MOBILE MARKETING ASSOCIATION

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Mobile Barcodes: An Overview for Marketers

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1. INTRODUCTION

Mobile Barcodes offer marketers an exciting opportunity to increase the value of brand marketing and advertising by adding measurable interactive functionality and richer consumer engagement with your brand. With the placement of a Mobile Barcode, brands can give consumers access to information, multi-media content, promotional opportunities, retail store locations, discounts, samples and much, much more from brand marketing materials. The Mobile Marketing Association (MMA) has developed this document to educate the industry on Mobile Barcodes and encourage experimentation. We also invite companies to share their learned best practices to influence future MMA guidance. This whitepaper includes definitions, attributes and examples of Mobile Barcode services that are currently in the marketplace.

Mobile barcodes have two very separate and distinct uses for marketers: (1) for mobile activation where mobile barcodes are placed on marketing materials for consumers to activate, and: (2) for redemption at point of sale where the barcode resides in a digital format on a consumer's mobile phone and is intended to be scanned at point of sale for couponing or purchase redemption. This whitepaper will focus on the mobile activation functionality. There is supplemental information on the redemption use of mobile barcodes listed in the appendix. This document will cover the following:

- Marketing With Mobile Barcodes;
  - Overview
  - Cross Media Engagement
- Choosing a Mobile Barcode, including;
  - Barcode types and formats
  - Service provider considerations & matrix
  - Barcode resolution models
- Best Practices today.
- Who We Are
- Appendix

2. MARKETING WITH MOBILE BARCODES

Mobile Barcode Marketing - Overview

In some global markets today the use of Mobile Barcode as a call to action in 'out of home' advertisements, product packaging, or other media is commonplace. Japan is a market where use of Mobile Barcodes is a prevalent mass-market medium for consumer engagement. From grocery store product information to movie releases, sweepstakes entry, or public transportation over 90% of Japanese consumers are familiar with Mobile Barcodes and understand how to use their phone to interact with them. On the other hand, markets like the U.S. are just beginning their Mobile Barcode consumer activation journey, as test and learn campaigns are growing in frequency across many U.S. brands and industries.

In the U.S., 51 percent are aware of or have seen Mobile Barcodes. This number jumps to 71 percent among 18-34 year olds according to an Ipsos U.S. study conducted in May of 2011. ComScore also notes that as of June 2011 14 million people in the U.S. reported scanning a mobile barcode.

Mobile Activation - Cross Media Engagement

Consumers carrying mobile device equipped with a camera and the appropriate Mobile Barcode reader software installation (if required) may be engaged through the use of a Mobile Barcode call to action on any visual media. As a rule of thumb, the user's experience for this technology is poor unless the phone they are using has advanced mobile web browser processing and an Auto-focus camera. It is generally recommended that users with smartphones be targeted. Codes are perfect for making static media interactive for already deployed traditional media including:

- Product packaging
- Advertisements in print, periodicals, and publications
- Broadcast TV
- Billboards

Once a code is 'read' by the device, consumers may be:

- Presented with a branded mobile web site,
- Offered a mobile coupon or deal,
- Launch into a voice call,
- Send an SMS,
- Given the ability to make a purchase, pay a bill, or make a donation,
- Enabled to vote, take a poll or enter a contest,
- Allowed to opt-in for "push" communications,

- Provided with a company's contact information (email/phone number/address/etc.),
- Offered a branded mobile application or promotional content for download,
- Or invited to post a message to a social networking site.

The current state of Mobile Barcode marketing in the U.S. requires that marketers also consider the use of Mobile Barcodes and issues beyond activations in their next campaign. Marketers must also design a highly engaging consumer experience, with satisfaction and delight in mind, after the barcode has been read (post scan). Each campaign represents an opportunity to offer the consumer a new value proposition on the product in question, but also achieve an immediate "buying" decision that can dramatically increase the ROI on any campaign. In most cases consumers must not only learn to recognize Mobile Barcode symbols as a call to action for their mobile phone, but also how to access or even download the requisite Mobile Barcode reader software. Some tactics to consider early on include:

- Clear, compelling call-to-action – make the payoff for the consumer obvious;
- Use of mobile phone graphics next to Mobile Barcode symbols;
- Inclusion of an SMS text message call to action adjacent to the Mobile Barcode if your market does not have at least 20% smartphone penetration;
- Explicit instructions on what to do to interact with the Mobile Barcode (e.g. download a popular app versus "any QR reader");
- Education to your consumer in other digital areas so they may learn more about your Mobile Barcode campaigns.

