Taking a touching approach
to mobile service access

SmartTouch was the biggest project piloting near-field communication (NFC) technology applications in Europe. It involved an extraordinarily wide combination of technology and service producers, researchers and companies in examining the role of NFC technology in city life, the home, wellness and health, technological building blocks, security and privacy, and business building blocks. In addition to developing the basis of NFC-enabled services for payment and ticketing, partners have piloted access control, infotainment and entertainment services.

Near-field communication offers short-range wireless connectivity that enables consumer devices to interact quickly and easily when brought close together or touching. Set up time is much shorter than with Bluetooth for example and such systems are intended to be intuitively easy to use. NFC can enable a wide range of services from using mobile phones to make payments to allowing digital cameras to transfer pictures to a TV set at a touch.

SmartTouch set out to conceive, design, construct and trial a full NFC technology/service platform and develop the main concepts for the corresponding business chains. As a result, project partners have been able to contribute to the development of NFC technology and its standards, and keep up the pace with technological advancement.

Key developments included a complete ticketing system — from the application in a mobile phone, point-of-sales equipment and reader/validator for gates, to back-end system for customer authorisation and remote value reload.

BROAD RANGE OF ACTIVITIES

SmartTouch undertook a broad cycle of activities in an effort to understand and find business areas for such an NFC approach. Technical partners tackled the necessary protocols, enablers, applications, security and privacy through pilot applications in the home, city life and wellness areas. At the same time, other players were seeing what kind of business areas there would be for the future mobile services.

To identify real-life applications of NFC technology and gain a greater understanding of the user experience, SmartTouch carried out 33 pilots and 44 technology demonstrations. Delivering demonstrations for user testing and systems for pilot use was found to be a highly effective way to probe possibilities for successful approaches. Acceptance of NFC in use was considered important for its success.

The different scenarios were developed in isolation, with design and implementation depending on the purpose of the system involved. However, the solutions to implement for example a service enabled by NFC are technologically similar to other services, so there was a certain synergy between the application scenarios. This synergy can be seen as the NFC technical ecosystem.

BASIS FOR SECURE SERVICES

As well as creating new and innovative applications, SmartTouch worked on technology enablers to make application development possible and provide a basis for secure NFC services in the future. Thus, SmartTouch provided the opportunity to create applications for mobile phones, such as working on the basic standard solution for SIM-based payment, and then building service solutions on top of these technologies.

Currently, the whole industry is looking at the development of payment and ticketing applications to open the way for use of NFC technology. SmartTouch piloted vertical applications such as payment in France and ticketing in Frankfurt; smaller tests were carried out

in Finland and in Spain. Horizontal industrial sectors tackled included home consumer electronics, business-to-business manufacturing and telecommunications services.

The Frankfurt ticketing pilot involved equipping 750 Rhein-Main-Verkehrsverbund (RMV) public transport network stops with radio tags. NFC-enabled mobile phones are used to make secure ticket purchases simply by touching one of the tags at a stop. The phone user can also receive real-time information on transport schedules. Anyone can use the system to buy single trip and daily passes — the cost is charged to a credit card or as a direct debit to a bank account. And NFC-based mobile tickets are also available for the entire RMV area.

The main breakthroughs in SmartTouch were in the technology to make the NFC possible, providing the mobile handsets with relevant toolsets, protocol-level achievements in standards, making payment possible and methods for security in the production of NFC-enabled subscriber-identity module (SIM) cards. In addition, these elements were used in the creation of vertical applications, ticketing devices, locking devices and domestic electronic devices.

BENEFITTING CONSUMERS AND INDUSTRY

The results of this ITEA project will make two major differences: from a consumer perspective, the idea is to provide a natural and easy user interface for service discovery and use. The pilot projects provided a perspective on value chains where new employment

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INTERACTION AS SIMPLE AS TOUCH

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and businesses identified include content provider, media and back-end systems.

European citizens will therefore benefit, as the aim is to provide devices that are easier to use. Moreover, at some point in future, many of the things we carry in our wallets today will in future be contained in the mobile device — even our house keys.

Industry in Europe will also benefit:

- Firstly, European players in a range of industries — including communications, banking and local government — have gained knowledge about the technology and have already been able develop new products and services accordingly; and
- Secondly, European industry has improved its competitive position versus Japan and the USA, with project partners actively paving the way for global exploitation of NFC.

KEY ELEMENTS OF EXPLOITATION

NFC technology brings the touch paradigm to mobile services, in addition to other dimensions, thus allowing services such as mobile payment or ticketing by simply touching a reader with a mobile phone. As experienced in SmartTouch, the possibilities are endless, including offering new ways of interacting with home consumer electronics and offering help for people with disabilities and the elderly.

A pilot in the city of Oulu in Finland offered a meal service for elderly people. A touch-based user interface was embedded into a meal menu, which was used by the elderly home-care clients to order their meal for the following day. The application also allows monitoring of the meal-delivery process in real time, increasing traceability and cutting down manual work.

The project is now finished, and in its exploitation phase. More than 22 products have already resulted. These include NFC cards for PCs enabling Internet connections, ticket validators and readers, handset applications and smart-card systems.

A particularly interesting exploitation has been the touchatag spin-off from Alcatel-Lucent. This offers a contactless radio-frequency identification (RFID) tag that automatically launches services. For example, a tag on a painting in a gallery could provide a mobile phone user with information about the painter. Or a cleaning service could register completion of work in a room on a tag in the room.

SmartTouch members have also been active in standardisation work in the NFC Forum and the Mobey Forum, which encourages the use of mobile technology in financial services, as well as in the GSMA mobile communications industry organisation. Examples include the single wire protocol, contributions to security aspects of NFC, and suggestions for work items in context data representation. The NFC Forum has almost finalised its specifications; and NFC standards should be available mid 2009. So, realistically, it will probably be another year before NFC really takes off. ●