



Mobile Search: what are people searching for and how do they search for it

How this affects search bidding, natural Mobile Internet and web results

How to monetise a mobile site by adding a search box



Table of contents

2. Mobile Commerce and Mobile Search
3. Context of growth of search on mobile
5. Is mobile search like fixed internet search? (No, it's not)
7. What else affects the volume of searches?
8. What actually gets searched?
11. Local search may not be as close as you think!
13. How do people search (do you want a new job)?
15. Do users click on the results? (Yes, they do)
16. What does this mean to the eco-system?
18. How does Mobile Commerce add value to Mobile Search?
19. Contact

Mobile Commerce and Mobile Search

As the number of people using the Mobile Internet increases, the amount of mobile content is growing with it. As a result, there is a greater need than ever to make mobile content and services easier to find, both to enhance the user experience and ultimately to maximise the revenue opportunities.

Mobile Commerce handles over 25% of the searches coming from the 17.38m Mobile Internet users via UK operator portals (see next section), plus a growing number of other portals seeking to monetise their mobile assets. In total dealing with a quarter of a billion searches per annum, a figure doubling each year, as people gravitate towards the convenience of the Mobile Internet with new generations of smart phones becoming the norm and better value data bundles/packages being sold.

Having built an analytic tool in 2002 to analyse these increasing numbers of search requests and clicks, a growing element of Mobile Commerce's core business model is the development of monetised search using paid listings, thus connecting mobile users with advertisers. This generates additional revenue for the network operators (through off-portal traffic) and gives advertisers distribution. The Mobile Commerce solution gives up to a 70% uplift in search clicks compared to a raw search engine implementation.

Because of this Mobile Commerce has been recognised as the UK's leading provider of Search and Local Search services on mobile, having been named in Deloitte's top 50 fastest growing UK tech companies (2008) and the Tech Media Invest Top 100 (2009) which showcases the UK's most innovative media and technology companies.

Current Mobile Commerce customers include Tier One Mobile Operators Vodafone, O2, T-Mobile, Orange plus Sony Ericsson, and Microsoft.

Mobile Commerce handles over 25% of the searches coming from UK mobile operator portals. The company deals with a total of quarter of a billion searches per annum



Context of growth of search on mobile

The volume of searches we are seeing on mobile devices has more than doubled in the last 12 months. There are a number of factors attributable to this increase.

According to the UK Mobile Data Association, there were 17.38 million users using the Mobile Internet in December 2008 (Source: text.it) up from 16.5 million in May 2008.

The Orange Digital Media Index April 2010 (Source: Orange) states that in December 2009 Orange had 3.41 million customers using Orange World (the Orange Mobile Portal) up 5% from February 2009.

So part of the growth in search terms can be accounted for by new Mobile Internet users buying flat rate data bundles and having handsets with improved capabilities that make them easier to use, plus existing users trying the search function for the first time.

However, the average number of searches per unique user is rising much faster. It has grown from 8 searches per unique user per month to more than 13 searches per unique user in the last 12 months. This is a clear indication that once users try the search box they continue to use it in greater and greater volume every month. This is because of changes in the behaviour of the use of the mobile phone with users becoming reliant on the Mobile Internet.

The PC search market is dominated by the branded search providers but the mobile market remains dominated by the operator portals for access to the Mobile Internet. Operators provide a different experience from the dominant PC search sites.

All UK operators now include a search box on the Home Page (and often on many other pages) of their portal. To the left is the O2 Active portal. Notice that on the screen the user can see links and icons as well as the search box (which is at the top of the image).



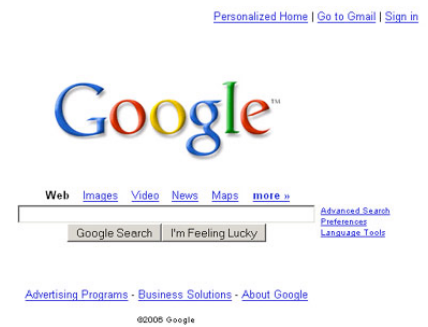
This relationship between the position of the icons and the search box is very important in promoting/encouraging the use of search on mobile. It is fundamentally different from the experience of using Google/Bing on a PC where the search box itself tends to sit alone (see right).

