State of Mobile Measurement

Prepared for the Mobile Marketing Center of Excellence of the Interactive Advertising Bureau
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Executive Summary

Reliable, consistent mobile measurement standards are key to attracting greater marketing investment in the platform. In particular, all media depend critically upon reliable metrics for audience reach—the "size of the prize" to attract and retain advertising spending. However, mobile measurement today is challenged by serious methodological and technological limitations. The growth in mobile advertising spend and consumer usage requires sound measurement and reliable methodologies to understand audience behavior and ad effectiveness.

By examining the drivers and inhibitors of better measurement in more detail, the complexity of the mobile ecosystem, and, finally, the need for cross-media measurement, the IAB hopes to inspire industry dialogue. This document is not meant to be prescriptive nor definitive, but rather a look at the landscape for mobile measurement today and the industry's future needs.

Additionally, while the industry faces significant barriers to stable measurement standards, mobile platforms also present unique opportunities for marketers and content companies. Consumer mobile usage is capable of generating an incredible amount of intelligence around behavior and engagement with content, advertising, and real-world locations. The IAB hopes this paper sparks further industry discussion to improve overall knowledge of mobile measurement and debate over future standards.

Background and Purpose of the Report

This document examines the current state of mobile measurement, looking at both the opportunities and obstacles challenging the industry. While this report is meant to be descriptive rather than prescriptive, by examining the measurement landscape today, the IAB hopes to catalyze the industry for further discussion.

Methodology Used to Conduct the Study

Multiple interviews with key stakeholders were conducted over the period of three months from May to July 2011. Executives on the publisher, network, and measurement vendor side were interviewed to get a more comprehensive view of the landscape. Other relevant information was gathered via internet and academic searches for nonproprietary literature that had been published or presented on how mobile consumption and advertising is, and should be, measured.

Introduction

The growth of the mobile industry over the past few years has been impressive. According to non-partisan think tank Pew Internet & American Life Project, as of May 2011, 83 percent of US adults have a cell phone, with over a third owning a smartphone. Additionally, Apple reported selling 9.25 million iPads in just the first quarter of 2011, with Android tablets trying to capture a larger share of the device market. Undoubtedly, mobile interactivity has finally hit critical mass numbers. Yet measurement has lagged, particularly compared to other channels such as the PC-based Web, email, search and even social media. A complex ecosystem, technological challenges and an ambiguous regulatory environment have stymied mobile measurement.

While the lack of a standard currency for mobile measurement has parallels in PC-based media, it hasn't stopped publishers, developers or advertisers from investing in the platform. Even as multiple stakeholders debate definitions and standards, the mobile ad marketplace continues to grow. However, as the mobile advertising market grows, as well as the size of the audience, the need for reliable measurement becomes even more acute. The following pages examine the state of mobile measurement today and provide some insight into future measurement opportunities.

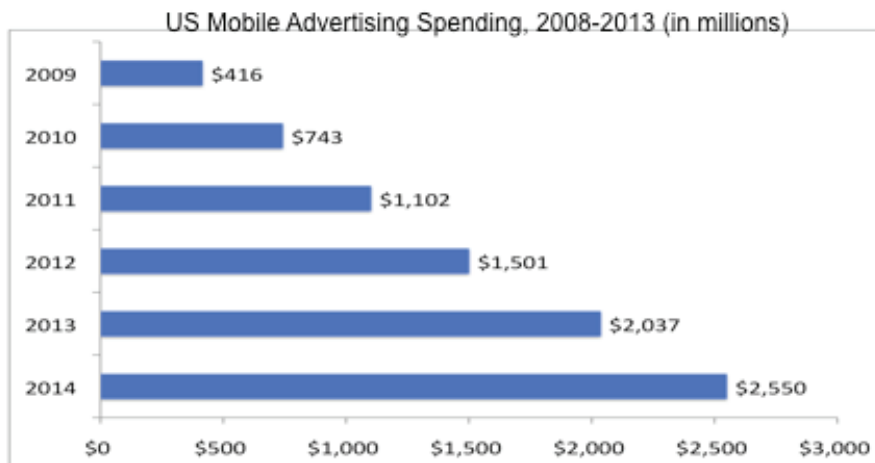## Mobile Ad Industry Grows, Despite Lack of Standards

In the past few years, consumer adoption of mobile devices has been explosive. Concurrently, improved carrier network technology, app development and richer media content have driven greater consumption and mobile browsing. Smartphones and tablets are increasingly sophisticated, offering consumers directions to the nearest gas station with the lowest price, the latest issue of the *New Yorker*, a quick Scrabble game with friends, and a way to check-in to their flight.

