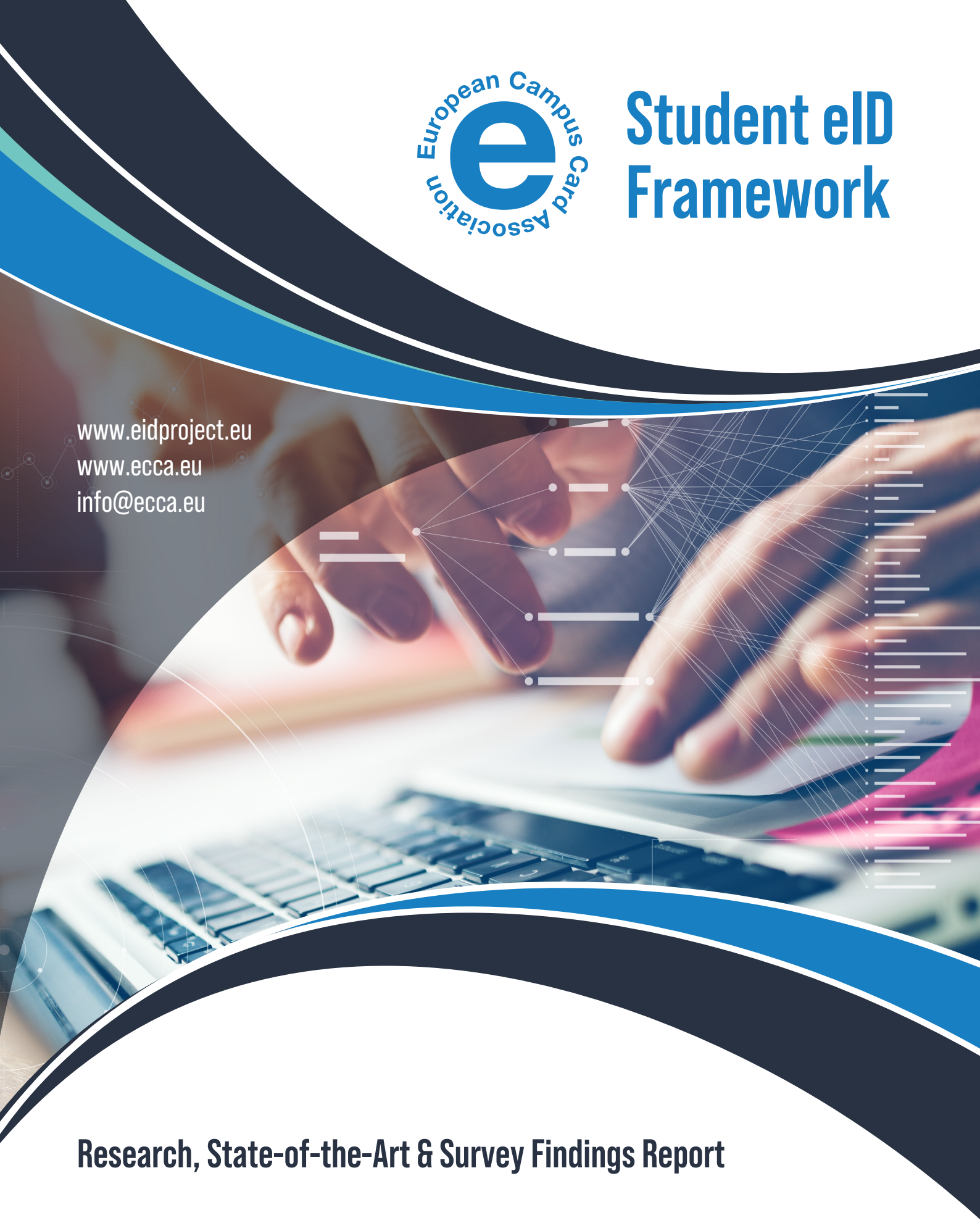
Student eID Framework



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Research, State-of-the-Art & Survey Findings Report

Report Date: **November 2021**

ECCA
Student eID Framework

With the support of the Erasmus+ Programme of the European Union

Acknowledgement

As our association continues its efforts and commitment to discover answers to the challenges that confront a unified European student eID credential, I extend my sincere appreciation to all the dedicated individual's that have contributed to the development of this Student eID Framework Report.

I would like to especially acknowledge and thank the stakeholders for their collaboration and input, and I look forward to continued engagement in our efforts to determine the needs and requirements for a European Student eID. I would also like to thank our project management team and advisory committee for their dynamic interaction and assistance in the delivery of the various activities associated with this project.

In conclusion, I thank the Erasmus+ Programme of the European Union for the funding support and assistance with this project, which embraces tradition and provides an envisioned future. There is no limit to what the future holds and what we can achieve when we continue with our collaborative efforts and working together to exploit opportunities as a team.

Sinéad Nealon
Executive Director

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1. Introduction

1.1 Project Overview

The European Campus Card Association (ECCA)[1] is actively progressing with a "Consultation Process on the Development of a Proposal for a Trusted Student Identification Framework" (Student eID Project[2]) that will support the provision of secure identification and authentication of students on a cross-border basis in Europe. Since established in 2002, the main policies and strategies of ECCA are dedicated to promoting research for the development and implementation of student electronic identification (eID) credentials in Higher Education Institutions (HEI) that supports student mobility and the provision of trusted identification and secure access to services across European countries.

Achieving cross-border student mobility will enable students to complete transactions online, which requires secure identification and authentication. The absence of trusted interoperable and an easy-to-use form of eID and authentication can pose obstacles to students completing these transactions securely and efficiently between the relevant HEI.

The Student eID Framework engaged in a process of dialogue involving the relevant stakeholders and policy makers to facilitate the requirements of the EU policy on a student eID. Combining their knowledge, opinions and requirements was an integral part of the Student eID Framework proposal to ensure it complements and supports the objectives of both the Educational and Service Providers requirements.

The project delivered an impartial across-the-board consultation process throughout Europe, which culminates with the dissemination of recommendations for a trusted student eID.

1.2 Project Objectives

(i) Engage in a process of dialogue with the relevant stakeholders to seek out their views and opinions on the needs and requirements of a trusted Student eID Credential (eIDAS compliant) that supports cross-border services.

(ii) Identify the barriers that excludes stakeholders from enjoying the full benefits of a trusted eID that will facilitate cross-border provision of student services (academic and non-academic) and enable access to these services using their mutually recognised national student eID.

(iii) Establish recommendations for the development of a proposal for a trusted student eID framework that will support the provision of secure identification and authentication on a cross-border basis in Europe.

(iv) Promote innovation and networking, particularly in the education, business and technological sectors, associated with the use of a cross-border student eID that supports student mobility and access to student services across Europe together with supporting active European citizenship and intercultural exchange programmes.

1.3 Student eID Overview

The traditional student identification (ID) in HEIs across Europe generally consists of bespoke, stand-alone solutions that do not conform to any common standard. These solutions operate in isolation and therefore are incapable of facilitating mobility, interoperability or student authentication between HEIs. The current process of student identification is generally based on the student's unique ID number; however, the format and process

[1] https://ecca.eu/
[2] https://eidproject.eu/

used to issue the student ID number varies from country to country, and in many cases, this format varies within a country. Furthermore, in some countries, there is no formal process in place to issue student ID numbers. In recent years, through innovation in technology and the use of mobile devices, the requirements for secure electronic identification is now becoming an important mechanism in the evolution of student life on campus. However, the customary core function of the student ID usually remains restricted to facilitating local access to services for students, academics and visitors. This has resulted in a multiplicity of student identities in HEIs, which are required for the diverse range of academic and non-academic services both on and off campus. To overcome this problem, it is essential that there is effective collaboration, with past and on-going initiatives, to develop and integrate an infrastructure that supports the concept of a European Student eID for HEIs.

The European Commission, under the Connecting Europe Facility (CEF) in the field of trans-European Telecommunication network has prioritised its support for initiatives on cross-border student mobility. This support focused on solutions that facilitate cross-border online access to academic and non-academic e-services for students, together with the trusted electronic transfer of student information between students and the relevant HEI.

1.4 EU Student eCard

The EU Student eCard[3] initiative will enable every student to easily register electronically at the host educational institutions and thus have access to cross-border online student services when moving abroad. This will eliminate the need for on-site procedures and paperwork. It will also allow secure and seamless communication between the information systems of the HEIs in Europe, ubiquitous automatic recognition of the student status and identity, electronic exchange of academic data, as well as access to online campus and other student services, with a high degree of security.

What is the EU Student eCard Initiative?

The Student eCard initiative is part of the vision of the European Education Area[4] aiming to improve the quality of student mobility in Europe. The goal is to make the eCard available to all students in Europe by 2025. The benefits go beyond students, as it will reduce administrative procedures for the HEIs and potential for errors (avoiding manual entry of data, duplications, etc). Fully compliant with EU personal data protection legislation, the card will guarantee a secure exchange of student information and allow for seamless transition between HEIs. Moreover, the card will give students the chance to access online courses and services provided at other HEIs. This will not only facilitate virtual mobility and blended learning, but the EU Student eCard initiative will also give students a greater choice in the programmes they can follow. Over time, it will allow students to enjoy cultural activities throughout Europe at discounted rates.

The initiative is linked to the EU's electronic identification rules (eIDAS Regulation[5]) and aims at re-using several CEF Building Blocks to provide a seamless cross-border electronic exchange of student data and documents based on the Once Only Principle (OOP). As a first step, the electronic services of the HEIs will be connected with the Member States' eID Nodes implemented in the framework of the eIDAS Regulation. This would make it possible for students to authenticate themselves (or their other academic related data) and use the online services of the HEI in another Member State with the national eID means of their country of origin. The initiative is interlinked with several digital projects of the Erasmus+ programme aiming to simplify student mobility: Erasmus without Paper[6], EMREX[7] and the European Student Card[8]. It is a step forward in the transition towards a digital European society and a true European Education Area, in which spending time abroad to study and learn is the norm, and educational excellence is a reality for all.

[3] https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/EU+Student+eCard+dashboard
[4] https://ec.europa.eu/education/education-in-the-eu/european-education-area_en
[5] https://eufordigital.eu/thematic-area/trust-and-security/
[6] https://www.erasmuswithoutpaper.eu/
[7] https://emrex.eu/
[8] https://europeanstudentcard.eu/

1.5 Compliance with EU Regulations on eID

(i) EU Policy on Trust Services and Electronic Identification (eID)

One of the primary aims of this project is to assist in the process of generating knowledge and awareness of the benefits derived from a student eID credential, compliant to eIDAS, which supports the statutory activities of ECCA and EU policy. In particular, Regulation (EU) N°910/2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation) is to provide a predictable regulatory environment to enable secure and seamless electronic interactions between businesses, citizens and public authorities. The implementation of eIDAS provides the right foundations and a predictable legal framework for HEIs and students to have secure access to services and perform transactions on a cross border basis.

The eIDAS Regulation:

- ensures that citizens and businesses can use their own national electronic identification schemes (eIDs) to access public services in EU where eID is available
- creates a European internal market for electronic Trust Services (eTS) - namely electronic signatures, electronic seals, time stamp, electronic delivery service and website authentication - by ensuring that they will work across borders and have the same legal status as traditional paper-based processes. Only by providing certainty on the legal validity of all these services, businesses and citizens will use the digital interactions as their natural way of interaction.

(ii) Digital Agenda for Europe

The Digital Agenda for Europe[9] (DAE) is one of seven flagship initiatives under the Europe 2020 strategy. It focuses on modern technologies and online services that will allow Europe to create jobs and promote economic prosperity. It aims to improve the daily lives of EU citizens and businesses in a variety of ways. The overall aim of the DAE is "to deliver sustainable economic and social benefits from a digital single market based on fast and ultrafast internet and interoperable applications".

In January 2018, the EU adopted the Digital Education Action Plan[10] with the goal of making better use of digital technology for teaching and learning. The plan aims to:

- Enable students to identify in a trusted manner (Once Only Principle);
- Digitally connect HEI information systems.
- Facilitate secure exchange and verification of student data / academic records.
- Streamline administrative procedures.
- Enable international students to access campus services.

[9] https://www.europarl.europa.eu/factsheets/en/sheet/64/digital-agenda-for-europe

[10] https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en

(iii) Once Only Principle

The Once Only Principle (OOP) needs to be seen in the context of public sector digitalisation. It means that citizens and businesses provide diverse data only once in contact with public administrations, while public administration bodies take actions to internally share and reuse these data – even across borders – always in respect of data protection regulations and other constraints. When the OOP principle is widely applied, it significantly reduces the administrative burden on citizens. In addition, citizens gain better control over their information when it is provided to public administrations on a once only basis. Moreover, it helps public administrations work faster, more transparently and efficiently. There are two EU projects, SCOOP4C[11] and TOOP[12] that relate to the implementation of the OOP. SCOOP4C ended in April 2019 and its work is now taken over by the TOOP project. In addition, the Once Only Principle is intended to be supported by a Once-Only Technical System (OOTS). This is a technical system for cross-border automatic exchange of evidence and application of the one-off principle. Access to evidence (for instance study certificate) presupposes ID matching against another country's official register for current evidence and relies on eIDAS.

(iv) Data Protection Policy

The EU implemented a legal framework (REGULATION (EU) 2018/1725[13] OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 October 2018) for the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data. The main aim of the Regulation is to adapt its rules to comply with General Data Protection Regulation (Regulation (EU) 2016/679), which has been fully applicable since May 2018. Regulation 2018/1725 establishes a coherent framework, while guaranteeing the free flow of personal data within the Union.

[11] https://www.scoop4c.eu/
[12] www.toop.eu
[13] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018R1725

2. Work Package Two Activities

2. Work Package Two Activities

Work package two of the project focused on the state-of-the-art, research, workshops, conferences and undertaking an online survey to determine the needs and requirements of the stakeholders for a student eID. This report (Activity 2.5) includes the details of these activities and also the recommendations for a student eID framework proposal on a trusted European Student eID.

Activity #	Description	Comments
2.1	**Arrange Two Regional eID workshops** These were to take place in Poland and Spain. The aim of the workshops was to obtain feedback from the stakeholders in that region on the future needs and requirements of a trusted eID credential. ***(Events No 5 – 6).***	Due to the covid-19 pandemic it was not feasible to host two physical workshops and instead an online event took place in November 2020.
2.2	**Attend / Arrange Two eID Conferences** **Attend eID FORUM Annual Conference in Estonia** The main aim of attending this conference was to present and network with the attendees, including Industry, Government and Regulators. The eID FORUM focuses on open dialogue between industry and governments. It promotes discussions on eID technology and eID solutions, integration and interoperability, as well as advancing industry ideas for innovative eID services that will improve our future. **Arrange ECCA European eID Conference** Workshop at ECCA eID conference in Germany The main aim of the conference was to obtain feedback from the stakeholders on the future needs and requirements of a trusted eID credential. ***(Event No 7 & 8).***	The workshop at the ECCA eID conference in Germany was held online in May 2021 due to the covid-19 pandemic.
2.3	**Establish Collaboration with existing eID Projects** The research involved establishing a cooperation structure with projects (past, present, future) with similar aims in the provision of trusted eID and secure information transfer.	13 projects reviewd
2.4	**Online Survey** The aim of this survey was to obtain the views and opinions of all stakeholders regarding their requirements and the benefits of a European Student eID that will overcome the obstacles to the cross-border mutual recognition of students. In addition, it will provide access to both academic and non-academic services on a cross-border basis. The survey was representative of all stakeholders which included HEI's, Service Providers and Students from Europe and USA with a minimum of 150 target respondents.	207 survey participants

2.1 eID Workshops

Two regional workshops were originally planned to take place in Poland and Spain (Event No. 5 & No. 6) however, due to Covid-19 restrictions at the time, an online workshop was held in November 2020 (Appendix 1). This online event involved 46 participants from 13 countries.

2.1.1 Agenda

WORKSHOP AGENDA			
No.	**Description**	**Speaker / Moderator**	**Time**
1	Welcome & Introduction	Rene de Koster, President, ECCA	15.00 – 15.05
2	Project Overview, Objectives & Review of European eID projects	Eugene McKenna, Director of Research & Innovation, ECCA	15.05 – 15.15
3	The European Student Card & eID - Legal and Technical considerations	Alexander Loechel, Ludwig-Maximilians-Universität München, Germany	15.15 – 15.30
4	The European Student Card extension and adoption	Andrea Baldin, Fondazione ENDISU, Italy	15.30 – 15.45
Break			15.45 – 15.50
5	European Blockchain Service Infrastructure: a new Building block, but not just another Building block	Lluís Alfons Ariño Martín, Rovira i Virgili University Spain & European Blockchain Services Infrastructure (EBSI)	15.50 – 16.05
6	Use of Mobile Devices in eID Credentials	Morgan Persson, Lund University, Sweden	16.05 – 16.20
7	Open Discussion & Recommendations for a European Student eID	ECCA	16.20 – 16.50
8	Summary & Action Items	Rene de Koster, President, ECCA	16.50 – 17.00

2.1.2 Presentations & Discussion

The workshop focused on presentations on the agenda topics, together with discussions and feedback from the attendees. The following is a summary of each agenda topic:

- **Welcome & Introduction**
  Presented by Rene de Koster, (ECCA President)

  Rene de Koster outlined the purpose of the workshop, which is part of the ECCA Student eID project. He stated it was our intention to host two regional workshops, but due to current travel restrictions an online workshop was the most suitable alternative at this time.

