

RESET

Roadmaps for European research on Smartcard Technologies

1.1 Objectives

The objectives of RESET are to

- i) address key challenges of the information society by promoting European smart card research,
- ii) put the research agenda in context for the development of medium and short term research agendas in all fields related to smart cards,
- iii) reinforce European scientific and technological excellence by promoting the European smart card research agenda to the world.

RESET will investigate the RTD needs corresponding to current and expected future technology gaps, identified by the industry and resulting from market and product trends foreseen by smart card industrial users.

⇒ **Pro-active scheme:** RESET will not only prepare a mere roadmap for the smart card industry and academia, this initiative will also provide recommendation to the European Commission in its definition of the 6th Framework Programme, hence allowing future calls addressing this domain to be directly targeting at the core issues and challenges the smart card professionals will be facing.

1.2 Participants

- **Two partner organisations:**

For the Smart card supplier Industry: **EUROSMART** (Smart card Industry association)

For the Academia : **ERCIM** (association of IT research institutes in Europe)

- **RESET members:** see list enclosed (point 2)
- **eEurope Smart Cards** (eESC) actively supports the RESET project.
- A **Users group** will also be constituted

⇒ **Aim: to reach a large consensus**

In order to reach a large consensus, RESET will have to create a large network of experts from industry and research, including technology providers and users from business and public administrations, academia, policymakers, standardisation bodies, and international RTD initiatives, etc.

1.3 Organisation

Duration of the project : 1 September 2002 to 30 May 2002

The workplan of the RESET project is composed of 3 workpackages:

WP1: Roadmap for secure devices and platforms technologies

WP2: Dissemination and Consultation

WP3: Management and network support

- **WP1¹** has been subdivided into three main activities:
 - in depth assessment of the driving factors and barriers (markets / technologies),
 - technology research relevant for smart cards, resources and opportunities for cooperation, and
 - roadmap consolidation.

The work in WP1 will be carried out in a series of workshops, corresponding to the themes mentioned in the following table. Different / additional themes could be decided at the beginning of the project if needed.

Communication and networks protocols (wireless, USB, contactless, ...)
Systems and S/W (operating systems, system integration techniques, development tools, high level programming languages)
Interface technologies (enhanced man-machine interface, biometry, ...)
Peripherals, subsystems and microsystems (SC interfaces, packaging/ assembly/ mounting technologies, SC peripherals, electronic materials, batteries, screens, ...)
High-end cryptography, tamper-proof and security technologies
Micro-electronics (chip design, memories technology)

Participation to WP1: All

For each of these areas, a **core group of experts from the industry and academia** will be responsible for the elaboration of the research priorities presented in the roadmap.

- **WP2** will focus on processing into the roadmap definition the feedback received from the various dissemination tools (mailings, questionnaires, seminars, web site and publications). A public seminar will be organised in order to reach a maximum consensus.

Participation to WP2: ERCIM & EUROSMART

- **WP3** will ensure the scientific, administrative and financial network co-ordination and the cohesion and supervision of the other tasks.

Participation to WP3: ERCIM, EUROSMART & ARTTIC

- ERCIM : Project coordinator: to supervise the administrative and financial tasks and the dissemination
- EUROSMART: to lead the scientific work and ensure the dissemination
- ARTTIC: in charge of the technical secretariat support for the RESET workshops and of the consolidation of the reports resulting from these workshops, and also of maintaining the RESET private web site

