

2D Scanning POV July 12, 2011

Overview

Today over 300 million Americans have mobile devices. Nielsen projects by the end of 2011, 50% of Americans will have smartphones. As consumers go about their daily lives, the mobile device is the one technology that stays with them throughout the course of the day. Smartphones have opened a new way for consumers to connect with brands, bridging the physical world with the digital world almost instantly.

For years, many companies have included website addresses, Facebook and Twitter call outs in their communication as a way to remind consumers to have a digital brand experience. Now that the mobile device is carried everywhere, the ability to close the loop and capture that consumer with a digital experience is immediate. From the grocery store aisle to reading a magazine, we are beginning to see a rise in mobile digital activation points in our daily lives. This dynamic has brought upon a variety of consumer connection options and solutions to the market.

As Smartphones proliferate and their full capabilities become more utilized, 2D scanning becomes more of an option for consumers and marketers. A March 2011, Chadwick Martin Bailey report, "How Smartphones Are Changing the Retail Shopping Experience," reported that 44% of US smartphone owners surveyed had used scanner apps while shopping. This echoed the result of comScore's February 2011 "State of the US Online Retail Economy in Q4 2010" report, which found 30% of US smartphone users had engaged in mobile barcode scanning to compare prices. Directionally, consumers are beginning to utilize new technologies to make purchasing decisions and gather more insight.

For the purpose of this document, we will focus on 2D scanning, but in the appendix will also highlight other mobile specific digital activation capabilities. Please note, the world of 2D Scanning is complicated by the number of solution vendors that put out reports for scanning activity on proprietary platforms. In lieu of this, there are wide discrepancies in the available data about the extent of 2D scanning activity among mobile users. We will dissect this market and provide a recommended approach.

2D Overview and Evaluation

A matrix code, also known as a 2D barcode or simply a 2D code, is a two-dimensional way of representing information. It is similar to a linear (1-dimensional) barcode, but has more data representation capability. Many people refer to 2D codes as QR codes, there are different types of 2D activation solutions, one of them a **Quick Response** code also known as a "QR code". 2D Code scanners are limited in reach but growing as many smartphones are beginning to pre-install such applications. There are four types of 2D codes popular in America, QR Codes, Data Matrix Codes, EZ Codes and Microsoft Tag or M-Tag (more details in chart below).

2D codes provide a quick, easy way for advertisers to deliver information to consumers. Consumers simply scan a code using a pre-loaded application installed on the device or downloaded from an application store. These consumers are instantly delivered a piece of content or linked to a mobile site containing brand information and content. The use of a 2D code on an advertisement or on-pack replaces the need for a short code or SMS call to action.

Joule

For a relatively new marketing format, awareness of mobile 2D Codes, particularly QR codes, is high. According to the February 2011 BrandSpark/Better Homes and Gardens “American Shopper Study,” 42% of US consumers overall (and 58% of smartphone owners) were aware of QR codes. In addition, 22% of Fortune 50 companies report to be using 2D codes in their messaging.

A March 2011, InsightExpress found that 17% of smartphone owners have downloaded a QR reader app, with the heaviest concentration coming among male users ages 25 to 34, especially those with either iPhones or BlackBerry devices.

Success with 2D code campaigns in the US has been limited since scanning codes is a new consumer learned behavior. As more 2D campaigns occur, the more consumers will become educated and interact. The following are other reasons why 2D campaigns have not seen the success as originally hoped:

- **Lack of availability:** Unlike in Japan and other Asian markets, the large majority of U.S. carriers and device manufacturers do not pre-load a preferred 2D code reader on-device, limiting consumer exposure to the technology. While carriers started pre-loading readers on certain devices, each pre-loads a different reader, adding to the confusion.
- **Lack of standardization:** Differences in 2D code formats make it difficult for any one reader to work across all campaigns. With no pre-loaded or universal standard in the market, consumers may be required to download a different reader for each advertising program, adding an additional hurdle to each campaign.
- **Compatibility:** For widespread campaign adoption, the 2D reader application must be compatible with multiple devices and camera qualities across a variety of formats (iPhone, Palm, BlackBerry, J2ME, etc.). Many code readers will not work with all devices, meaning the advertiser may require a backup call-to-action (ex: SMS) to provide the most broadly inclusive campaign.
- **Education:** Successful implementation of a 2D code program requires the brand to educate all but the most mobile-savvy consumers in the use of the new technology.

