

BEACONS

PROMISE, PRESENT, FUTURE

Q1 2016

maxus

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INTRODUCTION

In 2013 Apple announced the release of its support for iBeacons. Shortly after, the frenzy around this coin-sized Bluetooth low energy device captured the attention of marketers.

iBeacons broadcast a unique identifier and highly accurate location to Apple iOS devices with Bluetooth enabled, accurate to around half a metre. The technology was priced at around USD\$5 per transmitter. Compared to GPS, which is accurate to around 50 metres, and doesn't work indoors, this represented an exciting and affordable shift in location-based technology.

The hype

With more media consumed on mobile, and mobile devices the ever-present companion, beacon technology was touted as the missing link for connecting online and offline. The potential of one-to-one interaction with anyone visiting a location was an exciting promise.

At the base of the curve

The excitement subsided in part, when marketers discovered the fine print. The crucial ingredient for highly accurate, and affordable location-based communications was an app on the customer's iPhone (and not Android). And marketers also needed significant retail or geographic footprint to install their own technology. Regardless, beacons' imminent potential was already very clear.

WHAT'S CHANGED?

Beacon hardware rapidly improved whilst costs have reduced. A morning coffee costs more than a beacon today. And the 2015 release of **Eddystone Beacons**, the Google Android-compatible format, provided equivalent functionality to the remaining majority of global smartphone users.

Most importantly, a set of best practices are emerging for using beacons at practical scale.

We believe that beacons have the potential to add value to marketing and communications at the 'last yard' and beyond. Most importantly, in today's multichannel media environment, the ability to maintain a conversation across online and offline is the key to driving effectiveness.

What hasn't changed is the importance of user experience. Beacon projects are moving beyond trials and experiments of what's technically possible towards more enduring activities.

This report aims to provide marketers with the current state and future opportunities of beacon technology in three parts:

- **Past:** What pioneers have done and discovered;
- **Present:** How to best use beacons now;
- **Future:** The larger promise still to come.



