

Figure 1. Current and Future Campus Card Connectivity

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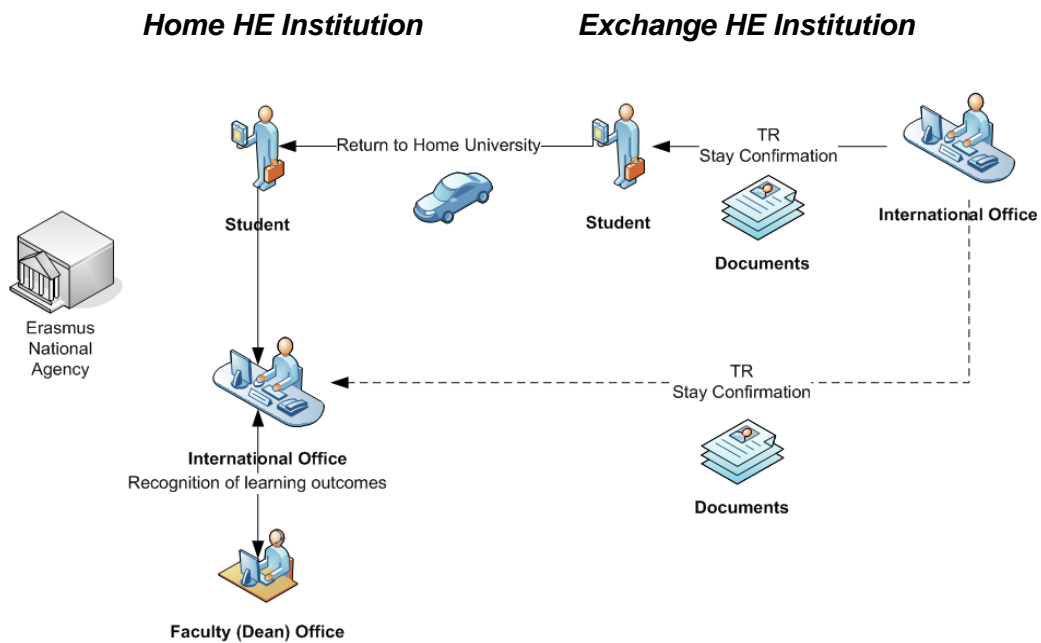