According to The CTIA – The Wireless Association, as of December 2010, there were nearly 303 million wireless connections in the US, and US consumers used more than 2.2 trillion minutes in 2010, sent and received more than two trillion text messages, and has more mobile users than any other country.

According to the Pew Internet & American Life Project, over one third (35 percent) of American adults own a smartphone. Not surprisingly, smartphone owners tend to be well-educated and high-income earners, with nearly three in five (59 percent) of adults with a household income of $75,000 or more owning a smartphone. Likewise, nearly half (48 percent) of adults with a college degree are smartphone owners. Pew has also found that smartphone owners tend to be urban or suburban dwellers rather than rural, and there is a strong correlation between employment status and ownership.

Mobile advertising has experienced impressive growth

US Mobile Advertising Spending, 2008-2013 (in millions)

Year	Spending
2009	$416
2010	$743
2011	$1,102
2012	$1,501
2013	$2,037
2014	$2,550

Note: includes mobile message advertising, mobile display advertising and mobile search advertising

Source: eMarketer, Sept 2010

Figure 1

As a result, the mobile advertising industry has experienced strong growth in the past few years. While estimates vary, most prognosticators believe the size of the mobile ad market in the US in 2011 is around $1 billion (*Fig. 1*). The growth in mobile advertising is fueled by factors such as the increased penetration of smartphones, faster data networks, more sophisticated local search, and better geo-location technologies. Yet even as the industry witnesses impressive growth, there is still little consensus on standards and measurement subsequently lags behind.
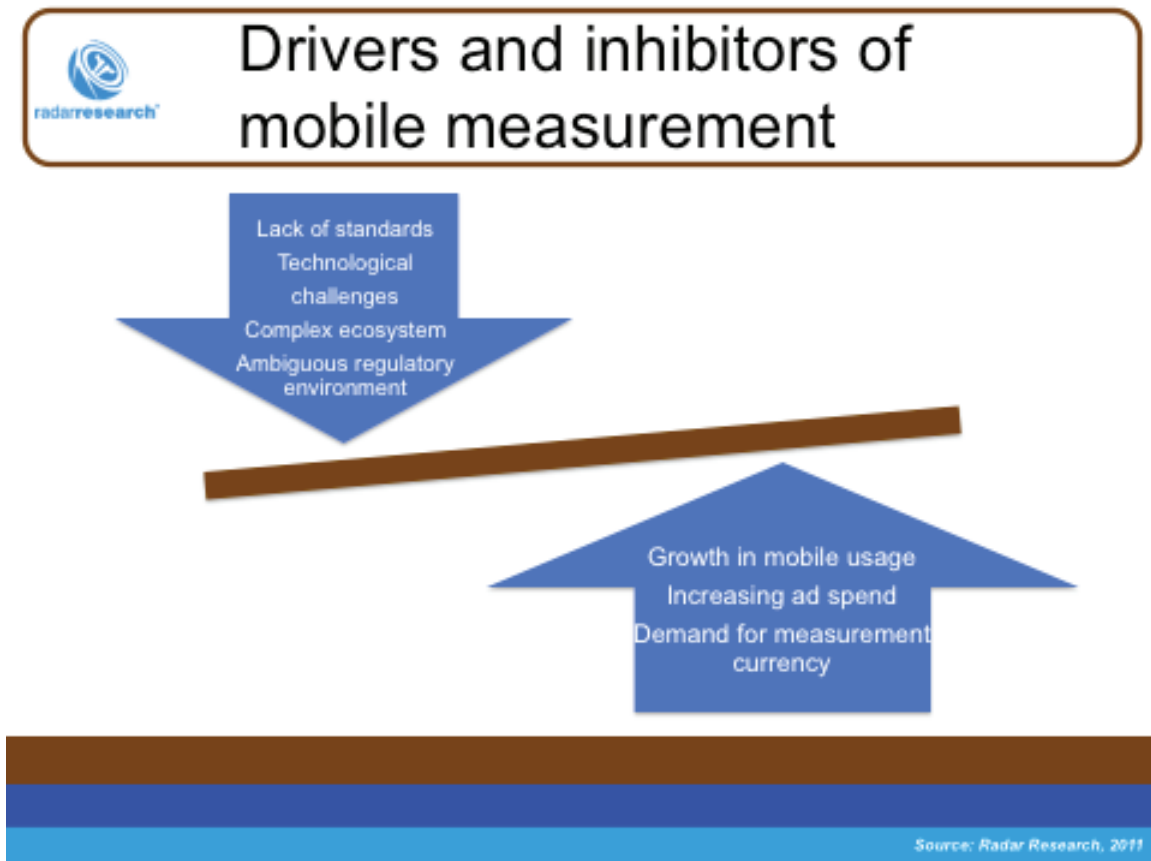

