Two-dimensional... going beyond 'flat thinking'.

The current economic climate is forcing marketers to rethink how they reach their customers. What was considered savvy marketing yesterday is considered old news today. We must think outside the box and look to new avenues for generating revenue not only for ourselves but for our clients as well. **AccuLink likes to refer to this as going beyond flat thinking.**

That's where 2D barcodes come in. Sure, you may be thinking that 2D is flat, and that is the simple point we are trying to make. But it goes way beyond that. 2D barcodes offer an unseen dimension, the ability to reach your customer base in new and exciting ways, tapping into evolving technology and enhancing it.

The emerging generation of consumers falls into the 15-35 year old range. And most consumers in that age range, own mobile phones. In fact, there are more mobile phones than TVs and computers combined in the USA today. One-fifth of consumers access the Internet on their cell phones every day, and among consumers who shop online, 58% have Web-enabled phones. This gives marketers unprecedented access to their customer base not just by text messaging, but also by web. Smart phones are the new personal computer, contact manager, entertainment center and mobile communication device all in one.
What form of technology can bring together traditional print, internet, relationship building and metrics? **2D codes.**

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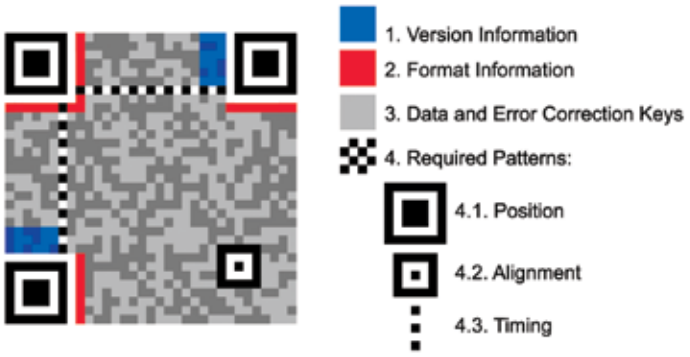
What are 2D Barcodes (commonly referred to as QR codes)?

A QR-Code is a two dimensional barcode that is designed to have its contents decoded at high speed, allowing for accuracy in link recognition and convenient functionality. The acronym QR is derived from the term Quick Response. QR Codes were created by the Japanese company Denso Wave in 1994 as a way to track parts in vehicle manufacturing. Other industries began seeing how useful they were and started adapting the technology for their own use. From that point, mobile phone companies saw the potential in this technology and came up with QR code readers so that cell phone users could read these codes right from their phones. This technology is widely used in Asia and Europe and was voted trend of the year for 2009 in the UK.

There are many types of 2D barcodes available today, each with a unique look and varying degrees of data capacity. They are compatible with the alphabets and characters of multiple languages. Numeric codes can contain a maximum of 7,089 characters, while alphanumeric codes can only contain a maximum of 4,296 characters. Here are some examples:



Standards are in place to ensure each 2D code has the correct information, patterns and positioning of data as shown to the left.

Two dimensional barcodes are being used in convenience-oriented applications aimed at mobile phone users (known as mobile tagging). The basic idea is simple. The user scans a two dimensional barcode with a cell phone loaded with barcode reader software and it takes the user directly to a web page with marketing content. This might be coupons, promotional videos, a survey, a blog, or product purchase page. The URL can also be a link to download an MP3, dial a telephone number, or auto-fill your email client with a sender address. Two dimensional bar codes storing addresses and URLs have appeared in magazines, on signs, business cards, billboards, even coffee mugs and t-shirts.

Because scanning a two dimensional code is much easier than entering a URL into a phone by hand, these codes are touted for their ability to reduce the barrier to response. This can translate into higher response rates from consumers with web-enabled phones. Interaction takes place immediately – creating a faster way to reach the consumer. People are more likely to respond to an ad at the point of initial interest, than waiting to access the content from a computer. Higher response rates increase a marketer's ability to form new relationships (via text messages, electronic coupons, email opt ins, etc) that may never have occurred via more traditional channels of advertising.

One of the biggest benefits of using two dimensional codes is that each code can be measured independently from the others. For instance, if you are running ads in different magazines, each with its own unique code, all of which send people to the same website, you can determine the location (or even the ad) from which the respondent came.

When creating two dimensional codes for marketing use, one must consider that many — but not all — of the functions we have mentioned can be created using free software from the Internet. But beware. Not all phones allow you to use all functionalities. For example, when we tested a two dimensional code that would trigger a Blackberry to send a SMS (Short Message Service) text message, the phone blocked the capability. So while the free capability is there, certain phones will not allow that kind of usage. Smart phones tend to handle QR functionalities better than traditional phones, and 2D barcode readers generally have software versions used on both phone types. Smart phones offer in-phone computers that give you the technology to move beyond what regular phones can handle. The browser functionality is more robust. This is an important consideration for codes pointing to URLs that contain video. Regular phones cannot run videos, but smart phones can.

