



NFC Mobile: A Long-Awaited Technology Nears Critical Mass

Heralded as the technology that will make mobile payments an everyday reality, near field communications (NFC) solutions have proved their worth in pilot projects and are now moving toward full commercial operation. The penetration of NFC mobile phones should exceed 25% in Europe by 2015, and allow a smooth take-off of NFC mobile based services.

Short-range contactless data exchange technology has been anticipated as a key efficiency tool in a wide range of commercial fields bar codes and QR codes, RFID radio signals, Bluetooth and similar technologies, and contactless cards. All have their strengths and weakness, and have achieved varying levels of acceptance and practical use. But NFC Mobile technology offers capabilities that its rivals do not, particularly the ability to provide interactivity and the degree of security necessary for mobile payments.

NFC is a radio technology that allows data to be exchanged between two chips at distances of up to 10 cm (typically 4cm). NFC standards cover communications protocols and data exchange formats, and are based on existing radio-frequency identification (RFID) standards. Mobile phones are increasingly being equipped with NFC capabilities, enabling an array of new digital services.

The applications of NFC Mobiles fall into three main categories. The principal use is as a substitute for a physical card, where the phone is used in passive mode to pay for small purchases, public transport, or ticketing for sports or entertainment. It can also enable access control in the workplace or in the hotel industry, transmit personal information to medical professionals, or function as a remote energy meter and controller for smart grids.

The second group of functions involves the phone downloading, reading and writing information, ranging from public data such as bus timetables or tourist information to personalised special offers for store loyalty card holders. The third utilization mode involves peer-to-peer communication with other terminals – phones – to share music, games, applications or authenticity certificates, or simply to exchange business card data. Over a longer term this could be extended to transfers of money between individuals.

Numerous pilot projects have been launched in Europe in transport, payments and information provision, among other areas, providing a high degree of satisfaction to users because of their speed, ease of use and security, and to merchants, who say they are ready to embrace large-scale NFC use.

However, a number of drivers are necessary to move to mass-market use of NFC applications. First, critical mass is necessary for both client terminals and service providers, which are dependent upon each other. The trend among mobile phone manufacturers to add NFC compatibility to their products is helping, while a growing number of NFC-capable phones increases the incentive for merchants to install their own terminals.

The second driver is the need for ubiquity in the availability of NFC-enabled services, then alerting the public to their presence. This development that can be assisted by municipalities and other public sector bodies that provide multiple services such as transport, art and sports facilities.

Third is the transition of mobile phones from a focus on voice and text communication to multimedia, internet-connected devices with touch-screen interfaces. This positions NFC Mobile as a logical extension of existing services rather than as a new, unfamiliar and daunting experience.

Fourth and critically comes co-operation among different members of the NFC value chain, often with different interest and priorities, in sharing the revenues and/or savings derived from use of the technology in a way that provides incentives for all. In practice, two different ecosystems seem to be emerging, one with low security requirements allowing the provision of relatively simple services that can be rolled out quickly and help to raise public awareness of NFC capabilities. The other requires higher security and entails a complex network of agreements and processes as well as sharing of added value, and is likely to take longer to reach critical mass.

The final prerequisite is public awareness and education, a bigger issue in Europe than in Asia or the US, where contactless payment technologies have been in use for several years. This is changing, however, for example through use of RFID-based access control and other systems that at the same time offer an infrastructure adaptable to NFC Mobile technology without massive investment.

Yet, a number of factors still are slowing the adoption of NFC technology, starting with the need to convince customers of the value of services. There are also technological divergences between different players in the market over the relative merits of positioning the Secure Element on the SIM, the phone itself or a removable card; developing momentum in Europe requires consensus around a SIM-centric solution.

Against this backdrop, participants in the NFC value chain need to create partnerships that can deliver multi-service offerings, in order to improve on existing services rather than simply replicate them, at prices that will create maximum public appeal, and that embrace norms and standards that will encourage both commercial investment and public acceptance.

Despite the factors that have drawn out the process of NFC adoption longer than its originators may have hoped, the perspective for the technology achieving critical mass in the coming years remains strong, starting with the emergence of a user base with NFC-equipped devices forecast to reach 27% of Europe's total mobile phone population by 2015.



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