¹ See detailed description of the WP1 attached

2. RESET Membership

Participant name	Participant short name	Country
Institut National de Recherche en Informatique et automatique	INRIA	F
University of Twente	UT	NL
Katholieke Universiteit Nijmegen	KUN	NL
Université Catholique de Louvain	UCL	B
Université des Sciences et Technologies de Lille	USTL	F
Universitat Rovira I Virgili	URV	E
Gemplus S.A	Gemplus	F
Schlumberger Systèmes	SchlumbergerSema	F
Philips Semi-conductors GmbH	PSG	D
Oberthur Card Systems	OCS	F
Cybernetica AS	Cybernetica	EE
ORGA Kartensysteme GmbH	ORGA	D
Infineon Technologies AG	Infineon	D
Giesecke & Devrient GmbH	G&D	D
Fujitsu Microelectronics Europe	Fujitsu	F
Trusted Logic S.A.	Trusted Logic	F
Elva	Elva	F
GIE-Groupement des Cartes Bancaires "CB"	CB	F
France Telecom	FTRD	F
STMicroelectronics	ST France	F
Sagem	Sagem	F

⇒**To attract new members:** Whilst these core members have committed to continuous and active support of the RESET working groups, additional organisations will be invited to join in the course of the project, and to participate and contribute on a permanent or occasional basis. Therefore, membership to RESET will be open and actively promoted to all interested organisations

Workpackage and Task Leaders	
WP1: Research Roadmap	O Trébuq - Gemplus
T1.1:	J. Moll - G&D
T1.2:	O. Trébuq - Gemplus
T1.3:	H. Vigneron - SchlumbergerSema
Workshops leaders	To be defined during the kick-off meeting
WP2: Enhanced Dissemination	Florence Gras - EUROSMART
WP3: Project Management	Bruno Le Dantec – ERCIM

3. Detailed description of WP1

WP1 : Roadmap for secure devices and platforms technologies

The core of the RESET thematic network lies within the WP1 activities designed to define the smartcard research roadmap priorities on the short, mid and long term. In order to fulfil this task, WP1 has been subdivided into three main activities:

- In depth assessment of the driving factors and barriers (markets / technologies) (T1.1)
- Technology research relevant for smart cards, resources and opportunities for cooperation (T1.2)
- Roadmap consolidation (T1.3)

To carry out these tasks, RESET will rely on the expertise of the most significant players of the field, be they from the industrial or from the academic world. In this respect, the workshops will be chaired jointly by an industrial and an academic representative to :

- have both competencies and perspectives represented
- foster the emergence of interactions and partnerships between both spheres.

For the thematic workshops in particular, all key players from the Industry and the Academia will be asked to fill in a questionnaire identifying their research priorities and expectations *vis-a-vis* the network, to determine precisely to which specific workshop they would like to take an active part into. This will not only support the participation of experts for each of the various fields that will be addressed, but will also, and above all, ensure a strong commitment of the delegations that will participate to those events.

T1.1 - IN DEPTH ASSESSMENT OF THE DRIVING FACTORS AND BARRIERS (MARKETS / TECHNOLOGIES)

The investigation will be conducted along the following work items:

Product and market trends

Analysis of the evolution of smart card products and markets and promising future smart card applications. Gathering views from smart card users (issuers) on their needs and their vision of trends in smart card products and their required features. This would be done based on the organisation of focus workshops, e.g. on mobile communications, e-payment, etc. Translation of products features in technical requirements by the task force of experts involved.

Identification of major actors in smart card research in Europe and world-wide

Consolidating information on industry and research institutes carrying out RTD activities which are relevant for the smart card industry (including silicon, systems, software, development and test tools, materials, ...). Identify their strengths, research potential, business model and conditions for technology transfer.

Smart card industrial technology state of the art and trends

Analysis of current state of the art, limitation and needs in the production and development of smart card products and applications. This information would need to be gathered mainly from the supplier industry. Taking into account that this could be a sensible area, this would be done through questionnaires or interviews and research of information published in the specialised press.

Technology challenges and barriers

Identification of future challenges for smart card applications and barriers for their deployment. Case studies of successful RTD projects and programmes (including the IST programme) and identification of success factors.

Impact of legal issues and regulations

Different political systems and regulatory domains prescribe different and often conflicting roles for information security, all of which will impact the role and use of smart cards. It is important to realise that eventually all security can and will be broken. Victims of an attack should have recourse to an efficient legal system. Major challenges are in identifying the R&D needs for making such a system work across national borders within the EU and beyond.