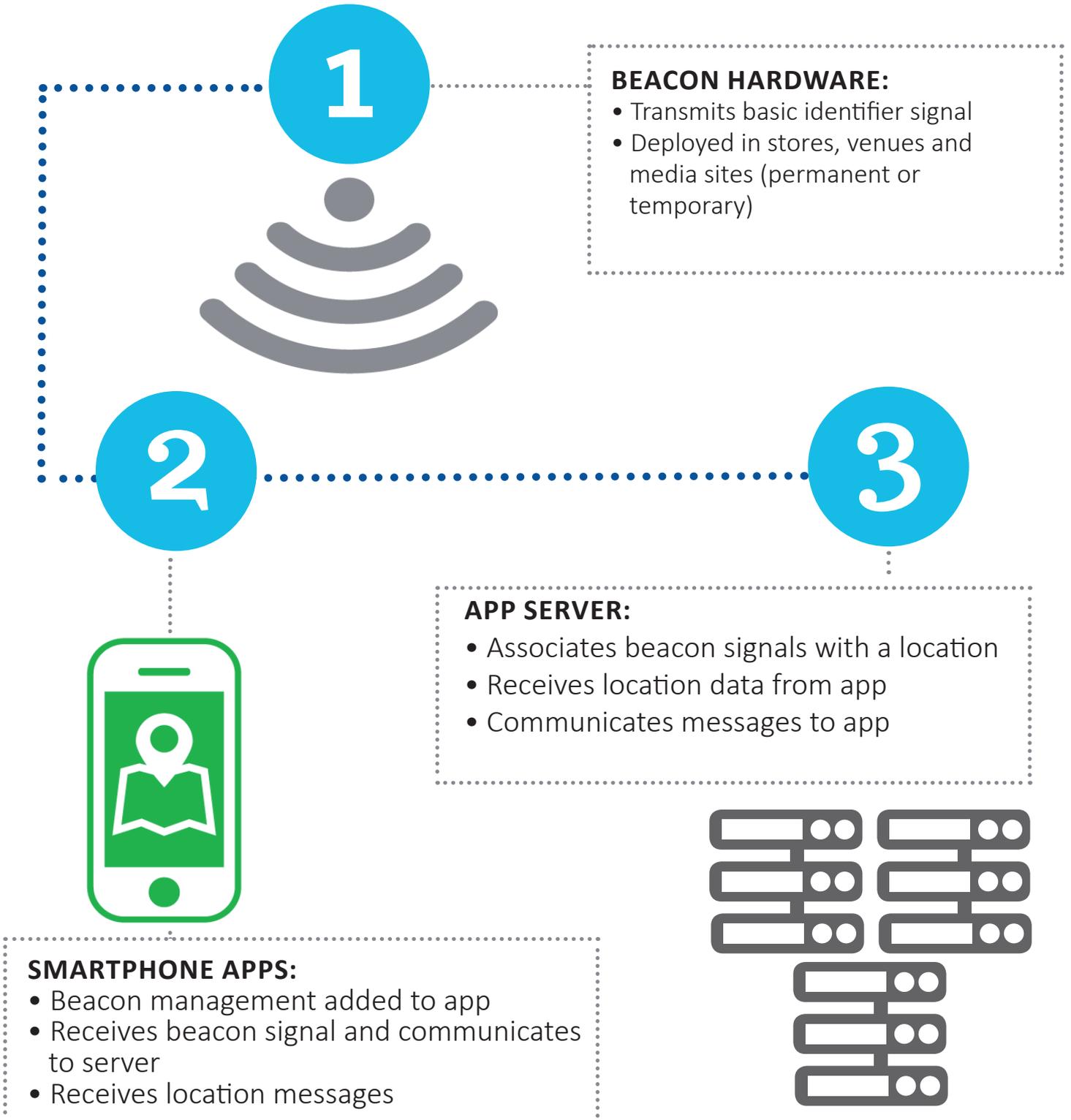
Kontakt Beacons



Estimote Beacon

HOW BEACONS WORK

Beacon infrastructure is relatively simple, but requires transmitter distribution, and enabled app installation on consumers' phones.



THE PROMISE OF BEACONS

The marketing promise of beacons includes better data, messaging activation precision, and integration of marcoms with retail.

Location-based marketing with better accuracy... in real time

Beacons can measure proximity of a connected smartphone app to places, spaces and objects. This allows marketers to target audiences with messages (either standalone or directing to their apps) that correspond to their location and movement.

Online and offline, together at last

Using smartphones as an uplink to the Internet, beacons can connect audience activity in the online and offline worlds. This enables marketers to adjust advertising messages in both worlds, and connect online marketing to the physical retail environment.

Big data analytics... for the real world

Networks of beacons and connected apps can return vast amounts of highly accurate data to marketers: where and when people go; how long they dwell; when and if they return. Imagine Google Analytics for retail environments, for outdoor media, transit, and even in the home. Beacons can provide a richer measurement of customer behaviour as they move about their day and through the purchase funnel.



→ Continued

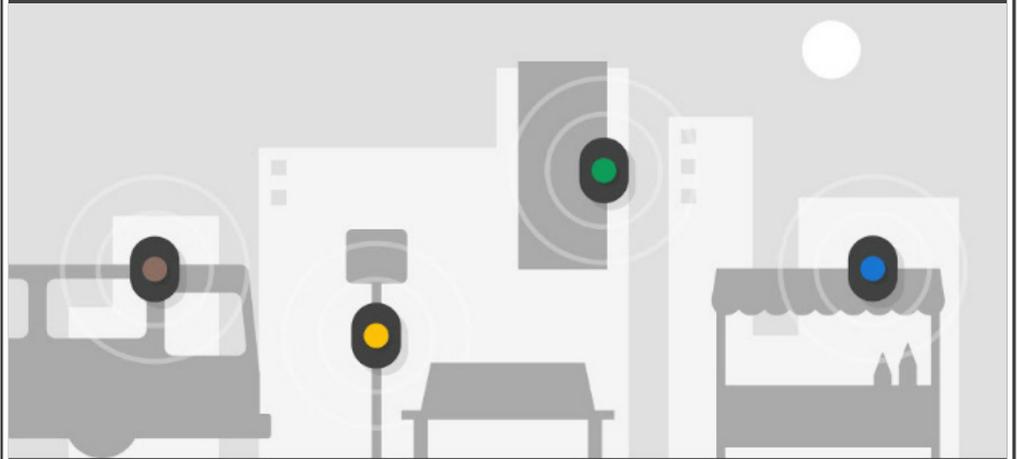
THE PROMISE OF BEACONS

Works on all smartphones

Google recently introduced a complementary technology to Apple's iBeacon format, called Eddystone. Eddystone brings identical beacon capabilities to Android apps, leveling the field and increasing the potential addressable audience to the remaining majority of smartphone users.

