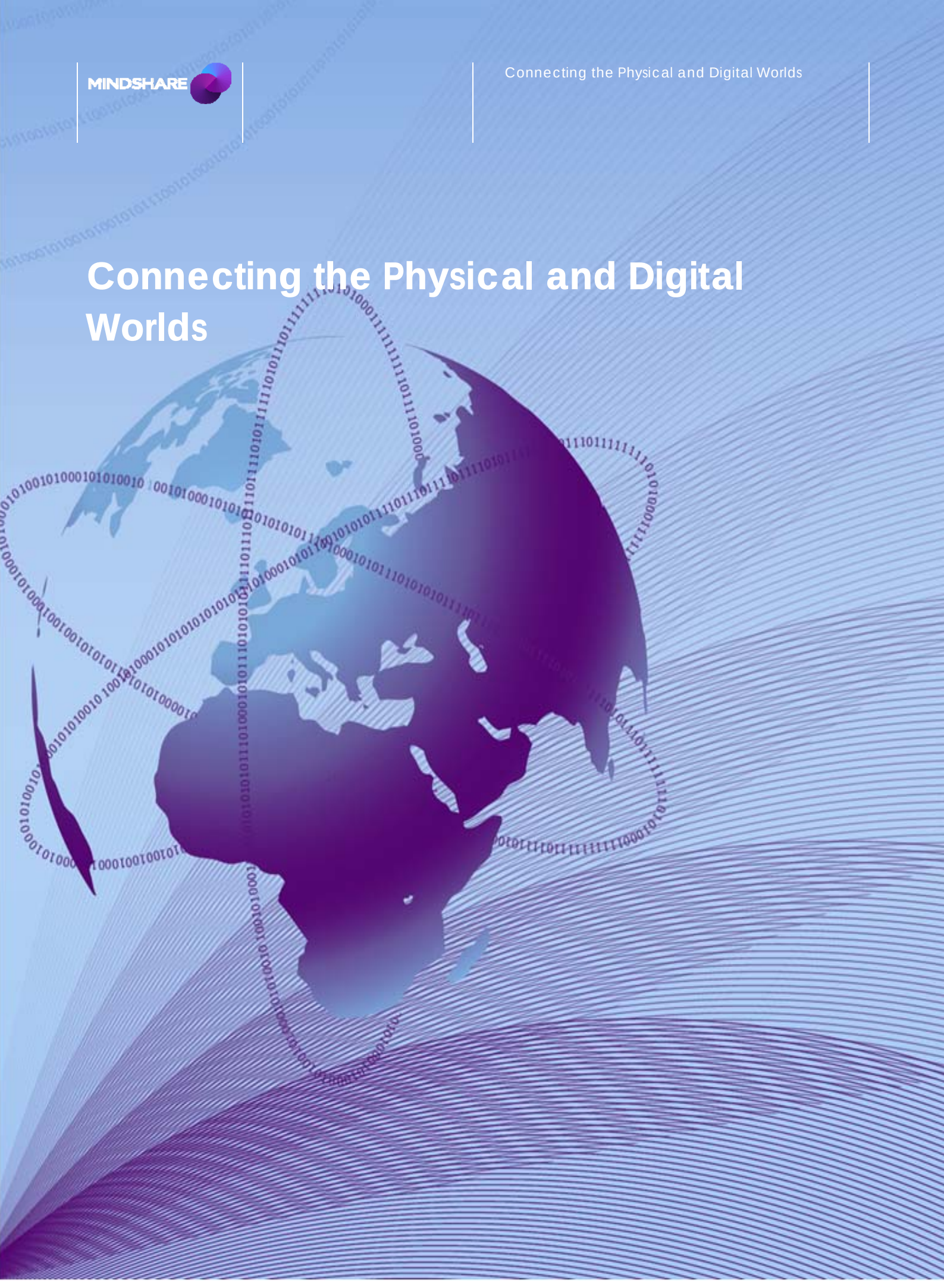
Connecting the Physical and Digital Worlds



History of QR codes

QR codes were the first attempt to create a link between online and offline. The codes originated in Japan as a way to track shipping. In Asia, where smart-phone technology had outpaced the other markets, QR codes have been quickly adopted for marketing purposes. The rollout was done properly in that the handset manufacturers pre-installed the decoders first and then began releasing the code. This meant there was no issue around people accessing reading the codes.