- **Project Overview, Objectives & Review of European eID projects**
  Presented by Mr Eugene McKenna, (ECCA)

  This session provided an overview of the ECCA project "Consultation Process on the Development of a Proposal for a Trusted Student Identification Framework" (Student eID Framework) that will support the provision of secure identification and authentication on a cross-border basis in Europe. It provided an overview of the following:

  - Project overview, aims and objectives
  - An overview of the EU policies and strategy with regard to a European Student eID
  - Review of past, present, and on-going projects that are aligned to the provision of a trusted eID and secure data transfer.
  - It was outlined that ECCA's aim is to get all the relevant stakeholders working together as a team to achieve our common goal of a European Student eID. These stakeholders were outlined as Students, Educational Institutions, Service providers, and Research projects.

- **The European Student Card & eID - Legal and Technical considerations**
  Presented by Mr. Alexander Loechel, Ludwig-Maximilians-Universität, Munich, Germany

  This session focused on the legal and technical issues that need to be considered, which included:

  - The vision towards a 'European Education Area' e.g., where spending time to study abroad should become the norm, having a strong sense of our European identify and where our qualifications should be recognised across Europe.
  - What problems the various programs (such as the European Student Card and MyAcademicID) are trying to solve e.g. strengthen the European identity, enable student and staff mobility, eID for secure and trusted data flow, electronic signature (eIDAS)?
  - Visual data for a physical ID card and what should it contain

    The European Student Card (ESC) as an ID will need to consider the legal aspects of personal data and the GDPR regulation.
  - The Ludwig-Maximilians-Universität Staff ID was presented as an example and how it is regulated by law.
  - The core principles were reviewed in particular Article 6 & 7 of the GDPR legislation, which looked at the issues of data processing and consent. In addition, Article 24 & 25 relating to the general obligations on the data controller and processor were presented.
  - The ESC verification process and the information in the ESC-router and how it connects the card to the HEI was outlined.
  - The technological considerations were reviewed which included a router (both proxy and façade pattern) and the use of a centralized database and the consequences of this for GDPR to ensure appropriate technical and organisational measures are implemented.

- The verification process must include a framework of trust. It was recommended to have a dedicated and communicated website/app to check the status.
- In terms of technical considerations it was agreed that there was no need to reinvent the wheel as there are already established standards that we can build on. Examples of federated identity systems stated were eduroam, eduGAIN, InAcademia, eduPKI.
- Other legal and technical points mentioned included – eIDAS, EU competition law, issuing of qualified digital certificates, open source design and implementation of ESC-router, costs and subsidies, legal requirements for services i.e. library, public transport.

• The European Student Card extension and adoption (ESC-tension)

Presented by Mr. Andrea Baldin, Fondazione ENDISU, Italy.

This session focused on the EU Student Card extension and adoption project, which commenced in November 2020 for 24 months. The following was discussed:

- A background to the European Education Area by 2025 – high quality education, no barriers to learning and training abroad, automatic mutual recognition, speaking two languages to be the norm, and strong sense of a European student identity.
- European Student Card (ESC) initiative background – digitalising & standardising student mobility administration and rolling out the ESC & enabling online authentication of students' identity across Europe.
- Important timescales were outlined – by 2021 inter-institutional agreements and online learning, by 2022 nominations, by 2023 transcript of records, by 2025 ESC available to all students in Europe.
- ESC roll-out is increasing but is still slow due to operational, implementation and administrative challenges.
- Objective of ESC-tension project is to promote adoption of ESC, the card management systems harmonisation, and the local students service systems.
- This will be achieved by implementing an ESC-tension multilingual online platform, multidimensional matrix, card issuance and adoption toolbox, ESC compliant student services roadmap and then validating these tools.

• European Blockchain Service Infrastructure: a new Building block, but not just another Building block

Presented by Mr. Lluís Alfons Ariño Martín, Rovira i Virgili University Spain & European Blockchain Services Infrastructure (EBSI)

This session focused on Blockchain and in particular the following;

- A background to the European Blockchain Services Infrastructure (EBSI) was outlined and how the European Blockchain Partnership (EBP) will operate EBSI nodes at national level. The architecture of these nodes was explained including four use cases which will enable you to simplify the administration process, increase efficiency and instil trust in citizens.
- These current use cases are Notarisation of documents, European Self-Sovereign Identify, Diplomas management and Trusted data sharing.
- The EBSI network and roadmap was outlined with the deployment of EBSI V2.0 in 2021.
- The scope of the European Self-Sovereign Identify Framework (ESSIF) includes empowering citizens in the management of their identity/ies and data via SSI; stimulate the SSI-transformation of public services; facilitate cross border interaction with SSI; make/keep national SSI projects interoperable; integrate/align existing building blocks such as eIDAS, e-delivery, once-only with SSI; conceptualize and build an identity layer in the new EBSI supporting the use cases; preserve

European/democratic values in the implementation of SSI; stimulate SSI development and standardisation on a global level.

- EBSI Diploma use case is moving from a siloed education ecosystem. The new paradigm is focusing on citizen, breaking educational SILOs, enabling lifelong learning (LLP), personal learning pathways (PLP) and stacking credentials. This will be aligned to EU digital strategy, EU data strategy, EU digital action plan (including digital credentials), European education area, Europass decision and the European skills agenda. It was outlined that Student mobility for both identity and records will be a reality (on student's mobile wallet), Long-lifelearning will be a reality (credentials are owned, managed and controlled by the citizen), and personal learning pathways will be easier due to the stacking credentials.

- The different dimensions of interoperability were stated as organizational, legal, technical and semantics and it was outlined we will need both EU and member state compliance.

• Use of Mobile Devices in eID Credentials

Presented by Mr. Morgan Persson, Lund University, Sweden

This session focused on eID in Mobile Devices and in particular the following;

- It looked at campus cards today where many universities have physical cards, the identity of the user is verified manually, many different systems uses the card, and in practice the card is an ID both within and outside the university.
- Lund University campus card, which was implemented in 2005 was presented as a typical example. It was stated that most students would prefer a mobile solution however there will still be a need for a physical card. Also, there is a need to consider the overall benefits in terms of the work/cost involved in a mobile solution.
- The Future of mobile credentials was then reviewed and it was stated that the issuing of credentials is the 'easy' part. There are security benefits where it is possible to update/revoke a mobile credential and people do not share their phone. However, there is a need to assess issues with regard to compatibility with existing systems – NFC/Host card emulation in mobile devices could be an option, readers could support other technologies (i.e. Bluetooth) but replacing everything is probably not an option. Also, how do you verify the identity. Verification and trust are two important factors.
- Card Technology and Compatibility – it was stated that there is a need to decide what do we want, what can suppliers provide, do we need one app or many, should the app be vendor specific or integrated into a university app, should it be only the phone or should other devices be supported (e.g. smart watch). It was outlined the transition will take some time so we should start planning.
- Electronic Identities – we could start using these now. But we need to decide is it fully automated card issuing and what do we want to check even if we trust the identity? Examples of electronic identities in use in Sweden were presented.
- Microsoft verifiable credentials was also provided as an example using decentralized PKI (blockchain).
- Finally, the issue of trust, verification of credentials and GDPR were outlined as other important factors in the use of mobile devices in eID credentials.

- ## Open discussion & recommendations for a European Student eID

  Facilitated by Mr. Eugene McKenna (ECCA)

  The session focused on an open discussion and recommendations on an eID credential, with the participation of attendees. The main items of discussion included:

- The issue of GDPR and the barriers it could present for a European eID was discussed. It was agreed that GDPR is not a major barrier, however the declaration on how the data is processed could be a barrier. It was stated we need to determine if we can get a European wide law for the issuing of a European eID in the academic sector or if there are applicable national laws similar to EU law that allows universities to issue identity documents with data. Most universities in Europe are linked to the government (i.e. public institutions) and so already have a public duty to issue a certificate for study. Therefore, overall GDPR is not considered a barrier but more work is required to determine the applicable way to ensure legal compliance with data processing and consent. Finding the right legal definition for public administration is the important factor.

- In terms of European regulation and the requirements for each country to implement their own law, this could result with the implementation being specific to each country. It was recommended that the university sector needs to engage more with the European Parliament in delivering a recommendation or guideline for a common/global law for the issuing of such European eIDs for the academic sector.

- There is already an acceptance at EU level that eIDAS is based on a country issuing the credential. The lack of a European issuer was identified. However, in addition not all countries see it as a benefit as having a European credential provider. Nevertheless, there is work ongoing in this area.

- In Germany, a new identity card has the capability to carry an eIDAS qualified signature cert, however Germany is not allowed to issue this cert. The user must purchase it through one of several identity providers. GEANT with eduPKI can issue such certificates but this can present other issues within the market and competition law. There could be legal issues in providing such credentials to users in this way. It was outlined that the university must verify the user and therefore trust between universities is an important factor to ensuring the documents are correct in the data set provided.

- It was acknowledged that EBSI is working on this trust framework, that there are different levels of trust for identity (low, substantial, high), and a high level of assurance is required for certain services, but low to substantial will work for most cases. In terms of the technology it can provide a high level of assurance even though the eIDAS trust framework is not only about technology. It was agreed that despite this lack of new technology it is something EBSI are working together with the Directorate General for Communications Networks, Content and Technology (DG-Connect). They are also moving to production next year and with a substantial level of assurance this will be possible because of the eIDAS trust framework. (It is also possible to communicate other schemas and agreements between member states for that substantial level of assurance that is required). Related to the data for formal education, national legislations must also be taken into account. There will also be the opportunity to standardise the special verifiable credentials for describing the identity of the student and the data related specifically to the student. Furthermore, EBSI is empowering citizens to have control and management over one's own identity with a high level of data assurance provided.

- It was agreed that the student as the end user is a very important stakeholder. Therefore there is a need to determine what is the priority of a student for a European Student eID. Is it to provide secure identification and/or access to services? It was stated the types of services we refer to, need to be considered separately e.g. dining at another campus what will apply? Do you have a cash element within your card for payments and will any discounts apply to you as a student within the same country or elsewhere? The subsidies by local governments need to be considered. Also, the library is another service with additional requirements e.g. to enter a library or borrow a book you will need a verified address. In addition, public transport is another important student service along with other services on

and off campus that are connected. Acceptance of the card, to get discounts and access services are all important to the student.

- In relation to services on campus it was agreed that a network between universities could be arranged, however for off campus services there are different requirements to authenticate to these services. The issue of creating an identifier and authentication process was discussed in order to make it generic for any service provider. It was suggested on online system or API will simplify it and every service provider will include access to this API in their service development. It was stated that access to online services will be less difficult compared to offline services as the information to be stored and the procedure to authenticate this data is valid for any institution.

- The impact of Covid-19 on a European Student eID was discussed, there was general consensus that this is a temporary situation and should not influence the implementation of the European Student eID. There will continue to be a mix of blended learning both online and physical but the direct face-to-face communication with the student was outlined as being important.

- Technology – it was stated by a service provided from their research in Austria that the physical card is still very important. This is particularly important to the university from an optics perspective and they can trust it. As a result, service providers will continue to issue eID credentials both on the card and also on mobile devices. The choice is therefore for the HEI or student to decide which option is most suitable for the particular use application.

2.1.3 Summary of Workshop

The aim of the workshop was to consult with and obtain feedback from the stakeholders throughout Europe and beyond on the future needs and requirements of a European Student eID. The 46 participants that attended the workshop comprised of personnel who collectively possessed an extensive and diverse range of knowledge and expertise regarding the requirements of a trusted eID credential from each of the stakeholder's perspective. This provided an effective process for discussions and collaboration on a diverse range of important issues to gaining acceptance among the stakeholders on the concept of a European Student eID.

The main outcomes from the workshop included the importance of complying with GDPR, together with determining an applicable approach to ensure legal compliance with data processing and consent. In addition, it identified that a recommendation or guideline from the EU for a common/global law for the issuing of European Student eIDs for the academic sector, would be beneficial to its overall acceptance and use throughout Europe.

The issuing of the eID credentials in terms of authentication and trust is of paramount importance and the process for certifying and issuing needs careful consideration. The different laws and regulations in each of the member states is an important factor and needs to be addressed to establish a mutual solution. Although the creation of a physical identifier is important, the process of validation and authentication of the relevant data must provide a high level of trust. Therefore, a good trust framework that uses existing standards and infrastructure is desirable in this process. The issue of Self Sovereign Identity as an achievable solution was discussed and the current work of EBSI should be considered as it is empowering citizens to have control and management over one's own identity (and data). It is also important to remark that EBSI - ESSIF and Diploma - is GDRP compliant by design.

The needs of students as the end user is fundamental to the overall acceptance and use of a European Student eID. This includes both access to services on and off campus and as a physical identity for cross border use. Access to such services will also need to be carefully considered as they will include a mix of both academic and non-academic services in both online and offline modes, which will result in different levels of authentication requirements. It was noted that in terms of eID types and technologies there are diverse views in this area, however, there is still a clear demand for a physical student card along with hybrid mobile device solutions.

2.2 eID CONFERENCES

2.2.1 eID Forum Conference

The 2019 eID Forum was held in Tallinn Estonia on 19th & 20th September. The Forum focuses on the principle of an open dialogue approach between industry and governments. It promotes discussions on eID technology and eID solutions, integration and interoperability, together with advancing industry ideas for innovative eID services that will improve our future. Since its inception in 2009, this Forum has become a leading worldwide event, which includes a range of eTalks and eDebates on digital technology and the challenges of achieving identity and trust in the digital transformation process. The attendance at the event was 300 persons, representing 40 countries. The two days of sessions provided a platform for exchange, debate and discussion among industry experts, decision makers, regulators and stakeholders. They included discussions on how electronic identification and electronic Trust Services are key enablers for secure cross-border electronic transactions and central building blocks of the Digital Single Market. The key sessions focused on the following:

1. Cyber Security – Trust & Standards

- The identity challenges – securing physical and mobile credentials
- Trust in Self Sovereign Identity Systems, aligned with eIDAS regulation

2. Mobile Driving Licences

- Mobile Driver Licences: Electronic identification that meets global needs
- Latest Developments on Vehicle Identification
- The evolution of digital driving licences for citizens

3. The Future of Digital Borders

- Olympus Project – an identity management framework that ensures secure and privacy-friendly virtual identity management interactions for citizens accessing services in Europe
- Detecting document fraud and the need of biometrics
- What does a digital border look like
- Why physical documents remain important

4. Emerging Vertical Mobile ID Markets

- Identifiers and myData as enablers for personal data usage
- Emerging vertical Mobile ID Markets
- Using the FIDO authentication standard for eIDAS services

5. Towards interoperable mobile national identities

- Public Permissioned blockchain networks and self-sovereign identity – a perfect match
- Trusted digital identity – ensuring the right foundation
- Interoperable mobile national identities – the challenges and rewards

ECCA's Participation at eID Forum

Through a dedicated exhibition area, ECCA disseminated information to the attendees on the aims and objectives of the "Consultation Process on the Development of a Proposal for a Trusted Student Identification Framework" (Student eID Framework) This dissemination process involved networking and discussions with the attendees, along with the distribution of over 200 information leaflets. In addition, two members of the ECCA Student eID Framework Advisory Committee participated in the expert panel Debate: "Emerging Vertical mobile ID Markets", which discussed the transformation from the tradition approach of analogue identification to digital forms, with a particular emphasis on the student eID for cross border use. Also five members of the advisory committee attended the forum.

In summary, the level of global expertise at the forum sessions was of a very high standard and provided an insight into the future trends that will shape the future of an eID. The general discussion was that the identity could be a digital token that can be applied to a range of technologies that includes mobile devices, smart cards and biometrics. In addition, it was generally accepted that the physical ID card is still required. However, using a hybrid system involving an ID card together with a mobile device was also discussed as a suitable solution for selected environments. The physical environment, resources and other factors will be key in determining the type of digital ID. Some organisations were of the opinion that physical documents need to be replaced with digital applications, however the reality is that our human senses will continue to be essential in authenticating documents. There was also much discussion on the importance of standards and the compliance with regulations such as eIDAS. This event provided an excellent opportunity to network and for knowledge sharing from the sessions delivered by global experts in the industry.

2.2.2 Workshop at ECCA eID Conference

ECCA was to host its annual conference in Berlin, Germany in May 2020 (Event No. 8). However, due to the covid-19 restrictions this event was deferred to May 2021 in Porto, Portugal. Due to the ongoing pandemic crisis still at that time, an online workshop was therefore planned (Appendix 2 & 3). The main aim of the event was to obtain feedback from the stakeholders on the future needs and requirements of a trusted eID credential. This online event was attended by 63 participants from a number of countries across Europe, USA and Canada.