Eddystone adds an additional functionality – the ability to send a URL to the mobile Chrome browser. This is part of what Google calls the “Physical Web” and highlights their continuing reliance on the web, rather than apps.

Google's Eddystone and the Physical Web



What's consistent?

The hardware: Previous iBeacon-compatible hardware can be updated to also transmit as Eddystone. Depending on fleet management capabilities, this might be easy or hard.

Proximity data for apps: Eddystone beacons broadcast a unique identifier (their ID and location) to Android apps.

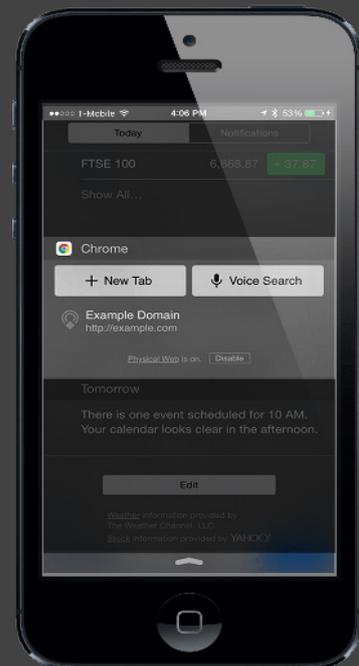
What's changed?

Mobile web integration: The Chrome browser on Android can relay the Eddystone's location information to a brand's website via a broadcasted link. Proximity information (and potentially location analytics or hyper-targeted Adwords) can be used by the mobile web, rather than requiring a dedicated app.

Example: Expectant mother is in a baby store fitted with Eddystone beacons. As she approaches the carriage section, she's sent a link to the store's mobile site. The mobile site (in Chrome) could use the proximity information to adapt content, functionality and advertisements about products near her.

Eddystone links on iOS

Currently, Eddystone links appear hidden under the Chrome “Today widget”, part of the iOS Notification Center panel. Notifications are accessed by dragging down from the top of the screen, which may not be usual behaviour for most users.



OPPORTUNITY VS CHALLENGE

To experience the promise of beacons today, brands must collaborate with technology, media and agency partners to overcome some existing challenges.

However progress is being made at speed, which is making the deployment process ever easier.

CHALLENGE: MARKET SIZE IS STILL SMALL

1. Addressable Audience

Whilst there are likely more than 2 billion smartphone users¹ in the world today, this doesn't equate to an addressable beacon market of the same size. Critical limitations have delayed the mainstream uptake of beacons globally.

iOS share: Until recently, beacons were limited to Apple iOS devices and apps. Even if a growing majority of technical solutions are now compatible with Android, there is still a lag in upgrading systems and apps. The global share of mobile users running iOS is under 40%, and represents around 15% of new shipments². Compatibility with Android

smartphones was desperately needed to create a serviceable market for beacons.

Bluetooth: How many devices have Bluetooth switched on? Accuracy is difficult, but beacon providers and app developers have projected a global average of 40%³.

Wearable technology (e.g Fitbit, Jawbone and Apple Watch) and Bluetooth headphones will cause this number to rise. And Apple is invoking the power of the default, enabling Bluetooth on every new device and every iOS upgrade.

Location Services: Who has location services enabled? It varies depending on the type of app, but for retail apps, a recent IBM study revealed only 28% of users are willing to share GPS location information.

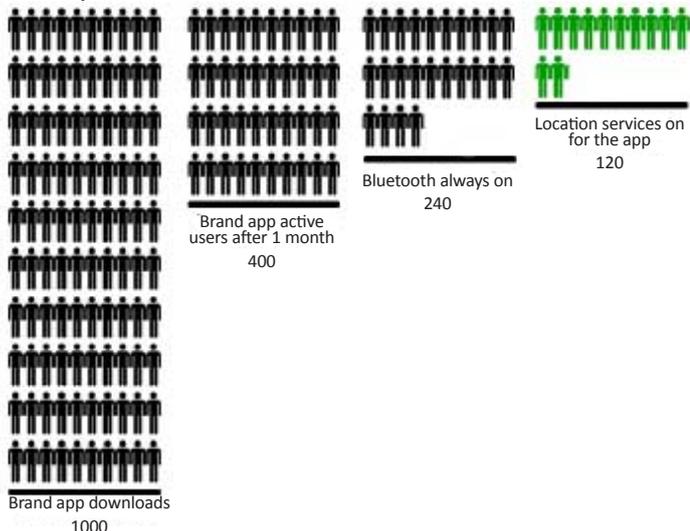
2. Brand app penetration and retention

Many apps struggle to retain an active place on customers' devices. Flurry, the analytics platform that measures apps on over 1.6 billion smartphones, reports that 63% of apps are deleted or abandoned (never to be used again) within one month, and 89% of apps are deleted or abandoned after 12 months.