Source: Radar Research, 2011

Figure 2

The need for greater transparency and improved methodologies for mobile measurement is evident. The growth in consumer usage as well as the increase in ad spending on mobile platforms underscores the urgent need for measurement and industry-accepted currency. Despite the obvious necessity, there are several inhibitors preventing better measurement, as we will explore in greater depth (*Fig. 2*). Mobile platforms present multiple obstacles, ranging from technological to cultural and political challenges.

The lack of standards for both the technology as well as advertising specifications, the complexity of the ecosystem, and a somewhat equivocal regulatory environment each present barriers to better measurement. While some, such as the lack of industry-wide standards hearken back to the early days of the Web, some (like the important and pervasive role played by mobile carriers) are unique to the mobile environment. Additionally, the handset and tablet universe seems to be rapidly proliferating (even as the OS environment begins to consolidate) and there is still a lack of sophisticated reporting capabilities in many of these platforms that deliver content or ad campaigns. Publishers and advertisers feel frustrated that mobile, to date, does not offer the same metrics and accountability found in PC-based digital media.

Yet despite these challenges, mobile platforms also present unique opportunities. Mobile usage is capable of generating an incredible amount of intelligence around consumer behavior and interaction with mobile apps and sites. Web site analytics tools already in common use are developing better tools for marketers to understand how their audiences consume mobile content (though there is still a long way to go), furthering the industry's overall knowledge of mobile measurement.

Two Types of Measurement Are Needed

Mobile measurement, like PC-based media, needs both audience measurement as well as standards around advertising effectiveness. While competing methodologies, stakeholders and technologies have also slowed PC-based measurement, the landscape for Web measurement on computers seems fairly simple in comparison to mobile platforms.

"Web measurement is fairly stable and uncomplicated," says Evan Neufeld, CMO of mobile measurement firm GroundTruth. Neufeld points out that the access point for the Internet was mostly singular – the PC. "The most complicated variability was monitor size and browser." Mobile, in contrast, "has more advanced technology, better browsers, better processors, is highly variable in how it renders content, and treats technologies like Flash and cookies." Additionally, the interactive industry as a whole, including mobile, is exploring new metrics, for example social media and sharing. Yet the industry's most pressing need remains the same between the two channels, with mobile platforms capable of delivering additional metrics such as location (*Fig. 3*).
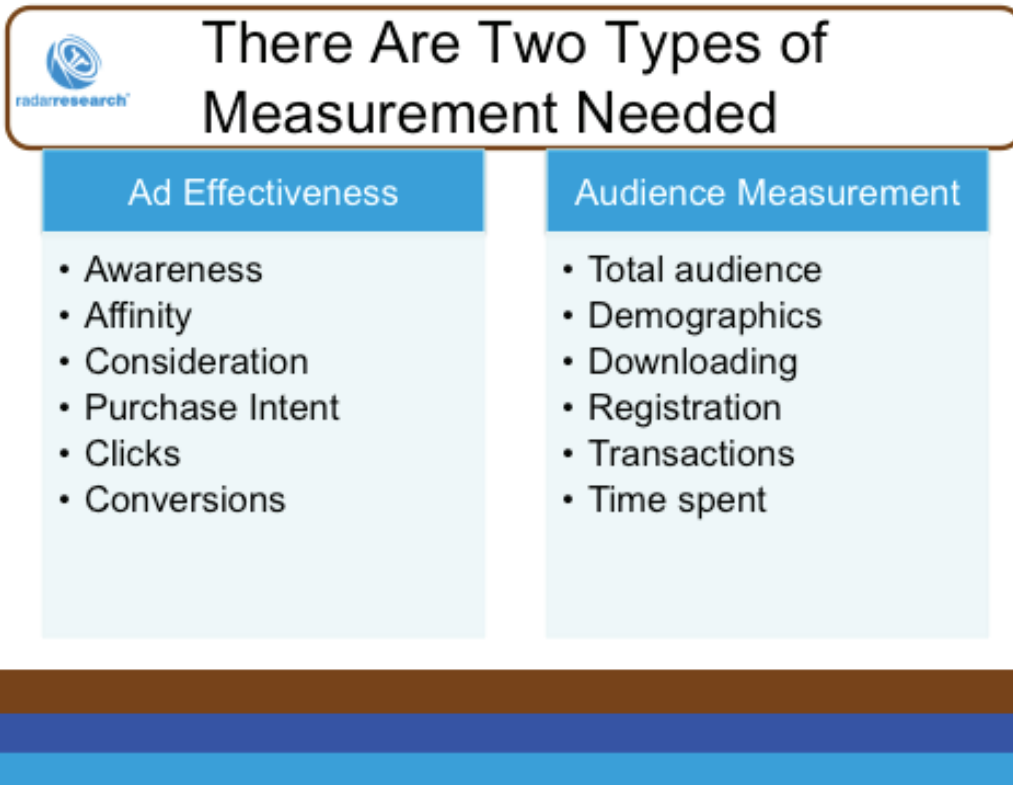
Figure 3

