

INDUSTRY CREATION REPORT:
U.S. MOBILE ADVERTISING MARKET

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I. DEFINITION

With more than 85% market penetration¹, the cellphone, along with the ever-growing smartphone market have created a new pool of consumers who can be instantly reached on their mobile devices. With nearly 260 million potential customers² an SMS away, we are witnessing a rapid growth in mobile advertising for both mobile phones and mobile Internet. We define mobile advertising as the actual process of describing or presenting a product, idea, or organization through mobile communication channels in order to induce mobile subscribers to buy, interact, or support it³. In this report we consider advertisements (ads) on the mobile Internet, mobile multimedia services, mobile applications, and mobile search as part of the mobile advertising industry (see Appendix A - Figure 1).

In this article, we will refer to traditional mobile phones as cellphones. Personal Digital Assistants (PDAs) and “App Phones” - phones that run mobile applications mainly for personal use - are referred to as smartphones. In order to understand the mobile advertising industry, one must understand the relationships between the various players involved. For an example of various industry hierarchies see (Appendix A - Figures 2 & 3):

Advertisers/Agencies: These are the owners or representatives of products, ideas, or organizations that are to be advertised. For example, Nike might be an advertiser or might use an agency to advertise its products on its behalf.

Ad Servers: Ad server refers to technologies and services that place advertisements on Web sites. Specifically, ad servers are computer servers that store advertisements and

¹ Frost & Sullivan Market Research, “U.S. Mobile Advertising and Search Markets”, July 31, 2008.

² Ibid

³ Frost & Sullivan Market Research, “U.S. Mobile Advertising and Search Market”, August 13, 2009.

deliver them to mobile users that are visiting a particular mobile Internet site, using a particular mobile application, are in a mobile video session, or others.

Ad Network Providers: Ad network providers refer to all the entities that connect advertisers and agencies to their target audience regardless of the medium (mobile websites, search results, in-application advertising etc.) Based on this definition even cellphone carriers can be considered as part of this network since they too provide mobile advertising through their handsets⁴.

Traditional online advertising is the closest industry to the one described above. Additionally, other types of mobile advertising are emerging such as idle-screen, Bluetooth, and voice-based advertising, which could become big players in the mobile advertising industry⁵. As less obstructive means of mobile advertising are identified, the boundaries between traditional and mobile advertising might become blurry. As more users adopt location-based and personalized advertising options, the only difference between mobile and traditional advertising might be the presentation of the content and not the content itself, and therefore a single ad provider could distribute ads on the standard and mobile Internet, effectively merging the two industries.

⁴ Matt Richtel, "Verizon to Allow Ads on Its Mobile Phones," The New York Times, December 26, 2006.

⁵ Frost & Sullivan Market Research, "U.S. Mobile Advertising and Search Market", August 13, 2009.

II. HISTORY

Since our industry covers several technologies, a single event couldn't explain its creation. We can attribute the emergence of mobile advertising to two main factors: the increased market penetration of cellphones and smartphones (85% market penetration¹), as well as the growth of mobile Internet use (33% of American adults have used their cellphones to browse the Internet⁶).

The mobile advertising industry is mainly affected by three producers: cellphone makers, cellphone carriers, and ad providers. Cellphone makers contributed to the growth of mobile advertising by introducing “app phones”, or PDAs that, unlike the corporate Blackberry, are used mainly for personal rather than professional reasons. Although Microsoft powered the earlier versions of the “app phones”, it never fully took advantage of the power of mobile applications and instead focused on creating a business-like platform imitating the niche-oriented Research In Motion, Palm, and Nokia's operating systems⁷.

The smartphone industry landscape changed dramatically in 2006, when Apple introduced their first smartphone, the iPhone, and its App Store, where customers could purchase applications to run on their iPhones. Subsequent iPhone releases which included the iPhone 3G and iPhone 3GS propelled Apple into the forefront of personal “app phone” design, and by 2009 its App store had more than 100,000 applications, each one having the potential of containing advertisements.