Launching an app with a compelling proposition, that is downloaded, used often and retained, is very difficult for brands to activate. Many marketers simply can't devote resources to compete with VC-funded mobile app startups with a singular focus (app growth, not selling products) and wide appeal.

RELATIVE AUDIENCE SCALE

A brand's potential audience for their beacon activities can be reduced due to the number of requirements for consumers to be technologically available.



In the current reality 12% of all apps' users may be available for location based targeting after the first month following app download, assuming use of Apple and Android beacons.

¹ Source: eMarketer 2015

² IDC, NetMarketshare & Flurry 2015

³ Source: <http://blog.roverlabs.co/post/117195525589/the-straight-goods-on-bluetooth-how-many>

→ Continued

OPPORTUNITY VS CHALLENGE

CHALLENGE: EXTRACTING BUSINESS VALUE

It goes without saying that it's important to determine the most appropriate use-case when considering beacon technology. Through mobile apps, beacons can return data on exact locations (e.g. a certain grocery store aisle, in a certain suburb) and allow marketers to act on this – but how should they?

1. Push notifications or in-app messages⁴

Localytics' data shows that only 52% of users accept 'Push Notifications' when installing an app. When push notification are accepted, they log a measly 7% open rate.



Interruptive messages, no matter how timely, are increasingly less likely to be welcomed by customers during their daily lives. It is crucial to understand how proximity-based messaging should be used, to deliver value rather than simply inform or promote.

2. Creating new in-app functionality

Upgrading apps with new features that take advantage of proximity awareness is preferable to sending location-aware 'smart spam'. But this often requires a rethinking of the functionality of existing apps that were never designed to react to location data.

3. Holistic data analysis and usage

Using location data from users, combined with their search and other activity, can inform the

most appropriate messaging at key moments. But many digital marketing systems are not linked, so combining this information is still often challenging.

CHALLENGE: FRAGMENTATION OF NETWORKS

Beacons remain fragmented across thousands of individual networks. Whether a single location, chain of stores or a city subway (underway in Tokyo, New York and London), the majority of beacons exist in small clusters that can only be used by their operator and accessed by those with that operator's app.

Private, discrete networks – time to re-think?

Like the old wire telegraphs and current cable TV networks, beacon networks are mostly segregated, non-linked networks that serve only their owners, operators and end subscribers. Compare this to interconnected carriers such as mobile and landline phones, bank transfers, card payment processors and of course the Internet, which serve customers best when they connect seamlessly to each other.



PRIVACY FOCUS

In a post-Snowden world where blue-chip, trusted companies are hacked for valuable customer data at an alarming frequency, peoples' physical location and movements are part of a larger dataset of valuable identifying information.

The EU, and especially markets such as Germany, are paying a great deal of attention to what can, and should be tracked. Both physical and digital are scrutinised, and their law is often used as precedent in policy debates further afield.

Effective and clear privacy policies that cover location-based technology like beacons are therefore crucial.

PRIVACY CHECKLIST

Beacons and other location or physical marketing solutions should fall under a real-world privacy policy:

- Outline what is and isn't tracked
- Explain the value generated from the data
- Display privacy policy at venues
- Provide multiple opt-out solutions

⁴ Source: Flurry (Yahoo) 2015

CASE STUDIES

Since 2013, pioneers in advertising, marketing, retail and event management have been experimenting with beacons. Conducting pilots and prototype programs has led to promising results that are encouraging further development.

These case studies represent some of the stronger beacon work in the last 24 months.

EXAMPLE

1

OMNICHANNEL MARKETER APPLE

Apple offer the ultimate example as they have both the omnipresent app (on iOS phones), the beacon network, and the retail/online store network to create an ecosystem. Closest behind is Macy's USA, who recently installed 4000 beacons across all their stores, which they've yet to fully activate.

If one is anywhere except a physical Apple Retail location, the Apple store app functions much like every other retail app. Users view items, order and pay for products that they can pick up or have delivered to their house. It's when one sets foot in an actual Apple Retail store that this app really shows off some of its best features.