Although recent 2D code campaigns for advertisers such as Polo have generated buzz, the consumer experience for new users is often poor. The extra step required to download the reader is often a barrier to participation and can lead to a negative brand experience for consumers who either cannot participate or do not believe they were amply rewarded for their efforts. However, for consumers who already have the reader on their phone, the ability to quickly scan and engage with the brand can be easy and rewarding.

2D Key Considerations

Brand perception can be raised when 2D Codes are incorporated into marketing. People look at the brand as cutting edge or on the forefront of technology when including a 2D scan in their messaging. Additionally, consumers expect something of value in return for scanning. According to eMarketer, 53% of people scan in order to receive a deal or a discount and 52% scan to receive additional product

Joule

information.

A mobile optimized experience is very important for consumer interaction with the 2D scan. There are many campaigns in market that use 2D codes to drive consumers to a non-mobile optimized experience, which provides for a poor consumer experience and brand disconnect.

When launching a 2D Code, it is important to test the activation of the code within the creative element / packaging you plan to deliver the execution. For example, some codes have not been scannable in print ads because the code blends into the color of the page and does not provide enough contrast for the code to be read. If the code is to appear on a bottle with rounded surfaces, it should be tested on that surface type before it is produced in mass.

Campaign changes may occur or a specific promotion may not be relevant anymore, so it is important to manage all the 2D codes through a dashboard and tracking solution. QR Codes do not provide a robust dashboard, but one can be developed that can track all scans and data associated with that campaign including location and date.

Some 2D code solutions charge a cost per scan solution with robust tracking and dashboard functions. Companies such as EZ Scan (Scanbuy) and AT&T follow this model. Although the cost maybe minimal, brands still need to allocate budget for projected number of scans that occur. As budget can be a concern, we recommend using QR Codes since there is no charge for the advertiser to use this solution.

2D Consumer Experience

Consumers either download a 2D scanner from the application store or have one pre-installed on their smartphone. Once consumers have the scanner, they will need to use the correct scanner with the proper 2D code. For example, AT&T has a scanner preinstalled on all their new smartphones, consumers can use the scanner to either scan a QR code or a Datamatrix code. Once a code is scanned, the consumer is presented with an action on their device – such as a URL to click on. This URL can take the consumer to a Facebook page, the brands' mobile web site, a YouTube video, a coupon, etc.

2D Key Takeaways

In the current marketplace, 2D code use is hampered by fragmentation and often requires consumers to expend greater effort than alternative calls-to-action (ex: SMS). Although brands can generate buzz, the experience can be far from "world-class".

Looking forward, 2D codes offer an array of creative and impactful possibilities for reaching and engaging consumers. As more advanced codes are developed, reader applications may soon be able to directly display content even without a web connection or supported URL. In addition, the growth of consumer-friendly mobile platforms, such as those from Apple and Google, should enable greater code uniformity from third-party application developers.

To maximize the effectiveness of a 2D code campaign, companies should:

Joule

- Explore the target audience’s mobile usage habits to verify whether 2D codes will offer an appealing engagement
- Provide ongoing rewards – the user has downloaded the reader or learned a behavior, make it part of a continuous engagement
- Ensure the reward for scanning or sending an image matches the effort required to “submit” code
- Consider incorporating SMS as an alternative call-to-action (and whether the “alternative” should actually be the primary communication for a given audience)

2D Code Summary

The following provides an overview of the frequently used 2D Scanning types in the US market. There is limited comparison data on this topic so we provided a general overview of the current 2D scanning landscape.

	QR Code	Data Matrix	EZ Code	M-Tag
Requirements	Phone w/camera & barcode reader	Phone w/camera & barcode reader	Phone w/camera & Scanbuy reader	Phone w/camera & Microsoft Tag reader
Technology Used	Open source IP rights not enforced Direct experience	Open source Direct or Gateway to Route Experience	Open source IP rights not enforced Gateway to Route experience	Proprietary HCCB Gateway to Route experience
Developer	DENSO (Japan)	Int’l Data Matrix/RVSI Acuity CiMatrix (US)	ETH Zurich Licensed to Scanbuy in ‘06	Microsoft (US)
Maturity	Used for mobile since 2002	Used for mobile since 2005	Deployed globally first in 2006	Product in beta mode (Jan ‘09)
Min. Code Size	1.1 in	0.8 in	0.5 in	0.75 in
Error Correction	~25%	~20%	Error detection only	Limited (number unknown)
Operator/Industry	Yes (Asia)	Yes	Yes (US/LatAm/EU)	No