Figure 2. Example of a procedure supported by the SCM standard

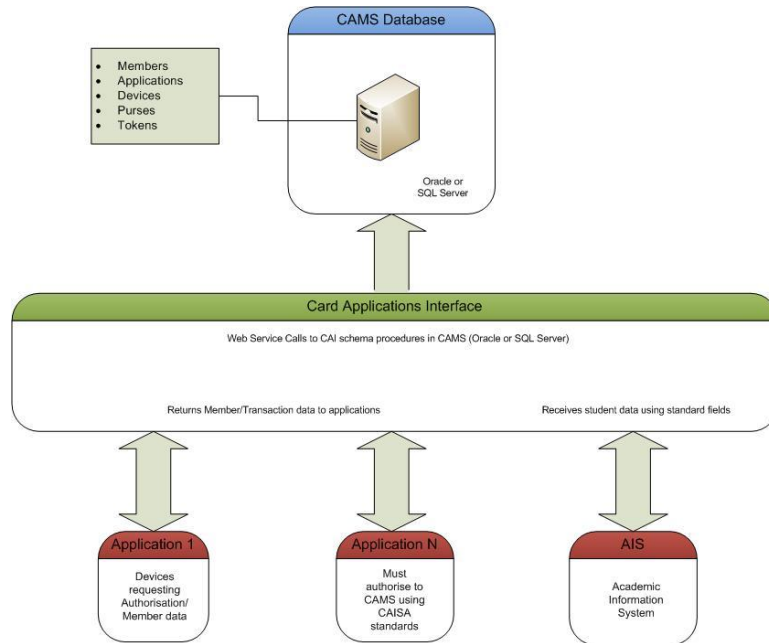


Figure 3. CAI Interface

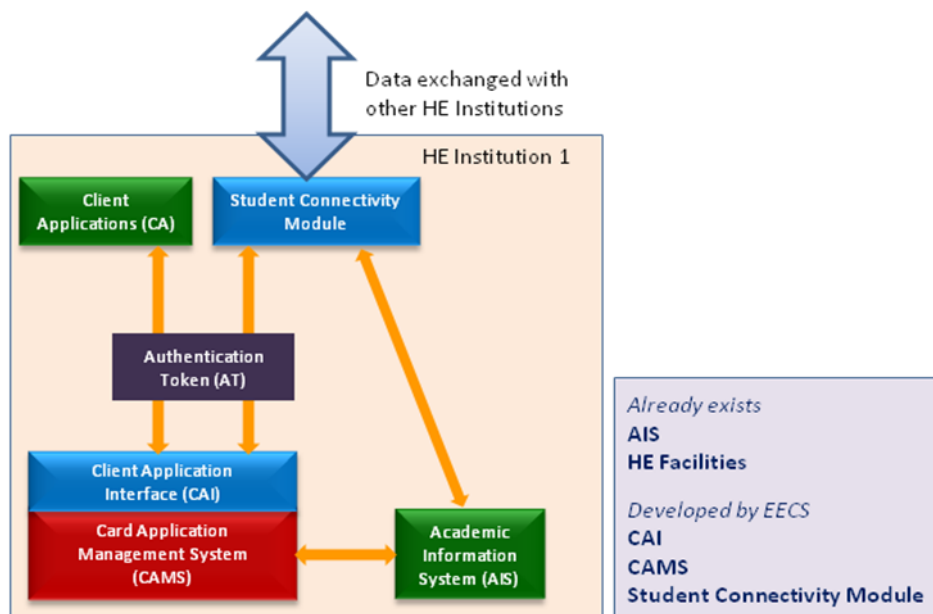