Upon entering an Apple retail location, customers with an iOS device receive a Notification Centre push message. This message leads to a screen of specific tasks one can do at the store: Genius Bar, Shop and Scan, Training. Customers can then request a sales-person, a training event or attend a Genius Bar appointment. Given the typical crowds in an Apple Store, the app makes it easy to virtually take a place in line and wait for assistance.



→ Continued

CASE STUDIES

EXAMPLE

2

RETAILER NETWORK Fairprice

To overcome challenges of low brand app penetration and small markets, some retailers are leveraging their retail footprint with multiple media partners and various brands.

Fairprice Singapore, the nation's largest supermarket, are opening up their stores to allow partner brands and third-party media (app owners) to create their own beacon experiences.

Nestlé didn't have an app with enough scale in Singapore. So they partnered with Mediacorp, the largest media company there, to embed the Footmarks Beacon SDK in their popular Channel News Asia app. This app also acted as the message delivery platform.

Mediacorp benefits in two ways: they gather in-store traffic data and they potentially open up a retail shopper channel that they can monetise.

Footmarks are also aiming to include their SDK with a number of other app publishers, large utility apps such as taxi-hailing apps, or social media platform services.

Fairprice have yet to decide if they will invest in creating their own network or continue to allow brands to do it themselves in select locations. As a real estate owner, Fairprice could manage their own in-store beacon network to augment existing in-store shopper marketing products aimed at brands.



EXAMPLE

3

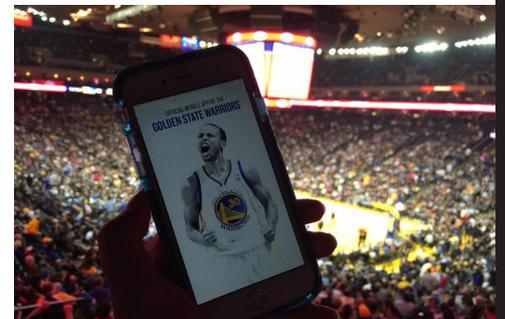
STADIUM EVENT Golden State Warriors

Golden State Warriors have begun extending their initial mobile app investment in their home stadium via Signal360's beacons and audio proximity technology.

Less than a year after rolling out beacons, the technology is showing promise for the Warriors. In stadium, the team use them to message fans heading to the nosebleed section, offering the option for seat upgrades. About 15 percent of all seat upgrades are directly tied to beacon marketing.

An even more successful area has been the beacon for the stadium's team store, which delivers deals through a notification. Typically, it's for a free item after spending a certain amount. Fans using the beacon promotion spend 93 percent more than those who don't.

Signal360's beacons can also broadcast inaudible tones as a trigger for app activity. Sounds are played via the existing stadium PA system to live audiences and to those watching on TV. The phone's microphone detects the tones and activates second-screen content.



EXAMPLE

4



In 2014, a Knorr food truck in chilly Stockholm offered free warm samples of the brand's tomato and Thai soups. Visitors could eat on the spot or go home with samples. Knorr installed Glimr iBeacons on the truck, and sampling staff carried iBeacons in their pockets.

Rather than expect passers by to have, or quickly install a Knorr app, they partnered with the popular Aftonbladet newspaper to use their app.

And instead of immediately sending a location-specific ad, coupon, or other marketing communication to the detected smartphones, Knorr simply logged their sampling experience and waited.

In a kind of multi-channel retargeting campaign, the next time the user opened the Aftonbladet app, the user saw a discount coupon to buy Knorr soup at any Stockholm grocery store.

RETARGETING ACTIVATION Unilever

It's this blend of physical and digital marketing that highlights how differently beacons can be used.

But it also points to a more refined use of the technology. Instead of pushing a coupon as soon as the user sets foot into a beacon-equipped area, as many geo-located scenarios have envisioned, the location identifier saves the marketing move until later in this example.

MOBILE STRATEGY HEALTH-CHECK

Before embarking on a beacon project of any scale, marketers should gauge the direction and health of their existing mobile and/or location-based strategy. Whilst beacons are an exciting technology there are some important considerations to work through before deployment.

MOBILE STRATEGY

How do the brand's mobile marketing activities (mobile web, email, search, apps, social) perform versus desktop?	>	It's important that customers trust brands enough on mobile to enable location tracking and messaging via branded apps.
Has the brand launched an app that uses location-based services via GPS?	>	Analytics from mobile activities provide data on when, where and how users interact. This should inform any proximity solution.
What is the retention rate of monthly active users on the brand's most popular app?	>	Does the app's active user count provide an addressable audience?
Has the brand conducted studies to determine customers' most 'receptive mobile moments' and how to offer value at that time and place?	>	Do beacons belong in the product, or in the store, or somewhere else?

