NFC (Near Field Communication) and iBeacon are two standards and the most popular technologies, when it comes to proximity payments. It is technologies that allow for data transfer via proximity and peer-to-peer (device to device) payment solutions.

They differ in their basic working and in the hardware infrastructure that they call for. This leads **to varying degrees of accessibility, security and accuracy between the two solutions**

Beacon Payment technology

It continually relay a discovery signal that is received by BLE enabled smartphones within the range of transmission – the approximate range of a beacon is 70 meters. Most smartphones today support BLE, although it is required that the user has turned on the Bluetooth on his phone, in order to receive the signals from a beacon. The OS of the phone then extracts the beacon ID and makes the ID available to the appropriate app on the phone.

Pros : One of the biggest advantages of processing payments via beacons is the payment freedom that a user gets to enjoy. It allows users to connect to a POS terminal or the cloud, from wherever they are in a store. Thus, no matter how crowded it is, the customer can avoid waiting in long queues. Beacons also cover a wider wireless range (typically 1m to 70 m) when compared to other proximity payment technologies. Also, most smartphones today come enabled with BLE, making it easier for merchants and consumers to adopt this payment solution.

Cons : One of the primary requirements of beacon payment solution is the **investment in physical beacons** that the store has to make. Apart from this, beacon payments require that the customer has a **functioning and detectable** Bluetooth on his/her phone switched on.

Examples Beacon:

City Bank uses beacons in its branches:

One of the primary ways Citi is using the beacons is to **allow its customers to enter the lobby of a branch after hours to access ATMs.** The bank has placed a beacon near the entrance of each branch. In order to use the technology a consumer needs to have the Citibank mobile app, allow the app access to her location at all times, have Bluetooth turned on in the settings of his/her phone.

How does it work?

When a consumer walks within 30 feet of a Citibank branch that has this technology, the beacon senses that the smartphone is nearby and it wakes up the Citibank app. The iPhone can be locked but it needs to be turned on for this to work. The beacon sends the consumer's app an encrypted code that tells the app which bank branch the consumer is near. When the consumer is five feet away from the Citibank door she will receive a smartphone alert asking her if she would like to enter the branch. If she taps on the message, the Citi app will notify the bank's backend system and it will unlock the bank's door. If the smartphone is locked, the consumer will have to unlock it via her passcode or biometrics before the Citibank door is unlocked.

Examples:

Barclays (UK):

Barclays announced an in-branch beacon technology trial in 2014 to make life easier for customers, especially for those with disabilities.

Based within an app, the technology will notify branch staff when a customer with an accessibility need enters the branch. The initiative, developed in response to a customer from the Barclays Sheffield branch, will reduce the need for customers to have to explain their accessibility needs each and every time they enter the branch, and will allow colleagues to assist customers more effectively.

Westpac (Australia): The Australian bank started its trial phase for beacon technology in February 2014.

The bank has conducted the trials in Australia and New Zealand and is expected to provide location-based offers and messages through Apple's iBeacon to its customers whenever they walk past the bank branch.

DenizBank (Istanbul): With the iBeacon application, DenizBank provides its bank customers the comfort of a queue number without actually queuing at the branch.

The bank has partnered with Blesh for providing this service to its customers. Customers who are within a 50-meter distance of beacon devices that work with Bluetooth technology at DenizBank branches can benefit from this service. The project was initially available in 200 Denizbank branches in Istanbul and was launched in 2014.

NFC (Near Field Communication)

NFC is a short-range, wireless link that has evolved from radio-frequency identification (RFID) technology and can transfer small amounts of data. NFC tags communicate with NFC enabled smartphones only when they are placed within close proximity of each other (optimally under 4cm). NFC is a **one-to-one experience**. A user has to first identify an NFC tag, which is usually attached to an object. The user is then required to place his NFC enabled smartphone close to the NFC tag (usually within 4cms). Radio waves from the smartphone awaken the microprocessor of the NFC tag; once the processor is powered up, a stored program is executed to transfer the contents of the tag's memory to the smartphone. The smartphone then executes an action based on the content received.

Pros :

NFC payments tend to be **more secure,** as NFC supports encryption and payments are made over shorter distances. Apart from this, NFC payments are **compatible** with most existing contactless payment and transit systems since they all operate at the same radio frequency whilst BLE beacons operate at a different radio frequency band.

Cons :

NFC payments require the merchant to invest and set up contactless payment terminals at the store's checkout counters. Additionally, not all phones might support NFC, making the adoption of the technology slower. While the proximity required by NFC can be an advantage, but if potential users never enter the range of the NFC tag, they will miss it entirely.

Example:

Commonwealth Bank

The bank is working with MasterCard to integrate HCE into its mobile contactless payments service, bringing the Tap & Pay option to any NFC enabled phone running Android 4.4 or above. Customers can enable the Tap & Pay option within the CommBank app and can make in-store purchases of up to $100. Customers are required to enter a PIN in order to authenticate the transactions. The CommBank app now has 3.2 million users and has processed $100 billion worth of transactions in the last year.

Mark as completed