Figure 4. ECCS Campus Card Prototype Architecture



Figure 5: Relationship of CAMS and Client Applications

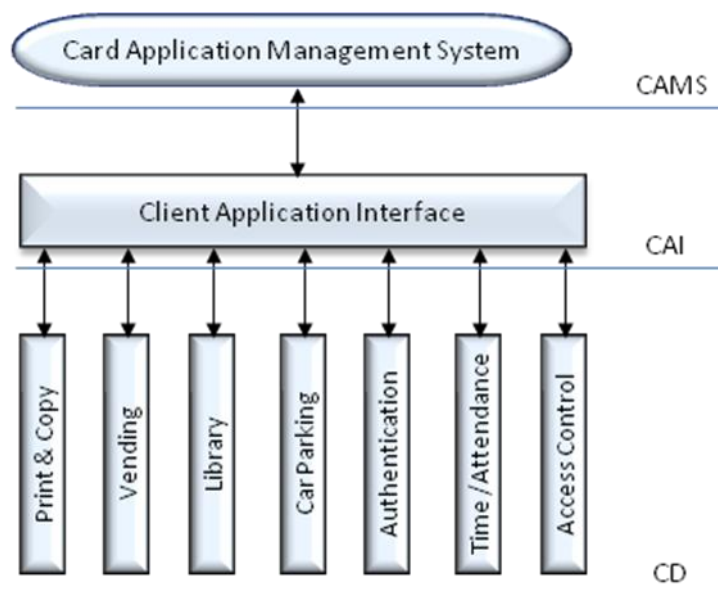
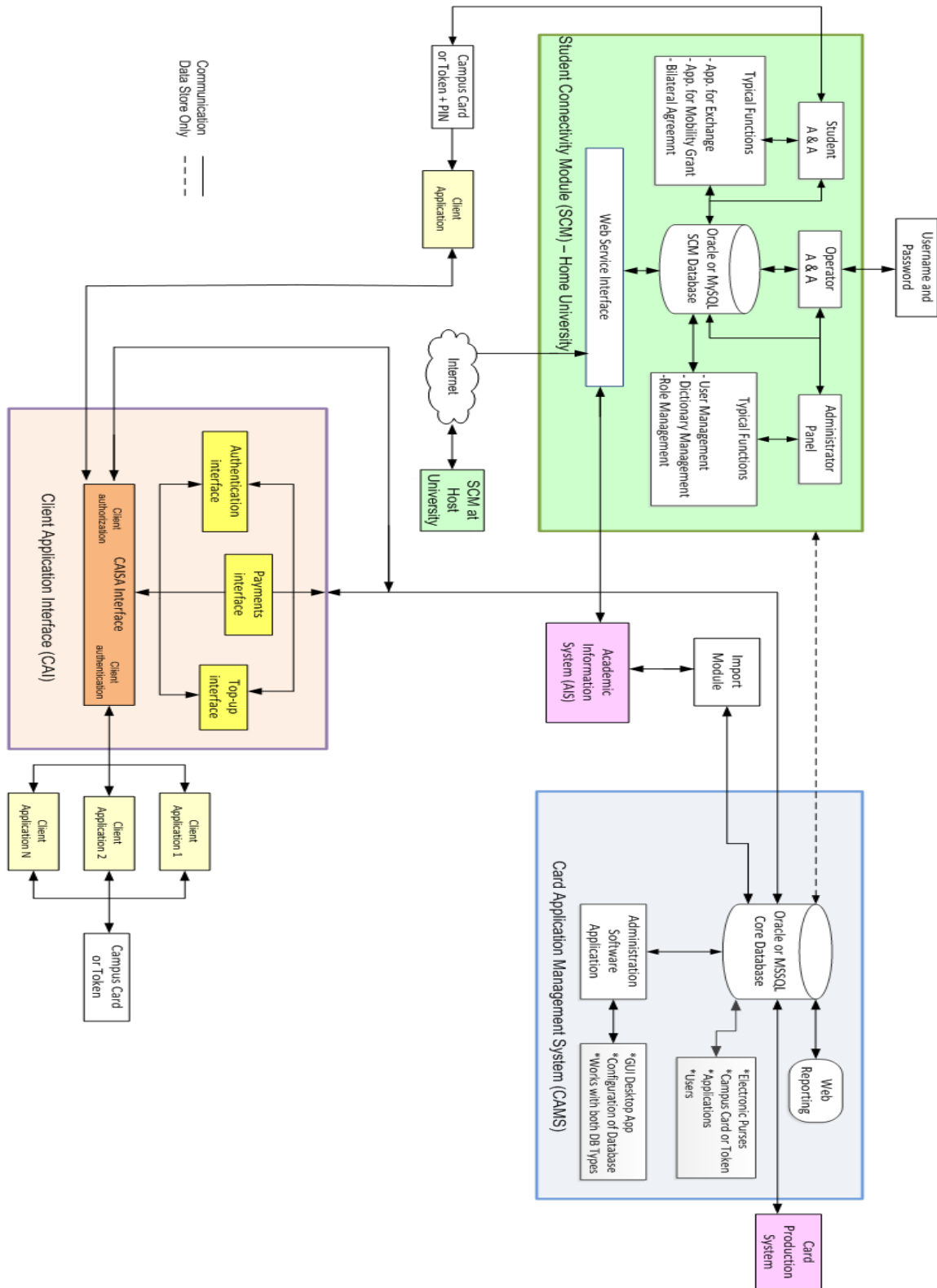