Mobile Barcode activations may be as simple as presenting a generic brand experience, but the best use cases lead to a deep linked experience that includes localized data points.

3. CHOOSING A MOBILE BARCODE

A. Considerations

The service provider may be a more important factor than the barcode format (see next section). It is important to explore the following when choosing a provider:

a. Comprehensive solution should take into account a mobile application, code management platform, and analytics capabilities. Service providers aggregate these services to make code management and deployment easier and more effective.

b. Reach of mobile application user base. It is critical to ensure that a broad number of applications in the market will work with your advertisement. Some providers have agreements with operators or handset manufacturers to preload software on new phones and some do not require readers at all.

c. The flexibility to read multiple barcode formats. Most service providers will charge a fee for their services to manage the codes and the analytics. There are also free websites that can be used to create "direct" codes that do not include some of these features.

d. Level of analytics. Some providers, or even free services, offer basic data like number of scans, while others deliver more detail like representative demographics, location, and type of handset used.

e. Flexibility of code actions. Most marketers see codes as a shortcut to a URL, however some providers can deliver more dynamic data by using a managed platform. For example, a code can replicate an instant win or loyalty campaign in real time, send a pre-filled tweet, or even assist in creating a mobile formatted page.

There are various types of Mobile Barcodes. The following is a matrix of service providers with several formats and the various features to consider in choosing a Mobile Barcode. This section will provide guidance on evaluating the best Mobile Barcode for your marketing objectives.

B. Mobile Barcode Types and Formats

Like standard barcodes there are many Mobile Barcode formats. These Mobile Barcode formats include: QR Code®[1], Datamatrix, Aztec, EZcode, SnapTag, and Microsoft Tag, to name a few. Each is vying to become the de-facto standard across global markets. From a market adoption perspective the most prevalent formats at the moment are Mobile Barcodes like QR (Quick Response) Codes originated in Japan and the Datamatrix standard from Europe.

There is ample competition between Mobile Barcode formats, so which ones will dominate specific markets is unknown at this time. Marketers have an array of codes to choose from offering a variety of benefits. In this section, the variables will be broken down to see what each one means for marketers and how it can affect

[1] *QR Code® is a registered trademark of DENSO Wave Incorporated*

the code's ability to drive marketing objectives. Questions to ask when selecting a Mobile Barcode are:

- Which type of mobile barcode format provides the greatest consumer reach?
- What is an interoperable code vs. a proprietary one?
- What resolution model does the code use, direct or indirect?
- Does the code require an app or can it be activated by snapping and sending?
- Does the code offer customization or branding?
- Does the code connect to a marketing platform?
- How much does it cost?
- Do you have internal resources to build and manage the campaign or does it make sense to outsource?
- What are the metrics available?

One primary decision facing marketers today is choosing between open source Mobile Barcodes versus proprietary Mobile Barcodes. Open source means that the source code is open and available to any developer. This means any developer can understand how the black and white squares of an Open Source Code can be placed and read to encode and decode data. DataMatrix codes are the most widely recognized form of an open source Mobile Barcode. Although not technically Open Source, the inventor of the QR Code and owner of the QR Code trademark, DENSO has allowed the patents for the code to be freely available to the public. So, essentially any developer can create an app that can read QR Codes or Data Matrix codes and develop readers to decode them. In some markets, like the United States, there are over 200 apps available to read these codes and it is estimated that over 45 million devices have this capability.