LOCATION MARKETING AND ANALYTICS

Does the brand examine in-store analytics (via WiFi/mobile phone identification) or footfall analysis (video, CCTV)?	>	Proven mobile measurement technologies can provide insights about how customers act at point-of-purchase or at sampling, events and activations.
Are IT store/retailer operations and marketing teams aligned to add new tracking technology to stores or other venues?	>	Beacons, whilst inexpensive and simple to install, may cause interference with existing technologies. All parts of the business need to be aligned.
Does the brand want to measure customer experience, dwell-time and return visitation at a venue?	>	Beacons may not always be the answer. It may be more practical (and statistically relevant) to conduct a physical observation, a survey or to analyse CCTV footage.
Are customers adequately rewarded for being measured and messaged? Will they actively agree to it?	>	Check that the privacy policy reflects omnichannel activity and includes data gathered via a user's location, or physical actions, as well as online.

OPPORTUNITIES FOR TODAY

In consultation with beacon technology providers and other partners, Maxus has defined some present and potential opportunities for marketers.

AUTOMOTIVE - ANALYTICS AND MESSAGING AT THE END OF THE FUNNEL

Challenge: Auto marketers sometimes struggle to attribute the value of their activities after a test-drive is booked, or dealer location is searched for. The geographic movements of car buyers can be a mystery until car sales data is released months later.

Solution

- Automotive brand (“Stallion”) negotiates deal with the most popular mobile app targeting new car buyers (“CarBuyer”).
- Stallion attaches beacons to every new car in dealership, either at import stage or in conjunction with dealers.
- Beacons connect with in-market buyers as they approach Stallion cars in dealerships via CarBuyer app on their phones. This allows Stallion to:
 - Attribute role of CarBuyer app and content.
 - Retarget post dealer visit.
 - Measure success of trade events if beacons can be placed on site.
 - Analyse proximity to different car models, with beacons placed inside - e.g if buyer saw 10+ ads for a Stallion X model, did they approach the Stallion X in dealership?





IN-STORE MEDIA AND RETARGETING

Cosmetics brands with owned apps, or partnerships with large retailer apps, can adapt messaging according to consumers' preferences and location for maximum relevance.

Personalised prompts could be delivered based on activity in-app, purchase behaviour, preferences for looks and styles, or even the aesthetic characteristics of the user e.g skin tone, race, style. Beacons installed in digital OOH sites could also be used to inform addressable creative as they walk past.



AUDIO BEACONS AT VENUE OR IN VIDEO [SIGNAL 360]

For brands, venues or events that have an app (or an app partner) and want to experiment without committing to hardware infrastructure, 'audio beacons' can provide an answer.

Audio beacons are simply inaudible high-frequency sounds that are played from existing PA systems, directional speakers and digital signage/TVs. The tones can be detected by any app with the microphone permission enabled, and provide basic information similar to a beacon transmission.

A quick service restaurant could instantly enable loyalty tracking and in-store offers in every location, by adding inaudible tones to in-store music or digital signage creative.



PERSPECTIVES FROM THE INDUSTRY

When I speak with brands, their number one reason for hesitating is the fear of providing a negative consumer experience and its hangover effect on brand loyalty. That is certainly the right way to think. It's why we preach "Protect, Respect, Enhance". Protect and respect your consumer, and work to enhance their physical world journey with your brand.

Todd Paris, CEO Footmarks

Digital advertising now influences 36 cents of every dollar spent in US retail stores. Beacon focused marketing is another tactic to increase that even further, and to make online advertising more accountable in the real world.

As ever, the usual rules of engagement apply. Carefully consider the consumer experience, as the difference between serendipity and creepiness can be a very fine line indeed.

Damian Blackden, WW CSO Maxus

Because beacons are quite new technology, the danger is to treat it like I.T purchasing, focusing on specifications, scan rates and battery life. Clients should be looking for companies that are experts in creating value via proximity and worry less about the engineering.

Alex Bell, Co-Founder Signal360

Spamming consumers who are in a particular area won't continue. It's ineffective and damages consumers' perceptions of the technology and the brands involved.

Instead, beacons provide the opportunity for marketers to deliver contextual utility. At beacon-enabled train or bus stations, try offering commuters the arrival time of their next ride, not a shopping coupon.

Mike Gamaroff Kinetic Labs

HOW TO ASSESS A BEACON PARTNER

There are some essential considerations when evaluating different vendors to assemble a beacon network.