Figure 6. CAI role in the EECS system

Figure 7. Integrated EECS Campus Card Prototype, showing the three core modules



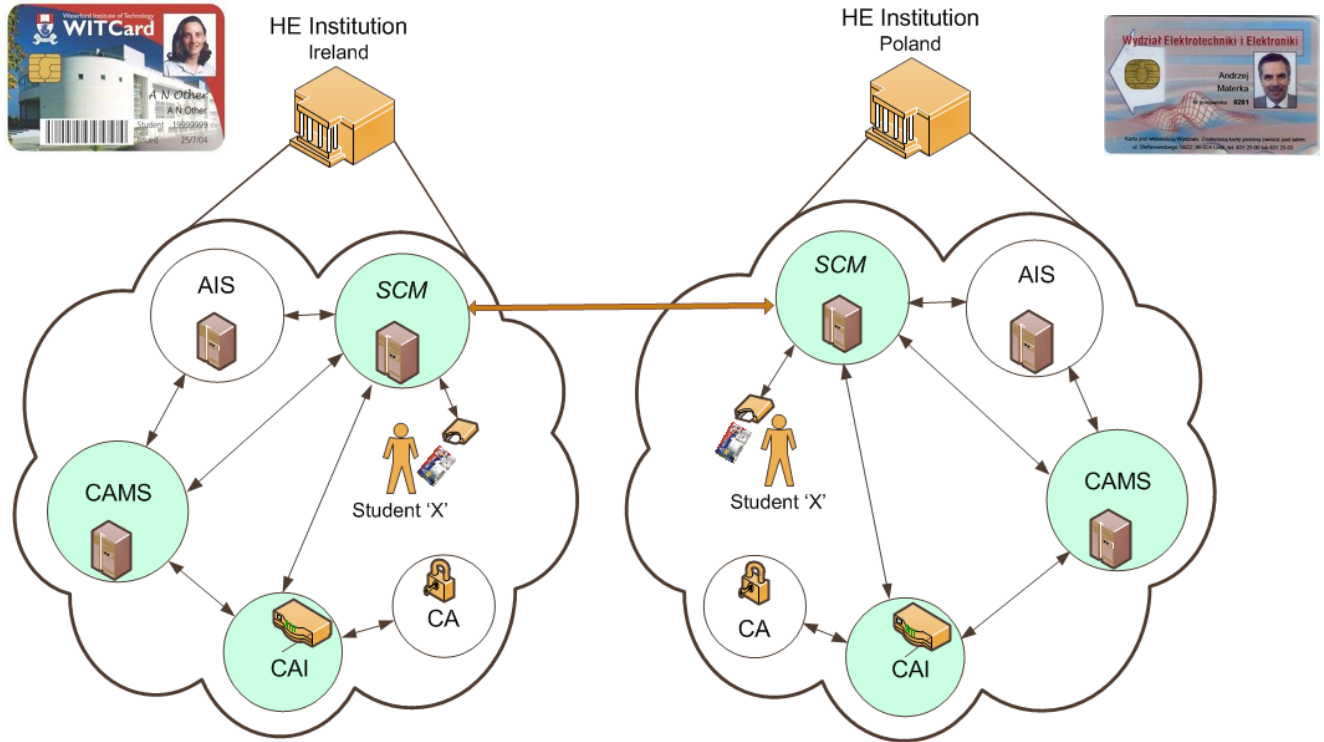


Figure 8. Configuration of EECS Campus Card Prototype for End User Trials



Figure 9. TUL Student participating in a Vending Trial

The Three Phases of the EECS Project - Research to Commercialisation

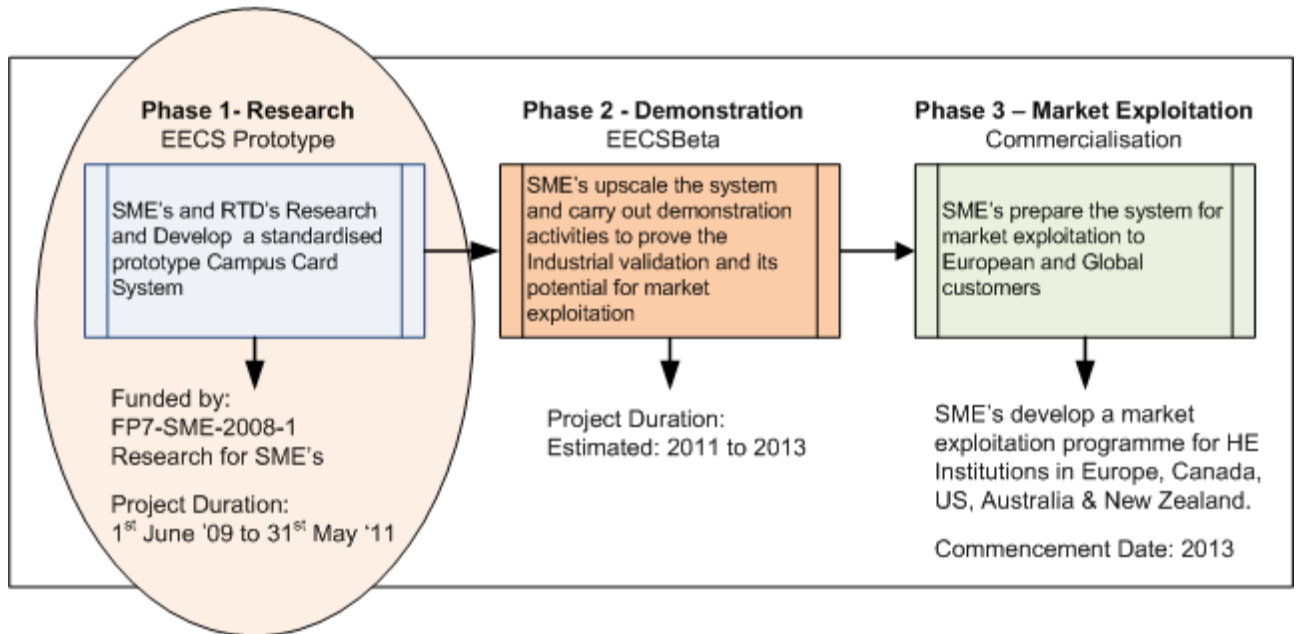


Figure 10. Roadmap from Research to Exploitation

Table 1. Consortium Members and Beneficiaries

| Beneficiary Name | Short Name | Involvement | Country |
|-----------------------------------|------------|---------------------------|---------|
| OneCard Solutions | OCS | SME & Project Coordinator | Ireland |
| University of Zagreb | FER | RTD | Croatia |
| OPTeam | OP | SME | Poland |
| Mecenat | MEC | SME | Sweden |
| Technical University of Łódź | TUL | RTD | Poland |
| Waterford Institute of Technology | CTRC | RTD | Ireland |



Table 2. Work Packages

| WP | Title | Start | End | Status | Lead |
|----|--|-----------|------------|----------|------|
| 1 | Project Management | June 2009 | May 2011 | Complete | OCS |
| 2 | Current Technology & Market Analysis | June 2009 | Oct 2009 | Complete | MEC |
| 3 | Technical Requirements Analysis and Scientific Solutions | Oct 2009 | March 2010 | Complete | OCS |
| 4 | Applied Research & Development | Feb 2010 | April 2011 | Complete | OCS |