C. Mobile Barcode Service Provider Matrix

	QR Code®	**DataMatrix**	**Microsoft Tag**	**SpyderLynk SnapTag**
Source Code Availability	Trademarked, but available freely	Open Source	Proprietary; free SDK available	Proprietary; SDK available
Resolution Model	Can be Direct, Indirect, or Managed Direct	Can be Direct, Indirect, or Managed Direct	Indirect	Indirect
Code Activation Requirements	Any QR Code Reader (recommend testing various apps)	Any DataMatrix Reader (recommend testing various apps)	Microsoft Tag App, Bing Vision feature	SnapTag Reader or any camera phone can snap and send

Mobile Barcode Customization	 Small logos can be placed in the QR Code  Example shown at reduced size. QR Codes can also be placed within logos and icons	   	 Logos and images can be used as background; can create intricate designs that disguise some or all of the tag.	 Logo or product image is used as Center Icon
Marketing Platform Connection	Yes, a variety of solutions including Delivr, MobileTag, ScanLife, and VitreoQR	Yes, a variety of platforms including AT&T, MobileTag, and ScanLife	Yes, connected to Microsoft Tag platform	Yes, connected to SpyderLynk platform
Analytics (Free/Paid)	Analytics provided by website activity or via connected marketing platform.	Analytics provided by website activity or via connected marketing platform.	Free frequency, time frame, location, heat map, device ID reporting	Analytics provided by SpyderLynk platform
Fee for Mobile Barcode Creation/Management	Free and paid barcode creation, management, and reporting solutions exist.	Free and paid barcode creation, management, and reporting solutions exist.	Free and paid barcode creation, management, and reporting solutions exist.	Yes, fee includes custom SnapTag creation, campaign programming, and analytics dashboard setup.
Source: Mobile Marketing Association 2011				

D. Widely Available Mobile Barcodes for Data Capture or Data Display in various formats:

	
DataMatrix	*QR Code*

Data Matrix –Developed by Acuity/RVSI, acquired by Siemens. Covered by ISO standards. Currently in use as standard in France & Spain – supported by all carriers. It also has been recommended by the CTIA for the United States. Supports 3116 char.

QR Codes – Developed and owned by DENSO Wave in 1994. Although the QR Code was originally designed to track automotive components and systems through the manufacturing process and distribution supply chain, it has rapidly spread to virtually every other area where traditional barcodes are used. As the inventor of the QR Code and owner of the QR Code trademark, DENSO has allowed the patents for the code to be freely available to the public. Consequently, many websites now feature online QR Code generators or downloadable code- generating software. Currently in use as official standard in Japan (heavy usage; 90% awareness, 51% active use, 1 scan per week on average. Supports 7089 Numeric, 4296 Alphanumeric chars.

Proprietary & Other barcode formats – Proprietary codes are developed by a company and the source code (or decoding methods) are not made openly available. Codes can be developed as proprietary for several reasons including adding the ability to customize or brand the code, connect the code to a marketing platform, and increase the security of an interaction. Examples of proprietary codes include Microsoft Tag and SpyderLynk SnapTags.

		
Scanbuy's EZcode	Microsoft Tag	SpyderLynk SnapTag

Visual Code – This proprietary symbology was developed by ETH Zurich (http://www.vs.inf.ethz.ch/res/proj/visualcodes/) as a simpler barcode format which can be read by less sophisticated camera phones and printed at smaller sizes. Licensed by Scanbuy and re-branded as EZ-Code, it had early success in certain print applications, but lack of code publisher adoption spurred the company to release the public specifications under license in 2009. However the symbology has not been submitted to the ISO as they did not have ownership of it.

HCCB Code (Microsoft Tag) – This format uses clusters of colored triangles (High Capacity Color Barcodes) instead of the square pixels traditionally associated with QR codes. This allows the code to have more density in a smaller space. The HCCB code can be read on smartphones without modified lenses at a print size of 3/4" square. Black and white versions can be smaller at 7/8th of an inch. Advanced segmentation and color processing techniques ensure good decode rates across a range of image and lighting variables: from sharp to blurred; from light to dark, making the Tag readable on a variety of surfaces (such as store windows or cans with condensation) and in poorly lit environments. It is becoming a common format among some media publishers in North America with over 5B tags in print. Of these tags in print, only Microsoft readers TagApp and Bing Vision use the format.

SpyderLynk SnapTags – A hybrid of barcode methodologies and image recognition technology, SnapTags combine a logo and a Code Ring. They are connected to SpyderLynk's marketing platform and can be activated using the SnapTag Reader app or by snapping and sending to a provided short code or email address. They are becoming widely adopted in the United States for marketing campaign activation.