The same year as Apple released the iPhone, Google released its open-source smartphone operating system Android, which they acquired in 2005. Since its introduction, it was clear that Google wasn't interested in being a competitor in the smartphone market as much as maintain its supremacy in the online advertising and search market, Google's bread and butter⁸. Although,

⁶ Pew Research Center, “Wireless Internet Use,” July 2009.

⁷ Ashlee Vance, “After Fumble, Microsoft Redoes Phone Software,” The New York Times, March 1, 2010.

⁸ Miguel Helft, “For Google, Advertising and Phones Go Together,” The New York Times, October 8, 2007

Google initially partnered with a single cellphone carrier (T-Mobile) and maker (HTC), it continued to grow its network of partners and is even providing carrier-free (unlocked) options through their own website.^{9 10} It is important to note that Google's Android operating system is witnessing the biggest growth among smartphone operating systems (see Appendix B). Additionally, Google has partnered with some of the most popular manufacturers to use the Android operating system (see Appendix B), this effectively makes Android a very attractive platform to design for because of its rapid growth potential.

One of the major drivers of mobile advertising has been the emergence of App stores as a viable and high-performance mobile advertising channel. Existing as well as emerging App stores offer both free and paid applications for downloading, and application developers, especially providers of free applications, are leveraging mobile advertising within their applications to generate additional revenues (See Appendix B for projected revenue - where it is estimated that in-application advertising will generate the biggest mobile advertising revenue).

Finally, with the rapid growth of the mobile advertising market, ad network providers became common place. An ad network refers to the ecosystem of connected advertisers and agencies, ad platform providers, and inventory owners. Such ad networks may also partner with cellphone carriers to deliver online content to their subscribers. Ad networks serve as the interface between the buying and selling sides of mobile advertising. Examples include AdMob, Inc., Ringleader Digital, Greystripe, Inc., Quattro Wireless, and several others. Please refer to Appendix C for select company information.

One of the major events that affected the industry's trajectory was the cellphone carrier's inability to handle the surge in mobile Internet use of its subscribers.¹¹ (especially with the

⁹ Wortham Jenna, "AT&T to Sell Smartphones Using the Android System," New York Times, January 7, 2010

¹⁰ Saul Hansell, "Big Cellphone Makers Shifting to Android System," The New York Times, October 26, 2009

¹¹ Wortham, Jenna, "Customers Angered as iPhones Overload AT&T," The New York Times, September 3, 2009

emergence of the iPhone 3GS and as subscribers increasingly use their phones for entertainment purposes) This unplanned jump in popularity has pushed cellphone carriers scrambling for new alternatives and solutions for their broadband needs, but it also might have scared potential advertisers to move into the mobile ad industry.

Another event that affected the industry's trajectory was the 2010 introduction of Apple's tablet computer, the iPad, which offers new advertising opportunities thanks to its larger screen and superior multimedia capabilities.

Other factors that affect the mobile advertising industry include: customer education, user privacy, improved content targeting, and management of screen real estate¹².

¹² Frost & Sullivan Market Research, "U.S. Mobile Advertising and Search Market", August 13, 2009.

III. RULES OF THE GAME

Internet advertising has been a popular marketing medium because of the ability to track ad effectiveness (how many people clicked on an ad, how many clicks resulted in purchases, etc.) But given the growth of the mobile advertising market and the introduction of novel advertising products, various associations have come together to standardize the field of mobile advertising especially for effectiveness metrics and providing a uniform end-user experience.

The Mobile Marketing Association (MMA), along with other representative associations such as the Internet Advertising Bureau (IAB), continue to develop recommendations and frameworks to promote the growth of mobile marketing and mobile advertising in a sustainable manner¹³. MMA's major recommendations pertain to ad formats, ad-serving processes, and ad-currency definitions

Another criterion that will certainly be highly regulated is user-privacy¹⁴. As more advertisers seek to produce personalization content both ad network services and cellphones carriers will be highly scrutinized to ensure they do not violate their subscribers' privacy. Standardizing privacy information will be huge driving factor in the industry since it will protect the users while providing them with relevant content.

In 2008, in an interesting parallel, the GSM Association (GSMA), an organization representing more than 740 GSM mobile operators globally, formed a working group to define common metrics and measurement processes for mobile advertising and provided insights into the user behavior, user demographic, mobile Internet usage trends, and other parameters. Such an initiative, if replicated in the United States, can be a significant industry driver as well.