Basics

The following are standard features offered by all providers.

- **Hardware:** Rarely a competitive advantage and is effectively identical across all providers:
- USD\$4 core componentry: Chipset, Battery and Enclosure
 - USD\$1-4 of additional sensors are becoming commonplace: Battery strength, Cellular connectivity
- **Eddystone/Android compatibility:** This is now standard
- **Fleet management:** networks of beacons can be remotely updated for interoperability features and performance via a 'cloud-connected' beacon, or individually.
- **Security:** SSL-encryption and other security measure for beacons are becoming commonplace.
- **Patents or proprietary IP:** Previous technologies did a lot of what beacons do, so sufficiently novel (protectable) elements will be difficult to prove. Claims to any patents should be carefully assessed.

Competitive Advantages

The following factors would represent a competitive advantage when assessing a beacon partner or network.

- **Distribution:** What percentage of deployed beacons in the market are attached to the vendor?
- **Interactions:** How does % growth and # of daily interactions compare to other vendors?
- **Relationships:** Does the vendor have significant and lasting arrangements with malls, high-traffic commuting centers (public transport, airports), major retail or service chains, and major events such as conferences, and expos.

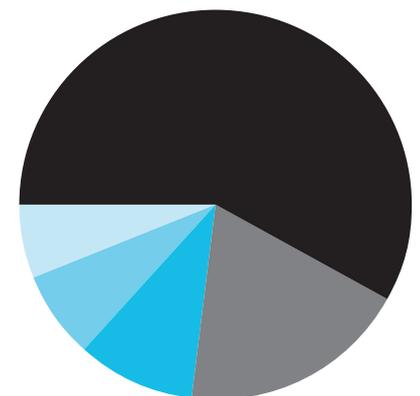
BEACONS: WHO HAS DISTRIBUTION?

Globally, it's difficult to know exact numbers. [Reveal Mobile's analysis](#) [below] suggests there are roughly 64,000 beacons in the US of which, 17,000 are from known manufacturers like Estimote, Kontakt.io, etc. Alternatively, [InMarket claim to have the largest network of beacon-enabled apps and locations.](#)

Regardless, the numbers in use are set to grow very significantly as adoption ramps up.

Top 5 Deployed beacons by manufacturer

March 2015•



Estimate	9,784 (58.3%)
Kontakt	3,147 (18.7%)
Roximity	1,636 (9.7%)
Twocanoes	1,218 (7.3%)
Radius Networks	1,002 (6.0%)

Source: As detected by Reveal Mobile's "audience insight SDK", deployed in apps.

• Latest available data.

THE FUTURE - LOCATION MARKETING STACK

The largest rewards for marketers are yet to come. As brands, technology and retailers collaborate, so users and ROI will increase.

There's a significant advantage for those that combine to create a location stack that supports all apps, mobile OS's and beacon hardware networks.

Brands may wish to explore a consortium approach in addition to working with the biggest stacks: Facebook and Google, who are currently well placed as publishers and leading app owners.