2.2.2 .1 Agenda

Agenda	
Welcome & Introduction	
14.30	Rene de Koster (President) & Sinead Nealon (Executive Director) European Campus Card Association (Moderators)
Keynote Session	
14.35	**'Innovate with a Purpose: The ID they want, when they want it'** *By Jeff Staples, Consultant specialising in security, payments and identification*
Session 1: eID of The Future, Research Projects & Advances in Online Learning	
14.50	**'From the ESC to the ESC-tension project: how the ESC is an eID and why it is essential for students to accelerate its adoption throughout Europe'** *By Andrea Baldin, ENDISU, and Silvia Faloretti, EDUCatt and Fondazione ENDISU*
15.05	**'The use of Electronic Signatures in Higher Education'** *By Jacek Blahut, OPTeam*
15.20	**'Learn Anywhere'** *By Oscar van der Linden, EPSON Europe B.V*
15.35	**'From EWP to EDSSI – current developments'** *By João Bacelar, European University Foundation*
15.50	***Break***
Session 2: Migrating to Mobile & Virtual ID	
16.00	**'The convergence of physical and mobile credentials on a university campus'** *By Martin Hoff, Entrust Corporation*
16.20	**'Becoming a Mobile Campus'** *By Jeanine Brooks, University of Alabama*
Session 3: Technology Innovation & Trends	
16.40	**'The Future of Access Control'** *By Iñaki Barettini, Infineon Technologies AG*
17.00	**'Level Up Your Card Issuance Process'** *By David O'Driscoll, HID Global*
17.20	**General Discussion & Closing Session**

2.2.2.2 Presentations & Discussion

The workshop was divided into three sessions and a keynote session. Session 1, which focused on the eID of the Future, Research Projects & Advances in Online Learning included four presentations. The next session, Session 2, focused on Migrating to Mobile & Virtual ID and included two presentations. The third session, Session 3, addressed technology innovation and trends with two presentations.

- **Keynote Session – 'Innovate with a Purpose: The ID they want, when they want it'**
  Presented by Mr. Jeff Staples, (Consultant)

  The keynote address opened with the question, are we ready? Informing the goals is important, which includes university needs, student needs, avoiding the vendor myth trap and also preparing for contingencies. It was outlined that as a starting line, we need to look at the legacy credential toolset, which is good, but wanting to be great. These toolsets include barcode, magstripe, biometric and contactless. However, it was stated, we need to look at the opportunity and take advantage of the devices and habits that serve the greatest number of students, staff, and faculty. This is where we need to look at the options for Mobile, which include mobile badge-only, mobile badge with barcode, BLE mobile credential, and NFC mobile credential. BLE versus NFC was reviewed in terms of the advantages and challenges of each. It further stated NFC is however checking all the boxes in terms of security, speed, works online and offline, support for iPhone, Apple watch, and Google pay devices, works with depleted battery on enables devices, 24/7/365 over the air issuance, and remote lifecycle management. In terms of adoption of NFC mobile credential, it was stated it is growing steadily in North American universities and a recent survey by the National Association of Campus Card Users (NACCU), revealed 71% of campuses in North America either have mobile credentials or plan to deploy these in the next 5 years. In summary, research shows this is what students want. In terms of pursuing a path to success it was recommended to leverage the solution provider marketplace for insight, support and commitment, and also formulate and leverage a campus-wide unified strategy. In conclusion, the keynote stated you need to elevate the conversation, raise the bar with internal and external stakeholders, to exceed constituent expectations.

Session 1: eID of the Future, Research Projects & Advances in Online Learning

- **'ESC-tension – EU Student Card Extension and Adoption'**
  Presented by Mr. Andrea Baldin, Fondazione ENDISU & Ms. Silvia Faloretti Educatt, Italy.

- This session focused on the EU Student Card extension and adoption project, which commenced in November 2020 for 24 months. The following was discussed:
- A background to the European Education Area by 2025 – high quality education, no barriers to learning and training abroad, automatic mutual recognition, speaking two languages to be the norm, and strong sense of a European student identity.
- European Student Card (ESC) initiative background – digitalising & standardising student mobility administration and rolling out the ESC & enabling online authentication of students' identity across Europe.
- Important timescales were outlined – by 2021 inter-institutional agreements and online learning, by 2022 nominations, by 2023 transcript of records, by 2025 the goal is to have the ESC available to all EU students in Europe.
- ESC roll-out is increasing but is still slow due to operational, implementation and administrative challenges.
- Objective of ESC-tension project is to promote the services which represent the driver for the adoption of the ESC, which are digital services (mainly in relation to adoption) and physical services. This is the main reason behind the ESC-tension which will develop a multidimensional matrix connecting cards with services.

- The ESC is a set of technical and visual standards that once applied to existing Campus Cards make them interoperable throughout the network of European HEIs that already opted in, so they can use them as a trusted means of identification of the card holder as students.
- ESC is the first level of implementation of an eID and can be seen as an ideal complement to more robust existing systems such as eduGAIN and eIDAS who offer greater levels of assurance, but also greater costs of implementation.
- In order to accept the ESC, the Service Provider needs to harmonize the service management system to the ESC standards.
- A profiling tool will also be developed and aimed at supporting HEIs and SSPs to clearly identify all the aspects that need to be addressed to adopt the card. The matrix covers everything related to the card, but also the services, both from an organisational point of view, and a technical point of view.
- ESC-Tension outputs will be delivered through a localised platform, starting with four different countries represented in the consortium, and built to be easily replicated in other countries.
- This will be achieved by implementing an ESC-tension multilingual online platform, multidimensional matrix, card issuance and adoption toolbox, ESC compliant student services roadmap and then validating these tools.

- **'The use of electronic signatures in Higher Education'**
  Presented by Mr. Jacek Blahut, OPTeam, Poland.

  This presentation was in relation to the use of electronic signatures in HEIs and in particular the CEF funded project 'eSignforStudy', which commenced in April 2021 for 18 months. The goal of the eSignforStudy Project is to design and develop a system for Higher Education Institutions that will enable the use of electronic signatures and electronic seals in line with eIDAS Regulation and standards (signature/seal creation and/or validation). Initially it will focus on enhancing document handling in Polish HEIs and on secure cross-border exchanges, but eventually it will be made available for use in small medium-sized enterprises. Specifically, this highly configurable esignature solution will be deployed in Polish Higher Education sector and validated in the cross-border exchange of documents using a European-wide platform for the secure transfer of student data between HEIs (Erasmus Without Paper platform and EMREX Network).

  The eSignforStudy will be based on the eSignature DSI Building Block's DSS open-source library (incorporating the library's code). It will resemble a black box concept, with optional/interchangeable components and open interfaces to enable interoperability. It will support an easy way of handling and interacting with the components of a PKI, considering systems with certificates stored in local secure repositories (HSM), its software equivalent, or encrypted databases. If qualified signatures are required and cannot be downloaded to the local infrastructure, they can be stored in a remote cloud managed by the Qualified Certified Authority. It will allow for using trusted timestamp services delivered by certified providers.

  For testing and validation, the University of Warsaw and Czech Technical University will integrate the eSignforStudy with their Student Information Systems, connected to the Erasmus Without Paper (EWP) platform and EMREX Network. Both platforms allow for secure transfer of student data. The new tool will allow the signing and validation of documents, thus providing a missing key security component. The integrated solution will be deployed in over 70 HEIs in Poland using the same SIS.

- **'Learn Anywhere'**
  Presented by Mr. Oscar Van der Linden, Epson, Europe B.V.

  This presentation was in relation to a new product launched by Epson, called 'Learn Anywhere'. The product was designed based on new circumstances and challenges facing educational institutions. As students are not always physically present, Learn Anywhere is an innovative total solution, allowing teachers to continue teaching in a traditional way and allowing students to attend classes anytime, anywhere. Learn Anywhere supports familiar teaching methods and is immediately ready for use when the teacher enters the classroom. The smart combination of proven technologies ensures a natural interaction between people, locations and information flows.

  Learn Anywhere combines a large analog writing surface with an interactive projection surface for an effortless transition between the digital and analogue domain. The teacher can make analogue notes on the whiteboard to illustrate the material and use the same whiteboard to present digitally in large format (up to 100 inches). To make remote teaching as natural as possible, Learn Anywhere uses two different cameras: an overview camera in the classroom aimed at the teacher and a content camera aimed at the whiteboard.

  The Logitech TAP solution works with Extron Control Systems, which makes it easy for the teacher to control how and when the projectors are used and which information flows are shared with the students at home. No specialized knowledge or training is required for this.

  The Learn Anywhere platform uses Microsoft Teams. This service is part of Microsoft 365 and is already used by a large proportion of educational institutions and students, which will ensure rapid adoption.

  The solution is an upgrade from the traditional classroom to the hybrid classroom, allowing teaching to continue under all circumstances, even during emergencies or pandemics. Whether students attend class from home, in the classroom or both, with Learn Anywhere classes can always continue while supporting the existing workflows of teachers and students.

- **'From EWP to EDSSI'**
  Presented by Mr. João Bacelar, European University Foundation

  The presenter gave a background to the European Student Card initiative which is in line with the vision of the European Education Area by 2025. The European Student Card initiative will develop an online one-stop-shop through the Erasmus+ Mobile App for students to manage all administrative steps related to their mobility – before, during and after their stay. It will allow students to find all the information they need to experience a high quality mobility experience abroad. The goal is to have full deployment of the initiative during 2021. By this time, HEIs participating in the future Erasmus+ programme will be expected to use the Erasmus Without paper (EWP) network to exchange student mobility data. The use of the EWP network will become obligatory according to the below milestones;

  - 2021 – to manage online learning agreement
  - 2022 - to manage inter-institutional agreements
  - 2023 - to exchange student nominations and acceptances and transcripts of records related to student mobility
  - 2025 – all students in Europe should be able to enjoy the benefits of the European Student Card initiative

An overview of the European Digital Student Service Infrastructure (EDSSI) project and its partners was also outlined. The EDSSI project will develop a system which will allow HEIs to exchange and authenticate student data in a seamless and secure way. This initiative is the future of student mobility infrastructure, which will provide a single point of entry to all academic and non-academic services across Europe. It will provide a simplified administration, faster processes and better mobility experiences.

The milestones for Q1 of 2021 were outlined as now completed, and included the Erasmus+ App launch, MyAcademicID Proxy (Security and privacy audit), and a new semester mobility template at OLA/Dashboard. The project commenced in 2020 and will be for a duration of 2 years.

Session 2: Migrating to Mobile & Virtual ID

- **'The convergence of physical and mobile credentials on a university campus'**
  Presented by Mr. Martin Hoff, Entrust Corporation

  This presentation focused on converging campus identities from physical to digital. The question was posed as to how big will the global digital identity solutions market size reach by 2025? It was outlined that expectations are rapidly evolving which include; choosing simple, self-serve experiences; access to services instantly on mobile; digital IDs/credentials are becoming the expectation; contactless (social distancing is impacting behaviour); businesses prioritising higher value transactions; seamless security crossing borders and accessing facilities. Digital credentials are powering new generation of services and customer experiences through mobile identity verification (establish trust), physical and digital issuance (issue credentials), and trusted mobile credentials (enabling new digital services). The importance of a trusted infrastructure is necessary as you need to establish trusted identity (know your student), issue the student credential (through trusted education credentials) and provide interoperable validation to enable your student wherever they are. Some of the key challenges were identified as a result of covid-19 with students/employees returning to campus. It was therefore stated the importance of requiring a solution that enables enrollment & issuance from any device, any location, at any-time. The solution is to enable remote enrollment and issuance. The benefits include a scalable solution, contactless and flexible. Self-Registration for Touchless Self Certification was provided as an example of a solution that can address the challenges of bringing students back safely. And the answer to the opening question is $33 billion, which clearly demonstrates the rapid growth in digital identity is happening.

- **'Becoming a Mobile Campus'**
  Presented by Ms. Jeanine Brooks, University of Alabama, USA.

  The next presentation was a case study from the University of Alabama (UA) who were one of the first campuses to go mobile. The project drivers in 2017 included; meeting student technology and security expectations; meet industry standards for secure transaction; retain a campus wide credential standard; protect the campus-wide ID#; and environmental. The NFC infrastructure implemented included American national standards institute (ANSI) for the issuing of the 8-digit identification number, NFC chip technology using Mifare Desfire EV1, and encryption standard (transact encryption key and single encryption credential). When it was launched the results were very positive. The presenter outlined the many mobile card benefits for both the cardholder and the institution.

  The current available card tools include ACT card in Apple Wallet, ACT Card Website/videos, Equipment upgrades, Online photo submit and ID validation, ACT Card in Google pay. It was outlined the importance of having an implementation strategy which should include your project proposal, proof of concept, funding, along with identifying key campus partners, vendor solutions, merchant programs and online services solutions. The project was launched in 2017 and during that time many lessons were learned from both a project and cardholder perspective which the presenter shared. In summary it has been an extremely positive move for the university and this is seen in the increase in ACT card mobile credential provisions since 2018 to date.

Session 3: Technology Innovation & Trends

- **'The Future of access control'**
  Presented by Mr. Iñaki Barettini, Infineon Technologies AG

  The presentation focused on the following key topics;

  - The Access Market Today

    - An overview of the market is that it is a niche market, which is resilient to economic downturns, has seen a steady growth yoy, perceived as commodity for end user, and is eager for innovative solutions as differentiator.
    - In terms of the trends it has traditionally been card orientated with new forms including mobile/wearables. The NFC depends on the regions.
    - There are 5 major players world-wide which include ASSA-Abloy (HID), Allegion, dormakaba, Johnson controls and Salto Systems.
    - Physical Access & ID Use cases include – residential, events, education, card access, corporate, industry, hospitality & leisure, healthcare. Form factors and system features vary depending on; Security requirements; Aesthetic design & Architectonic needs; and Use cases & Regions.

  - Trends in the Access Industry

    - Market Trends - Technology & Innovations. Main drivers include Access Control as a Service (ACaaS), Mobile access, Standalone components ' smart locks', NFC vs BLE vs UWB, Standardisation, Eco & Green, Biometrics after covid-19 (touch & contactless).
    - The pros and cons of ACaaS, Mobile access & Smartlocks were outlined
    - The trends and expectations in relation to NFC vs BLE vs UWB were outlined and also Biometrics and Standardisation

  - The Access Market in the next 5 years

    - Opportunities included - Security requirements expected to increase due to integration with 3rd parties (IoT; Smart Cities; Smart Buildings), Mobile Access and migration to Cloud, Contactless on the rise to replace old technologies, Biometrics: Facial, Iris and Bio sensor cards to raise attention in the Covid-19 aftermath, Convergence: Payment, eID, e-Wallet, transit expected to increase convergence among applications and technologies.
    - Risks & Challenges includes - Extremely fragmented and crowded market landscape, Commodity business. Security won't sell by itself, Covid impact still unclear in the mid-long term.

- **'Level up your card issuance process'**
  Presented by Mr. David O'Driscoll, HID Global

  This presentation focused on cloud printing. Cloud-based card issuance platforms simplify the complex, bringing together all the elements of a secure card issuance program into a centralized and integrated system. With cloud printing you can design unlimited, robust card templates, full printer visibility and control via the platform's real-time dashboard, remotely support printers anywhere, flexibility of an on-premise or hosted cloud solution, utilize secure print feature to safely and securely send encrypted print jobs to remote locations and enjoy peace of mind with end-to-end, banking-level certificate-based encryption of all sensitive card print data. The pain points of isolated workstations include locally installed PC-based software requires on-going reliance on IT support and limited flexibility to issue outside of the traditional card or security office. It was also stated distribution

issuance can cause problems due to it being impossible to simply issue credentials in a distributed environment today with costs, no visibility and weak security cited as the main issues. It was stated the smarter way to issue ID cards is through a unified user interface. The most significant improvement that the HID FARGO Connect solution makes to the card issuance experience is simplicity: Enabling operators to manage records and issue cards from a single, user-friendly interface. No longer do they need to jump between the primary credential management solution and the card personalization software. Through a connected cloud you can issue from any device anywhere, provide centralized visibility, secure remote issuance and inline personalization. Security and compliance were outlined as two important factors to consider and in particular cybersecurity must be a top priority, end-to-end encryption; Personally Identifiable Info (PII) should never be stored; and complies with data privacy requirements: GDPR compliant.

2.2.2.3 Workshop Summary

The aim of the workshop was to consult with and obtain feedback from the stakeholders throughout Europe and beyond on the future needs and requirements of a European Student eID. The 63 participants that attended the workshop comprised of personnel who collectively possess an extensive and diverse range of knowledge and expertise regarding the requirements of a trusted eID credential from each of the stakeholder's perspective.

The mix of presentations, which included speakers from Europe, USA and Canada provided a worldwide perspective on the topical issues in relation to eID credentials as it relates to students.

The keynote address provided an insight to the progression and evolution of campus ID technologies and how to best align the interests of HEIs with the credential-centric needs of the students, staff, faculty, visitors, alumni, etc. It focused on the opportunities and the potential advantages of mobile devices and the challenges of adopting mobile credentials. The discussion set-out the context in relation to the steady growth of NFC mobile credentials in North America and the positive reaction from students to the introduction of mobile devices.

Session 1 discussions primarily focused on three research projects and a new innovative solution that supports the concept of a hybrid learning classroom that facilitates teaching under all circumstances where students can have the option to attend class from home or in the classroom.