¹³ Joe Laszlo, "The New Unwired World: An IAB Status Report on Mobile Advertising,," *Journal of Advertising Research* 49, no. 1 (March 2009): 27-43.

¹⁴ Evelyn Beatrix Cleff, "Privacy Issues in Mobile Advertising,," *International Review of Law, Computers & Technology* 21, no. 3 (November 2007): 225-236.

IV. STRUCTURE

The mobile advertising industry has a hierarchical structure where advertisers might depend on several other players to reach their target audience such as cellphone and mobile Internet carriers, application developers and ad servers. Where ad servers and network providers play the role of brokers between ad producers and consumers..

There is a relatively high competition at all levels of the hierarchy (See Table 1). Cellphone carriers are in constant competition for both customers and mobile advertising audiences. Similarly, mobile search providers such as Microsoft and Google are constantly competing for partnerships with cellphone makers and carriers to be their default mobile search engines. Finally, mobile advertising solution providers compete for both in-application and mobile Internet customers. Both mobile Internet and in-application advertising have fierce competition and high entry barriers because of both supplier- and consumer-side economies of scale.

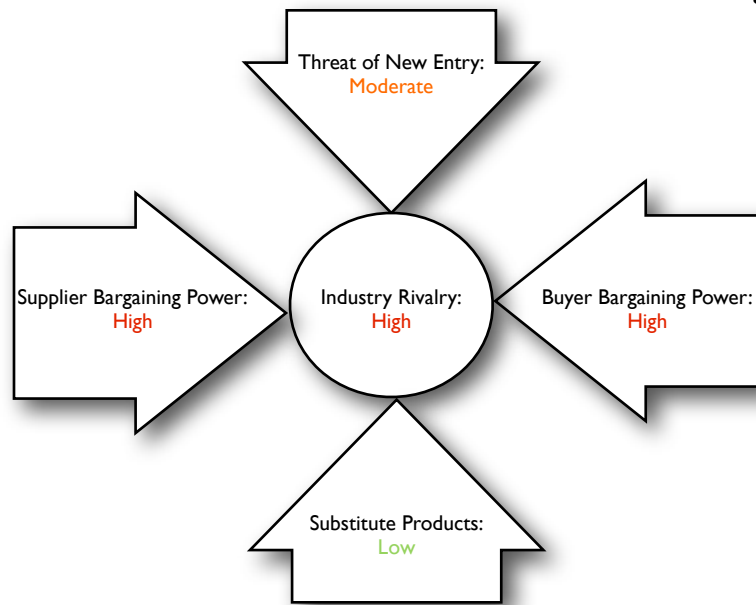
Number of companies in the market	> 40 solution providers offer mobile advertising solutions (>100 if SMS ads included)
Types of competitors	Cellphone networks: AT&T, Verizon, Sprint, Alltel, and U.S. Cellular Advertising solution providers: AOL, AdMob, Google, Yahoo!, etc. Ad optimization platforms: AdWhirl, Ringleader, Nexage, and others
Distribution structure	Subscriber and paid-per-use models
Notable mergers & acquisitions	Velti acquired Ad Infuse, Apple acquired Quattro, and Google acquired AdMob
Key end-user groups	Youth segment (14-30 years old) Young professionals Mobile subscribers with buying power and decision-making responsibilities
Competitive factors	Mobile operator inventory Content publisher relationships Targeting capabilities and multi-channel distribution capabilities Technical capabilities of the advertising platform Segment presence mix (in-app, online, SMS, etc.)

Table 1 - Mobile Advertising Competitive Structure (Source: Frost & Sullivan)

V. COMPETITION

Based on the evidence we have presented so far, the mobile advertising industry is an unattractive industry. Not only do enters need to develop relationships with content providers (advertisers and agencies), they must produce a service that is easy to use and compatible across many platforms to make sure that they produce enough impressions (ads). Their impression algorithms must be superior to all existing targeting algorithms as well. For more on the competitive nature of the industry see Table I.