While they've been available in the US and Europe for the past couple of years, QR codes haven't caught on predominantly due to the fragmentation that currently exists in the mobile ecosystem. The release of the code came without the proper education in the market which means that there we were compatibility and other issues, resulting in a diminished user experience.

In the past years, several brands in Europe were trying out to integrate the QR technology into their campaigns, but often failed to generate much consumer interactions.

QR Demo: http://www.youtube.com/watch?v=YolUpTHUilY

This is now changing with pre-installation and a raft of third party decoders available for download; QR codes are going slightly more mainstream.

Penetration

After more than a decade, QR codes are finally starting to gain some popularity in Europe and US. The penetration of QR codes increases with advances in mobile technology and subsequent drops in handset prices. More and more consumers own Smartphones and most of them come with QR code readers already installed.

More importantly, though, QR codes will be able to make a comeback as people become more comfortable interacting with new mobile technologies and willing to engage in other online/offline blending behaviors.

With the evolution of the image recognition technology there isn't any surprise that other alternative, more developed options are quickly occupying the space.

Alternatives

Visual search: Google has launched Goggles recently - a mobile image recognition application, which allows users to take pictures of various objects and Google Goggles will identify them and then serve the search results in the same way as it was served through standard search request. Items that Goggles can identify include buildings, bridges, landmarks, bar codes, logos, text, business cards and product info for things like books and DVDs.

Google Goggles demo: http://www.youtube.com/watch?v=Hhgfz0zPmH4

Face recognition: As a response to Google's solution, Apple has just announced that they acquired Polar Rose, a company which has developed technology that uses complex algorithms to identify photos, so they can be linked to other information. This means the technology could be used on social networking sites to identify and tag people in group photographs.

What are Apple's plans for the Polar Rose technology is not known yet. And it's a question how the face recognition technology expands especially because of the privacy concerns.

Imagine holding your phone up in front of you with your camera on as you walk down the street. As your focus rests on each new person you pass, the phone pulls up his or her Facebook and LinkedIn profiles and recent Flickr photos, and displays them on your mobile screen on top of the person's face. The concept combines technologies that already exist: facial recognition as seen in applications like iPhoto, and Augmented Reality software that overlays information from the web onto our digital view of the world.

Face recognition demo: http://video.golem.de/foto/2874/recognizr-identifiziert-nutzer-aus-sozialen-netzen.html?q=medium

Certainly, it requires better phone cameras and more mobile processing power, but mobile facial and fully functional image recognition isn't far from reality. And it wouldn't take too

long before the image recognition technology develops to the stage that could be fully adopted and safely used in advertising campaigns, but for the moment QR codes might still work well as an interim solution for connecting the offline and online world.

Awareness: What's this mysterious symbol about?

Back to the QR codes, it's not all just about the successful adoption of the technology; it's also about the code and image recognition awareness in general. Consumers need to see the codes, and lots of them, before they will know what they are and what they are supposed to do with them and also find the application on their phone and figure out how to use it.

The QR codes start appearing in the US, UK and some bigger European markets these days, but the full adoption across Europe is still to come. And it's up to technology provider and media publishers to create awareness among their audience to help the educational process.

Once these barriers are fully overcome, then linking the physical world to the digital one will no longer be a huge problem, and image recognition technology can be used across all available media.

Opportunity

QR codes and the image recognition technology in general provide enormous opportunity for brands to engage with consumers and to deliver content previously limited by constraints of channels and space.