The eSignForStudy project main goal is to design and develop a system for HEI's that will enable the use of electronic signatures and electronic seals in line with eIDAS Regulation and standards (signature/seal creation and/or validation). Initially it will focus on enhancing document handling in Polish HEIs and on secure cross-border exchanges, but eventually it will be made available for use in small medium-sized enterprises. The outcomes from this integrated solution will be deployed in over 70 HEIs in Poland.

The ESC-tension – EU Student Card Extension and Adoption research project, promotes the services which represent the driver for the adoption of the European Student Card, which are digital services and physical services. The focus of ESC-tension is to develop a multidimensional matrix connecting cards with services. This initiative will support the digitisation and standardisation of student mobility administration, enabling online authentication of students' identity across Europe.

The European Digital Student Service Infrastructure (EDSSI) project is part of the European Student Card initiative and is in line with the vision of the European Education Area by 2025. The aim of the research project is to develop a system which will allow HEIs to exchange and authenticate student data in a seamless and secure way. This initiative is the future of student mobility infrastructure and will provide a single point of entry to all academic and non-academic services across Europe. It will provide a simplified administration, faster processes, and better mobility experiences that will allow students to find all the information they need to experience a high-quality mobility experience abroad.

Session 2 focused on Migrating to Mobile & Virtual ID. The convergence of campus identities from physical to digital and the market growth for digital identity by 2025 was explored by Entrust. The discussion focused on the importance of trusted infrastructure in establishing trusted identity and provision of interoperable validation of the student regardless of their location. The challenges resulting from Covid-19 were identified and the requirements to enable remote enrollment and issuance were reviewed, which included the option of Self-Registration for Touchless Self Certification.

The case study on the University of Alabama journey to becoming one of the first campuses in the USA to go mobile highlighted the core benefits of using mobile credentials. The main drivers to implementing the project included the need to meet student technology and security expectations, comply with industry standards for secure transaction, retain a campus wide credential standard and protect the overall campus-wide identification process.

Session 3 focused on Technology Innovation & Trends. The future of access control was reviewed in terms of today's market requirements, current industry trends and the requirements for access control over the next 5 years. The migration from the traditional card to new forms that include mobile and wearable devices were discussed, together with the risks and challenges of an extremely fragmented and crowded market landscape.

The use of cloud printing in the student ID card instancing process was evaluated in terms of integrating together all the elements of a secure card issuance program into a centralised and integrated system. Cloud printing can now provide many advantages to the card issuing process, including full printer visibility and control via the platform's real-time dashboard, remotely support printers anywhere, provide the flexibility of an on-premises or hosted cloud solution, utilise secure print feature to send encrypted print jobs safely and securely. In addition, cloud printing removes the pain points of having to provide isolated workstations and the associated infrastructure.

2.3 Collaboration with Existing eID Projects

2.3.1 Description of Projects Reviewed

This section provides a narrative on 13 past and on-going initiatives that provide a diverse range of reports, projects and studies, all of which are relevant to the delivery of a European eID credential that supports student mobility and the provision of trusted identification and secure access to services across borders. The following is a summary of each of these projects and their status as at November 2020 when this activity was undertaken.

2.3.1.1 e-Signature and Erasmus Student eCard in Greece

Start Date: September 2018
End Date: March 2021
EU Funding: CEF Telecom € 270,400
Project Website: https://grnet.gr/en/grnet_projects/cef-eid/

The Action aims at promoting the uptake and use of eSignature in the Greek Public Administration and the use of cross-border eIDs among Erasmus students.

It will develop a central service for remote eSignature for the Greek Public Administration to enable the creation of legally binding electronic signatures for the needs of the Greek Public Administration and the cross-border validation of the e-signature. The system will be built on top of 2 components: the existing eIDAS infrastructure and a Qualified Trust Service Provider (QTSP). The remote e-signature solution will be based on eSignature DSI (DSS) and will be deployed in 2 services.

The Action will also connect AcademicID service to the eIDAS node in Greece in order to allow Erasmus exchange students from EU universities outside Greece to use their eID when applying for this service. This will allow the Erasmus exchange students from EU universities to gain access to several student discounts and benefits provided by the Greek Universities, the State or even private entities.

2.3.1.2 Erasmus without Paper (EWP 1.0 & EWP 2.0)

Start Date: November 2015
End Date: October 2017
EU Funding: Erasmus+ € 499,982

Start Date: January 2018
End Date: December 2019
EU Funding: Erasmus+ € 499,613

Project Website: https://erasmuswithoutpaper.eu/

The Erasmus Without Paper (EWP) project[14], co-funded by the Erasmus+ Programme of the EU, aims to bring Erasmus administration into the 21st century by going digital. The EWP initiative uses the latest digital technology to pave the way for Erasmus coordinators to manage mobility's more efficiently. This allows students and staff members to communicate and exchange all necessary information swiftly and securely.

EWP is a project and a Network funded through Erasmus+ KA3 from 2015 to 2017 (EWP1.0) and again from 2018 to December 2019 (EWP 2.0[15]). Its chief goal is to digitalise the administrative framework

[14] https://www.erasmuswithoutpaper.eu/
[15] https://www.erasmuswithoutpaper.eu/news/ewp-kicks-2nd-project-phase

that underpins student mobility in Europe, enabling electronic data exchange and interoperability among diverse information systems. In March 2019, the European Commission announced that the usage of EWP will be made mandatory from 2021 as part of the next multi-annual financial framework (MFF) i.e. the next Erasmus programme.

EWP consists of two chief components:

(i) a network that interconnects a multitude of student information systems (whether individual universities or third party providers which represent multiple institutions) through the use of APIs.

(ii) a Dashboard[16] that provides a web solution for exchanging student data electronically for HEIs that currently are not using any digital solution to manage their Erasmus mobility management.

In addition, the Erasmus+ Mobile App[17] is a students' single point of entry into the Erasmus+ programme. The App will provide a broad range of information, tools and services to help students plan and carry out their exchange, supporting a first rate mobility experience. The Erasmus+ Dashboard will be integrated with other tools in EWP into what will ultimately become the EWP Dashboard.

The new Erasmus+ app launched in 2021 is one of the key deliverables of the European Student Card initiative and will make a significant contribution to achieving the vision of realising the European Education Area by 2025.

2.3.1. 3 EMREX Project

Start Date: January 2015
End Date: January 2018
EU Funding: Erasmus+ €1,425,000
Project Website: https://www.EMREX.eu

The EMREX[18] network, initially co-funded by Erasmus+, addresses the EU 2020 target that 20% of higher education students should be mobile during their studies. The network focuses on the electronic exchange of student achievement records between higher education institutions and together with other initiatives, like Erasmus Without Paper, ESC, ESMO, SEAL, MyAcademicID, is part of a wider set of activities supporting digitalization of student mobility.

In 2016-2017, the project ran a field trial in Finland, Norway, Sweden, Denmark, Italy and Poland, testing new ways to make the administration of student mobility easier by sending data digitally. Since then, the network has been converted into a working production environment.

The EMREX solution is a decentralized network consisting of several components. For consumers of the result data the network is open and the students themselves are in control of the data exchange. The decentralized model also makes it easier to add new providers of student result data to the network. Each Student Information System (SIS) or institution that wishes to retrieve results from the EMREX network can connect using a standard Student Mobility plug-in (SMP). This then becomes an EMREX client, and enables the student to retrieve their result data from the EMREX network. Each country that seeks to provide results to the EMREX network must implement one or more National Contact Points (NCP). The NCP provides the students with a secure login, and enables them to select the results they want to share with the EMREX client. The only common component is the NCP registry (EMREG).

EMREX has now developed into an established service enabling digital information flows between countries. It is spreading out to new countries and expanding its network in addition to providing more value to users by augmenting the service catalogue. It is available for use by students in countries that are connected to the Network. Since the trial, the EMREX network has grown and there are now 17 full members, 8 NCPs in production, and about 1500 students have used the system. More NCPs are in the process of commencing production.

[16] https://www.erasmuswithoutpaper.eu/dashboard

[17] https://www.erasmusapp.eu/

[18] https://emrex.eu/

EMREX can also be used in other user scenarios. One example is the Norwegian Diploma Portal, which allows students and former students, who have studied in Norway, to retrieve their educational results and share them with a desired recipient for recruitment and other scenarios. In the long term, it can help the consumers of these data to automate their processes and give better services to the owner of the data. The first steps towards this are already in development.

EMREX is based on open source code and is freely available to all HEIs in Europe as well as the rest of the world. New countries can join the EMREX network by creating their own EMREX clients, and contribute to the network by providing their own NCPs.

2.3.1.4 European Student Card

Start Date: September 2016
End Date: August 2018
EU Funding: Erasmus+ € 292,223
Project Website: https://www.europeanstudentcard.eu

The European Student Card (ESC) Project[19] commenced in September 2016 and ended in August 2018. The vision underlying the ESC project is that of enabling students to assert their rights by connecting existing student cards to a digital system. The project partners worked on enabling students to seamlessly request accommodation, gain access to university canteens at student rates and access other services (e.g. library systems) beyond their own HEI. By doing so, the project partners aimed at encouraging stronger cooperation between institutions and increasing visiting, exchange or international students.

The consortium looked into establishing non-intrusive mechanisms that respect the procedures and systems specific to each country and institution and did not intend to replace existing student cards. It involved partners from France, Germany, Italy and Ireland. The ESC was lead by the Centre national des œuvres universitaires et scolaires (CNOUS) and the EUF was an associate partner and a member of the project's Advisory Board.

The project outcomes were incorporated into the MyAcademicID Project to create bridges between existing eID and the eIDAS directive.

2.3.1.5 MyAcademicID

Start Date: January 2019
End Date: December 2020
EU Funding: CEF Telecom € 1,039,639
Project Website: https://www.myacademic-id.eu/

MyAcademicID[20] was funded by the Connecting Europe Facility programme in 2019-2020 in the context of the European Student Card initiative and delivered on the core promise to enable students to authenticate for their studies abroad using their home student account thanks to eduGAIN, connect their academic identities with their identities as natural persons thanks to the bridge with eIDAS national nodes and enable the once-only principle by introducing the European Student Identifier.

[19] https://europeanstudentcard.eu/project/
[20] https://www.myacademic-id.eu/

The project resulted in the creation of an identity and access management platform combining both eIDAS and eduGAIN for the authentication on e-services related to the Erasmus+ programme (such as Erasmus+ App or the Online Learning Agreement).

The impact of the implementation of the platform on e-services related to Erasmus+ combined with the release of the European Student Identifier via eduGAIN and Erasmus Without Paper will considerably reduce the administrative workload on staff. The project results will be further developed by the consortium partners of the European Digital Student Service Infrastructure project (EDSSI).

2.3.1.6 SEAL Project

Start Date: April 2019
End Date: March 2021
EU Funding: CEF Telecom € 1,188,121
Project Website: https://project-seal.eu/

The SEAL project[21] aims at combining the benefits of Member-State backed citizen (natural person identification and authentication through eIDAS) and student and researchers identities (eduGAIN from GÉANT and European Student Identifier from European Student Card) to enable a cross-sector interoperability between eIDAS and Higher Education/Research domains. This will be achieved through the deployment of the SEAL linking service platform, which will establish inter-linking mechanisms between different identities in order to support authentication mechanisms for multiple identities. SEAL identity linking service will centralise the checks of the identities on a trusted third party and provide common query interfaces so the burden of having to compare/validate the match between two identities is taken out of the services to a dedicated platform.

The SEAL platform will include the following modules/interfaces:

- Identity Provider Interface and Modules. Linking modules will be established for identities such as eIDAS eID, eduGAIN, and ePassport. The linking of other identities (such as ESC and OrcID) will be also considered;
- Identity bootstrapping: the user will be able to bootstrap unique and persistent or temporary identifier by authenticating through eIDAS (other bootstrapping methods may be considered). This will enable linking eIDAS identities to any other integrated identities establishing a persistent link between both identifiers while the user wishes to keep it;
- Identity Management Interface through which the user of the platform will be able to manage his/her wallet of links and identities (perform the identity linking procedures, as well as to manage the linking information stored in the service) through a web and a mobile interface. Mobile application will build on and reuse existing functionalities of the Erasmus+ APP (preferred option) or on UMA app;
- Service Provider Interface and Modules will allow the connection of academic institutions as consumers of the linking service (to indirectly support establishing trusted links between the datasets transferred between institutions);
- Validation Interface and Modules: Validation methods will be established based on the assurance level of the identities and validation guarantees of each validation mechanism (it can include local, remote, automated, semi-automated or third party validation).

[21] https://project-seal.eu/

Existing software solutions will be taken into account when implementing the modules to avoid double coding and to reduce maintenance costs. A blockchain implementation will be integrated to reinforce integrity and accountability of the interlinked information and to provide a higher degree of trust. The action will also leverage the results from ESMO Action 2017-EU-IA-0032 (mainly ESMO Gateway) which as a multi-protocol proxy solution will facilitate implementing authentication and linking modules supporting several protocols on the SEAL identity linking service.

2.3.1.7 StudIES+

Start Date: March 2018
End Date: December 2019
EU Funding: CEF Telecom € 1,421,253
Project Website: https://studies-plus.eu/

StudIES+[22] is developing a solution for digital student identities, the mobile student card, as well as secure and certified document exchange based on the European eIDAS Regulations. They have identified three key aspects that they are taking to the next level: known as the Three Pillars:

1. Higher Education Institution processes - facilitating and digitalizing workflows and processes;
2. Student identity - Keeping track of academic and national IDs across borders, institutions and devices;
3. Document signatures - Taking documents, signatures and security to the digital age.

StudIES+ facilitates the mobility of students in the European Union and builds trust for secure e-services among students by deploying and operating apps across the distributed platform StudIES+. The StudIES+ platform will incorporate digital services for Higher Education Institutions (HEIs)-students. Services will be accessible via:

- eID (including eIDAS eID) and
- derived eIDs (Student eCard) as well as provide
- eSignature/eSeal/time stamp services that rely on DSS for eSignature generation and verification.

To provide a modern document and signature solution, a Digital Transaction Management (DTM) platform is connected to the StudIES+ platform. This enables eSigned document exchange between students, HEI, HEI services organisations on the one hand and businesses on the other hand. Secure exchange of the documents will also be ensured by deploying secure document exchange (ePROSECAL) and notarization platform/services (eNOTAR).

[22] https://studies-plus.eu/

2.3.1.8 Olympus Project

Start Date: September 2018
End Date: August 2021
EU Funding: Horizon 2020 € 2,564,480
Project Website: https://olympus-project.eu/

OLYMPUS[23] addressed the challenges associated with the use of privacy-preserving identity management solutions by establishing an interoperable European Identity Management Framework based on novel cryptographic approaches applied to currently deployed identity management technologies. In particular, OLYMPUS employed distributed cryptographic techniques to split up the role of the online IDP over multiple authorities, so that no single authority can impersonate or track its users. By not requiring users to store any long-lived credentials, the OLYMPUS framework did not rely on any protected hardware or software environments on user devices and was therefore able to offer a much better streamlined user experience.

Rather, users will obtain short-lived access tokens after authenticating to the system using readily available and platform-independent mechanisms such as passwords or biometrics.

The oblivious identity management scheme that OLYMPUS designed integrates privacy-preserving features such us private attribute-based credentials (p-ABCs) from mature identity management systems such as Identity Mixer while allowing easy integration with popular protocols such as OpenID connect or SAML, minimising the impact on service providers. OLYMPUS also addressed the security problems of virtual identities in such a way that new digital identities can be derived to preserve citizens' privacy when accessing different online and offline services.

Finally, the OLYMPUS technology privacy features were validated by means of a Data Protection Impact Assessment, which highlighted the main improvements of the innovative technology, as well as potential drawbacks that have been corrected within the project. The results from this analysis have also been put in connection with the current core EU rule in electronic identification and authentication, the eIDAS Regulation, supporting proposals for redrafting, in particular concerning the legal certainty of privacy-preserving techniques (e.g, selective disclosure), that have been taken into account in the recently published proposal for modification of this Regulation.

[23] https://olympus-project.eu/

2.3.1.9 EUROLogin (Cross-border authentication in European cloud platforms according to the eIDAS Regulations)

Start Date: October 2018
End Date: September 2020
EU Funding: CEF Telecom € 598,952
Project Website: https://lmtgroup.eu/projects/eurologin/

The EUROLogin project was prepared and submitted by LMT Group, in collaboration with Universitat Politècnica de València (UPV). This Action will integrate the eID DSI (Digital Service Infrastructure) into the systems of three EDI providers and one public university that will be connected to four different eIDAS nodes (Belgium, Cyprus, Italy and UK) This will enable the different services to be available for cross-border authentication. BILLIT will connect to the Belgian eIDAS node, University of Cyprus to the Cypriot eIDAS node with the support of its EDI Provider "Goldman", SATA to the Italian eIDAS node, and ELCOM to the British one.

As a result, the four implementing participants will be able to request, receive and process the new set of identification data received from its national eIDAS node under the eIDAS Regulation. It will promote the uptake and use of the eID DSI and will facilitate access to the services provided by these four entities (BILLIT, University of Cyprus, SATA, and ELCOM) to all EU citizens and businesses using their national eID, and thus ensuring cross-border mobility and supporting the Digital Single Market.