Porter's 5-Forces Model for the U.S. Mobile Advertising Industry



Despite the steady increase in mobile Internet use, mobile advertising adoption rate and revenue have constantly been short of marketing forecasts¹⁵. This is a sign that the field is still in its introduction phase and hasn't reached its full potential. One of the main reasons why the mobile advertising industry hasn't reached its promise yet, is because it has been difficult to mimic the success of traditional online marketing (posting text and banner ads on websites and on margins of search results), mainly due to the small screen sizes of mobile devices. Merely shrinking the size of the ads to fit on smaller screens is clearly not the solution, as thumbnail ads have little to no effect

¹⁵ Eric Pfanner; "Is the Day of Tiny Ads Finally Here?," The New York Times, February 1, 2010.

on the consumer. Additionally, advertisers have to find a subtle balance between reaching customers without irritating them by constantly displaying ads on their small screens. Despite these challenges, the mobile advertising industry can see the increased use of mobile multimedia (videos, music, Internet radio), as well as the release of various large-screen devices such as e-book readers and Apple's iPad as new avenues for advertising. Additionally, if new game-changers enter the market with new ways to advertise on the various mobile mediums we might see a significant increase in revenue and participation.

VI. APPENDICES

Appendix A: Industry Definition And Structure



Figure 1: Channels of U.S. Mobile Advertising (clockwise from top left)

- (a) *Mobile search and keywords-based advertising:* Ads pertaining to search keywords appear on top of search results
- (b) *Text message based advertising:* Ads appear at the end of a text message
- (c) *In-application advertising:* Ad banners (i.e. Oracle) appear in free mobile applications
- (d) *Mobile web advertising:* Banners appear in websites visited using a mobile browser
- (e) *Mobile video advertising:* Ads for products (top banner) appear while watching online content