| 5 | Validation and Testing | Oct 2010 | April 2011 | Complete | OP |
| 6 | Training, Knowledge Management & Dissemination | July 2009 | May 2011 | Complete | OCS |



Table 3. Deliverables

| Del. No. | Deliverable name | Version | WP no. | Lead | Nature | Delivery date <i>dd/mm/yyyy</i> |
|----------|--|---------|--------|------|--------|------------------------------------|
| D1.1 | EECS Progress Report Period 1 | V2.1 | WP1 | OCS | R | 10/07/2010 |
| D1.1 | EECS Progress Report Period 2 | V4.1 | WP1 | OCS | R | 15/07/21011 |
| D2.1 | Web Based Communication Portal | V2.1 | WP2 | MEC | D | 30/06/2099 |
| D2.2 | Market Research Report and Legal and Regulatory Report | V1.0 | WP2 | MEC | R | 31/07/2009 |
| D2.3 | Report to include Current Technologies , existing IP, and Standard Recommendations | V1.0 | WP2 | MEC | R | 30/09/2009 |
| D2.4 | Standards Expert Workshop | V1.0 | WP2 | MEC | O | 28/08/2009 |
| D3.1 | EECS Technical Specifications - CAMS - CAI - SCM - Integrated Prototype | V2.1 | WP3 | OCS | R | 18/03/2010 |
| | | V2.5 | | | | 18/03/2010 |
| | | V1.3 | | | | 30/03/2010 |
| | | V1.0 | | | | 30/01/2010 |
| D3.2 | EECS Technical Requirement Report - Project Plan - Risk Analysis | V1.0 | WP3 | OCS | O | 01/02/2010 |
| | | V1.2 | | | | 20/06/2010 |
| D4.1 | System 1 – Card Applications Management System (Module 1) and the Client Application Interface (Module 2)* | V8.0 | WP4 | OCS | P | 09/05/2011 |



