Smartphone Interpretation Technologies

The modern smartphone has evolved rapidly to become the mobile 'hub' from which users of all ages can run their busy work, social, leisure and family lives easily.

81% of smartphone owners keep them on all the time to browse the web, download applications, network with each other socially and use their smartphones to find out about almost anything and everything around them.

Smartphone 'contactless' technologies are the future of heritage interpretation, but there are several requirements of these new mobile technologies, such as QR codes and Near Field Communication (NFC), to deliver effective heritage site interpretation benefits. Essential factors for their success are good public awareness, that they are visible and easy for most people to use, that the information they link to can be accessed using most mobile devices, and that they can link to a range of online and offline content that is perceived as being immediately useful.

Free NFC and QR reader 'apps' are available to download and mobile web browsing costs and monthly payment plans are getting cheaper by the month. By using practical ITiC implementation guidelines mobile technologies such as NFC Tags, QR codes and Augmented Reality (AR) offer significant benefit for fast, low-cost and effective site interpretation at key points of interest.

Near Field Communication (NFC) Tags

NFC Tags are in passports and Oyster cards and NFC scanning is now available pre-installed on latest Android, Blackberry Windows 8 and Nokia mobiles.

NFC contactless technology was used successfully throughout the London 2012 Olympic Games.

Tag data is stored on a pinhead sized chip linked to an antenna built into a paper-thin NFC Tag.

- More than a million NFC-enabled Android devices are now being sold every week
- NFC Tags can link to text, mobile web links or be used for NFC contactless payment
- Scanning works by 'tapping' an NFC enabled phone near an NFC Tag (within 1 to 3 cm)
- Google launched 'Google wallet' in 2011 so NFC can be used for instant mobile payments
- Android Beam lets users tap phones together to share contacts, apps, maps, sites etc
- The heritage sector is now starting to use NFC Tags, usually in combination with QR codes

Quick Response Codes

Quick Response (QR) codes, the most popular contactless technology, are two dimensional barcodes that can be scanned by a smartphone's built-in camera and QR reader application to access online or text based information. With **94% of the UK public owning a mobile** and **50% having an advanced smartphone**, these devices can quickly scan QR codes and also use apps to scan newer NFC Tags and Augmented Reality.

QR codes are free to create, easy to site, distinctive to spot and have low printing costs. Online and on-site South Downs QR code research, undertaken with 134 respondents as an MSc dissertation, showed that **86% of the public are aware of QR codes** and **60% have scanned a QR code** with a smartphone. **84% of respondents also found it fast and easy to scan a QR code** to connect to text, website pages, video, audio and other online content.

On the South Downs, each mobile page link was visited once a day from a QR code on average. Once people know what QR codes are, what they link to, and have scanned them for the first time, they respond favourably to them. As a result of this detailed research a second phase of research is under way which will add NFC Tags to all the QR code sites.

Smartphone Interpretation Benefits

Compared to visitor site interpretation boards QR codes and NFC Tags are cheap to encode and easy to site, such as on existing way-markers, and can be easily stored and replaced if damaged.

The majority of interesting UK heritage sites, such as castle ruins or National Parks, can't always offer a visitor centre or access to a site expert. So, when visitors want more information about something they've discovered on their visit, they can use their mobile to scan a nearby QR code or NFC Tag quickly and easily to obtain more details about a particular point of interest.

In fact, used cleverly, QR codes and NFC Tags act as a personal tour guide, providing background details at key points all around a visitor site, in a quick self-service way. These codes can be produced to almost any size, so they're easy to spot, but their small size avoids any negative impact on a user's visual enjoyment of a heritage location.

The beauty of using mobile website pages that each code links to is that the pages can also be changed or updated with each season, or improved over time so they won't go out of date.

For more information go to www.itsinconservation.co.uk and visit the 'QR NFC and AR' website page.