Any change made within the operator portal or the position of the search box has a direct impact on the number of searches for a particular term. For instance, if there is a display ad or clickable link for Hotmail close to the search box and visible on the screen at the same time (see O2 image on Page 3), the number of searches for that and associated terms will drop when the link is displayed, and rise when the link is removed or moved lower down on the portal. This does not mean that the service itself becomes more or less popular but it helps to explain the rise and fall in certain search terms.

Our experience shows that the higher the search box is placed on the portal, the more it gets used, but this should not surprise anybody! If placed below the fold users have a greater tendency to click on the icons/links they can see.

Very simple things increase search volumes. Much has been written over the years on bill shock. This is when a user accesses the Mobile Internet to later discover that costs are significantly higher than expected. Although the industry has done much to educate users, and flat rate tariffs and daily plans have been introduced, simple things like clearly stating that searching is free has an immediate effect on the number of searches made.

This is how the “free web search” it is promoted on the Orange World portal (right).



It is often much simpler to enter a term into a search box rather than attempt to find something on a portal, which may be several keystrokes away

Is mobile search like fixed internet search? (No, it's not)

Mobile Search is not PC search and this drives many of the differences in how services are accessed.

The significant factors are:

1. Ease of text input
2. Ease of navigation
3. Bookmarking

A mobile phone has a much smaller text input device than the keyboard of a PC. This makes input errors much more likely.

Mobile phone screens are small so the user sees less information before there is a need to pan left/right or scroll down. This makes navigation around pages, or down through different levels on a portal, a greater challenge. So it is often much simpler to enter a term into a search box rather than attempt to find something on a portal, which may be several keystrokes away. Therefore, the number of searches for items/content that are already somewhere within the portal is much higher than for the PC, where the eye can scan many pieces of information on a large screen, and the user can click directly on that link.

Most people are familiar with bookmarking a site on a PC. It's very easy to add favourites and when you want to visit them, just click the drop down menus and you get there quickly. When using a bookmark, there is no need to enter a search term.

Bookmarking on a mobile is much less prevalent. Although it is possible to do, users tend not to – bookmarks can be hard to find and with a regular change of handsets, users need to transfer their bookmarks or re-bookmark every time they change phone, which happens on a much shorter cycle than a PC upgrade.

So if it is hard to bookmark sites and hard to navigate around a portal due to the screen size, users are much more inclined to use search to get to the content that they visit on a regular basis. This is exactly the behaviour that is seen and why Facebook was the single most searched term of 2009.

Another way to allow users to input search terms without having the need to enter text is to display tag clouds of commonly searched terms on the appropriate pages of a portal. For instance a tag cloud containing the most popular search terms on a games page may include Monopoly, Pacman, Tetris and others. This allows the user to click on a search term from the tag cloud and the system then automatically sends that term to the search providers and draws back and displays the appropriate results. It is easy, quick and convenient for the user but the search term is generated by a click on a link rather than the direct entry of a search term.

This is a screen grab of a tag cloud (see right) comprising commonly searched games terms, with the search box underneath allowing the user to “search for anything”.



What else affects the volume of searches?

Having established there a number of User Interface elements that affect the overall volume of searches, what are the external factors that affect the specific search terms the user inputs?

Users on mobile don't show the same propensity to search for trending topics as they do on PC but there are certain one-off subjects that have shown a surprising number of searches.

An example of this type of query would be "eclipse", which became a top 10 search term around the last UK eclipse of the moon.

Date and time are also strong drivers of search terms. Examples of annual events that get heavily searched but only when they are taking place are: The Boat Race, The Derby (the horserace not the city) and The Eurovision Song Contest.

TV is also an influential driver of search terms and searches – The X Factor, Big Brother, Dancing on Ice, and we expect, Over The Rainbow, to follow the trend – all generate significant numbers of searches but only when the program is showing. These terms tend to last for a few weeks increasing dramatically towards the final episode and then disappear until the following season. During the screening of The Apprentice (Series 3) in 2007 there was a high volume of searches for Nigella Seeds. This took place at the same time as they were being featured in one of the tasks in the series and people watching the program used their mobiles to work out what contestants were looking for.

Events are another driver of search terms – every time Joe Calzage fought the number of people looking for information on the fight rose. In the same way, the search term England is seen whenever England play a fixture. However, it doesn't appear to matter if the sport is football, rugby, cricket or something else – the terms that come in are England or England Result.