Objectives;

- Integration of European platforms in the cloud according to the Regulation (EU) No 910/2014
- Secure and reliable connection to several public and private electronic services
- Cross-border interaction between public administrations, businesses and citizens

2.3.1.10. eID4U

Start Date: February 2018
End Date: October 2019
EU Funding: CEF Telecom €592,205
Project Website: https://security.polito.it/eid4u/

The eID4U project aim was to use the eIDAS electronic identities to provide advanced cross-border services to the European academic environment. This required the definition of new personal attributes related to the academic life of citizens and to augment the standard eIDAS network with the ability to transport such attributes. The standard eIDAS identities and these academic attributes were to be exploited to simplify three electronic services: application to academic programs, access to electronic resources, and generalized WiFi access. The project was completed in October 2019 and this Action demonstrated how academic institutions can make use of eIDAS Network. It defined the academic attributes needed to be transferred in the eIDAS infrastructure in order to enable student mobility scenarios. It further enabled the exchange and processing of the academic attributes by the eIDAS nodes in the countries of the consortium (with the use of the pre-production nodes or nodes set up specifically for this Action). It finally extended the e-services of academic service providers with support for the eID4U academic attributes demonstrating how academic services can benefit from cross-border eIDAS authentication and the transfer of academic attributes defined by the Action. The results of this Action will contribute to the development of the core service platform for the EU Student eCard DSI.

2.3.1.11 European Digital University Card Student

Start Date: September 2019
End Date: August 2022
EU Funding: Erasmus+ € 183,896
Project Website: https://www.univ-rennes1.fr/

The EDUcards strategic partnership in higher education is presented by the EDUC alliance, which was founded by five Higher Education Institutions (HEIs) from four countries: The Czech Republic, France, Germany and Italy. The objective is to set up, in the mobility space that the EDUC alliance offers, the European Student Card (ESC) and to test a methodological framework for its deployment during an experimental phase, to identify any potential difficulty and to come up with solutions to overcome potential problems. Beyond its implementation in an alliance with a total of 160,000 students, the use of the ESC will be evaluated, experienced and will encompass the provision of several related services such as access to libraries, restaurants, housing and public transport provided by university cities. At the end of this project, four intellectual outputs will be delivered, one inventory, two guidebooks and one report will be made available to all HEIs throughout the EU, whether they are partners or not. Training activities will take place so that staff members from partner HEIs can trade best practices, feed their own reflection, and therefore find innovative solutions. A dissemination event will be organised to give a multiplier effect to the EDUcards project. These deliverables will contribute to the implementation of the ESC and support the EDUC alliance's use of the Erasmus Without Paper (EWP) project.

2.3.1.12 European Digital Student Service Infrastructure (EDSSI)

Start Date: September 2020
End Date: August 2022
EU Funding: CEF Telecom € 2,499,308
Project Website: https://edssi.eu/

In July 2019 the CEF Telecom call was announced (CEF-TC-2019-4: EU Student eCard Core Service Platform) and the grant of €2,499,308 was awarded in May 2020 to the European University Foundation-Campus Europae (the coordinator of MyAcademicID project). The title of their proposal is European Digital Student Service Infrastructure[24] (EDSSI). The call objective states it is to design, develop, and roll-out a solid technical infrastructure to support European higher education institutions in offering to students a secure cross-border electronic identification and authentication as well as cross-border electronic exchange of data required by online student services. It states that the future solution should integrate the eIDAS eID framework with various existing projects and infrastructure.

EDSSI aims at implementing a comprehensive technical infrastructure to support European Higher Education Institutions (HEIs) and Student Service Providers to implement secure electronic identification/authentication for students across borders to seamless access online services and enable the exchange/verification of relevant academic and non-academic data between HEIs and beyond. EUF network universities involved in the project include: Aristotle University of Thessaloniki (coordinating institution), Ghent University, University of Warsaw, University of Porto, Humboldt University of Berlin, Jaume I University.

[24] https://edssi.eu/

2.3.1.13 EU Student Card Extension and Adoption (ESC-tension)

Start Date: November 2020
End Date: October 2022
EU Funding: Erasmus+ € 299,138
Project Website: https://www.esc-tension.eu/

The ESC-tension project[25] commenced in November 2020 and is for a period of 24 months. There are seven partners in the project and the coordinator is Fondazione ENDISU. The purpose of the project is based on to date there is no "focal point" at national level of Member States or at European level to facilitate the adoption of the European Student Card by the HEIs and by the students. What is available to date are the "technological" guidelines to enable HEIs to harmonise their IT systems to the requirements necessary for the ESC's issuance.

However, there is a lack of administrative, management, operational and technical tools and resources to enable the adoption of the ESC and, above all, to adapt the systems for managing services on and off campus to ESC standards. This is particularly important, taking into account the administrative and cultural specificities of the national context, as well as the strategic development lines of each HEI. The ESC-tension project, therefore fills this gap, and meets this need by developing resources and tools to adapt the local student charter and student services to ESC standards.

[25] https://www.esc-tension.eu/

2.3.2 List of Projects Reviewed

The following table provides a list of the main projects and reports reviewed as part of this collaboration process (undertaken in November 2020).

List of Projects / Reports Reviewed	Project Start/End Date	Funding Programme/EU Contribution	Project Website
e-Signature and Erasmus Student eCard in Greece	September 2018 to March 2021	CEF Telecom €270,400	https://grnet.gr/en/grnet_projects/cef-eid/
Erasmus without Paper (EWP1.0 & EWP2.0)	EWP1.0; November 2015 to October 2017 EWP2.0; January 2018 to December 2019	Erasmus+ EWP1.0 €499,982 EWP2.0 €499,613	https://www.erasmuswithoutpaper.eu/
EMREX Project	January 2015 to January 2018	Erasmus+ €1,425,000	https://www.EMREX.eu
European Student Card	September 2016 to August 2018	Erasmus+ €292,223	https://www.europeanstudentcard.eu
MyAcademicID	January 2019 to December 2020	CEF Telecom €1,039,639	https://www.myacademic-id.eu/
SEAL (Student and Citizen Identities Linked)	April 2019 to March 2021	CEF Telecom €1,188,121	https://project-seal.eu/
StudIES+	March 2018 to December 2019	CEF Telecom €1,421,253	https://studies-plus.eu/
Olympus Project	September 2018 to August 2021	Horizon 2020 €2,564,480	https://olympus-project.eu/
Cross-border authentication in European cloud platforms according to the eIDAS Regulation (EUROLogin)	October 2018 to September 2020	CEF Telecom €598,952	https://lmtgroup.eu/projects/eurologin/
eID4U	February 2018 to October 2019	CEF Telecom €592,205	https://security.polito.it/eid4u/
European Digital University Card Student	September 2019 to August 2022	Erasmus+ €183,896	https://www.univ-rennes1.fr/
European Digital Student Service Infrastructure (EDSSI)	September 2020 to August 2022	CEF Telecom €2,499,308	https://www.edssi.eu/
EU Student Card Extension and Adoption (ESC-tension)	November 2020 to October 2022	Erasmus+ €299,138	https://www.esc-tension.eu/

2.3.3 Summary on Collaboration with existing eID Projects

This activity aimed to provide collaboration with existing eID projects. It includes a high-level description of a diverse range of reports, projects and studies, all of which are relevant to the delivery of a European eID credential that supports student mobility and the provision of trusted identification and secure access to services across borders.

These initiatives have resulted in a lot of valuable research and knowledge of the current technological landscape of eID, which if utilised effectively can provide an important resource in the successful outcome for a European student eID. Many of these projects focused on the use of digital technology for connecting HEIs and facilitating secure exchange and verification of student data, interoperable with eIDAS. Compliance with EU policies and regulations in relation to eID and trust services is demonstrated in many of these projects.

The outcome of this collaboration has resulted in the review, and collation of the most recent and relevant student eID projects. Over the past 5 years, these projects have resulted in successful outcomes individually, but many are done in isolation from each other with inadequate collaboration between projects. There is a need to achieve better cooperation between the various project stakeholders to enable the exchange of information and the sharing of best practices in the process of establishing a student eID. It is important for the stakeholders to be aware and understand the evolution of the eID landscape in order to support the needs and requirements of students and HEIs. This cannot be analysed or achieved in isolation.

The EDSSI – European Digital Student Service Infrastructure project, is focused on designing, developing, and roll-out a solid technical infrastructure that supports European HEIs. This infrastructure will offer students a secure cross-border electronic identification and authentication as well as cross-border electronic exchange of data required by online student services. It states that the future solution should integrate the eIDAS eID framework with various existing projects and infrastructure. This will inevitably include much of the good work achieved from many of the projects contained within this report. The goal of this future solution is to enable European students in a cross-border mobility context to use the different academic online services as well as non- academic services.

2.4 Online Survey

2.4.1 Online Market Research Survey Overview

As part of the project activities, under Work Package 2, 'Research, State-of-the-Art & Stakeholders Requirements', an on-line survey was commissioned, in January 2021 (over a six-week period), to obtain the views and opinions of all relevant stakeholders regarding their requirements and the benefits of a European Student eID that will overcome the obstacles to the cross-border mutual recognition of students. In addition, the Student eID will provide access to both academic and non academic services on a cross-border basis. This survey was representative of all stakeholders, which included HEIs, service providers, students and others, from countries and regions across Europe, USA, Canada, and Asia, with a minimum of 150 target respondents. The total responses to the survey was 279 and the number of fully completed survey responses was 207 (completion rate 74%). For the purpose of the analysis of the results, only the fully completed 207 responses are included in this analysis.

2.4.2 Survey Methodology

The survey questionnaire (Appendix 4) was configured into sections in order to be able to separately review and compare the various needs of the different stakeholders (HEIs, students, service providers / others).

1. Section A (Q1 – Q2): Generic Questions applicable to all respondents.
2. Section B (Q3 – Q15): Applicable to HEIs only.
3. Section C (Q16 – Q28): Applicable to the students sector only.
4. Section D (Q29 – Q41): Applicable to service providers / others group.
5. Section E (Q42): Conclusion and optional contact information.

The questions ('closed ended') were structured and worded to obtain unambiguous answers that expressed the views and opinions of participants, regarding to the requirements and benefits of a European Student eID that will overcome the obstacles to the cross-border mutual recognition of students.

2.4.3 Presentation of Results

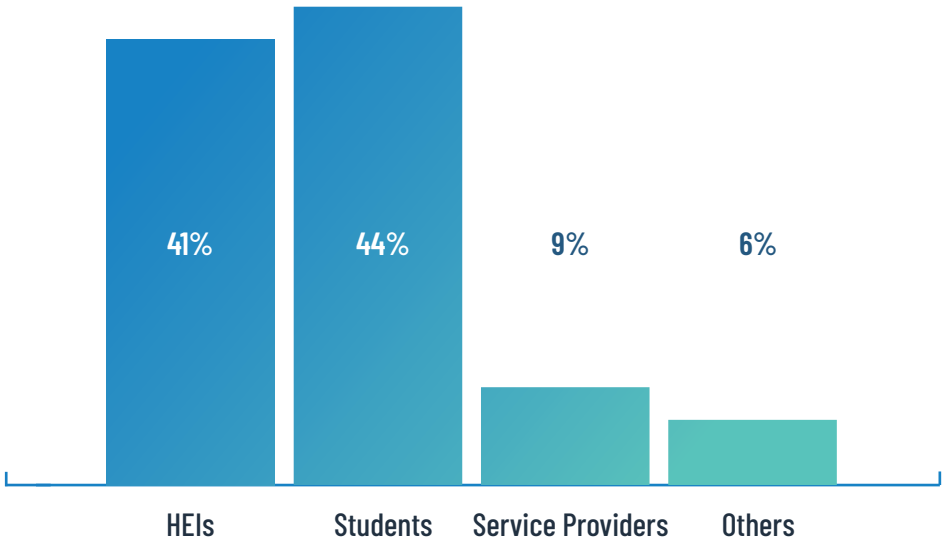
Question: Please state your country of residence.

The purpose of this question was to identify where the respondents were from, in order to ensure that we received a good geographical spread of responses from the various regional areas - Europe, USA, Canada, and Asia. In total, we received 207 fully completed responses from 25 different countries (Appendix 4 - Participating Countries).

Question: Please tick the box that best represents you.

The purpose of this question was to identify the stakeholder categories so as to facilitate the quantification of the number of respondents from each category in order to define their particular requirements. These stakeholder categories included HEIs, students, service providers and others, as outlined in Figure 1 below. From the 207 respondents, HEIs accounted for 41%, students 44%, service providers 9% and others 6% (namely IT programmers/developers, government personnel, professional associations, manufacturers, etc.).

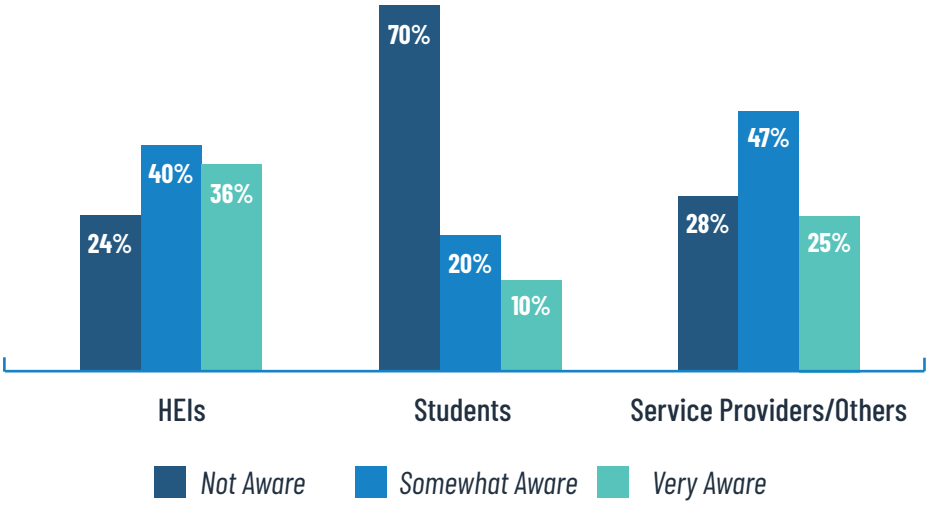
Fig. 1: % of Responses by Stakeholder



Question: The European Student eID, to be implemented by 2025, will enable every student to easily register electronically at the host educational institution and thus have access to cross-border online student services when moving abroad. Please indicate your level of awareness of this.

The purpose of this question was to identify each of the stakeholder's level of awareness of the European Student eID, to be implemented by 2025. As can be seen from Figure 2, it shows 24% of HEIs were 'not aware', 40% were 'somewhat aware', with 36% 'very aware'. The Students' awareness shows 70% were 'not aware', 20% 'somewhat aware' and only 10% 'very aware'. The Service providers/Others awareness was outlined as 28% 'not aware', 47% 'somewhat aware' and 25% 'very aware'.

Fig. 2: Awareness of European eID

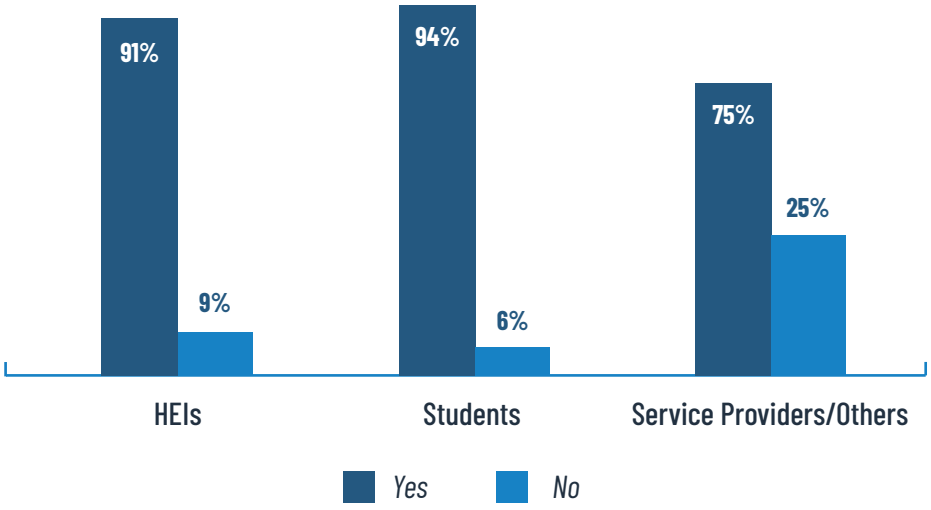


Question: The goal of the EU is to make the European Student eID available to all students in Europe by 2025. Do you think the majority of HEIs will agree on a solution that will meet this goal?

The EU has outlined that by 2025 its aim is to make available a European Student eID to students in Europe. HEIs are an important stakeholder in this process and the purpose of this question was to therefore assess if HEIs will agree on a solution in order to meet this 2025 deadline.

Figure 3 below outlines the responses to this question, with 91% of HEIs' opinion that the majority of HEIs will agree on a solution, and 9% disagreeing. It shows that 94% of students are of the opinion that the majority of HEIs will agree on a solution and 6% disagreeing, and of the Services providers/Others group, 75% agreeing and 25% disagreeing.