Integrating the technology into the offline ads gives consumers more information and advertisers are able to track how and where consumers find their ads and optimize their offline media plans based on the consumer response.

In some cases, the technology is being combined with that other much-hyped mobile innovation, Augmented Reality (AR). Augmented Reality is changing the way consumers

view products and experience the brands. This technology combines real-world data with computer-generated data to "augment" the real-world experience for consumers.

Augmented Reality demo: http://www.youtube.com/watch?v=b1naY762FHc

Mobile Augmented Reality will also improve with better cameras on mobile devices and the launching of higher bandwidth 4G mobile services.

Final take

The mobile phone has become one of the most personal devices people own. It is something they always have with them, twenty four hours a day, seven days per week.

Today, the mobile devices have so much more computing power, more memory, and greater flexibility, and the network is increasing its bandwidth and availability and provide users with many options to interact.

Image recognition and Augmented Reality, like all technology, is ultimately about making consumers interaction with the brand richer and more efficient.

It's crucial that the technology is fully accessible to avoid user's frustration to achieve the desired action. Then with a quick scan, this will simply allow to move seamlessly from the physical to the digital world, entertaining and informing consumers along the way.

For users, it's an intriguing way to access a wealth of information about different products and services.

For marketers, this is an opportunity to target and track their promotional messages across a wide swath of captive audiences in a very cost-effective manner. These mobile technologies can provide improved efficiencies for business, commerce and industry by reducing cost and improving profits, time management, control systems and data analytics; ensuring measurable results.

The QR codes, image recognition and Augmented Reality will play a huge role in the future of print, television, OOH media and online campaigns. It can play a powerful role in

product promotion, acquisition, CRM, brand awareness and other areas of communication.

By Marketa Rypacek

Appendix:

Smartphone Penetration Worldwide, by Region and Country, 2009-2014 (% of total mobile handsets)

	2009	2010	2011	2012	2013	2014
North America						
US	32%	33%	37%	44%	51%	55%
Canada	30%	31%	34%	40%	47%	50%
Total	32%	33%	37%	44%	51%	54%
Western Europe						
Italy	36%	40%	47%	54%	63%	67%
Germany	17%	19%	22%	25%	29%	33%
France	16%	18%	21%	27%	29%	33%
UK	17%	18%	20%	23%	29%	32%
Rest of Western Europe	31%	36%	41%	49%	58%	64%
Total	25%	28%	32%	37%	44%	49%
Asia-Pacific						
South Korea	14%	15%	17%	21%	25%	30%
China	10%	11%	13%	15%	18%	21%
India	4%	5%	6%	8%	10%	12%
Rest of Asia-Pacific	8%	8%	9%	10%	11%	12%
Total	8%	9%	10%	12%	14%	16%
Central and Eastern Europe						
Russia	6%	7%	9%	11%	15%	17%
Rest of Central and Eastern Europe	5%	7%	9%	11%	13%	16%
Total	6%	7%	9%	11%	14%	16%
Japan						
Japan	4%	4%	5%	6%	7%	8%
Total	4%	4%	5%	6%	7%	8%
Middle East and Africa						
South Africa	1%	2%	2%	3%	4%	4%
Rest of Middle East and Africa	3%	3%	4%	5%	6%	7%
Total	3%	3%	4%	5%	6%	7%
Latin America						
Mexico	3%	4%	5%	7%	10%	12%
Brazil	1%	1%	1%	2%	2%	2%
Rest of Latin America	1%	1%	1%	1%	2%	2%
Total	1%	1%	2%	2%	3%	3%
Worldwide	**9%**	**10%**	**11%**	**13%**	**15%**	**17%**

Source: Cisco Systems, "Cisco Visual Networking Index (VNI): Global Mobile Data Traffic Forecast Update, 2009-2014" with Informa Telecoms & Media, In-Stat and Gartner, February 9, 2010

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