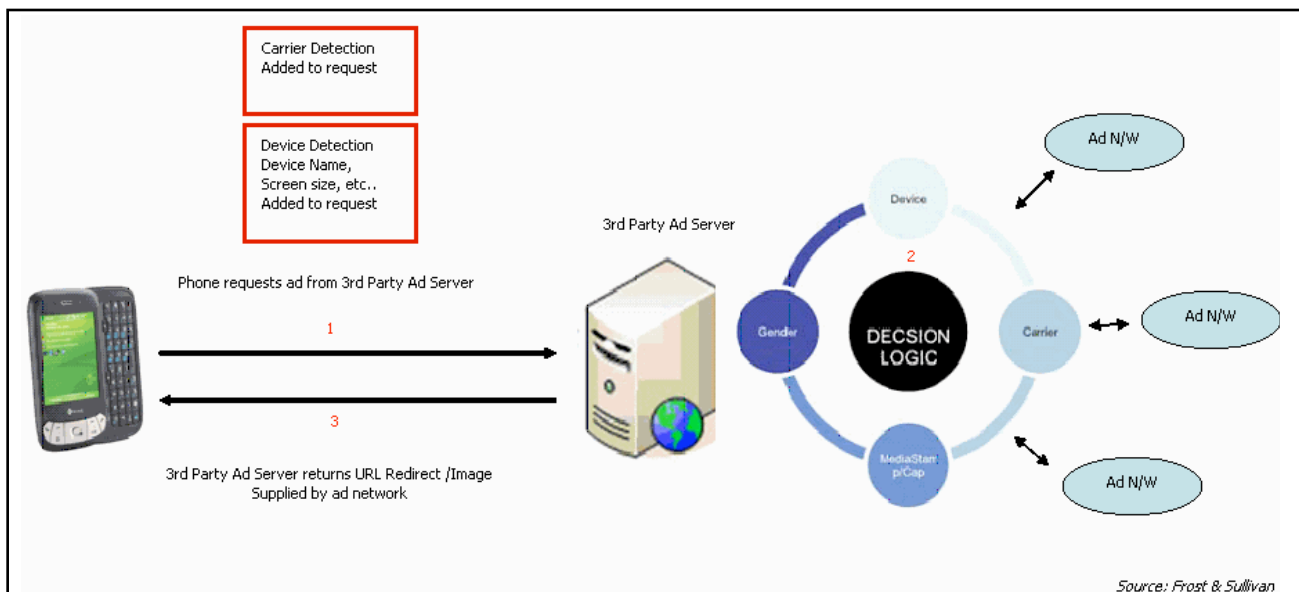
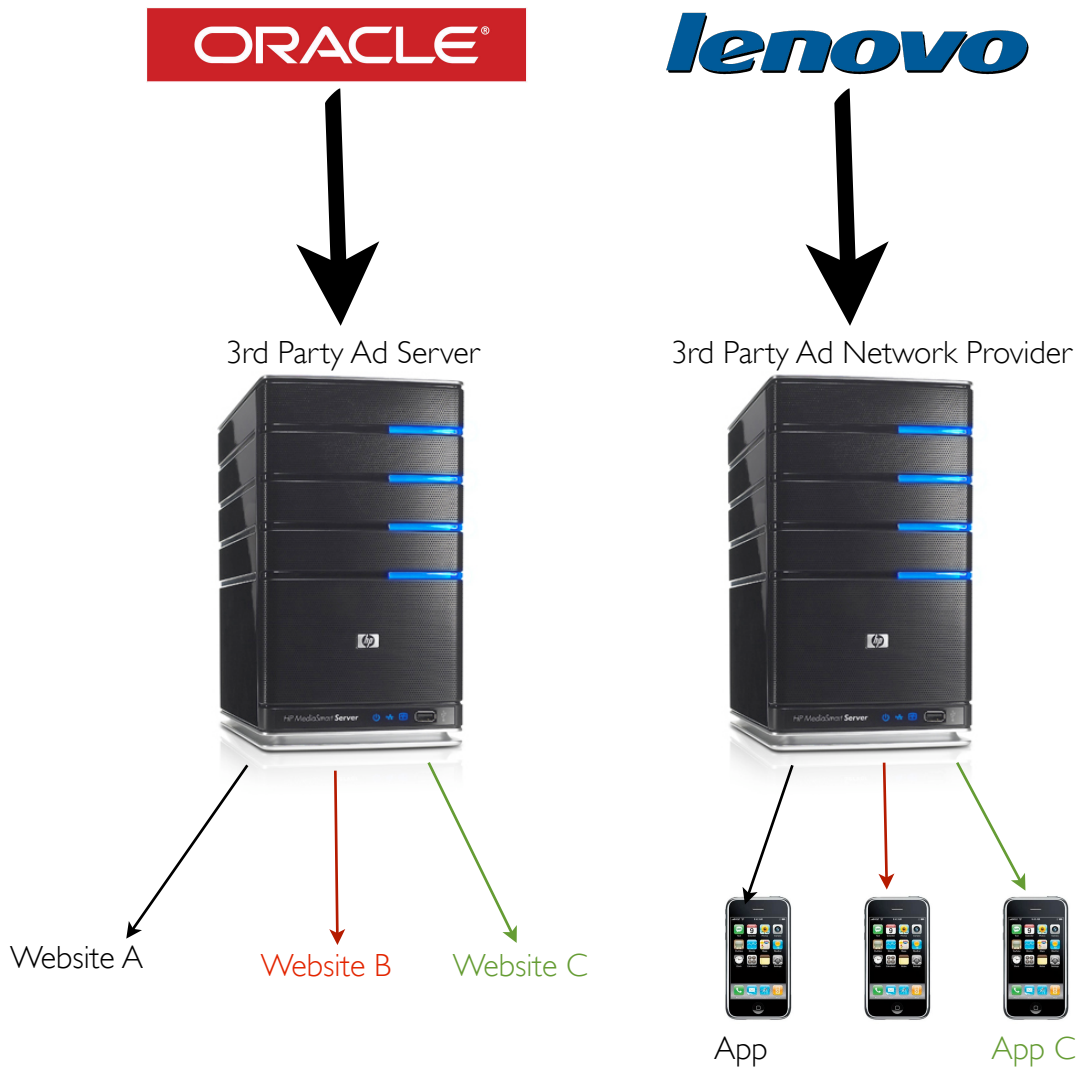