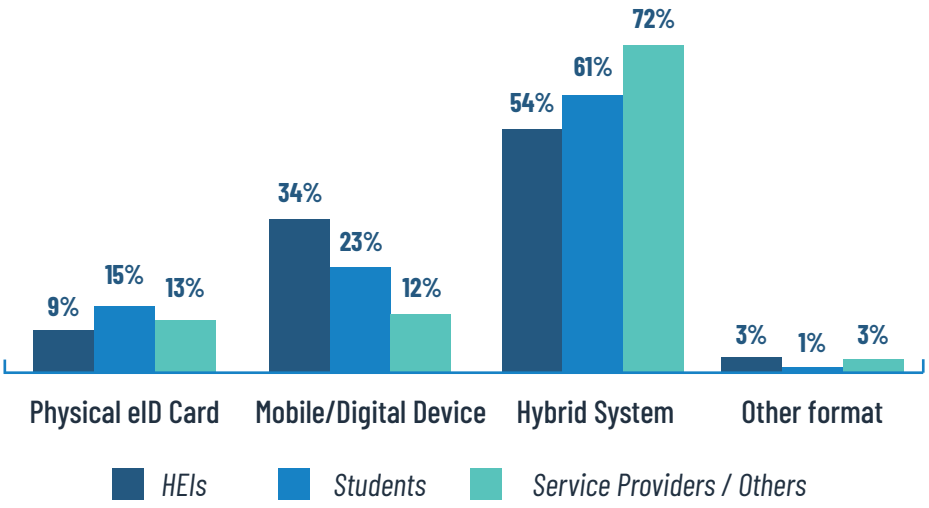
Fig. 3: Will HEIs agree on a solution to make the European eID available by 2025?



Question: In which format should the new European Student eID be in?

The purpose of this question was to identify the preferred format of the new European Student eID system. As indicated in Figure 4, a 'hybrid system' (combination of two or more formats e.g., smart card and mobile device or another format) is the most preferred format for 54% of HEIs, 61% of Students and 72% of Service Providers/Other's. This is followed by the 'mobile/digital device' at 34% of HEIs, 23% of Students and 12% of Service Providers/Other's. The 'physical eID card' as a single format was selected by 9% of HEIs, 15% of Students and 13% of Service Providers/Other's. 'Other formats', which accounted for approximately 3%, included a hybrid system with two-factor authentication, a virtual ID for use with smart cards/mobile devices. These findings demonstrate that while a physical smart card on its own is not one of the most popular formats, however when it becomes part of a hybrid system, it is by far the most popular option with all stakeholders.

Fig. 4: Format for new European Student eID

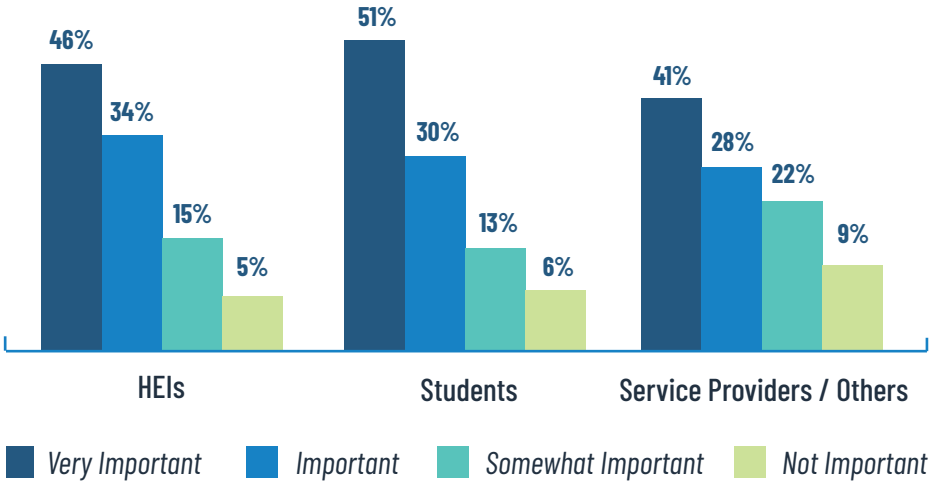


Question: Each Student currently receives their eID/Campus Card from their own HEI. How important do you think it is for students to also have a unique European Student eID that provides access to services in other campuses both in their home country and on a cross border basis?

The purpose of this question was to establish the stakeholder's opinion on the importance of students also having a unique European Student eID in addition to their own HEI eID/campus card.

Figure 5 outlines the responses. 46% of HEIs' stating it as 'very important', 34% 'important', 15% 'somewhat important' and 5% stating it was 'not important'. The students' responses, were 51% stating it as 'very important', 30% 'important', 13% 'somewhat important' and 6% stating it was 'not important'. The Service providers/Others responses, revealed 41% stating it as 'very important', 28% 'important', 22% 'somewhat important' and 9% stating it was 'not important'.

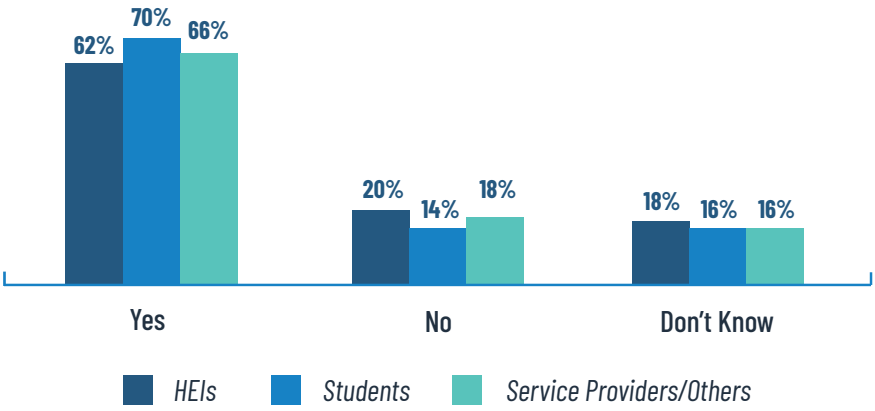
Fig. 5: Importance for Students to also have unique European Student eID



Question: Do you think the European Student eID can replace the existing student ID/Campus Card and integrate with the relevant services (e.g. library, access control, etc.)?

The purpose of this question was to establish if the European Student eID can replace the existing student ID/campus card. In Figure 6, the responses outlined by HEIs were 62% stated 'Yes', 20% stated 'No', and 18% stated 'Don't Know'. The students' responses are 70% stated 'Yes', 14% stated 'No', and 16% stated 'Don't Know'. The Service providers/Others responses are 66% stated 'Yes', 18% stated 'No', and 16% stated 'Don't Know'.

Fig. 6 - Can European Student eID replace the existing student ID/Campus Card and integrate with the relevant services?



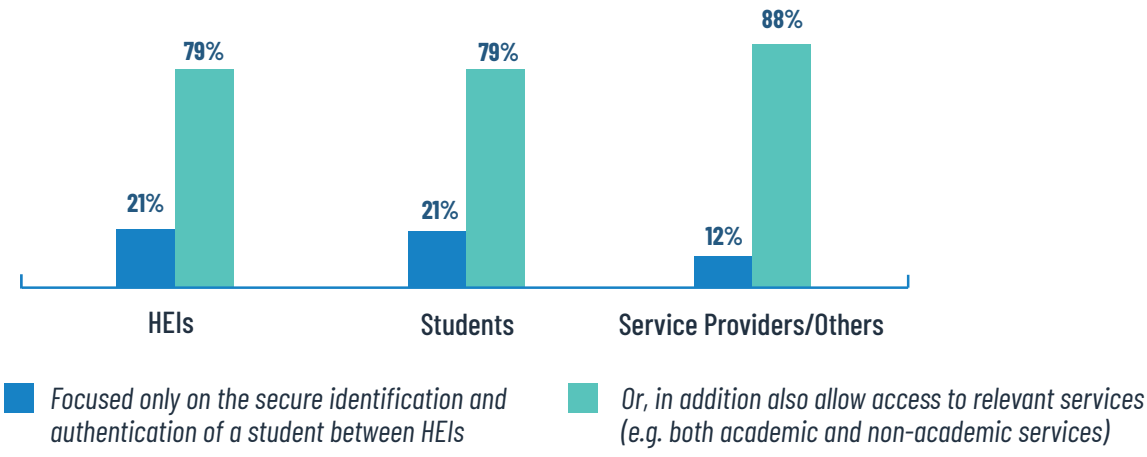
Question: In terms of the European Student eID, do you think the eID should be?

a) Focused only on the secure identification and authentication of a student between HEIs.
b) Or, in addition also allow access to relevant services (e.g. both academic and non-academic services)

The purpose of this question was to establish what function the European Student eID should have. Should it be limited to secure identification and authentication of data between HEIs or should it also be used to allow access to services, both academic and non-academic services.

Figure 7 illustrates that HEIs at 21%, Students also at 21% and Service providers/Others at 12% favoured the limiting of an eID to just providing secure identification and authentication of a student between HEIs. The addition of providing access to relevant services (e.g. both academic and non-academic services) was a much more desired option, with HEIs and Students each rating it at 79% and Service providers/Others rating it at 88%.

Fig. 7 - What should European Student eID be?



Question: There are many potential benefits of the European Student eID. Please rate the potential level of benefit for each:

The purpose of this question was to establish how each of the stakeholders rated some of the potential benefits of the European Student eID.

Figures 8a, 8b and 8c, outlines how the stakeholders rated the potential benefit.

Fig. 8a - Potential Benefits - HEIs Responses

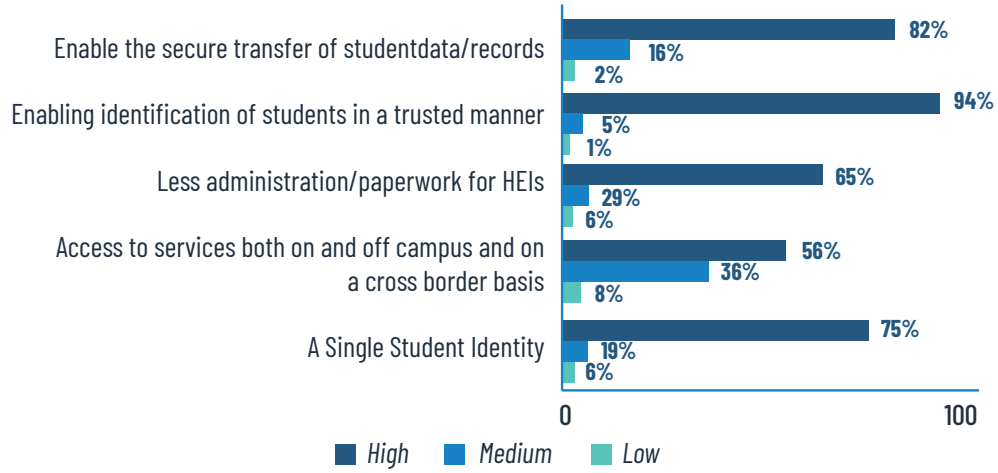


Fig. 8b - Potential Benefits - Students Responses

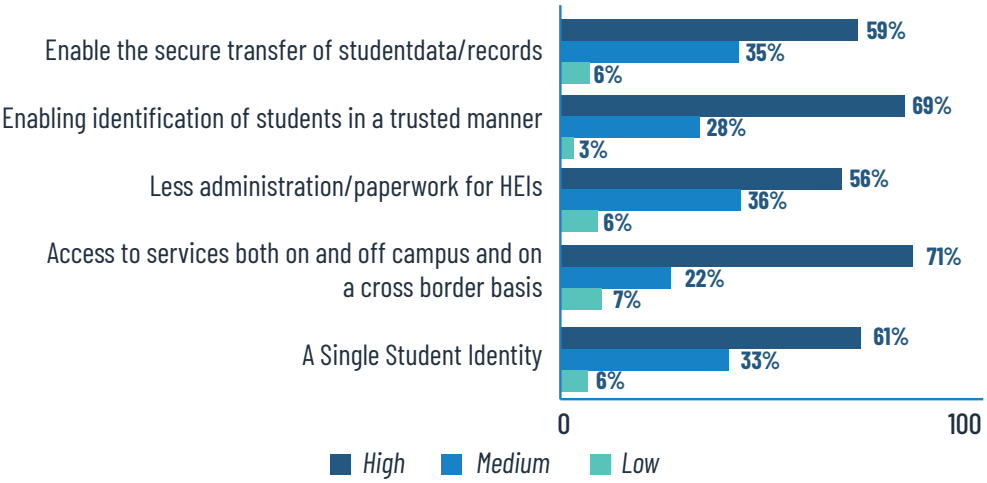
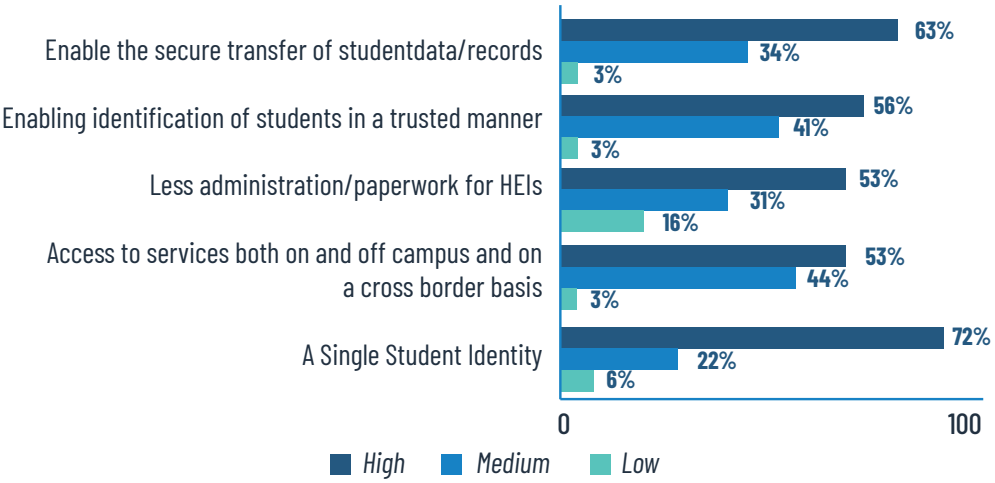


Fig. 8c - Potential Benefits - Service Providers / Others Responses



Question: Discounts can fulfil an important function for Students. What types of off-campus services would a student most benefit from with the European Student eID? Please rate on a scale of 1 to 5 (1 being the lowest, 5 being the highest).

One of the benefits to a student having a European Student eID is to be able to avail of discounts for services on a cross border basis. The purpose of this question was to establish what services a student would most benefit from.

Figures 9a, 9b and 9c illustrates the stakeholders' responses, in that food, travel, and technology & mobile phones, rate among the highest.