Joule

Endorsed		(US/LatAm/EU)		
Primary Readers	Quickmark, I-Nigma, RedLaser	ScanLife, MobileTag, Quickmark, I-Nigma	ScanLife	MS Tag
Pros	Commonly used in Japan, downloadable readers available, large capacity	Simpler than QR, widely used in multiple regions, preloaded code readers in 2010	Smallest & simplest format, preloaded code readers shipping across geographies	Can hold a great deal of data Customizable
Cons	Must be 120% larger than EZCode	Must be 60% larger than EZcode	Indirect model only, mainly read by ScanLife only	Very new code format, supported only by MS
Cost	Free to develop and use, must use a code generator for commercial use	Free to develop and use, must use a code generator for commercial use. ATT Datamatrix code generator charges advertisers a cost per scan, but in exchange a robust dashboard and capabilities	EZ Code charges advertisers a cost per scan price package	Free to use, although all your data must reside with Microsoft

Source: Augme Health, Joule, Industry Sources

2D Recommendation

For most campaigns, Joule recommends the use of QR Codes for 2D activation campaigns. We recommend QR Codes over other 2D formats for the following reasons:

Consumers Recognize QR Codes: According to Fortune Magazine, 22% of Fortune 50 companies are using QR codes driving consumer awareness and education of the platform.

Audience Reach: Most of the 2D scanning applications deployed in the market can read QR Codes. A popular barcode scanning application RedLaser can scan QR Codes only, where a scanner such as Microsoft Tag can only read M-Tags in the market.

Analytics and Tracking: Open source 2D code solutions, like QR Codes, require a tracking infrastructure to provide additional audience insights. As part of the implementation, Joule will deploy a specific

Joule

tracking portal which will record the device profile for each consumer who scans a code. This will enable QR Code campaigns in market to be optimized and tracked for performance. This will also enable us to redirect any inactive QR Codes to a new destination as appropriate.

Scanning Cost: There is no cost for scanning the QR codes, some service charge on a per scan basis leaving open ended budget question that has no historical benchmarks. As this marketplace is constantly evolving, it is important to note that 2D code solutions may not be the best option 12 months from now. As NFC chips in smartphones begin to grow, they may provide an easier consumer experience to access information. Today, we do feel that having a QR code on pack is a great consumer benefit only if there is a sufficient value exchange for the consumer.

Contact

Jeff Malmad
Joule
+1 (347) 453-6990
Jeff.malmad@jouleww.com

Appendix: Alternative Means for Connect Mobile to the Physical World

In addition to 2D codes, several other opportunities exist to connect consumers to the physical world through mobile:

Short Code: Short codes are special telephone numbers, significantly shorter than full telephone numbers, that can be used to address SMS and MMS messages from certain service provider's mobile phones. Consumers send a text message to activate a short code experience. Short codes work with both feature phones and smartphones. Short codes provide a consumer friendly experience as text messaging is common form of communication for many people.

Image Recognition: Codes offer an alternative to traditional scanned 2D codes. Image recognition requires users to snap a photo of an object or code/symbol and either send it via an app, e-mail or MMS to a remote service, which is can be recognized and then an action can be sent back to the consumer. Image recognition can be effective when used thoughtfully (for example, Amazon enables mobile users to submit a picture of their desired product and then uses recognition technology to send back links to those or similar products based). Images may also take various forms such as a brand icon, other than a traditional 2D code, adding a creative element to many campaigns.

NFC (Near Field Communication): Allows for simplified transactions, data exchange, and connections with a touch. In order for consumers to utilize NFC technology, they must have a NFC chip in their smartphone. Additionally, when the consumer uses their smartphone to scan an NFC chip, the NFC chip

Joule

does not need to have a power source on the object being scanned, you would need to include an NFC sticker on the product for activation to occur. The one example of NFC technology in market is a movie studio in London was running out of home ads that included an NFC sticker, once consumers scanned their NFC enabled smartphone of the NFC enabled poster, they were able to watch a movie trailer directly on their device. The number of people that have the latest phone with NFC included is extremely small and adoption will not grow for 12-18 months.

Call in Numbers: Allow for consumers to use the most common feature on their mobile device: voice. Solutions such as StarStar Zoove allow for consumers to dial directly to a keyword, where they can immediately engage with the brand based on their device type. Like short codes, this has the highest penetration in terms of consumer reach. Although the penetration is high, StarStar numbers do not have a global footprint.