Mobile Barcode Resolution Models

There are three ways that a Mobile Barcode can be resolved by the camera phone application:

Resolution Models	Direct Mobile Barcode	Indirect Mobile Barcode	Managed Direct Mobile Barcode
Definition	A Direct code contains either a fully formed web address (URL) of the content or service, or the content itself within the code. QR Code and Datamatrix can be used in the direct code model.	An Indirect code contains an identifier that must be recognized by a specific reader that then relays the code to a host server to be resolved to obtain the corresponding content or service. Any code format could support the indirect model.	A Managed Direct code contains a fully formed web address (URL) within the code that is managed. QR Code and Datamatrix can be used in the managed direct code model.
Source: Mobile Marketing Association 2011			

Barcode marketing platforms like Delivr, Microsoft, MobileTag, ScanLife, SpyderLynk, VitreoQR, and others have built barcode creation, management, marketing, and tracking services around each of these various code formats and resolution models.

The code format and method of resolution you use could change depending on the media you are using and the geography in which your campaign will be located.

Whether or not the code requires an app, and what type of app, will make a significant impact on how many consumers will activate the code. Mobile Barcodes are available in various formats and may not work with all Mobile Barcode reader software. Formats include Data Matrix, QR Codes, and other barcode formats. Currently, QR codes are supported by mobile operators and handset manufacturers widely in Japan, Korea, Australia and parts of China. While Data Matrix is the dominant code format supported by mobile operators in France, Spain and Poland. QR codes (the first and original mass market format) have received worldwide interest, and can be found in varying degrees everywhere. Many barcode formats (QR, Datamatrix, EZcode, SnapTag and Microsoft Tag) are being used more heavily in North America.

Code readers generally support two or more code formats. It is not unusual for a code reader to support both QR and Datamatrix codes, and also EAN/UPC codes. Because the United States has no governing body for these formats, all of them are commonly used and are widely readable.

4. BEST PRACTICES

1. Create a compelling experience

Add value that gives your audience a good reason to scan your mobile code: incremental product information, engaging videos, exclusive deals, upgrades, a coupon, or other purchase incentive. And allow them to take action – have them enter a sweepstakes, request a product sample, or some other end goal. You are asking them to activate your ad and spend time with your brand, so give them a good reason to do it the first time and then a great experience so they'll do it again.

2. Tell consumers why and how to engage

Once you have a compelling experience to share with the consumer, make sure to tell them about *why* and *how* do activate the code. The *why* can be as simple as "Scan for more info," "Scan for a chance to win," or "Scan to get the video". For the *how*, include concise instructions for downloading the appropriate reader application like "Get the free mobile app at http://xxxx.com" and/or provide instructions for snap and send capabilities if the code provider allows consumers to take a photo of the code and send it via MMS (e.g. "Snap a photo and send it to XXXXX"). Remember, mobile barcodes may be unfamiliar to some consumers so they need to know why they should scan and how to scan.

3. Set up your campaign to collect meaningful data

Consider what you want to measure up front, think about your objectives and make sure that your code campaign is setup to capture the data that you will want to analyze. Are you trying to drive frequency? Then be sure you are capturing repeat uses from the same user. Are you trying to drive sales through couponing? Be sure you are measuring conversions from the scan to the coupon to the point of sale redemption. Knowing what success will look like up front will help ensure that you are capturing the right data and that you will get the insights you are trying to capture.

4. How to measure success

Since mobile barcode campaigns capture valuable customer data, consider how you want to use your metrics, such as incorporating mobile barcode campaign data into your CRM system for deeper analysis. Making mobile barcodes a standard component of your integrated campaigns will help you track and trend campaigns, giving you new understandings over time.

Further, scans should not be the sole measurement of a campaign's success. It's also important to evaluate what a scan means in the context of your campaign. For example, some marketers only measure the number of scans while others heavily instrument their campaigns to understand if the scans are leading to conversion or customer loyalty. In some cases, you may see fewer scans, but they are higher-quality scans.

5. Consider the life cycle of your code campaign

Your code may be in market before or after you anticipate starting the campaign or launching the content that it will connect to. Be sure to plan for the experience before or after the campaign. For example, if the campaign is over and you have

packaging or advertising still in the market, you might want to change the code to point new messaging like, "Sorry this campaign is over, but go here for other programs and offers www.xxxxxx.com/offers."