Fig. 9a - Discounts - HEIs responses

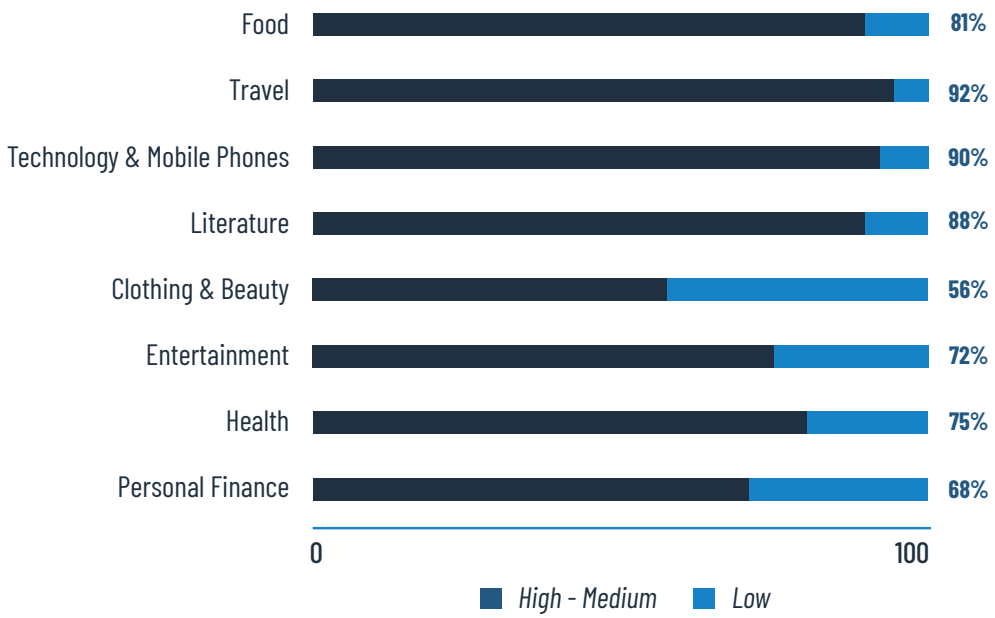


Fig. 9b - Discounts - Students Responses

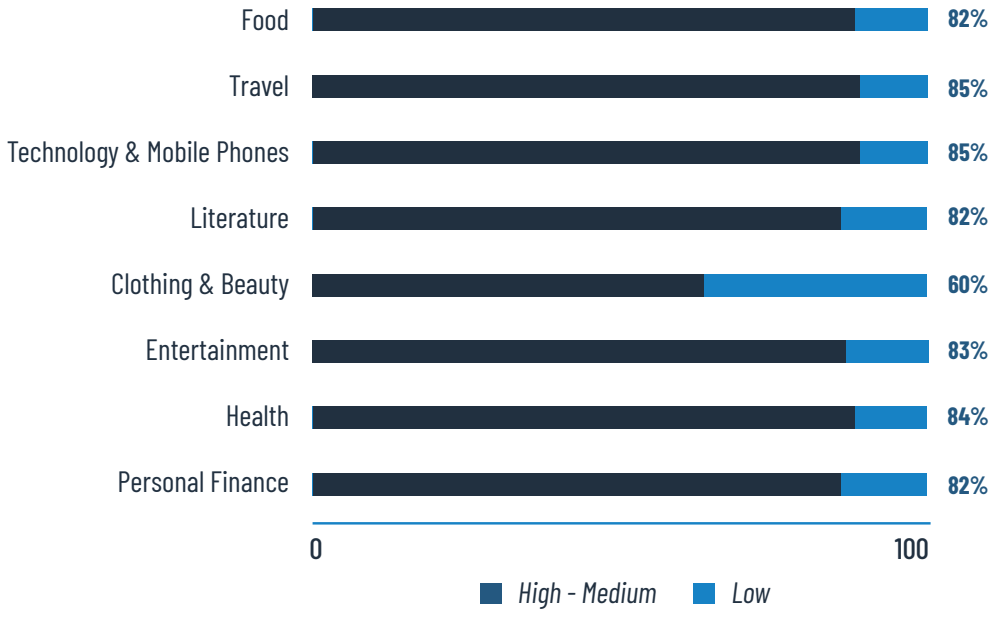
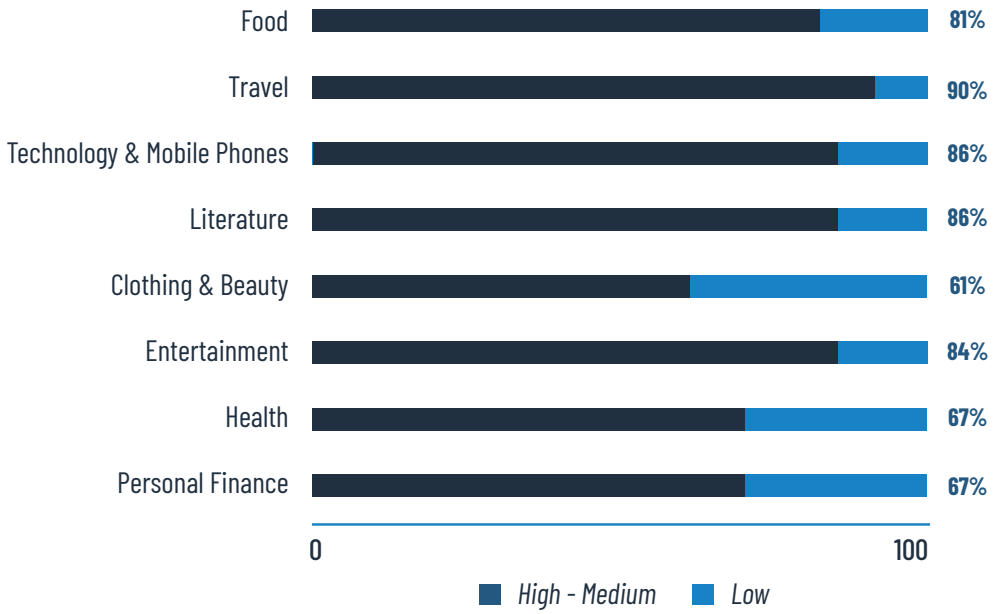


Fig. 9c - Discounts - Service Providers / Others responses

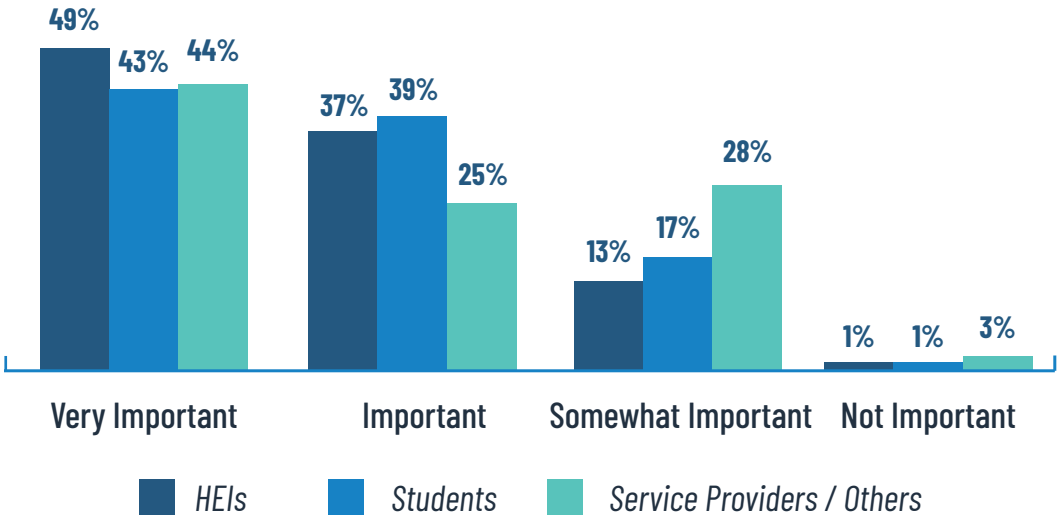


Question: An electronic signature is a legal way to get consent or approval on electronic documents, which can replace handwritten signatures. Please rate the importance of having the student electronic signature (personal certificate) linked to the European Student eID.

Electronic signatures are becoming more prevalent in the secure exchange of documents. The purpose of this question was to establish the importance of having the student electronic signature linked to the European Student eID.

Figure 10 outlines the stakeholders' responses. 49% of HEIs stating it as 'very important', 37% 'important', 13% 'somewhat important' and 1% stating it was 'not important'. The Students' responses were 43% stating it as 'very important', 39% 'important', 17% 'somewhat important' and 1% stating it was 'not important'. The Service providers/Others responses were 44% stating it as 'very important', 25% 'important', 28% 'somewhat important' and 3% stating it was 'not important'.

Fig. 10 - Importance of Electronic Signature linked to European Student eID

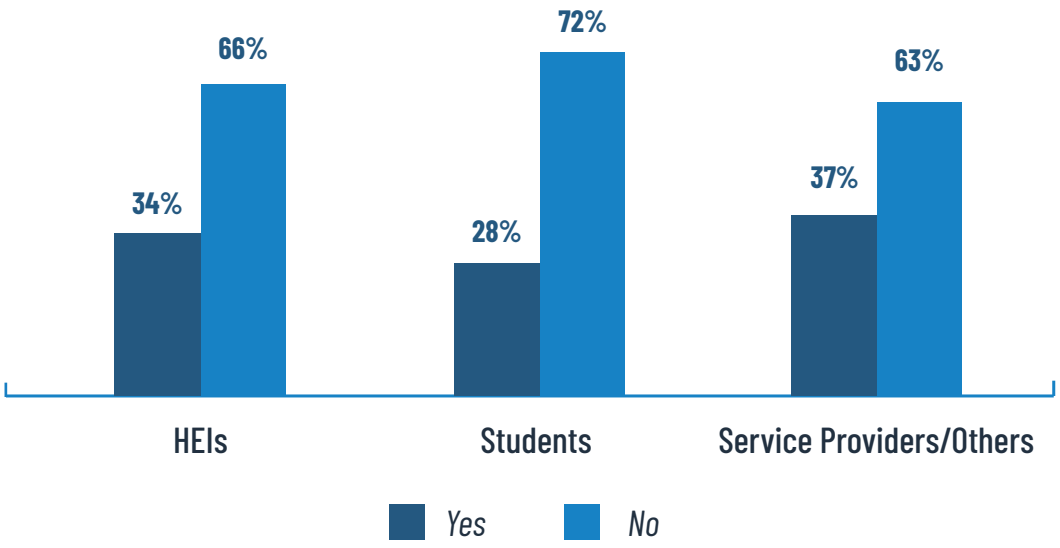


Question: In addition to a Physical ID Card, the Student ID/Campus card could also be integrated in a mobile application. Is your HEI using mobile applications for the purpose of student identification?

Mobile applications are becoming increasingly more popular. The purpose of this question was to establish the current level of usage of mobile applications for student identification.

Figure 11 outlines the level of usage as indicated by the stakeholders.

Fig. 11 - HEIs currently using mobile applications for student identification

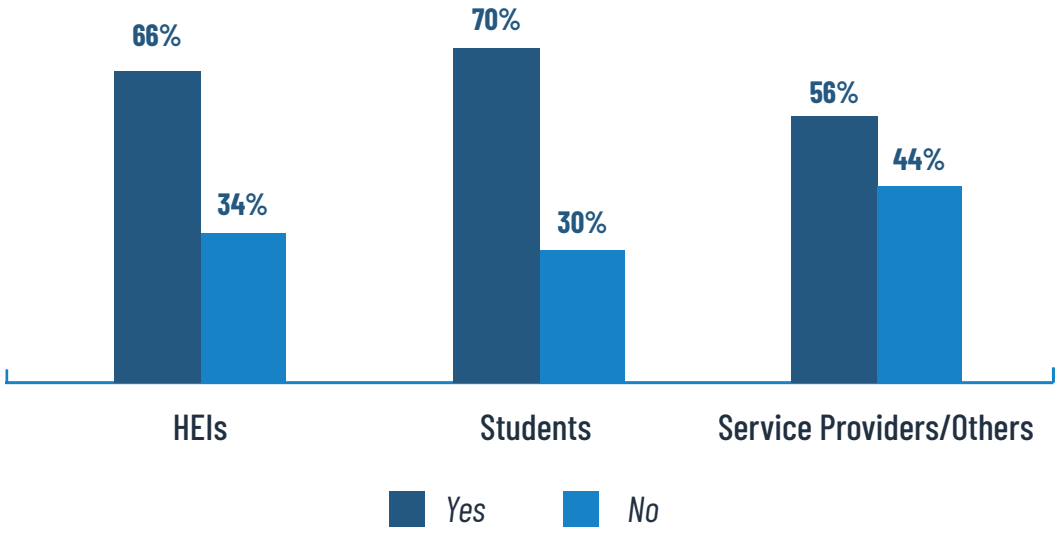


Question: There is an increasing use of Biometric technology on mobile phones/devices. Do you think the European Student eID should use Biometric technology to provide digital identity of a student?

Biometric technology is becoming more prevalent for digital identity. The purpose of this question was to establish the stakeholder's opinion as to whether the European Student eID should use this technology to provide digital identity.

In Figure 12, the HEIs responses are 66% stated 'Yes', while 34% stated 'No'. The Students' responses are 70% stated 'Yes', while 30% stated 'No' and the Service providers/Other's responses are 56% stated 'Yes', while 44% stated 'No'.

Fig. 12 - Do you think the European Student eID should use Biometric Technology to provide digital identity

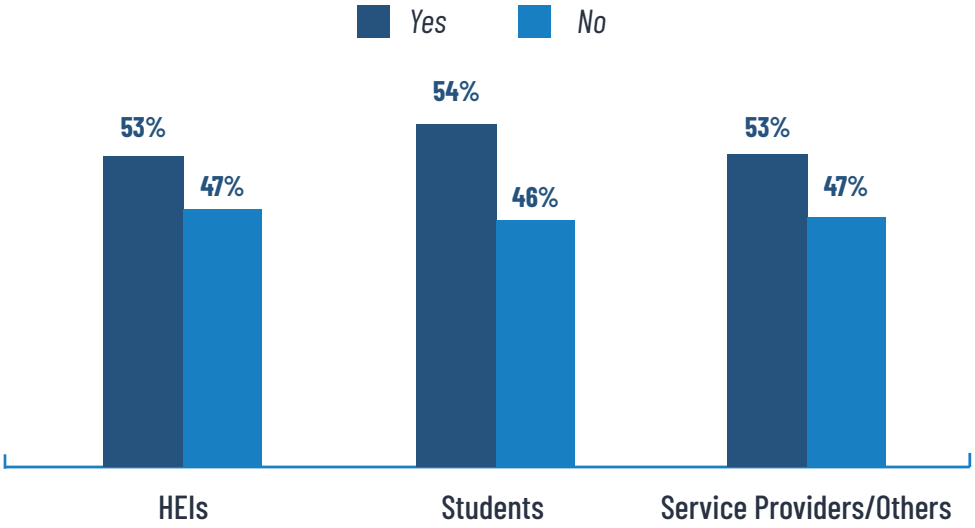


Question: With the advancement of banking technology in e-payments (e.g., Tap and Go), is there still a need for the European Student eID/Campus Card to also have an electronic purse, allowing payments both on and off campus?

Electronic purses have been a common feature of the traditional campus card. However, in recent years banking technology in e-payments has advanced considerably with more and more people using tap and go/contactless technology as a payment method. The purpose of this question was therefore to establish if there was still a need for the European Student eID/campus card to also have an electronic purse for payments on and off campus.

In Figure 13, the HEIs responses were 53% stating 'Yes' there was still a need for the European Student eID/campus card to also have an electronic purse for payments on and off-campus, with 47% stating 'No'. Students' responses were 54% stating 'Yes' there is still a need, with 46% stating 'No' and the Service providers/Other's responses were 53% stating 'Yes', with 47% stating 'No'.

Fig. 13 - Is there still a need to have an electronic purse?



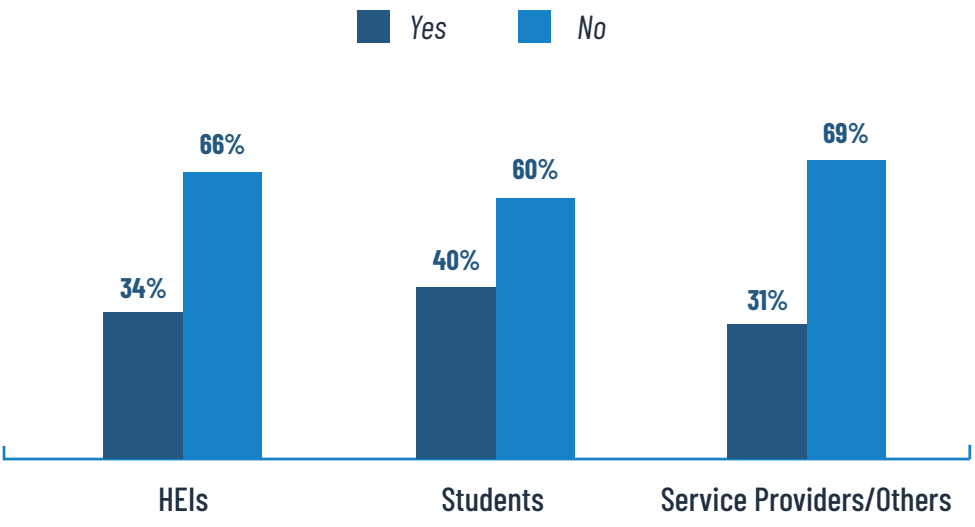
Question: Having now completed the previous questions, it may have increased your knowledge of the European Student eID. Do you think there are other methods that may be used to promote and disseminate its rollout?

Earlier in the survey we asked the stakeholders about their level of awareness of the European Student eID to be implemented by 2025. Based on this, the purpose of this question was to therefore establish if there were other methods that could be used to promote and disseminate its rollout.

In Figure 14, the HEIs responses were 34% stating 'Yes' with 66% stating 'No'. Of those that stated 'Yes', some of the methods suggested were through High schools, EU promotional activities, a dedicated EU website, social media, webinars, HEIs directly (using their internal communications/websites/boards), university organisations, partners involved in the project, and dedicated events through HEI forums in each member state.

The Students' responses were 40% stating 'Yes' with 60% stating 'No'. The methods suggested by students were mostly through the university directly using social medial platforms and any internal communication tools such as newsletters and lectures. The Service providers / Other's responses were 31% stating 'Yes' with 69% stating 'No'. Of those that stated 'Yes', some of the methods recommended by this cohort were using students' unions, social media, through a pilot scheme in each member state, and using professional organisations representing HEIs.

Fig. 14 - Are there other methods to promote and disseminate the European Student eID?



2.4.4 Discussion of Survey Results

The geographical spread of participants in the survey from 25 countries/regions throughout Europe, USA, Canada and Asia resulting in the accumulation of 207 survey responses, provides a statistically significant data set. In addition, there was also a very good cross-section of responses from the various stakeholders, which included HEIs, students, service providers and 'others' groupings.

The Student eCard initiative is part of the vision of the European Education Area[26] aiming to improve the quality of student mobility in Europe. The goal is to make the eCard available to all students in Europe by 2025. The benefits extend beyond students, as it will reduce administrative procedures for the HEIs and the potential for errors (avoiding manual entry of data, duplications, etc). The level of awareness of the benefits among the stakeholders varied considerably. 76% of HEIs were either 'somewhat aware' to 'very aware' and just 24% were 'not aware'. The Service providers / Others group was similar in that almost 72% were 'somewhat aware' to 'very aware' and just 28% 'not aware'. The level of awareness in the Student group however, was considerably lower, with only 30% 'somewhat aware' to 'very aware' and 70% 'not aware' at all. These findings suggest that the HEIs and Service providers have a high level of awareness of a European Student eCard. Nevertheless the awareness of Students cohort, who probably are the most important stakeholder as they are the end user, is low. This is an issue that should now be addressed, as the opinion of the students must be taken in to consideration when defining the requirements of an eCard.