Interoperability and standardisation issues

Identification of main areas, where lack of interoperability and standards, regulations, lead to fragmented markets and limited deployment of smart card applications. The input for this topic could be gathered from the technical and market experts from the member organisation and from the eESC constituency.

References to take into account for a sound positioning of Reset contribution will address current structures, dealing with both technical and marketing issues, such as :

- Financial and Security services : Global Platform, FinRead, STIP, PC / SC, Java Card Forum, EESSI
- Wireless : ETSI / 3GPP, GSM association, SIM alliance, CDMA roaming
- Miscellaneous : Smart Card Alliance (USA), eEurope SCC, NMDA and ECSEC (Japan)

Cooperation with international initiatives

This activity will focus on giving RESET an International dimension, in particular by contributing to set up links with other regions (NAS, US, Japan, China, Latin America, etc.) interested in smart card technology developments, and thus contributing to the international dissemination of current European efforts. This initiative will first rely on EUROSMART's and ERCIM's ongoing cooperation with relevant partners which they can have to participate as guests in the RESET events.

It will be also important to take profit of some participants' on-going research cooperation with third countries, in subjects related to basic smart card technology and to enlarge the impact of this cooperation by promoting joint research activities among several European (academic and industrial) and International research centres. Additionally, this activity will pick up the existing harmonisation and/or standardisation outcomes of the "e-Europe Smart Card initiative" Trailblazers and promote their dissemination world-wide.

TI.2. TECHNOLOGY RESEARCH RELEVANT FOR SMART CARDS, RESOURCES AND OPPORTUNITIES FOR COOPERATION

Secure devices and platforms : research programmes world-wide

Consolidating information on European, national and international research programmes on technologies relevant for smart cards. Assess their research potential and their aptitude for international cooperation with European RTD initiatives.

Analysis of research in related technologies (embedded systems, interfaces, RF communication and protocols, operating systems, materials, power source and power management, etc.) in other industry segments that might be of interest for future smart card applications. Assessment of potential multi-disciplinary cooperative research.

Synergy with related roadmap projects

Liaison and exchange of information with other roadmap projects submitted to the same call and other IST projects in related domains. Each workshop chair, assisted by the two principal partners, will search among the other supported roadmaps (e.g. cryptography) the one that can be linked with the RESET activities to initiate fruitful collaboration and exchanges.

Opportunities and limitations of research in smart card environment

Analysis of current major research effort, identification of current limitations and expected progress, promising important research initiatives, tentative schedule of technologies that should become available / that it will still not be able to address over the next years.

TI.3.ROADMAP CONSOLIDATION

Agenda for long term RTD

Consolidation of output from the study of technology needs and research potential and mapping of priorities and gaps in technology over the next 10 years. Study of potential cooperation scenarios between industry and research, between European and national, and European and international RTD initiatives. Building of an initial agenda for smart card related RTD activities from year 2003 to 2010.

Identification of required accompanying activities

Based on the analysis of market, industrial, technology trends, identification of the required RTD accompanying activities to enable fast time to market of smart card project results and to facilitate large scale deployment: standardisation, concerted activities, information dissemination, technology transfer, training, etc.

Final Roadmap consolidation

Following the presentation of the initial reports in a public seminar and the Web, integration of the feedback collected from the audience and consolidation of a roadmap describing the requirements in smart card related RTD and accompanying activities. The roadmap would identify RTD requirements per major technology area, describe options to structure RTD activities and prioritise them over a time frame from year 2003 to 2010, identify RTD resources in Europe and world-wide and potential areas for collaboration. This roadmap would be suitable as reference for the organisations of Integrated Project and / or Networks of Excellence in the FP6 but also for other national or European RTD programmes, as well as internal reference for European RTD actors in industry and research.

FOR MORE INFORMATION :

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