News also drives searches – the death of a celebrity always leads to searches as people look for information. 2010 has seen a leap in the number of searches for Malcolm McLaren following his recent death. The number of people searching "nats" and airlines has risen following the volcano.

Finally, the day of the week has a significant effect on the volume of searches for some obvious categories. Lottery search is largest after a draw – Wednesday and Saturday – and particularly large after a big Euromillions draw. From the time these requests are made it is clear that users are looking for the result rather than to buy a ticket using their mobile in advance of the draw.

Sport is heavily searched over the weekends.

Train information is primarily a weekend search activity on mobile.

During a screening of The Apprentice there was a high volume of searches for Nigella Seeds. This took place at the same time they were being featured in one of the tasks and people watching the program used their mobiles to work out what contestants were looking for

What actually gets searched?

Mobile Commerce started analysing search terms in 2004. Originally we started with a list of the terms. Customers could look at their top terms, click and see the next 50 etc by day, week, month and year. Although this is interesting in itself, it actually hides the detail of what people are looking for and how they are looking for it.

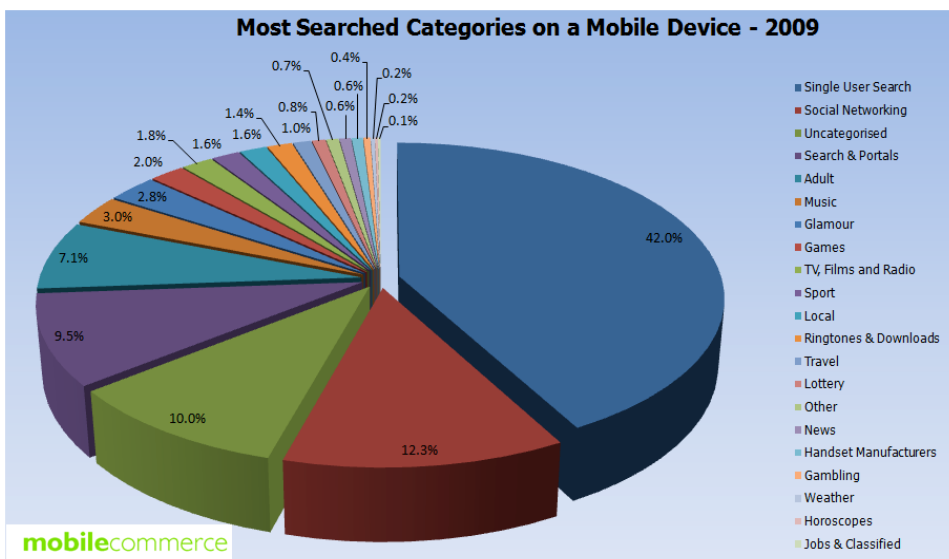
For example, on the right are the top 20 most searched terms of 2009 (in order). Note: Adult terms have been excluded but two would have made the list.

In total, 29% of all searches by volume were for these twenty terms. The concentration of popular terms is caused by the input, navigation and bookmarking issues raised earlier.

However, in the top 20 there are 4 different ways of accessing Facebook, and 2 of accessing both Google and YouTube.

So the real intelligence lay in collecting together all the terms where the search intent was the same and tagging this into a category thus creating a taxonomy into which all search terms could be placed. This makes the information easier to see and understand at a macro level. At the category level this is what users looked for in 2009.

1. **Facebook**
2. **Google**
3. **Bebo**
4. **Youtube**
5. **www.facebook.com**
6. **Ebay**
7. **Ebuddy**
8. **Facebook.com**
9. **Hotmail**
10. **MSN**
11. **Yahoo**
12. **Lottery**
13. **You Tube**
14. **Face Book**
15. **Flirtomatic**
16. **Free Games**
17. **Yahoo Mail**
18. **Plenty of Fish**
19. **Google.com**
20. **twitter**



1. **facebook**
2. **www.facebook.com**
3. **facebook.com**
4. **face book**
5. **facebook login**
6. **facebook/s**
7. **www.facebook.co.uk**
8. **facebook.co.uk**
9. **facebook mobile**
10. **m.facebook.com**

Looking closer, “Single User Search” accounts for 42% of ALL searches and the largest category by far. Single user search actually represents the very end of the long tail. These are searches where only one user has entered that particular search term – an example would be “[your user name] facebook login”.