| Del. No. | Deliverable name | Version | WP no. | Lead | Nature | Delivery date <i>dd/mm/yyyy</i> |
|----------|---|---------|--------|------|--------|------------------------------------|
| D4.2 | System 2 – Student Connectivity Module (Module 3)* | V3.0 | WP4 | OCS | P | 12/05/2011 |
| D4.3 | Integrated EECS Prototype | V3.0 | WP4 | OCS | P | 26/04/2011 |
| D5.1 | Integrated Test Platform | V4.0 | WP5 | OP | D | 28/04/2011 |
| D5.2 | User Trial Report | V5.0 | WP5 | OP | R | 16/05/2011 |
| D6.1 | Knowledge Management and EECS Marketing and Dissemination Plan and its Implementation | V9.0 | WP6 | OCS | D | 03/05/2011 |
| D6.2 | Direct Dissemination Activities | V4.0 | WP6 | OCS | O | 03/05/2011 |
| D6.3 | Identify Potential Customers | V6.0 | WP6 | OCS | O | 25/05/2011 |



Table 4. Milestones

| No | Milestone name | Achievement Date | Comments |
|----|--|------------------|---|
| 1 | EECS Standards Recommendations | 30/09/2009 | D2.1, D2.3, D2.4 delivered. Standards to facilitate the interoperability of campus card systems. |
| 2 | Technical specifications | 18/03/2010 | D3.1 delivered. A complete architectural structure/concept for the three modules composing the EECS prototype. |
| 3 | EECS prototype | 26/04/2011 | D3.2, D4.1, D4.2, and D4.3 delivered. D4.1 and D4.2 were updated in 05/2011 after end user trials. Developed a fully integrated and internally tested EECS Campus Card prototype, including all three modules. |
| 4 | End user trials | 28/04/2011 | D5.1 and D5.2 delivered. Some amendments were made to D5.2 in 05/2011. Successfully tested the complete EECS prototype in a real live environment. |
| 5 | Marketing, dissemination and IPR handover to SMEs for exploitation | 25/05/2011 | D2.2 and D6.1 delivered. Research materials, documentation and IPR handed over to the SMEs. Completed a marketing and dissemination plan to increase awareness of the new product. |



| | | | |
|----------|--|-----------|---|
| 6 | Direct Dissemination Activities and Identification of Potential Customers | 25/5/2011 | D6.2 and D6.3 delivered. Disseminated the progress of the project and the final results. Implemented a programme of targeting potential customers. |
|----------|--|-----------|---|



Table 5: Technical Summary Snapshot

| Technical Summary Snapshot for EECS Campus Card Prototype | | | | |
|--|-----------------------|---------------------|-------------------|--|
| | Green 1 Controlled | Yellow 2 Caution | Red 3 Critical | Project Comment |
| CAI Schedule | ✓ | | | CAI/EECS Project Completed on schedule |
| CAMS Schedule | ✓ | | | CAMS/EECS Project Completed on schedule |
| SCM Schedule | ✓ | | | SCM/EECS Project Completed on schedule |
| CAI Scope | ✓ | | | No required changes to CAI Scope for EECS Project |
| CAMS Scope | ✓ | | | No required changes to CAMS Scope for EECS Project |
| SCM Scope | ✓ | | | No required changes to SCM Scope for EECS Project |
| CAI Quality | ✓ | | | CAI tested, validated and met requirements EECS Prototype met objectives |
| CAMS Quality | ✓ | | | CAMS tested, validated and met requirements EECS Prototype met objectives |
| SCM Quality | ✓ | | | SCM tested, validated and met requirements EECS Prototype met objectives |
| 1 Controlled: Project is within schedule, scope and quality 2 Caution: Project has deviated slightly from plan but should recover 3 Critical: Project has fallen significantly behind schedule and/or out of scope and/or poor quality | | | | |



