



## CA206 | Crucial improvements in security, functionality and speed for next generation e-passport platforms [NewP@ss]

### PROJECT CONTRIBUTES TO

Communication	✓
Automotive and transport	
Health and aging society	
Safety and security	✓
Energy efficiency	
Digital lifestyle	✓
Design technology	
Sensors and actuators	
Process development	
Manufacturing science	
More than Moore	
More Moore	
Technology node	

Technology Platform for Process Options

### Partners:

Gemalto  
 NXP Semiconductors F  
 id3 semiconductors  
 STMicroelectronics  
 Compuworx  
 Infineon Technologies  
 Giesecke & Devrient  
 NXP Semiconductors G  
 Infineon Technologies  
 NXP Semiconductors A  
 EVOLEO Technologies  
 Institute CEA-LETI  
 ISEN-Toulon  
 Instituto de Telecomunicações Aveiro  
 TU Graz Institute for Applied Information Processing and Communications

### Project leader:

Jean-Pierre Tual; Michael Guerassimo  
 Gemalto

### Key project dates:

Start: July 01, 2012  
 End: June 31, 2015

### Countries involved:

France  
 Germany  
 Hungary  
 Austria  
 Portugal

NewP@ss is all about developing advanced and secure platforms capable of handling new generations of e-passport for European and international travel. These platforms will enhance security and features traditionally connected with a passport, as well as, host dedicated e-services associated with travel. A consortium of 15 project participants from five European countries will work on developing and implementing the concept, addressing such aspects as interoperability and testing, as well as, contributing proactively to relevant world standards.

Positioning itself at the technological cutting edge, the NewP@ss project is developing platforms supporting third (expected around end-2014) and fourth generations of the e-passport, a biometrics-enhanced, machine-readable travel document based on specifications defined by the International Civil Aviation Organization (ICAO). This innovative passport was initially introduced with the aim of strengthening international-border security control by preventing illegal immigration and trans-border crime, and also reducing the threat of identity theft.

The e-passport contains a contactless microprocessor and on-board memory that houses the passport holder's biographical data (like name, and date and place of birth) and biometrical data (like facial image), which can be read from the passport using a contact-less reader. Significantly, the new version will deploy the supplemental access control (SAC) protocol to secure data exchanges and ensure the holder's privacy.

SAC provides future-proof security in electronic travel documents, ensuring a contactless chip cannot be read without physical access to the travel document, and data exchange between chip and reading device is encrypted. The major advantage

of SAC is that the security level is independent of the strength of the password used to authenticate the terminal and generate the keys for secure messaging.

In addition, this new passport will host electronic visa and electronic time stamps but could eventually also host an electronic boarding pass, as well as, airline and airport applications. This is a win-win-win proposition for travellers, business companies and government authorities.

### Focus on security, performance and applications

Project activities will focus on five key areas:

1. Developing hardware and software technologies needed for supporting the next generations of e-passport, in particular new logical data structures which will enable a fundamental conceptual shift on passport usage, enabling it to become a true multi-application device;
2. Developing technology components needed to meet regulatory performance and functionality requirements, including new cryptographic SAC and very-high bit rate (VHBR) protocols for contactless smart cards;
3. Developing and validating (especially security



mechanisms using government and non-government use cases) proofs-of-concepts for new e-passport implementations, resulting in advanced and secure microcontrollers, embedded software platforms and fixed or mobile readers;

4. Developing and validating security and privacy concepts needed to guarantee the target life-time (5-10 years) of the target e-passport platforms as well as the proper level of isolation between applications;
5. Providing functional test suites and reference implementations suitable for further interoperability testing.

### Fitting the bill

The project calls for partners with special skills and experience to meet innovation challenges in:

- Moving from the classical 8/16 bit secure microcontroller with classical contactless platform to a full 32-bit architecture providing many new innovative features;
- Developing advanced software platform supporting the new logical data structures, contactless protocols and isolation, and security requirements;
- Defining and developing advanced use cases.

Giving NewP@ss a head start, many of its 15 project partners from five countries have worked together on the BioP@ss project to develop the previous generation of e-passport [which successfully ended in January 2011]. In addition, NewP@ss will leverage work already done by MEDEA+ projects.

### Meeting the challenges of easy, secure and fast access

The e-passport and its applications dovetail nicely with the European Commissions' Digital Agenda. This strategy addresses the main challenges in the information society and media sectors by ensuring developments in these fields improve efficiency and security, modernise administration, reduce bureaucracy and enable citizens to communicate with the various administrative authorities more easily and securely. After all, European Union (EU) citizens have rights and obligations they should be able to exercise in a simple, easy, secure and accessible way anywhere in the EU. Access to public services at a pan-European level is a key feature of this project, and providing basic enabling technologies for sustaining this goal is expected to be one of its prime impacts.

Applications targeted by NewP@ss share stringent security and interoperability requirements at European and international levels. This project will also provide logical and physical connectivity between the governmental and the private/home-network environments, offering a sound basis for developing potentially new business models around e-government services. On a separate note, the European e-passport scheme is considered as a reference model internationally, thus widening opportunities to promote European industry, in general, and the crucial SAC security protocol and other European standards, in particular.

NewP@ss applications also have a large economical, societal and technical impact and will represent a substantial part of the European and global market for products and services by 2015-2020. Taking a look at the statistics, by 2010 some 292m e-passports with embedded

biometrics had been issued worldwide, with over 137m in Europe alone. The potential market for e-identity (e-ID) is also expanding, driven by legislation and standards in over 15 countries. And thanks to its fully compatible and interoperable platforms, NewP@ss should secure a competitive advantage in the European industry sectors dealing with e-passport and other high-security-related applications, such as e-ID, e-visa, e-driving licence and e-boarding pass.

Of course, new technologies, such as smart cards, biometrics and contactless technology, have gained attention, and their usefulness is becoming better understood and appreciated. The inevitable questions of privacy, security and data protection are indeed adequately addressed and resolved in NewP@ss; future issues will be dealt with through the normal technological, legislative or regulatory channels.



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