The percentage of single user searches continues to rise which is further demonstration of the acceptance of the mobile phone for search. These terms may be entered multiple times but are from just from one user.

“Uncategorised searches” are those searches when more than one user has entered the search term but none of the terms are large enough to be further categorised.

“Other” contains heavily search terms where the term does not fit into the logical structure of the taxonomy.

Each category is split into its component parts e.g. social networking includes Facebook, Bebo and others. Sport is divided by the type of sport e.g. football, and football includes all football clubs and other football related searches.

Through this taxonomy it is possible to see what users are actually looking for, and one click lets our customers see how each of the categories is made up.

The Facebook category is made up from almost 700 different search terms.

On the left are the top 10 Facebook search terms (in order).

Much lower down the list comes “face booklogin” (incorrect parsing), “facebooj” (a simple error to make on a mobile device) and “log in face book” (another common method of parsing).

The understanding of how subjects are searched is critical to companies wanting to get their mobile assets discovered either by bidding or through natural search.

In another example, Pacman is searched using hundreds of different search terms, the top ten being listed on the right.

For advertisers to get discovered they need to bid on not only these but also the other hundreds of Pacman terms, so they can be displayed to the long tail of people interested in Pacman.

In addition, the advertisers must tag their mobile pages correctly to ensure their results are found high up in the natural search results for each of the terms.

It may seem odd that Google is the second most searched term on mobile but the term holds a similar position on all operators’ portals regardless of whether the search box is branded as Google, a competitor (usually Yahoo! in the UK) or is white-label.

At first glance a conclusion could be drawn that users want a Google experience on their phone but according to Google’s 2009 Zeitgeist, Google is the 8th most searched term put into the Google search box on a PC! Some things are just not that easy to explain.

1. ***Pacman***
2. ***Pac Man***
3. ***Pacman game***
4. ***Pac-man***
5. ***Packman***
6. ***Pac man game***
7. ***Pack man***
8. ***Free pacman***
9. ***Ms pacman***
10. ***Free pacman game***



1. ***Manchester united***
2. ***Man Utd***
3. ***Man united***
4. ***Manutd.com***
5. ***Mufc***

Local search may not be as close as you think!

There has been much coverage that local search on mobile is very significant. Google themselves claimed that 33% of all searches on mobile have a local context (Diana Pouliot, Director of Advertising, Google at the Mobile Marketing & Advertising Event, Las Vegas 2010). Our figures show a much lower level of local searches when a search is made directly from the search box.

The single top mobile search term with a direct location context is Halifax. However, it is clear from the click pattern that users are not seeking information about the northern town (Pop. 82,000 – Source 2001 census) but information on the bank with the same name. We would not classify this as a location contextual search.

Another example is the term Derby. But as most clicks are made in early June, it is clear that the searchers are looking for information about the horse race rather than a location query. There is another race that features two place names, so it can get even more confusing: The Kentucky Derby.

It can be argued that sport also has a locational element in a search.

Manchester United was the most searched football club in 2009 (being searched in >200 different ways) the most common being (see left).

In addition searches starting with any of the above terms also are suffixed by: fixtures, scores, ringtones, club crests, team news, players names, v [another team] (e.g. Chelsea v Man U) etc.

Whilst all of these terms have a location element (Manchester) they probably should not be regarded as local searches. This is supported by other search terms including city names. For all searches including the term Sheffield 43% are football related and Sunderland where 58% are football related.

Cinema is a term that does have a strong local search context. In a single month we would see in excess of 2,000 different search terms with the word cinema or one of the large cinema chains in the search string. Detailed analysis shows that search strings can generally be divided as follows:

- [chain] [townname] - e.g. Vue Sheffield
- [chain] cinema/'s/s [townname] - e.g. Vue cinema Sheffield
- [townname] [chain] - e.g. Sheffield Vue
- [townname] cinema/'s/s - e.g. Sheffield cinema
- [townname] cinema listing/s - e.g. Sheffield cinema listings
- [townname] [chain] cinema - e.g. Sheffield Vue cinema