Figure 2: An example of how an ad is delivered to a mobile device



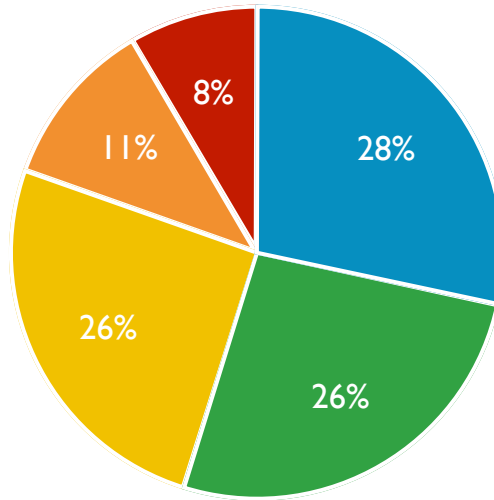
(a) **(b)**
Figure 3: Two Ad-delivery approaches (left to right)

- (a) A company or agency contracts with a third party ad-server, which in turn posts relevant ads for its clients on numerous participating websites. These websites can be individually owned such as blogs or corporate websites such nytimes.com
- (b) A company or agency contracts with a 3rd party Ad Network Provider (cellphone carrier, in-app provider, etc.) In return the ad provider posts relevant ads in participating handsets or mobile applications (in this example we used mobile applications, they need not to be the same application)

Appendix B: Smartphone Market Data

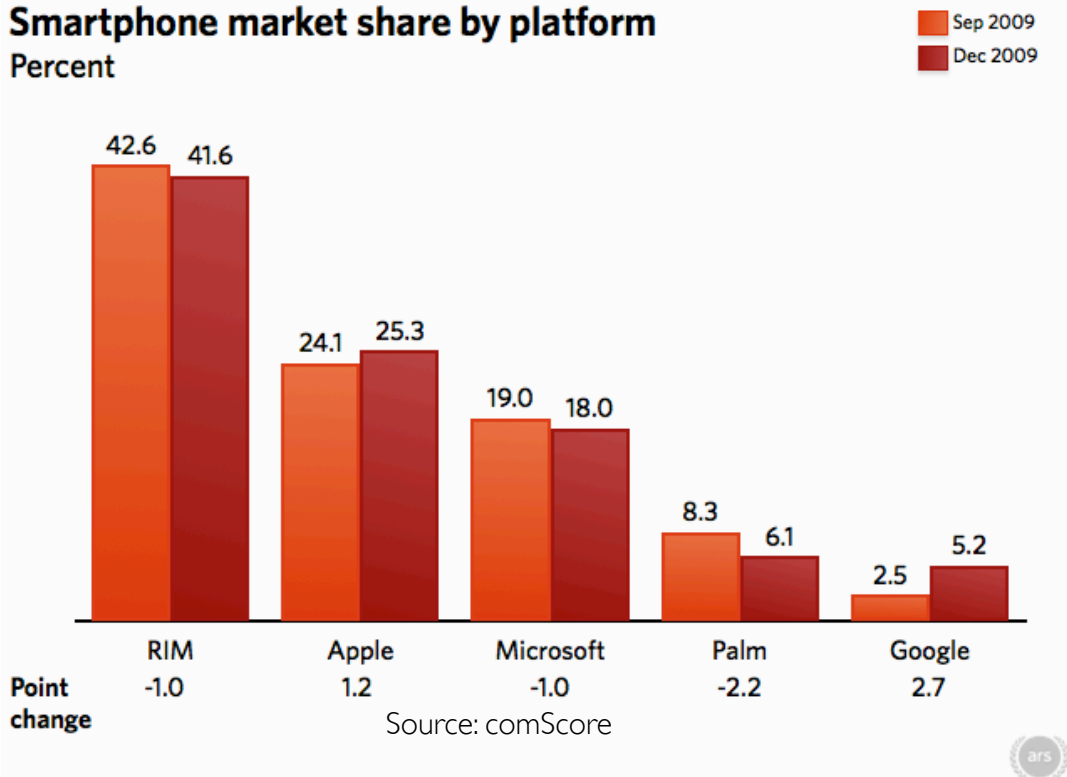
● Motorola
 ● LG
 ● Samsung
 ● Nokia
 ● RIM