Audience measurement: Provides insight into consumer behavior. This may include size and demographics of the total users on a given mobile web site or application, as well metrics related to the audience's level of engagement, such as registrations, transactions, or downloads.

Ad effectiveness: Is analogous to ad effectiveness measurement in PC-based media, as well as offline. This may include measuring metrics such as awareness, affinity, brand consideration and purchase intent.

In terms of methodology for audience measurement, there are several available; though all, just as in any other research methodology, include inherent biases and potential weaknesses:

Methodology	Vendor	Pros	Cons
Survey Panel	Nielsen	• Can report demographics • Can combine usage and attitudinal	• No long tail; it tends to favor most popular sites and apps • Self-reported data

			insights		Expensive to build panel
Meters	comScore Mobile Metrix, Nielsen	•	Can track actual behavior • Opt-in	•	Not all devices can be metered (e.g. feature phones) • Expensive to build • Hard to measure "long-tail"
Carrier-reported	Groundtruth, ComScore	•	Can track actual behavior • Potentially tied to carrier geographic, demographic data • Anonymized, aggregated data	•	Coordination challenges with carriers • Missing wifi traffic
Mobile Tagging	ComScore	•	More unified data on web traffic • Better insights into niche mobile sites/apps	•	Requires publisher participation
Mobile Analytics	Flurry, Localytics, Individual publishers	•	Census-based behavioral data	•	Lacks third-party verification

In addition to the audience measurement methodologies outlined above, for the most part, the primary ad effectiveness methodology is survey-based intercepts, mimicking the main methodology of the PC-based Web.

Methodology	Vendor	Pros	Cons
Survey	Insight Express, Dynamic Logic	- Can report demographics - Aligns with non-mobile brand awareness studies - Can do control/exposed studies	- Often, the survey invitation and ad are delivered together, skewing results - Unreliable cookies make it extremely difficult to create a control group