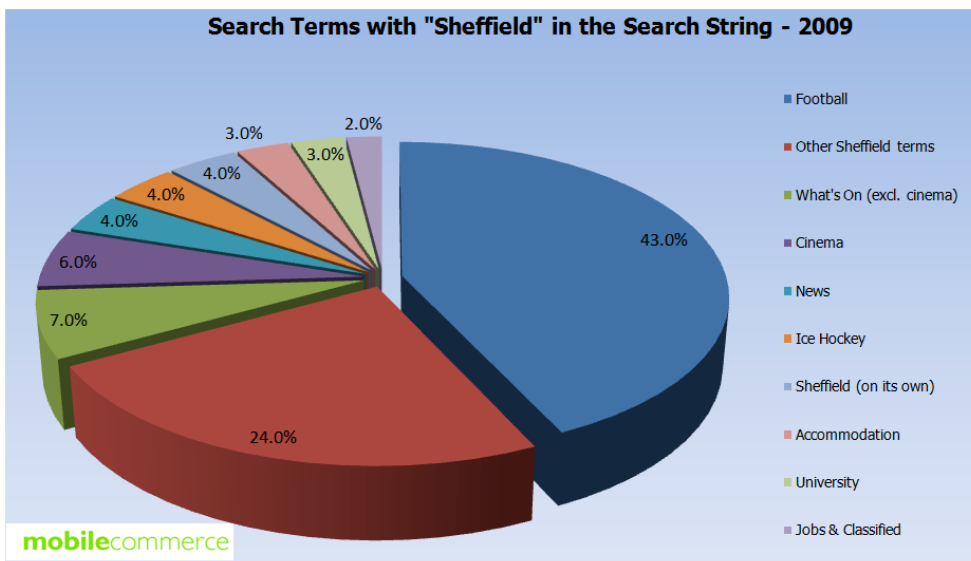
There are 5 times as many searches when the chain name is placed before the town name than when it is placed after it.

Very few people local search using the term London (the most popular being: London Marathon, Transport for London and London Tube Map) as London locations tend to be searched by area, Peckham, Highgate, Hammersmith etc

In fact, of all "location searches" 55% include either a city or area name, 17% have a Point-of-Interest (e.g. O2 Arena, Wembley Stadium), 15% use a full postcode and 13% a partial post code.

Local search turns out to be broadly similar from city to city. Again, looking at searches that include the term Sheffield, they can be categorised in the following ways (see chart below). Other cities show very similar percentages. Exceptions are cities with a local airport (e.g. Bristol) when the airport terms account for some 10% of searches e.g. Bristol airport, Bristol airport parking etc

Cinema is a term that does have a strong local search context. In a single month we see in excess of 20,000 different search terms with the word cinema or one of the large cinema chains in the search string



Understanding how users are searching is critical for any company wanting to bid on as many appropriate search terms as possible and also get discovered through natural search

How do people search (do you want a new job)?

In most categories there are specific ways in which very large numbers of search terms are made. Despite the high volume Jobs gets searched in very few ways (in order):

- Job in [place] e.g. Job in Salisbury
- Jobs in [place]
- Job [place]
- Jobs [place]
- [place] job
- [place] jobs
- Job in [county]
- Jobs in [county]
- Job [county]
- Jobs [county]

Of course, understanding how users are searching is critical for any company wanting to bid on as many appropriate search terms as possible and also get discovered through natural search.

The same is true for searching for weather; however a time element also comes into play i.e. 5 day, 7 day, 3 month etc.

Here we find searches are made the following ways:

- Weather [place &/or time period] e.g. weather Luton 5 days
- Weather at [place &/or time period]
- Weather for [place &/or time period]
- Weather forecast for [place &/or time period]
- Weather forecast in [place &/or time period]
- Weather forecast [place &/or time period]
- Weather in [place &/or time period]
- Weather report [place &/or time period]

When looking for hotels, people search in the following ways:

- By hotel name 53%
- Hotels in [place] 14% e.g. Hotels in Reading
- [place] hotels 8%
- [place] hotel 7%
- Hotel [place] 7%
- Hotels [place] 6%
- [hotel chain] hotel [place] 2%
- Cheap hotels in [place] 2%
- By web address www. 1%

Music is also heavily searched. However, searchers are looking for a broad number of different things around their favourite artists.