Top Mobile OEMs as of Dec. 2009 (source comScore)



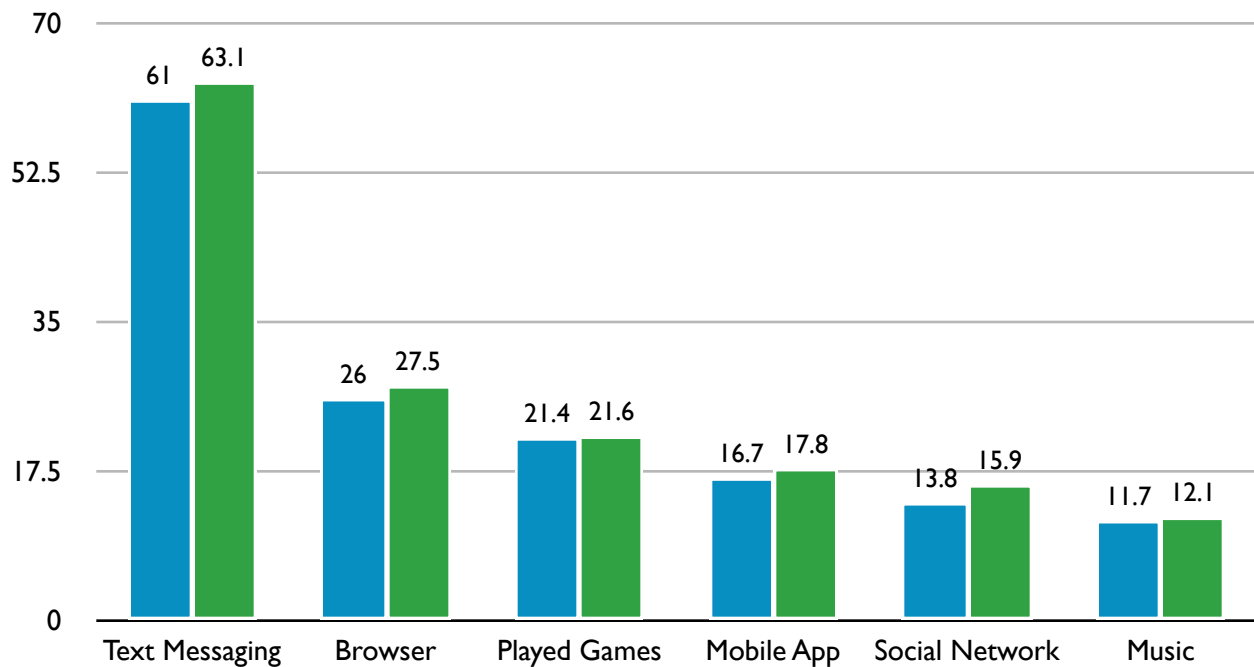
Smartphone market share by platform

Percent

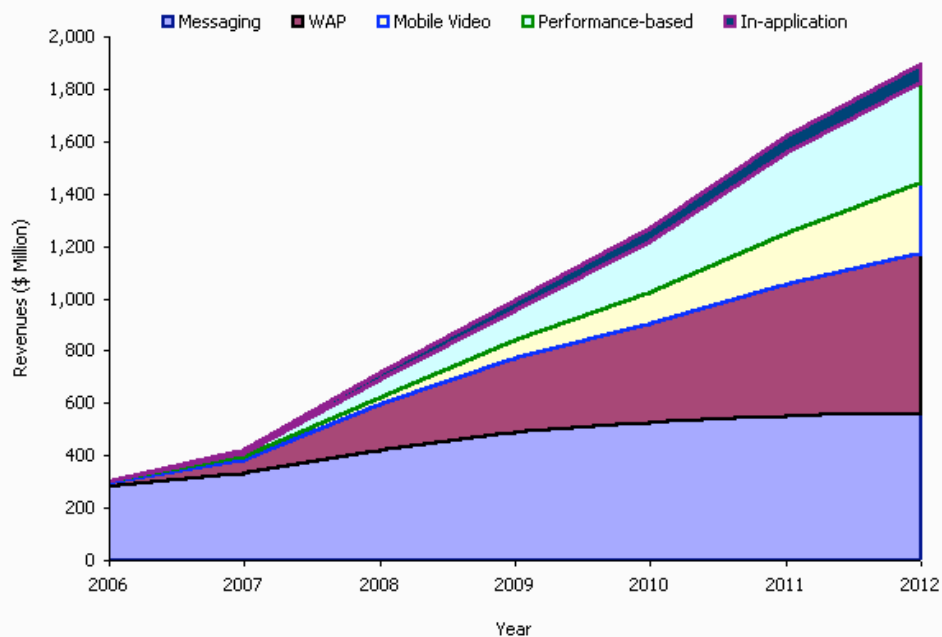


■ % (Sep. 2009) ■ % (Dec. 2009)

Mobile Content Usage from Sept.-Dec. 2009 (Source comScore)



Mobile Advertising and Search Market: Revenues from Different Channels of Mobile Advertising (U.S.), 2006-2012



Note: All figures are rounded; the base year is 2007. Source: Frost & Sullivan

Appendix C: Company Information

AdMob:

AdMob is a leading global provider of mobile advertising solutions. The company connects advertisers with high-quality, independent mobile content publishers and plays a central role in facilitating mobile advertising. AdMob offers “Pay-Per-Click”, “Pay-Per-Thousand”, other demographic package solutions to its subscribers. AdMob created value in this industry by offering two novel services: (1) “Build your own ad campaign”: a set of tools to allow advertisers to design their own campaign according to their requirements and expectations. Publishers simply add a code in their mobile web pages, allowing AdMob to serve advertising to the users. Once the publishers have signed up on the AdMob system, they are given access to install code that can be integrated into PHP, JSP, ASP, or CGI driven mobile web pages. Interested publishers can also use AdMob provided tools to build their own mobile pages, and then monetize these through mobile advertising; (2) In-application advertising: in the same spirit as above, AdMob allows developers to inject their software with AdMob code and effectively display ads in their applications. In 2009, AdMob was purchased by Google for a reported \$750 million.

GreyStripe:

Greystripe is the world's first and leading ad-supported mobile games and applications distribution platform. Greystripe's AdWRAP product suite enables: brand advertisers to communicate their brand message with a unique mobile audience; publishers to gain advertising revenue by serving ads through their games; and consumers to download