Landscape for Mobile Measurement Needs to Include Multiple Platforms

One of the contributing factors to the complexity of mobile measurement is the need to measure not just the mobile web but mobile apps and, potentially, SMS as well. While there are analogies to mobile apps in the PC-based Web universe, such as Skype or Spotify, the vast majority of Web traffic—and PC-based interactive advertising--is browser-based. In contrast, in the current mobile environment the popularity of apps requires a measurement methodology that includes them as well. According to comScore, in August 2010 over 75 million mobile subscribers over the age of 13 used a downloaded app. Additionally, in the same period, over 80 million mobile subscribers used their browser.
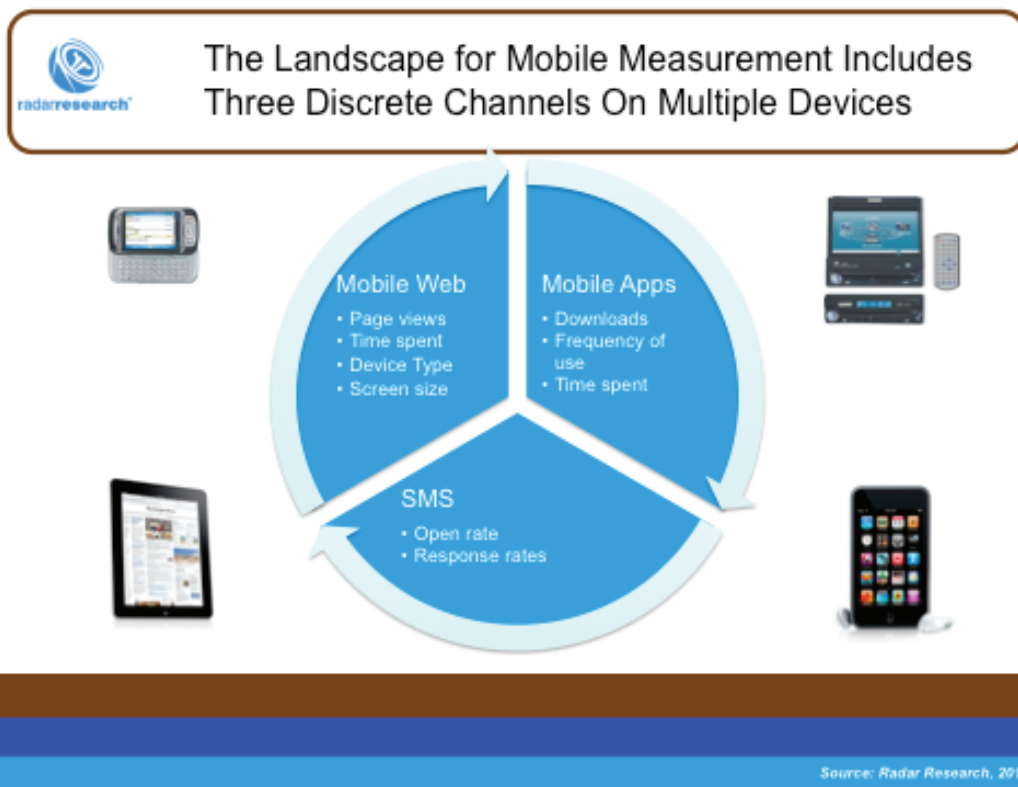
Figure 4

Each has attributes unique to the channel, creating a complicated analytics environment (*Fig. 4*).

- **Mobile web**: This can refer to a web site created specifically for mobile devices, accessible through mobile browsers so no download or installation is required, or simply to PC-based web sites viewed on a mobile device. Many of the metrics that can be measured are analogous to the PC-based web, such as page views and time spent, as well as mobile-only metrics such as device type and screen size.
- **Mobile apps**: This refers to applications designed to run on a specific mobile device and require download and installation. Common metrics include number of downloads and installation, frequency of use, and time spent.
- **Text Messaging**: Less common than ad campaigns on the mobile web or apps, SMS (short message service) text and MMS (multimedia messaging service) ads allows marketers to send brief ads to consumers. SMS today is a more popular format than MMS, and are typically evaluated similarly to email. These ads usually feature an option to reply with a keyword for more information, or include a call to action such as a link to a mobile web site or click to call. SMS is typically evaluated via metrics such as delivery, open and response rates.

In addition to these three channels, the analytics landscape is further confounded by the fact that there are multiple operating systems, handsets, devices, and carriers. Not only do marketers need to develop a comprehensive mobile strategy that may include app development for Apple's iOS, Google's Android and RIM's Blackberry, but they must also develop a measurement framework that includes each of these operating systems across multiple devices including phones, tablets and even automotive telematics. While a great deal of media and marketer attention is focused on tablets and smartphones, feature phones continue to play an important role in the mobile landscape. While they are still popular, they also are inherently less capable and present fewer measurement opportunities, constituting a further challenge.