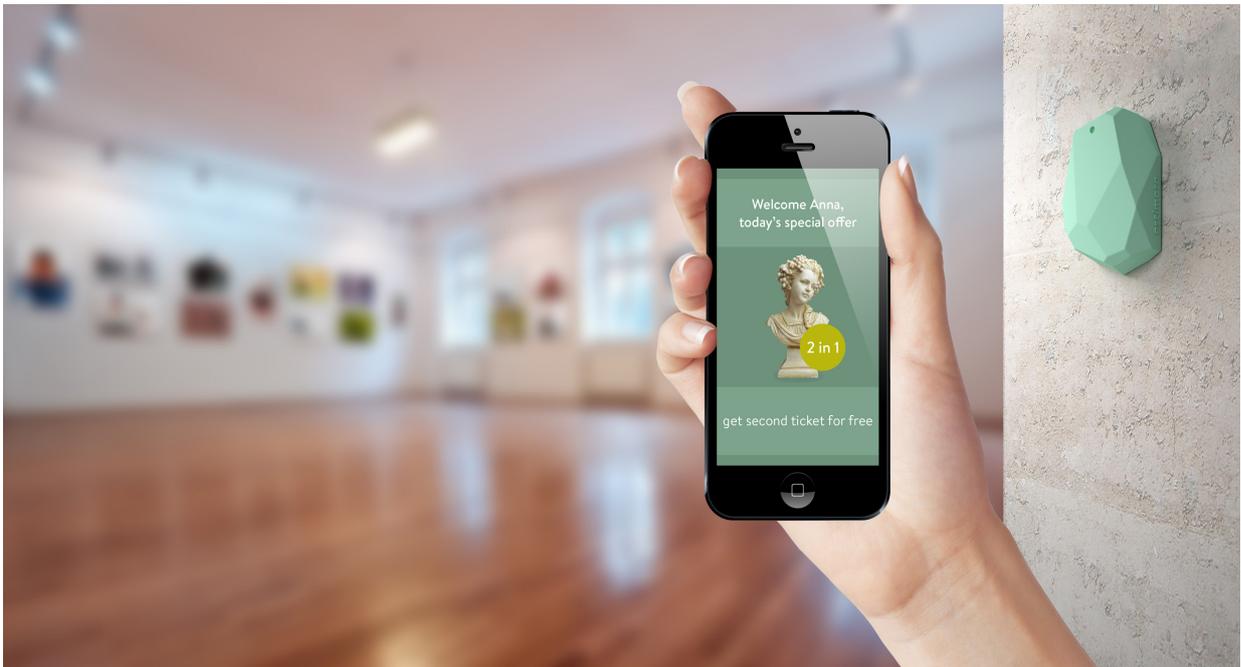
Google leads with Android OS and apps like YouTube, Maps and Gmail. Facebook grows its footprint daily via Messenger, WhatsApp and Instagram.

In retail, Facebook has introduced Place Beacons, whilst Google has Wallet point-of-sale terminals in many stores, allowing it to facilitate payment or simply measure dwell time at registers. Meanwhile Apple has a well developed eco-system of its own.

By aligning interests and creating an audience data and messaging brokerage model (similar to a display ad network), large players could enjoy the benefits of beacon technology without needing to focus on mass penetration and retention of their own mobile app.

Consortium partners could include and involve:

- 1. Beacon hardware provider(s)** – Responsible for the manufacture, provision, installation and maintenance of the beacon network. In exchange for rental fees to their location, they would provide location-awareness of audiences in multiple contexts.
E.g Estimote, Kontakt
- 2. App access** – Best achieved by upgrading an existing mobile SDK, already present in most/all apps, with location services already approved.
E.g Flurry (Yahoo), Millennial Media (AOL/Verizon). Both of these will be looking to generate income after recent acquisitions.
- 3. DSP/DMP** – To manage the location based messaging and inbound data management. Could also add location awareness to display/social/video messaging based on audience location.
E.g. Xaxis, Connect



THE FUTURE - BEACONS IN THE HOME

Millions of products already contain RFID or NFC tags for security and supply chain management. In the future, as beacons become cheap enough to be commonplace in even low-value items, they will play an important role in connecting products to the Internet of Things.

Consider replenishment, a critical moment for CPG marketers. How does one make sure a product is always on-hand in the home, and avoid costly sales promotions to ensure retention in a competitive shelf space?

Beacons could be used as a cost-effective, retrofitted device that connect electronics and appliances to replenishment pathways.

Unlike smart appliances, which are purchased only infrequently and require setting up on a home network, beacons use the most connected device that's always there – the smartphone.

Example – In-home beacons to keep one caffeinated

- Customer orders their usual coffee pods
- The brand ships a beacon to be attached to the outside of customer's machine. It requires no setup; just stick it on.
- Vibration or microphone sensors in the beacon detect every time the machine, and one pod, are used.
- After 80 uses, the beacon activates and sends a signal to the coffee brand's app.
- A push messages pops up asking if the customer would like to re-order. Click "Yes" for immediate shipment.



CONCLUSION

Consumers' ongoing love affair with their smartphones, combined with marketers' requirement to bridge the current gap between advertising and physical retail, mean that the success of beacons, or beacon related technology, is assured.

It will take some time to scale though. This is because multiple technologies are needed, hardware and apps must be distributed, and privacy concerns have to be allayed.

Nevertheless recent pilots are already showing considerable promise. Collaboration between brands, technologists and retailers is essential, which means that the speed of market development will only be as fast as the slowest component in the operating stack.

Even more importantly, the quality of the consumer user experience will undoubtedly affect the degree of success achieved by any beacons program.

The indicators are positive though, so we are optimistic that beacons will open up opportunities to integrate across media, relationship marketing, experiential and retail; and as a natural effect, make each channel very much more effective and accountable.



For more information please contact tom.kelshaw@maxusglobal.com