Once again there are several common themes in the way that these searches are made, and the percentage split changes depending upon what is band is announcing (in order):

- Band name (on its own)

Then band name plus:

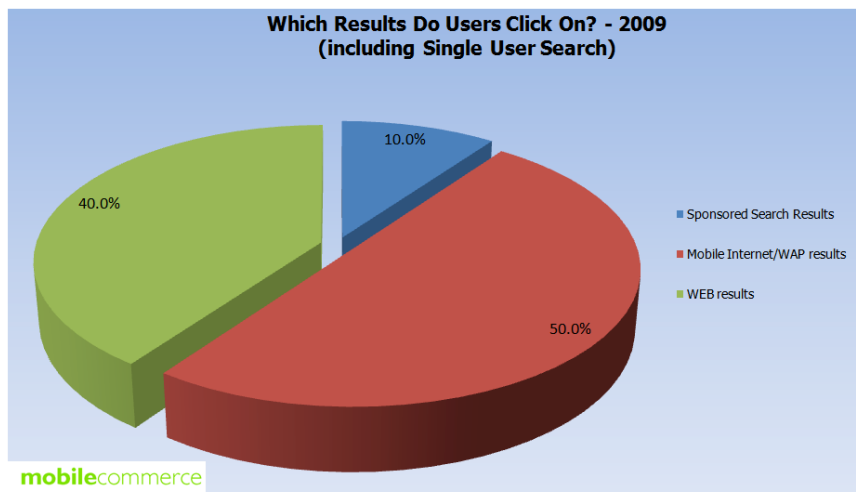
- Pictures, pics, images, photo/s, wallpaper/s
- Video, vid/s)
- Album/s or single/s
- Downloads, mp3/s, theme/s, full track, song/s, tune/s)
- Ringtones
- Concerts, gig/s, live, ticket/s, tour/s)
- Lyrics



The over-whelming number of clicks are for mobile web results showing that this is the users' preferred option on mobile as these sites have been optimised for mobile devices

Do users click on the results? (Yes, they do)

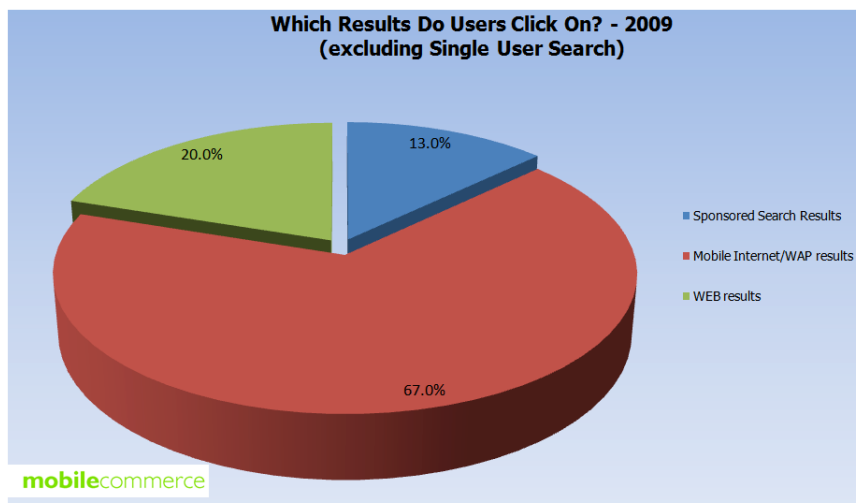
The Mobile Commerce system analyses what users actually click on. Of course this depends greatly on the User Experience. How results are presented back to the user by our customers can be dramatically different between implementations. Click rates also alter depending on the search term entered.



The number of clicks for the sponsored search results increase when the number of results shown to the user increases, so long as those results are prominently displayed towards the top of the results set. It reduces if the results are shown at the bottom of the results set.

Although it appears roughly an equal split between those clicking on mobile web results and web results, more analysis reveals that more than 50% of all clicks from Single User Search terms are for web results.

This means that the over-whelming number of clicks for commonly searched terms are for mobile web results, showing that this is the users' preferred option on mobile as these sites have been optimised for mobile devices giving a much better user experience.



What does this mean for the eco-system?

This paper brings some important learnings to both publishers and brands.

Our customers for the Monetised Search API tend to be publishers seeking to monetise their digital assets by adding a search box to their mobile site. The customer decides which search terms to send to Mobile Commerce and we return various sets of results to them. They can display their own results at the top of the results set.

The publisher decides the user experience they want to offer their customers through crafting a balance between their own results, sponsored search results, mobile web results, web results and images. Our experience allows us to provide information on the optimal level of sponsored results to return and our algorithms generate up to a 70% increase in clicks over a raw search engine implementation.