Is the incentive strong enough to get consumers engaged?

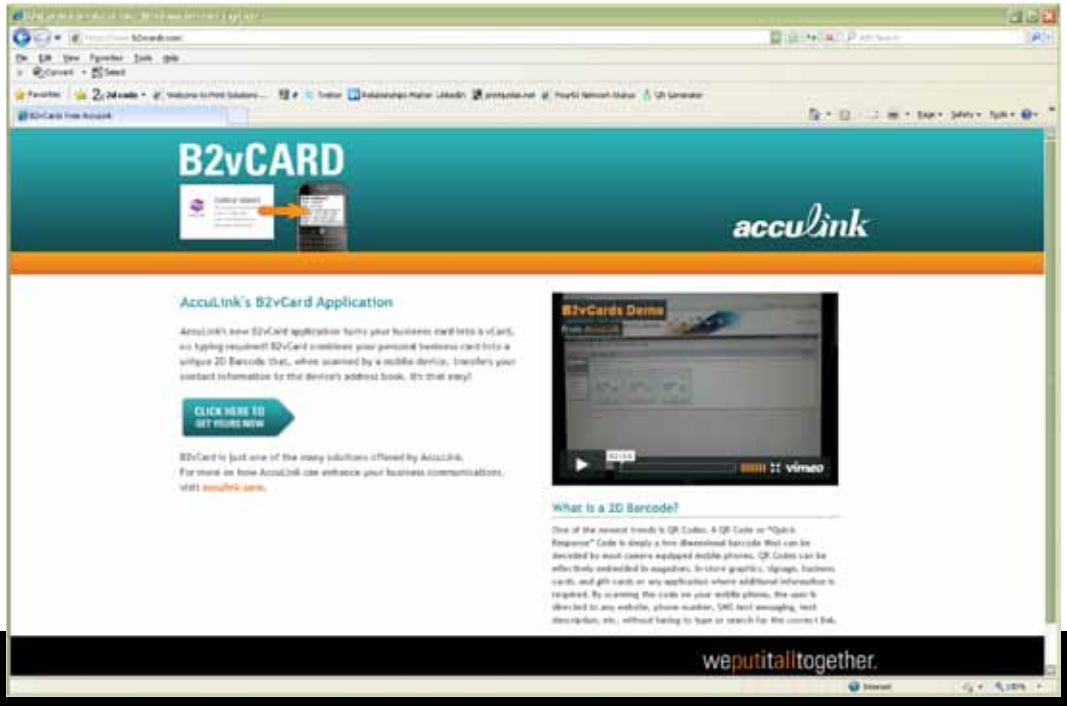
While today's cell phones don't typically come pre-loaded with 2D barcode reading software, evidence shows that consumers are willing to download readers if the incentive is strong enough.

A recent campaign by Letterbox Deals, a coupon catalogue company, shows that consumers are willing to download a 2D barcode reader in order to more easily engage with printed offers. Within a 1.3 million piece mailing offering a free Dell laptop, over 25% of the entries came from recipients who scanned a 2D barcode. Of those entries, over 60% downloaded a 2D barcode reader in order to respond to the drawing offer.[1]

Some have suggested this as a good way to send people to personalized URLs. Imagine using 2D Barcodes to create new and improved PURL campaigns? Instead of a URL listed on the postcard mailing, there is a 2D barcode that when scanned, takes the consumer to a GURL (Generalized URL). You have now created a faster way to generate traffic on a GURL that in turn can create opt ins (for sending emails to the consumer) and traffic to unique PURLs. By opting in, they get some kind of incentive, such as a text message code for 10% off an immediate purchase. Once they get home, there could be an email for a coupon with more offers and discounts. In addition to the coupon, the email can contain a link to a PURL. According to Q2 2009 US Email Trends and Benchmarks Results study, email open rates are on the rise for the fourth quarter in a row. Why not capitalize on that trend by getting email opt ins early?

How can this be used in everyday workplace interactions?

When looking at ways to engage the consumer, think in practical, everyday terms. One way is through business cards. Everyone has business cards from various businesses they work with. We all have too many to carry around, but no easy way to upload them to our contact manager device on our mobile phone. Until now: **www.b2vcards.com**.



This site enables the consumer to create a unique 2D barcode that when scanned, allows their profile from the 2D barcode to instantly be transferred to the contact manager address book on another mobile device. Imagine being at a trade show, handing out business cards to prospective clients so they can contact you for upcoming projects, only to have the card lost or misplaced. With a b2vCard, you now have a way for consumers to have your information on their phones before they even walk away from the booth. Instant gratification! Plus, with the 2D barcode being web based, even if you update your profile, there is no need to reprint your business cards – the code points to a specific URL that is always current.

What are the drawbacks to 2D Barcodes?