Mobile's Ecosystem is Highly Fragmented

In addition to the multiple channels mentioned previously, mobile's ecosystem is highly fragmented, with competing stakeholders, technologies and platforms. Many of the players are from different industries, resulting in cultural and philosophical disparities (*Fig. 5*). While it may seem paradoxical given the complexity of mobile's ecosystem, it is, at the same time, somewhat consolidated. Apple, with the introduction of its iAd, recognized the challenges caused by fragmentation and sought to offer the advertising industry an integrated solution. However, while a vertically integrated solution can help, Apple's relatively closed system also limits the audience an advertiser can reach. Similarly, Google's acquisition of Motorola Mobility may help further propel its Android operating system, but the underlying complexity of the value chain remains unchanged.
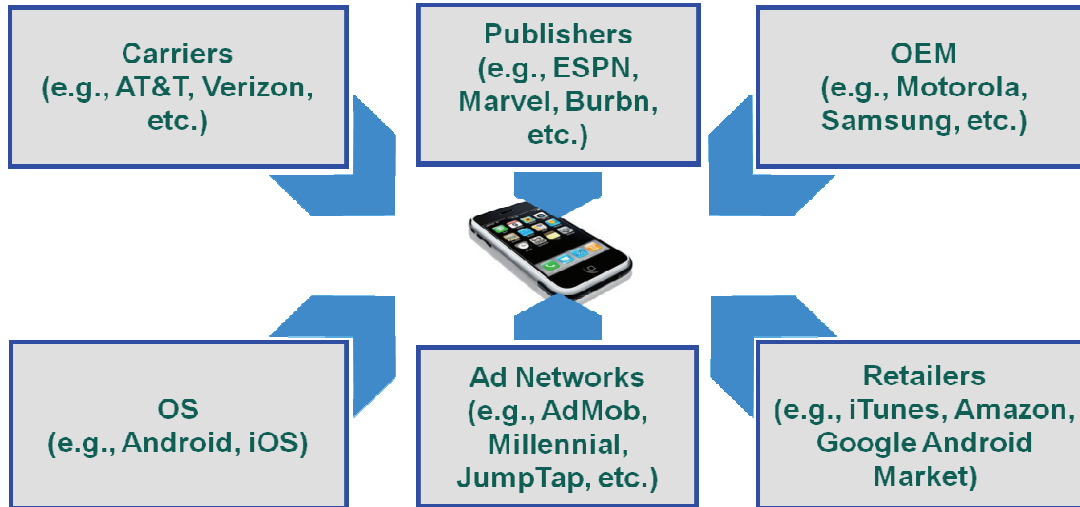
Figure 5

Over the past few years, the power of carriers has diminished somewhat as newer entities have ascended, including the retail arms of Apple and Google's Android market, ad networks such as Millennial Media and AdMob (owned by Google) and both small and large app developers. While the carriers still maintain certain advantages, such as subscriber information and a billing relationship, they have not become a dominant force in mobile advertising or measurement. Yet they still remain essential to the problem of mobile measurement. "If the carriers and device manufacturers and networks don't play, we'll be shadowboxing," says Michael Zimbalist, VP Research and Development Operations at The New York Times Company.

To further confuse the landscape, in some instances the OEM and OS provider are one in the same, as in the case of Apple and RIM. In other instances, the handset manufacturer is a different entity than the OS provider, as in the case of Android phones. Though Google's announced acquisition of Motorola Mobility likely means we'll see more Google-manufactured phones on the market as an open and free OS, there

will still likely be many OEMs employing Android. "The complexity is only going to get worse before it gets better," says Joy Liuzzo, Senior Director, Marketing & Mobile Research at Insight Express.

Additionally, while a company like Apple may be predominant as a smartphone manufacturer, OS provider and retailer, its foray into mobile advertising has been somewhat rocky. Apple's iAd, built to sync with iTunes, anticipated the end of "all you can eat" data plans. If consumers' data plans are metered, they are much less likely to welcome the intrusion of an ad that may eat up precious gigabytes. While Apple's plan to sell ads that synced with iTunes bypassed that problem, it also required agencies and advertisers to submit ads 6-8 weeks in advance for approval. Additionally, a minimum buy threshold prevented many advertisers from dipping their toes in the mobile advertising waters. Apple's move into selling mobile advertising was also treated with suspicion by competing stakeholders, including publishers who feared relinquishing revenue to Apple and agencies who felt they were circumvented in terms of creative development. Despite the lukewarm industry reception, according to Zimbalist, Apple "did the mobile ad industry a service in terms of creative implementation. They ratcheted up the game."

Given the complexity of the mobile ecosystem, it's not surprising that in many cases the publisher or ad network is providing analytics to the advertisers themselves. However, as with any other medium, the need for validated third-party data is essential to the health of the ad environment, fostering trust between parties and creating a common currency (or sometimes currencies).

