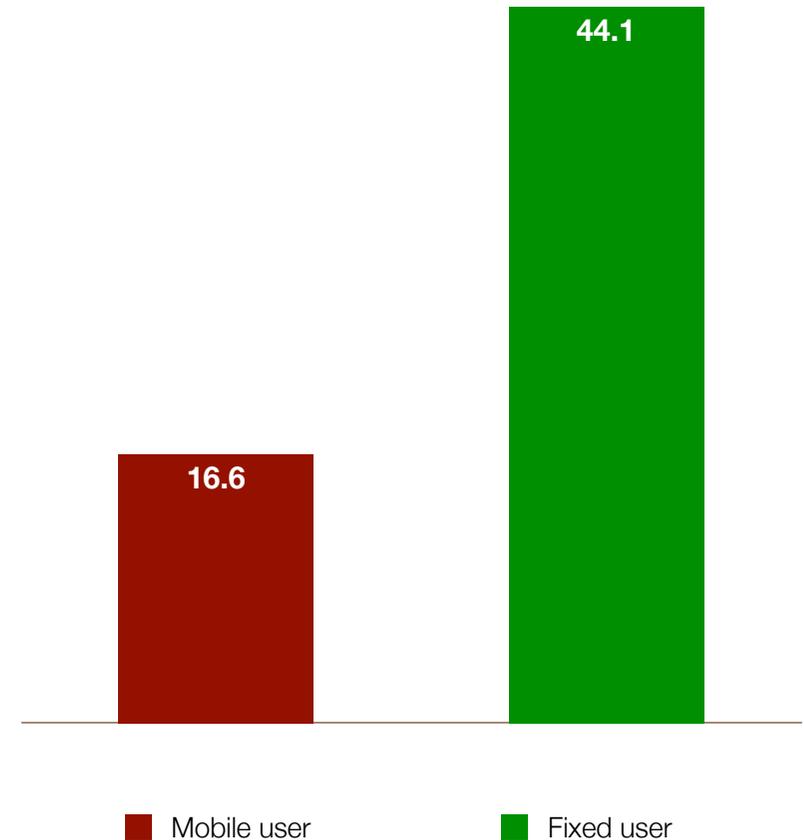
# CIBER dashboard: are mobile users satisfied?

## Europeana mobile use and users

The data presented so far has built up a profile of some of the key differences between fixed and mobile uses of Europeana. We now turn to more difficult questions of user satisfaction.

We can only really nibble away at the edges of understanding satisfaction since the logs cannot tell us what was the specific purpose, context or motivation that brought someone to Europeana in the first place. But we now have a proxy that suggests very different outcomes for fixed and mobile users: our new clickthrough metric. Clickthrough is as close as we can currently get to a success or satisfaction metric for Europeana. A clickthrough involves the viewing of two pages where the user moves from a Europeana record to the collection provider's web site. It is a download in publisher or a 'conversion' in e-commerce terms.

There is a substantial difference in clickthrough rates between fixed and mobile users, as we can see opposite. Europeana's proposed investment in improved mobile interfaces is needed and we expect to see the gap to close considerably once the changes are made.



Clickthrough rates as a percentage of visits

Fixed and mobile users compared, January to July 2011

# Conclusions

## Europeana mobile use and users

Mobiles are a very fast growing market segment for Europeana, still small but it has quadrupled in the past year. The real change for Europeana has not been in smart-phones but in tablets. The iPad has achieved a breakthrough making the tablet (big touch-screen, un-encumbered by wires or peripheral devices) a popular platform where previous attempts have failed.

It redefines the consumer 'personal computer' experience; in fact it is an 'interweb' access-device rather than a computational machine. It makes apparent the difference between telephone/internet access and PC as office machine (even if office at home). Tablet-oriented interfaces are influencing design of PC interfaces e.g. Gnome3, KDE4. The iPad has shown the way to go and is now being chased by rivals such as Android.

Mobile (smartphone and tablet) use is personal use, happens at evenings and weekends; occurs in the home or 'anywhere but the office'. It is about consuming content not creating it. Social networking, courtesy of the mobile, may be creating contacts and networks but it is not content as envisaged by those who suppose 'content is king'

Three years ago Europeana was prescient in considering the mobile user in its development plans. But since then 'Pad' has changed the way we need to conceive the 'mobile' user. Where once there was a clear difference between mobile and PC the differentiation that is opening up is between Office and Personal. The Office is the desktop and laptop, keyboard and mouse, work and study, documents and organisation. The Personal is 'Pad and 'Phone, touch-sensitive and wireless, conversation and affiliation, in a word mercurial.

ANNEX

# Annex

## Terms and definitions used

### Use

**Page views:** the primary measurement of use. A page view is a new display that results from clicking on a link or typing in a web address. By a new display we mean the refreshing of a complete page: thus changes to the display such as pop-ups on mouse-over or the suggestions displayed when typing in a search box are not considered a new page.