Brands can get discovered on mobile in a number of different ways including banner ads, sponsored search results and natural (Mobile Internet and web) results.

Banner ads generally only allow advertisers to bid on clusters of categories – e.g. an advertiser will buy placement for a term that they believe to be appropriate for their product. However, the number of categories is limited which means the relevance is reduced which limits the click rate/effectiveness and hence the cost per click.

Sponsored search is much more effective allowing an advertiser to bid on keywords that are directly relevant to the services it has, and link users directly to that part of their product offering. To do this the advertiser has to understand how users are searching and bid on those permutations.

Natural results require the correct tagging of sites and must ensure they can be crawled by the search companies. As the mobile screen is small, the number of results visible to a user is much less than on the web. This makes it vital to ensure everything is done through mobile search engine optimisation so the results are featured on the first page of the results set.

Sponsored search is much more effective as an advertiser can bid on those keywords that are directly relevant to the services it has and link users directly to that part of their product offering. To do this the advertiser has to understand how users are searching and bid on those permutations



Much has been written about the poor quality of web sites when transcoded onto mobile (Bango White Paper, Lost in the Mobile Maze). If an advertiser is going to go to the trouble of wanting their site to be discovered on mobile, then they must build mobile variants that optimise to the different device types – e.g. a touch screen handset site needs to be designed with strong visual appeal and buttons that are larger and make it easy to click whereas an older handset is navigated using the up/down keys/button (Taptu: Exploring the Touch-Friendly Web).

Finally, Mobile Commerce has looked at many industry sites and has been very disappointed with some of the intelligence deployed behind the search box. Common spellings of pacman (the classic arcade game) are pac-man and pac man. Searching the Nokia OVI store with an N96, the term “pac man” brings back results, but the term “pacman” brings back a “Your search did not match any items compatible with your mobile”! (see left)

Clearly this is a poor user experience and negatively affects the revenue of everybody in the value chain. This can be resolved very simply by adding a “Did You Mean” feature that allows users to click on alternative spellings so relevant results can be returned.

If you search Android Market you find the same shortcoming!

How does Mobile Commerce add value to Mobile Search?

Mobile Commerce has a number of services designed to help publishers, advertisers and ad networks make the most from the opportunities in mobile search.

These are:

- Monetisation for mobile properties and reporting for customers
- Mobile Internet and web results
- “Did You Mean” and “Also Try”

Mobile Commerce has a monetised search API that allows publishers to place a search box on their site. The API is configurable so the publisher can decide on what results they want to display to produce an optimal experience for their consumers.

The Monetised Search API also supports “Did You Mean” and “Also Try” functionality, which interprets requests and gives an alternative if relevant.

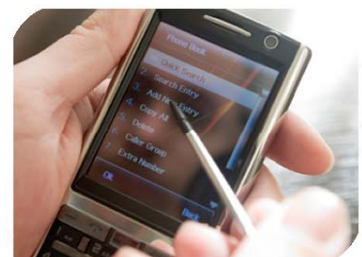
For Ad Network Aggregators, Mobile Commerce provides a search feed. This means that Ad Network Aggregators can offer their customers both Display Advertising and Search Advertising.

All customers have access to on-line reporting which has been used by most customers to improve their portals by adding terms/services that are regularly searched making their portals more relevant to their specific audience.

Mobile Commerce also supplies dynamic tag clouds so within a set of results for a subject like “games” a list of the most search games (Pacman, Tetris etc) can be displayed making it much easier for users to select a game that they are probably familiar with and other users have been searching.

The service is available for UK, USA, Germany, Japan and Ireland.

Mobile Commerce has a monetised search API that allows publishers to place a search box on their site. It generates up to 70% more clicks than a raw search engine implementation





Press enquiries:

***Keith Wildman
PagetBaker
keith@pagetbaker.com
+44 (0) 7889 158 060***

***39 Great Russell St
London WC1B***

***www.pagetbaker.com
facebook/pagetbaker
twitter.com/pagetbakeruk***

Contact details:

***Mobile Commerce Ltd
info@mobilecommerce.co.uk
+44 (0)1285 883 050***

***103 Cirencester Business Park
Love Lane
Cirencester
Glos GL7 1XD
United Kingdom***

***www.mobilecommerce.co.uk
twitter.com/sjspage – on mobile search terms and usage***