Cross-media Measurement Is the Holy Grail

One of the greatest frustrations facing mobile marketers and publishers is the lack of consistency between their PC-based initiatives and mobile. "Every ad network has its own measurement tool," says Paran Johar, Chief Marketing Officer at mobile search and advertising solutions company Jumptap. "But agencies want one tool across platforms and publishers." Zimbalist echoes Johar: "Mobile is not a standalone medium. It's a connective piece of a broader media plan."

Given the technical trials mobile measurement faces, finding commonly accepted standards across platforms is an even greater challenge. Johar stresses the need to better understand the incremental effect of mobile advertising. Zimbalist emphasizes the need for measurement parity for mobile platforms, including metrics such as time spent and on what channel. He and other publishers see better measurement as the key to increasing mobile revenue, and perhaps of equal importance, being able to avoid ceding unsold impressions to ad networks.

Even more fundamentally, both publishers and advertisers are unable to describe the mobile audience in terms of unique visitors. Mobile server logs give a good sense of visits, pages, videos watched and downloads, but publishers have a difficult time assessing unique visitors, and that problem is magnified when seeking an apples-to-apples comparison across platforms.

Technological Barriers Hinder Measurement

One of the major barriers to better measurement is the way different platforms and devices handle cookies. Digital advertising is dependent upon relevancy, and cookies are the bedrock of PC-based

advertising that allow marketers to target anonymized, aggregated audiences. While cookies have become an integral and accepted component of PC-based measurement, allowing third parties to track consumer behavior across the Web and between sessions, they, however, pose problems on mobile. Without a similar technological foundation, mobile advertising may falter. Some of the technological issues plaguing mobile measurement are:

- **Cookies are unreliable**: Both Javascript and HTTP cookies are unreliable for the mobile Web, hindering the use of persistent and unique user identities so common on the PC-based web. Many devices don't accept cookies at all, and for many that do, the cookie is session-dependent and deleted immediately after to save on handset memory.
- **Server logs are stymied**: Additionally, web analytics services that traditionally use server log parsing and discrete IPs with unique visitors fail to count mobile users correctly since the wireless network HTTP requests are masked by the gateway IPs of the carrier networks.
- **Discrepancies between data sources**: For instance, third party ad servers are in the unique position of being able to count impressions across mobile sites and apps. While the advertising industry has come to expect an acceptable level of discrepancies between third party servers and server logs (usually within the range of 10 percent), it's not uncommon to find discrepancies of over 50 percent in mobile.

There are no easy answers to most of these technological barriers. The mobile infrastructure is fairly well established at this point, making the creation of more reliable cookies or better server analysis a challenge. In the absence of more stable cookies for the mobile environment, marketers need something cookie-like. Both marketers and technologists need to work together to find feasible, workable solutions that also protect consumer privacy. While many stakeholders see the Unique Device Identifier (UDID) as a potential solution to this problem, it is not without its own controversies. Outside of the privacy controversy (discussed further in the next section), UDIDs are not a panacea. They are not available on all devices and are notably absent on feature phones, limiting their utility in tracking and measuring mobile web audiences.

Privacy Issues Loom Large Over Mobile Measurement

Consumer privacy is an increasingly contested issue for mobile stakeholders. Both Apple and Google recently testified before a Senate subcommittee outlining their mobile privacy policies after it was discovered earlier this year that Apple's iOS 4 was collected and storing users' location information insecurely. With four online privacy bills currently proposed, it looks more and more likely that, at some point, the government will more strongly regulate what data is collected, who it is shared with and how the data is safeguarded.

While most smartphones have a unique device identifier (UDID) or specific serial number for the device, how it can be used to track usage is debatable. Last year, Apple ran into a firestorm of criticism when it was revealed the company was passing along UDID information to third party advertisers. Anonymized identifiers based on UDIDs (ideally through one-way "hashing" so that the original UDID cannot be re-constructed) should not raise significant privacy concerns: it is only the ability to de-anonymize or re-

identify that hashed or encrypted ID with personally identifiable information that poses a problem. However, different companies are taking different tracks with respect to how they use UDIDs.

"The UDID can do unique tracking," explains Jamie Wells, Director of Global Trade Marketing at Microsoft Advertising. "But you can't leverage those data points because of the privacy issue." Apple has recently announced that it will stop making UDIDs available to third parties in the next version of its iOS operating system, possibly avoiding this criticism going forward, but also complicating things for app publishers, analytics vendors, and the advertising ecosystem.