While QR codes do offer a lot of advantages, like any medium, they have their drawbacks.

Among the challenges . . .

- Phones must have pre-installed QR reading software or the user must be willing to download the software.
- The software is device specific. Not all readers work with all phones.
- The QR code must be large enough to be read by the device.
- The Web pages to which the viewer is sent must be viewable on the mobile device the viewer is using.

While these points sound straightforward, anyone who has designed for mobile phones knows that they are not. Many camera-equipped mobile phones have the ability to 'read codes'. Some of the more popular phones that have this ability are: Palm, iPhone, Blackberry, LG, Nokia, Motorola, Samsung and many more. Some of the best reader apps available are: NeoReader, Scanlife, Microsoft Tag, QuickMark, I-Nigma, and Kaywa Reader, many of which are designed to work on multiple devices. Whether they do so seamlessly or not is another story.

Many of these readers work well. Others are sporadic hits and misses. Some barcode reader software is able to work with some web pages but not others. Some readers work on some approved handsets, but not all. Software for computers often suffers from the same problems. Some programs may work for a PC but not a Mac. Others are open source.

Designing for the mobile web has its challenges

Then there are the issues associated with the mobile web in general. Designing for the mobile web requires an entirely different approach to site design. Not only does it generally require a separate URL (often a sub-site like www.acculink.com/mobile), but new rules and new protocols apply, such as: Wireless Application Protocol (WAP), Wireless Markup Language (WML), and XHTML-MP (XHTML — Mobile Profile). Cell phones have screens of different sizes and resolutions, even different shapes. Plus, the lack of mouse navigation means that the sites must be simpler and navigable by the use of buttons. Not to mention each cell phone service provider has differing capabilities to web access depending on service plan and location at time of access.

What about the many types of phones available today?

Then there is the issue of whether the user has an iPhone? Nokia? Blackberry? Depending on the complexity of the web page, each device or class of device may require its own web design. Once you identify the devices in your target demographics, the process will become easier, but the initial set-up will require an investment.

When designing for the mobile web, keep in mind the following statistics on web surfing for mobile devices according to a recent study conducted by Neilsen:

- Two out of three consumers have encountered problems when accessing Web sites on their mobile phones in the last 12 months
- Slow load times were their number one issue, experienced by almost 75%
- More than half reported that the web site content was either too large or small for the size of their mobile phone's screen.
- More than 80% claimed they would access web sites more often from their phone if the experience was as fast and reliable as it is on a PC.
- In the meantime, publishers and marketers better get it right. Overwhelmingly, 85% of consumers said they are only willing to retry a mobile web site two times or less if it does not work the first time.[2]

Rule of thumb: when designing for the mobile web, keep your content simple, clean and easy to follow. Taking into consideration the area (screen size) with which it will be displayed and how long you will have the user's attention before they move on to something else.

Size is an issue

Another factor impacting 2D barcodes is the size of the code and the amount of information it contains. Although 2D barcodes can be scaled to any size, the smaller and more compressed they are, the more challenges they have being read or scanned. Likewise, the more information you have contained in your code, the tighter the black image becomes, even at larger sizes.

The readability depends on the software, the size of the image, the amount of data the code contains, and the resolution of the phone. Cell phones with image stabilization features tend to better handle smaller, more complex codes.

One emerging option for increasing readability is using four-color 2D barcodes, currently available through Microsoft Tag. These codes are more readable at smaller sizes, but are limiting in that they can only be read or scanned by Microsoft Tag reader software.

Just for Fun

Want to see an amusing way to build a QR code? The Cross Borders website uses animation to build a QR code using an army of stick men carrying black boxes. View the animation by scanning this barcode or click on **http://www.xbs.co.jp/PJ/qr/**.

[1] *Results Show Recipients ARE Willing To Download QR Readers*, November 6, 2009, CodeZ QR blog.
[2] *Why the Mobile Web is Disappointing End-Users*, Gomez, Inc., 2009. The full survey findings can be accessed at http://www.gomez.com/wp-content/downloads/gomez_mobile_web_experience_survey.pdf

To scan the code with your phone, go to acculink.mobi and download the FREE app.

Thinking outside the box means going beyond flat thinking. This white paper is designed to help you think beyond normal boundaries, looking at technology as it evolves and seeing how you can make it work for you and your customers. As stated before, 2D barcodes offer the ability to reach your customer base in new and exciting ways, but in order to use it, you have to understand it. For additional information, please check out the following resources:

www.acculink.com

www.acculink.mobi

www.B2Vcards.com

www.acculink.blogspot.com/

www.printjunkie.net/forum/topics/qr-codes

http://tinyurl.com/yg27vvw
(QR Code powerpoint presentation from Print Solutions 09 in Chicago)

If you would like to learn more about how to improve YOUR business communications contact Lindsay Gray at 252-321-5805.

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