6. Optimize for mobile

Be sure that the experience your code provides is optimized for the mobile environment. Linking users to standard websites is likely to lead to frustration on a small screen. Make sure anything you are pointing to is mobile optimized. Note that many common social networks like Facebook and YouTube offer mobile formatted content. Test on various devices, carriers, and operating systems.

7. Reduce the complexity of your code

Some formats, like direct QR Codes, can become very complex in appearance and be harder to scan if you are embedding a lot of data (like a long URL). To reduce the size of the encoded information and as such the size of the code, adjust the error correction level (for QR Codes only), use a URL shortener, small vanity URL, or a managed service/marketing platform that handles this for you.

8. Provide quiet space around the code

Many mobile barcodes must have a white or near white border around the code to ensure it remains readable, and you should test the code before using it to confirm it scans correctly. White space may also help make the code more noticeable for consumers. Refer to your specific code or provider for info.

9. Chose the correct size for the code

Be sure to reference your specific code guidelines, but as a general rule of thumb, codes should be at least ¾" plus any necessary quiet space as referenced above. They can be bigger, much bigger in fact. When deciding how big to print your code, consider the Five Times Rule: the distance that the user will be scanning should be about Five Times the size of the code. For example, if the user will be 5" away from the code (like on a print ad or packaging), then the code should be about 1". If the user is going to be 5' away from the code (like on sign at an event), then the code should be about 1'. Again, the best way to know that you got it right, is to test, test, test.

10. Place the code where it can be easily scanned

Make sure that the code is in a place that can easily be scanned and where internet access will be available. Don't put the code on a sign one foot off of the ground. If it's on signage, place it as close to eye level or shoulder height as possible. Also, avoid overly shiny and reflective surfaces, as this could make your code hard to read. Ok, we'll say it again here, test, test, test.

11. Test the code

Last and absolutely not least, we cannot stress this one enough - be sure to test your code on the final surface and in the conditions you anticipate that consumers will be scanning under on multiple devices. If it will be in a dimly lit bar, test in a dimly lit room, if it will be on packaging, try to get samples of the package to test as soon as you can. Test on multiple devices, carriers and operating systems.

5. WHO WE ARE

The Mobile Marketing Association is the premier, global not-for-profit trade association that works to promote, educate, measure, guide and protect the mobile marketing industry worldwide. In this capacity, we are pleased to offer the white paper, Mobile Barcodes: An Introduction for Brand Marketers, authored and prepared by the Mobile Barcode Task Force, part the MMA Mobile Commerce Committee.

The MMA Mobile Commerce Committee is co-chaired by Anil Malhotra of Bango and Jennifer Moranz of Payfone, Inc. The Mobile Barcode Task Force is co-chaired by Alberto Benbunan Garzón of Mobile Dreams Factory and Nicole Skogg of SpyderLynk. The MMA is extremely grateful to the co-chairs and to the active members from the following companies:

- 5th Finger
- Bango
- Carlson Marketing WW
- Collider Media
- Delivr
- DENSO ADC
- Infinian
- Maritz
- Microsoft
- Mobile Dreams Factory
- Motricity
- Neustar, Inc.
- Payfone Inc
- PercentMobile
- Scanbuy
- SpyderLynk

6. APPENDIX/REFERENCES

The following documents provide additional sources of information and reference:

- QR Code Best Practices Checklist & Campaign Worksheet by Angie Schottmuller - http://www.slideshare.net/aschottmuller/mobile-tag-marketing-campaign-worksheet
- Open Mobile Alliance white paper - http://www.openmobilealliance.org/Technical/release_program/docs/MobileCodes/V1_0-20080617-C/OMA-WP-MobileCodes-20080617-C.pdf
- "Comparison of Data Matrix and QR Code" (hereafter "CEA Comparison") http://www.autoid.org/2001_documents/ANSI/ANSI_WG6/R9_Neg_IEC62090_5thCDV_0701.doc
- http://www.mobilecodes.org/StandardsDiscussion.pdf
- http://semacode.com/documents/best_2d_code.pdf
- http://www.scanlife.com
- http://www.denso-adc.com
- http://delivr.com
- http://percentmobile.com
- http://mobiletaginc.com
- http://www.gomocode.com
- http://www.gs1.org/barcodes
- http://www.neom.com
- http://tag.microsoft.com
- http://www.spyderlynk.com
- http://www.nttdocomo.com
- http://vitreoqr.com/