**Visits (or sessions):** a sequence of page views that we can ascribe to one user, at one location, with an implicit continuity from first page to last. Although the Europeana.eu site uses session cookies these are not recorded in the log files, hence our visits are defined independently of the sessions defined by cookies. This provides some flexibility in the post facto definition of a visit. We are thus not constrained by the conventions of advertiser driven analytics; our visits seek to capture an Aristotelian unity of action, time and place. That is, a visit has one actor, begins with a referral from another site, follows a chain of links from one Europeana page to another, and lasts no longer than one day.

**Time:** two time metrics can be used to describe online behaviour, visit and page-view time. Traditionally time metrics, of whatever type, are used to show site 'stickiness' as a surrogate for interest and satisfaction, the supposition being the longer the better. Even in the case of major publisher platforms, like ScienceDirect, it is questionable whether these metrics do demonstrate interest and satisfaction. In the case of a gateway, portal or search-centric site like Europeana the opposite may be argued: the faster people move through the site the better and more efficient the indexing and navigation.

### Users

A user is defined by the combination of internet address and user agent string. Although not formally a unique identifier, in practice this proves sufficient to distinguish one personal user from another. In the case of the shared use of a browser in kiosk mode (as might be encountered in a library) it is possible that several visits may be merged, but this would also be the case when relying on session cookies.

**User type:** the distinction between **user** and **robot** is a separation of interactive use from automated machine-generated data gathering. It is important: like an iceberg with nine-tenths of its bulk out of view, robots constitute 90 per cent of logged page views. For the most part this is clear cut: almost all robot activity can be clearly identified from the logged user-agent information alone. As confirmation, the behaviour pattern is readily distinguished from a person seeking to find specific information or generally browsing. Human users also are clearly identified by their use of common browsers such as Internet Explorer or Firefox. The user/robot partition based on the self-declaration of the user agent is generally reliable and efficient but nonetheless there are some ambiguities, particularly when our intent is to study how well a website serves the needs of normal conscious interactive users. However, the effective study of user behaviour requires more than the binary distinction of user/robot. In addition to the user/robot classification which largely relies on identification by user agent, we use the location and institutional information that can be derived from the network address together with patterns in the timing and frequency of access to sub-set the user category.

# Annex

## Terms and definitions used

**Outliers** are cases where use from a single IP address involves hundreds of thousands of pages usually at a very high and steady hourly rate for a few hours or days. Although the user-agent is declared to be an ordinary web browser the behaviour has all the characteristics of a robot or crawler. An outlier may not be malicious or intentionally deceptive, it may originate from testing or development activity as part of the Europeana project, but it is not normal usage and is set aside in our analyses. During the course of the two-year eConnect project there have been around two dozen instances of this classification.

Many Europeana visitors are **bouncers** in that they view only one page per visit. Of these a high proportion may be **singletons** where there is no evidence of a repeat visit. Because of the lack of logged cookies we separate in our analyses of users only a very restricted category of such one-time use. **One shot** users are cases where during the two-year eConnect study (Oct 2009 - Oct 2011) only one page view has been recorded from an internet address. We do not know why these visits are short: it could be a mistake, a dead-end search, or quite the opposite; hitting the required page first time. Neither success nor failure is implied by such a fleeting encounter.

A similar consideration, the filtering out of the extremes in a spectrum of behaviour, also applies to those few visitors who view thousands of pages.

**Heavy users** are genuine users, not robots, nor outliers, but over the past two years they have each viewed thousands of Europeana pages. In many cases this activity is based in institutions associated with the Europeana project: it will include both development activity from within and general use from public kiosks. Group use by schools and colleges is another common use case. The heavy user category numbers less than a thousand, mainly institutional users selected by internet address. The criteria used to identify heavy users are

continually reviewed as the data accumulates. The objective is to select the heaviest users and set the lower bound at a level which captures the majority of internal and significant instances of institutional use.

One shot or heavy, these are significant users, we need to know them better, and by applying a 'top and tail' filter to the user category, setting them aside for particular study, we also clarify the middle ground: the millions of anonymous Europeana **users**.

Finally, because of rapid growth over the past year, a distinct page format and implied information need we treat **mobile** users as a special category. Selected on the basis of user-agent string, mobile users currently account for about 2.5 per cent of use. As the numbers are relatively small and the localisation of internet address less reliable we do not top and tail this category as we do in the case of general users. We can sub-divide this category into 'phones and 'pads' but with numbers small and the trend volatile we must beware of over-fine categorisation.

### **Satisfaction metric**

**Clickthrough:** this is as close as we get to a success or satisfaction metric for Europeana. It is a download in publisher platform terms. A clickthrough is in e-commerce terms a 'conversion', a redirect, an instance of Europeana sending traffic to a provider/collection site. As Europeana is a portal/advertiser of collections then this is a hit for the provider and a 'sale' for Europeana. A clickthrough involves the viewing of two pages. From the user viewpoint page 1 is the Europeana Record and page 2 is the Collection Provider site.