Taking a smart approach to e-services

Cost € 36 million

Duration 33 months

Countries involved
France, Czech Republic, Hungary, Italy, The Netherlands, Spain, Sweden

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PRINT STORY

Increased integration means smartcards can now offer secure interoperability across Europe, simplifying citizen access to both fixed and mobile public and private e-services and multimedia content.

The EUREKA MEDEA+ Cluster ONOM@TOPIC+ project has developed complete hardware and embedded software platforms enabling citizens to benefit from the enormous potential of e-services offered by public authorities and business. The project resulted in three major contributions to world standards including an interoperable e-identity smartcard platform compatible with projects in major European countries and with the US-backed ISO standard. It also developed a high speed interface between SIM card and mobile terminal for mobile multimedia and a single-wire protocol enabling contactless data exchange between SIM card and a near field communication module. Both developments have now been accepted by the European Telecommunication Standards Institute (ETSI).

Identity validation, security and privacy are critical issues around the globe. Smartcards containing a microprocessor and embedded memory offer a secure approach for verifying identity. Such devices are widely used in mobile phone subscriber identity module (SIM) cards and simplify access to healthcare, services and mobile multimedia. ONOM@TOPIC+ brought together two projects: one to develop an EU citizen card; and the other focusing on mobile multimedia applications built around SIM cards.

'We saw that with the enormous capabilities of silicon integration we could put more and more functions on the card,' says Jean-Pierre Tual of project coordinator Gemalto. 'Our idea was to work with silicon manufacturers, embedded software developers and systems integrators to pile up functions and simplify interoperability by carrying out complex tasks on the card which were not previously possible.'

EUREKA labelling was important because the project was industrially-led with short- to mid-term expectations. 'We had a strong consortium and knew there could be sharp changes in strategy dictated by the market or by the partners, so we needed flexibility. EUREKA provides this type of key and decisive advantage.'

The project consortium involved 17 partners from seven countries including the Czech Republic and Hungary. It incorporated all key players from the European smartcard and mobile industries: smartcard manufacturers, chipmakers, handset manufacturers, mobile operators, electronic

'We developed new mechanisms to gain knowledge of which services can be hosted on the card, how these services can be accessed and how communication can be established in an efficient way between card and remote server without compromising security for card issuer or user,' explains Tual.

'We studied interoperability between the five major countries in Europe already in agreement to work on such a scheme: Germany, France, Italy, Spain and the UK. And we have some identity projects that will be industrialised within two years.'

Making multimedia mobile
The objective for mobile multimedia was to push the capabilities of existing SIM and mobile terminals to handle much more multimedia. 'We developed a lot of concepts and came up with two new standards that are now recognised worldwide,' says Tual.

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Jean-Pierre Tual,
Gemalto, France

This led to a new generation of SIM card supporting both very high speed connectivity with the mobile terminal using the USB technology standard in personal computers and the new emerging near field communication (NFC) contactless interface. The EUREKA project developed accordingly a new standard protocol for SIM cards using NFC technology, a short-range high-frequency wireless communication technology exchanging data between devices over a distance of about a decimetre. It is only necessary to touch devices to enable an information flow between them.

The interface between the SIM card and handset ensures a high level of security without changing standard packaging or pin count. Cleverly using the eight available pins to implement new protocols makes USB connectivity on two pins possible while

design companies, biometrics specialists, software development and verification tool companies, security laboratories, services companies and universities.

Preparing for interoperability

The project developed card-embedded and middleware-oriented functions that deploy the next generation of European citizenship cards and prepare for future interoperability between European and worldwide identity projects. As cards from different users are recognised and become interoperable, citizens will be able to access healthcare, administrative and governmental services in other countries. The card should also incorporate private services such as banking information.

simultaneously using the last remaining pin for contactless interface. 'We developed working prototypes and a suitable handset to host these SIM cards. Such cards should be available commercially in early 2009.'

A second major innovation was in memory. 'We are pushing from the current hundreds of kilobytes to hundreds of megabytes or even gigabytes using clever packaging technologies, side-by-side or stacking technologies and a new generation of software,' says Tual. It is now possible for the SIM card to act like an Internet node, using a standard connection with the mobile handset to visualise the content of the SIM card.

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Jean-Pierre Tual,
Gemalto, France

'This makes it possible to develop a host of new services for the mobile operator as the handset can be configured completely from the SIM card by downloading very powerful applications,' points out Tual. 'This is a key advantage as the mobile operator owns the SIM card – and not the terminal – and so can control, check what is in it and really manage efficiently both the operator's applications and those of the customer. So we are really opening up new possibilities for mobile operators.'

Winning technology

The scale of the achievement in ONOM@TOPIC+ has been fully appreciated by the public authorities involved. And it led to the project becoming joint winner of the 2007 Jean-Pierre Noblanc Award for Excellence that honours the most innovative and sustainable project carried out in MEDEA+, EUREKA's Cluster focusing on micro and nanoelectronics.

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