Table 6. Potential Impacts from EECS Project

| Impact | Qualitative Impacts | Quantitative Measures |
|--|---|--|
| Short Term Impacts (2011-13) | | |
| Campus card standards | Promote the interoperability of campus card systems and client applications by establishing a recognised “Standard for Interoperable Campus Card Systems” based on the work of the EECS Project. | <ul style="list-style-type: none"> ECCA status of standards # of references to standard in publications |
| Continued R&D Partnering | Overcome the barrier of limited financial and technical capacity by maintaining the partnership of SME & RTD organisations from around Europe that was established by the EECS Project | <ul style="list-style-type: none"> The continuing R&D cooperation by the EECS Project beneficiaries. |
| Acceleration of R&D | Aggregation of technical and professional resources at the SMEs and RTDs to progress the scaling-up of the EECS Prototype to a demonstration level more quickly than an individual organisation could achieve | <ul style="list-style-type: none"> Development of a Campus Card Demonstration System that leverages the work and outputs of the EECS Project. |
| <i>Innovative technology development</i> | | |
| Contribution to underlying science | <ul style="list-style-type: none"> Novel approach to the problem of interoperability Effective results dissemination and exploitation | <ul style="list-style-type: none"> # of references in research papers, white papers, journals |
| Demonstration campus card system | <ul style="list-style-type: none"> Verification of: <ul style="list-style-type: none"> Performance Reliability Functionality Quality | <ul style="list-style-type: none"> Successful real world piloting of a interoperable campus card solution at HE Institution(s) |
| Creation of Intellectual property | <ul style="list-style-type: none"> Creation of IPR, including but not limited to: <ul style="list-style-type: none"> Concepts and principles Software & Firmware Documentation | <ul style="list-style-type: none"> # of Copyright, Designs and Patents registered |
| Medium Term Impacts (2013-15) | | |
| <i>R&D Improvements</i> | | |
| Productivity | Leveraging the outputs of the EECS Project and subsequent demonstration activities, new campus card products will cost less to develop than has historically been the case | <ul style="list-style-type: none"> Cost to market (reduced) |



| | | |
|---|--|--|
| Product life cycle | Leveraging the outputs of the EECS Project and subsequent demonstration activities, new campus card products can be developed more quickly than has historically been the case | <ul style="list-style-type: none"> • Time to market (reduced) |
| <i>Commercialisation and Exploitation</i> | | |
| Adoption of card standards | The 'Standard for Interoperable Campus Card Systems' is adopted by industry and/or required by their potential customers | <ul style="list-style-type: none"> • # associations and other bodies adopting the standard • # of companies with products that comply with the standard • % of HE Institutions or other organisations requiring conformance to the standard |
| Licensing | Technologies and components that originated in the EECS Project are developed in to commercial product(s) that can be licensed | <ul style="list-style-type: none"> • # companies and other organisations buying EECS based licence(s) |
| Interoperable campus card systems | Companies integrate and localise EECS based technologies in to marketable products | <ul style="list-style-type: none"> • Commercial availability of interoperable products |
| Product-line growth | Companies develop new systems and client applications based on EECS derived concepts and standards | <ul style="list-style-type: none"> • # of new applications |
| Company growth | Growth of the companies and organisations participating in the campus card market due to the commercialisation and exploitation of the results of the EECS Project | <ul style="list-style-type: none"> • Turnover • Profitability • No. of employees • Failures |
| Attract capital | Investment in the companies and organisations participating in the campus card market | <ul style="list-style-type: none"> • Value of investments |
| Market access | Increasing receptiveness of the HE market, and increasing interest from other market sectors | <ul style="list-style-type: none"> • Rate of market penetration of new campus card systems |
| <i>Longer Term Impacts (2015-18)</i> | | |
| Academic mobility | Facilitate the free mobility of students and teachers in Europe, in accordance with the 1999 Bologna Declaration. | <ul style="list-style-type: none"> • Percentage use of EECS system for HE student exchange programmes |
| Benefits to Institutions | (See Table 6 below) | |
| Return on Investment | Participating suppliers and investors make a profit | <ul style="list-style-type: none"> • Rate of return on investments |
| <i>HE Market Growth</i> | | |