high quality games for free. The AdWRAP system is protected by a broad array of patents pending and currently serves ads into more than 800 game titles from 100 publishers supporting over 1,400 handset models. Greystripe reaches millions of mobile game players by powering over 70 AdWRAP Catalog distribution partners and through GameJump.com its online and mobile web portal com (<http://www.gamejump.com/>). Greystripe was named a Red Herring Global 100 winner in 2007 and the Under the Radar Best in Show: Mobility winner in 2006.

Quattro Wireless:

Quattro Wireless is a leading provider of mobile advertising solutions. The company offers the GetMobile™ platform to enable advertisers and publishers to quickly build, manage and extend their brand to the mobile channel. Quattro Wireless offers several key solutions for the mobile advertising industry participants. The company helps connect mobile advertisers with premium mobile sites within its premium ad-network, and also offers a next-generation framework for easily and quickly launching adaptive, mobile-optimized web sites that pull content directly from a Publisher's wired web source and are tightly integrated to a network of high-quality advertisers. The Quattro Wireless mobile advertising platform is optimized for advertising and revenue-generation through built-in ad serving and rotation, support for CPM, CPC and CPA models, and robust reporting and analytics. In 2009, Apple bought Quattro for nearly \$300 million.

Ringleader Digital, Inc:

Ringleader Digital offers end-to-end digital advertising solutions. The company has created a robust Mobile Web ad server platform that quickly integrates into publishers' Mobile Web sites to serve mobile ads without the use of additional software. Ringleader offers mobile advertising solutions for advertisers, agencies and content publishers. The company's solutions use an innovative ad-tagging methodology that enables third-party ad serving via an open network versus the common server-side include model that relies on a closed network approach.