The primary catalyst for regulator concern today is location tracking on mobile devices. The idea of Big Brother watching and recording where consumers go is a fairly ominous notion, one which regulators can easily understand and seize onto. Yet, ironically, while location tracking is a hot button issue in Washington DC, a recent IAB survey of marketers suggests that other aspects of mobile are perceived as being of greater value. Clearly, there is a need to balance consumers' privacy concerns with mobile advertising efforts. Additionally, consumers are likely to rebel against unwanted or irrelevant advertising on their mobile phones, particularly if the ads eat up precious megabytes on their data plan. As a result, consumer control in the form of opt-in/opt-out is key to balancing these tricky privacy issues. Likewise, delivering relevant ads and content is critical as well, while the legislative issues continue to work themselves out.

Facing the Click Through Problem

While mobile advertising may still be in its infancy, it's indelibly linked to other forms of digital media. One of the pitfalls the industry is facing is the click through trap. Similar to early PC-based Web advertising, some publishers and networks are (reluctantly) touting the click through rate as a critical metric to gauge mobile performance. "It's hard not to look at click through rates, or to be compared this way," says Alex Linde, Director, Mobile & Tablet Advertising at Yahoo! "[Mobile] shouldn't be measured off that but it's still the reality." Given the rapid decline of click through rates online, as clutter increased and consumers became increasingly indifferent to clicking on ads, mobile stakeholders should expect a similar decline after the novelty of mobile ads wears off. In some ways, PC-based media was hoisted by its own petard by focusing too intently on a metric with limited value and a diminishing performance. Mobile stakeholders should try to avoid repeating history just a decade and a half after the advent of online advertising.

Conclusion

The ubiquity of mobile devices is rapidly increasing, accelerating marketer interest. Yet for advertising to truly take hold on mobile platforms, more consistent and reliable measurement standards need to be adopted. Even as other digital channels, such as the PC-based web, email and social media have developed more sophisticated measurement, mobile media lags behind. One of the greatest challenges to better measurement lies within the infrastructure itself. A complex ecosystem, technological confusion and an ambiguous regulatory environment have all contributed to a slowly evolving and contentious mobile measurement landscape. Despite the lack of industry-accepted measurement standards, marketing investment continues to grow. While this report highlights some of the measurement obstacles facing mobile media, it is also meant to provide a roadmap as the industry, and the IAB, assesses its priorities for measurement-related initiatives. Through an examination of the factors hindering better measurement, the IAB hopes to – excuse the pun – mobilize the industry for further dialogue.

Appendix

Interviews Conducted:

- Paran Johar, Chief Marketing Officer , Jumptap
- Evan Neufeld, CMO, Groundtruth
- David Gill, Director, Nielsen Mobile
- Hans Fredericks, Vice President, comScore
- Alex Linde, Director, Mobile & Tablet Advertising at Yahoo!
- Jamie Wells, Director of Global Trade Marketing, Microsoft
- Joy Liuzzo, Senior Director, Marketing & Mobile Research, Insight Express
- Joe Laszlo, Deputy Director, Mobile Marketing Center of Excellence, IAB
- Michael Zimbalist, VP Research and Development Operations, The New York Times Company
- Maria Mandel, Regional Vice President, AT&T AdWorks

About the IAB Mobile Marketing Center of Excellence

The IAB Mobile Marketing Center of Excellence, an independently funded and staffed unit inside the IAB, is charged with driving the growth of the mobile marketing, advertising and media marketplace.

The Mobile Center devotes resources to market and consumer research, mobile advertising case studies, executive training and education, supply chain standardization, creative showcases and best practice identification in the burgeoning field of mobile media and marketing. Our agenda will focus on building profitable revenue growth for companies engaged in mobile marketing, communications and advertising, and helping publishers, marketers and agency professionals understand and leverage interactive tools and technologies in order to reach and influence the consumer. For more information or to find out how to join, please visit www.iab.net/mmcoe.

About Radar Research

Radar Research is a Los Angeles-based research and consulting firm aimed at the nexus of media, technology, culture and commerce.

Radar conducts research on behalf of media companies, technology firms, and non-profit organizations, aiding in the development of corporate strategy and addressing tactical questions about emerging consumer behaviors. When appropriate, we share our findings in the trade press, academic publications, and the mainstream media.

Radar can design and field market surveys, organize focus group sessions and assist in the development of corporate strategy. We understand the business of culture and culture is our business. For more information visit www.radarresearch.com