| | | |
|-------------------------------------|---|--|
| Campus card systems | Adoption reaches a “critical mass” – its use is regarded as an advantage by teachers and students when selecting an Institute | <ul style="list-style-type: none"> • % use by European HE Institutions |
| Market entry | Expansion of supplier base, and increasing competition | <ul style="list-style-type: none"> • # new companies entering the market • % penetration in target sectors |
| Product-line growth | Increasing number of interoperable campus card systems and client applications | <ul style="list-style-type: none"> • # of new products |
| Beyond Europe | Expansion of marketing activities and the customer base world-wide | <ul style="list-style-type: none"> • Value of sales outside Europe |
| <i>New Market Sectors</i> | | |
| Multi-nationals | Cross pollination to new markets with similar campus and multi-location requirements | <ul style="list-style-type: none"> • Value of sales |
| Health | | <ul style="list-style-type: none"> • Value of sales |
| NGAs | | <ul style="list-style-type: none"> • Value of sales |
| Military | | <ul style="list-style-type: none"> • Value of sales |
| <i>Future Developments</i> | | |
| Cloud Computing | Provision of interoperable campus card services as service | <ul style="list-style-type: none"> • # of commercial products • Value of sales |
| Credit/Debit Card, e-purse | Partner with banks to introduce cross border financial type client applications and services | <ul style="list-style-type: none"> • # of commercial products |
| Transportation and Travel Card | Partner with transportation companies to introduce cross travel services | <ul style="list-style-type: none"> • Value of sales |
| National & European ID Student Card | Partner with government bodies and unions to provide third party identification validation services | <ul style="list-style-type: none"> • # of commercial products |



Table 7: Potential Benefits for HE Institutions

| Qualitative benefits | Quantitative Measures |
|---|---|
| <i>Achievement of policy objectives</i> | <i>Increased revenue</i> |
| <ul style="list-style-type: none"> • Academic Mobility (aka Bologna Declaration) | <ul style="list-style-type: none"> • Sale of cards and tokens |
| <i>Service enhancement</i> | <ul style="list-style-type: none"> • Commission on transactions (e.g. 3%) |
| <ul style="list-style-type: none"> • Wider range of services | <ul style="list-style-type: none"> • Charges/fees for services |
| <ul style="list-style-type: none"> • Geographic access to services | <i>Reduced Administration Costs</i> |
| <ul style="list-style-type: none"> • Cashless payments | <ul style="list-style-type: none"> • Less staff |
| <ul style="list-style-type: none"> • Faster service | <ul style="list-style-type: none"> • Less overtime |
| <ul style="list-style-type: none"> • Tailored services | <ul style="list-style-type: none"> • Reduced overheads |
| <ul style="list-style-type: none"> • Improved security | <i>Cost avoidance</i> |
| <ul style="list-style-type: none"> • Longer hours open / available | <ul style="list-style-type: none"> • Increased service/same staff |
| <ul style="list-style-type: none"> • Improved Service efficiency | <ul style="list-style-type: none"> • New service/same staff |
| <i>Improved productivity</i> | <ul style="list-style-type: none"> • Increased capacity/same cost |
| <ul style="list-style-type: none"> • Better systems to support staff | <i>Academic Mobility</i> |
| <ul style="list-style-type: none"> • Increased throughput | <ul style="list-style-type: none"> • Presence of teachers & students from other HE's |
| <ul style="list-style-type: none"> • Better asset utilisation | <ul style="list-style-type: none"> • Presence of teachers & students at other HE's |
| <ul style="list-style-type: none"> • More with the same resource | |
| <ul style="list-style-type: none"> • Increased information accuracy | |
| <ul style="list-style-type: none"> • Faster decision making | |