The HEIs are a very important stakeholder in the process of implementing and adopting the European Student eID. As they are responsible for the implementation of the campus card, their role will be significant in agreeing on a solution for its adoption and rollout. The results showed that over 90% of HEIs and Students agreed that HEIs will agree on a solution to make the European Students eID available to all students by 2025. Also 75% of Service providers/Others agreed. This is encouraging as it shows there is a high level of positivity among all the stakeholders that a common and unified solution can be agreed.

Currently the physical ID card is the most common form of student identification on campus. However, in terms of the preferred format for the European Student eID, on average of over 62% of all the stakeholders selected a hybrid system (combination of two or more formats e.g., smart card and mobile device or another format). The physical eID (smart card) on a stand-alone basis was the least popular with the average at 12%. These findings indicate that a hybrid system consisting of a smart card, incorporated with a mobile device or another format, is clearly the most popular choice with the stakeholders. This is not surprising considering the emerging use of mobile and digital technology for eID credentials in recent times. This combined solution for students makes it possible, in the transition to a full mobile ecosystem, to provide access to services, particularly to those that do not have access to a compatible mobile device.

In most situations, each HEI issues their own unique eID/campus card to the student. Depending on the HEI, the services and functions of that eID/card can vary in its use, both on and off-campus. In terms of the importance of students also having a unique European Student eID, that provides access to services in other campuses, both in their home country and on a cross-border basis, this was quite high. Over 80% of HEIs and Students stated it was either 'important' or 'very important' as did over 69% of Service providers / Others. An average of 7% of all stakeholders said it was not important. Again, this is significant and shows how important it is, particularly to the students and HEIs to also have this European Student eID. However, despite this, a high percentage of the stakeholders, 66% of them, believed that European Student eID can replace the existing student ID/Campus Card and integrate with the relevant services. This view was highest among the Students group at 70% approval.

[26] https://ec.europa.eu/education/education-in-the-eu/european-education-area_en

In terms of the functionality of the European Student eID, an average 82% of the stakeholders stated it should not only be focused on the secure identification and authentication of a student between HEIs but, in addition, allow access to relevant services, both academic and non-academic. This is important, as the vision for the European Student eCard outlines its aim is to 'give students the chance to access online courses and services provided at other HEI's. This will not only facilitate virtual mobility and blended learning but will also give students a greater choice in the programmes they can follow. Integration and functionality that supports service providers to facilitate access to non-academic services is also important to students. Over time, this will allow students to enjoy cultural activities throughout Europe at discounted rates.

The European Student eID has many benefits. Five of these potential benefits were specified in a survey question. The responses to this question clearly reveal that the stakeholders indeed realise the benefits as all scored highly. For HEIs, the benefits that ranked highest were enabling identification of students in a trusted manner, followed by enabling the secure transfer of student data/records. This benefit also ranked highly with Service providers/Others, as did having a single student identity. For the Student group, they outlined having access to services both on and off-campus and on a cross-border basis ranked highest, followed by enabling identification of students in a trusted manner.

As previously outlined, access to services both on and off-campus, and on a cross-border basis is seen as an important benefit and the most important benefit to students. In addition, having discounts to these services is important for students, as they are typically more price sensitive due to their lower disposable income. Companies regularly attempt to target this market by offering wide ranging discounts. In the survey we asked what types of off-campus services that a student would most benefit from with the European Student eID. Travel, technology & mobile phones, and food ranked highly among all stakeholders, with clothing & beauty ranked lowest.

All stakeholders ranked the usage of the European Student eID for the secure transfer of student data/records as an important benefit. Electronic signatures are now becoming very common tools to legally obtain consent or approval on electronic documents, which can replace handwritten signatures. In the survey we asked the stakeholders to rate the importance of having the student electronic signature (personal certificate) linked to the European Student eID. 86% of HEIs and 82% of Students stated it was either 'important' or 'very important' as did 69% of Service providers / Others. These findings support the concept for the use of student digital signatures in the Higher Education Sector.

Student identification is generally provided using a physical ID Card, but mobile applications for identification are now becoming more widespread. A mobile application, also referred to as a mobile app or simply an app, is a computer program or software application designed to run on a mobile device such as a phone, tablet, or watch. Apps were originally intended for productivity assistance such as email, calendar, and contact databases, but the public demand for apps has caused a rapid expansion in their use. In the survey we asked the stakeholders if their HEI was using mobile applications for the purpose of student identification. In their responses, 30% of the stakeholders confirmed HEIs are using mobile apps for student identification. Of those that are using this technology, they also stated that other functionalities/applications should be included in the App such as payments, public transportation, student identification & authentication, library services, access control, registration, discounts/loyalty, booking of campus services. It would therefore seem that the use of mobile applications for identification is increasing but also for services that were typically provided and accessed using the physical card.

There is an increasing use of Biometric technology on mobile phones/devices. In the questionnaire we asked the stakeholders if the European Student eID should use Biometric technology to provide digital identification of a student. Biometrics are physical or behavioural human characteristics that can be used to digitally identify a person to grant access to systems, devices, or data. Examples of these Biometric identifiers are fingerprints, facial patterns, or using voice recognition. Each of these identifiers is considered unique to the individual, and they may be used in combination to ensure greater accuracy of identification. Because Biometrics can provide a reasonable level of confidence in authenticating a person, it has the potential to dramatically improve security.

66% of HEIs and 70% of Students were of the opinion the European Student eID should use Biometric technology to provide digital identity of a student. The opinion of Service providers / Others was lower at 56%. This may be due to the legal aspects and the sensitivity of storing biometric data. Overall, there is still a significant percentage in favour of using this technology to provide digital identity of a student.

The banking sector has invested heavily in trying to persuade customers of the merits of cashless payments. A boost in such payments resulted from the arrival of chip and pin credit and debit cards, followed shortly after by the appealing and hassle-free concept of "contactless" transactions for small payments by card and electronic phone wallet. In addition, since the COVID-19 pandemic more adults are using digital banking or contactless payments in preference to cash. Previously people used to reserve card payments for large transactions. Nowadays younger generations, more comfortable with new technology, have happily turned to card for almost all transactions, no matter how small. With the advancement of this banking technology, we therefore asked whether there is still a need for the European Student eID/Campus Card to also have an electronic purse, allowing payments both on and off-campus. The average response from 53% of the stakeholders was that there is still a need for the electronic purse on the card. When this finding is compared with the finding from a previous ECCA Survey in 2019[27] it highlights a consistent pattern regarding the need for an electronic purse. In that 2019 survey, 49% of responses deemed that an electronic purse was an important campus card application.

The level of awareness of the European Student eID - to be implemented by 2025 - varied among the stakeholders but was particularly low among the Student group. We therefore asked, 'Do you think there are other methods that may be used to promote and disseminate its rollout'?. An average of 35% of the stakeholders (this being 40% amongst students), said there was, and the prevalent methods mentioned were internal communications with the HEI using social media platforms and communication tools. These findings highlight the need to explore and implement other means of information dissemination that will enhance the current methods in targeting the student population. The current methods of information dissemination, mainly through HEIs are not effective. Relevant European associations and groups could be used to assist in this process e.g., European Students Union, ECCA, EUNIS, EMREX, eID Forum and the European University Foundation.

[27] https://ecca.eu/research-projects/vietsch-foundation-project/publications

2.4.5. Survey Summary

The main objective of the survey was to obtain the views and opinions of all stakeholders regarding their knowledge, requirements, and the benefits of a European Student eID that will overcome the obstacles to cross-border mutual recognition of students. Moreover, it will provide access to both academic and non-academic services on a cross-border basis. The study was representative of all stakeholders which included HEI's, Students, Service Providers and Others, from 25 countries across Europe, USA, Canada, and Asia.

The awareness levels among the student group of the European Student eID and the intention to implement it by 2025 is considerably low and therefore needs to be addressed. It would seem there are little if any barriers to its implementation as a high level of HEIs and Students were of the view a solution could be agreed by HEIs for its implementation. Moreover, there seems to be a high demand for the European Student eID particularly among the HEIs and Students. Furthermore, a significant number of respondants were of the view it could replace the existing student ID/campus card, most notably among students. The results clearly demonstrate that the preferred format of this new eID is a hybrid system.

In terms of functionality, it was generally agreed it should extend beyond secure identification and authentication to also include access to services both on and off-campus. Therefore, discounts will be important if the use of the Student eID is to extend to services off-campus and particularly for services relating to travel, technology & mobile phones, and food. In addition, mobile applications for student identification are common as are other apps for various services on and off-campus. Consequently, the demand for a hybrid system. Furthermore, Biometric technology for digital identification was popular, particularly among Students and HEIs, as was the requirement for the electronic signature to be linked to the eID. Despite the increase in banking technology card payments, there is still a demand for the European Student eID to have its own electronic purse.

Overall, the study revealed there is strong support for the European Student eID and also identified further important information in terms of its format and other functionalities. The awareness levels do need to be addressed and further dissemination, particularly among the Student group, is necessary using the HEIs social networking platforms and internal communication tools. In summary, analysis of the results from the 207 stakeholders', has identified much knowledge and potential for establishing a European Student eID, which clearly revealed that there are significant benefits for all stakeholders. The data from the survey has also provided a broad understanding of stakeholders knowledge and awareness. In addition, this data will make a valuable contribution towards the implementation and rollout of the European Student eID set for 2025.

3. Recommendations For A Framework Proposal On A Trusted European Student eID

3 Recommendations for a Framework Proposal on a Trusted European Student eID

The recommendations for the Framework Proposal have resulted from the various project activities undertaken, which included the following;

- Advisory Committee Workshops
- eID Forum & Online Workshops (November 2020, May 2021)
- Collaboration with existing eID Projects
- Online Market Survey on a European Student eID

These recommendations are summarised under the following ten catagories;

Campus Card/eID

1. The physical/virtual identity of the student both on and off campus is important and in line with the European Student Card Initiative. The physical campus card is of value to the student as it can represent a student's identity in the most traditional and effective way and can also enable access to a wide range of services on a cross-border basis. The campus card and the eID can integrate and evolve together, either in concept or shape to provide the necessary form of identification for the particular situation.
2. There is a need to connect the traditional physical card to an electronic ID (eID), as part of a hybrid solution that uses multiple technologies. The physical card can coexist with a virtual card. It is perceived that in the future, a virtual card will be capable of replacing a physical one in an effective way, providing compatibility with most of the legacy systems implemented across European HEIs for on and off campus services.
3. The physical ID card will continue to be required, however the use of a physical ID card in a hybrid system together with mobile devices should be promoted, as this is the most favoured option with HEIs and students.
4. The student eID needs to be a flexible solution in order to be integrated as part of a hybrid solution that facilitates a wide range of applications and services provided by both the HEI and Service Providers for on and off campus.
5. Multiple eID devices should be available, and the use of one or another will depend on the services that are being accessed, which means that the enablers of such devices will play an important role on the entire ecosystem. e.g., the use of physical/virtual campus card for identity, use of mobile device as 2FA to access online services etc.
6. As European countries have different needs and requirements for a student eID, it will be extremely challenging in the foreseeable future to develop a standardised European student eID for use in pan European campus solutions. The regulations/laws/systems in every country differs diversely as does the lifecycle of the campus card/eID.

Mobile Devices

1. There is a growth in the use of mobile devices as an alternative to the traditional campus card in North America, which are retro-compatible with existing legacy systems such as access control and other applications. In the European context, several initiatives have emerged in recent years, i.e. AppCrue (https://tic.crue.org/app-crue/). The positive reaction to their introduction must be evaluated immediately in a European wide context, to explore the potential opportunities of similar mobile credentials, allowing users to use their mobile devices in systems where physical campus cards are currently used. However, it would be advisable that OEM or OS mobile manufacturers are not allowed to impose their proprietary solutions. Instead, we must urge them to contribute to standardisation and open APIs, promoting competence, broadening the catalog of solutions and therefore enhancing the future mobile eID ecosystem.

2. There is an increasing demand for the use of identification application using mobile devices, together with services that traditionally were provided using the physical ID/campus card. There needs to be a coordinated approach to the use of mobile devices for campus applications to establish best practices and avoid duplication of efforts.

3 It is important to note that currently it is not possible to reach the 100% of the educational community, either because some do not own a mobile device or because their mobile phone is not compliant with the new mobile eID ecosystem. We must be extremely careful not to exclude any potential user and try to offer alternatives to access services, maybe not with the same high security standard, but with a similar quality of experience. In any case, it should be without jeopardizing the functionalities and security of the whole new ecosystem.

Security, Trust and User Authentication

1. The convergence of campus identities from physical to digital, together with the projected market growth for digital identity by 2025, requires trusted infrastructure in establishing reliable identity and the provision of interoperable validation of the student regardless of their location.
2. The card, the mobile phone or any security module hosted in the cloud are secure locations where the identification information (e.g. a certificate) is stored. Using self-owned certified devices as a traditional smartcard or delegating the identification in a trusted third party as a remote Hardware Security Module accessed through the non-secure user's mobile phone could lead to different levels of trust between users and service providers considering the security requirements and the risks involved. We must enforce not only the technical means, but also the user concerns, to properly and seamlessly perform the authentication and authorization processes.
3. The issuing of the eID credentials in terms of authentication and trust is of paramount importance and the process for certifying and issuing needs careful consideration. The different laws and regulations in each of the member states is an important factor and needs to be addressed to establish a mutual solution. Although the existence of a physical identifier is important, the process of validation and authentication of the relevant data must provide a high level of trust. Therefore, a good trust framework that uses existing standards and infrastructure is desirable in this process. The issue of Self Sovereign Identity as an achievable solution is one option and the current work of EBSI should be considered, as it is empowering citizens to have control and management over one's own identity (and data). In addition the use of eIDAS for authentication of eID issuance should also be considered.
4. Security in the verification process – a secure structure of trust is essential to confirm the authentication of a genuine student identity.
5. Mutual authentication between the eID credential or token and the service is mandatory in order to avoid token counterfeit and/or impersonation.
6. In addition to providing trusted student identification and authentication between HEIs on academic requirements, the verification process should also provide the required verification to allow access to relevant services both on and off campus.
7. Both HEIs and Students support the use of Biometric technology in a European Student Card/eID to provide trusted digital identity of a student (Section 2.4 - ECCA Online Survey). Further innovation and research should be pursued to establish trust and acceptance for the use of this technology.

eIDAS

1. Compliance with eIDAS regulations is important and there is a need to link with qualified certificates/ signatures to unify systems. eIDAS regulations will provide a student eID with consistency and transparency, together with legal security for cross-border transactions.
2. eIDAS – requires parallel profile. Focus should be on ecosystem development that is adaptable to HEIs. Profile could be accessed joining both government and HEI services with global adoption.
3. There is already an acceptance at EU level that eIDAS is based on a country issuing the credential. The lack of a European issuer was identified.

HEI Requirements and Standards

1. HEI environments are continuously evolving and therefore the eID solution needs to be future proofed and adaptable to the on-going changes in technologies and the requirements of HEIs. Implementation of standards are important in this regard to avoid the reliance on proprietary solutions.
2. Local existing standards or legacy systems are relevant as they cannot be changed and therefore the challenges of integrating such systems needs to be considered.
3. Existing established federated identity standards should be built upon. e.g., eduroam and eduGAIN
4. In the use of online based systems enabling the availability of real-time student data, tokens should be independent to the service. The solution should be valid for services in both online and offline mode.
5. Supporting student mobility is one of the higher priorities for the use of a European Student Card/eID. On a cross-border basis, access to host and guest HEIs services and availing of discounts to services is important to students. This should be a basic requirement of a Student Card/eID.

Service Provider Requirements and Standards

1. In the creation of an identifier and authentication process for a student eID there is a need to make it generic and use online/offline systems or APIs to facilitate service providers requirements.
2. In the provision of academic and non-academic services both on and off campus, Service Provider will require a process that provides a trusted single student identity to facilitate access to services.
3. European Standards are important as without them the process is currently fragmented. A clear direction is required on this and the semantics and syntactics are important. By not having a single agreed standard for data interchange is a hindrance. It would be beneficial if there could be an accepted standard. Such standards will result in good cooperation and enable investment by service providers for a secure future. For instance, EWP and EMREX uses the standard ELMO which is an implementation of the CEN-standards MLO (Metadata for Learning Objects) and ELM (European Learner Mobility), whereas Europass uses a slightly different data model, EDCI (European Digital Credential Infrastructure). Why not use the same standard? Also, some schemas are noted in xml and others are using JSON. The difference is maybe not that significant so why not decide on one standard?

Legal Issues and GDPR

1. The European Student eCard as an ID will need to consider the legal aspects of personal data and the GDPR regulation.
2. It is recommended that further clarification is required on the EU Regulation N°910/2014 (electronic identification and trust services) in terms of the student card. Clarification is required on which campus services are within the scope of the regulation as the practices can be different for various countries.
3. Compliance with European Guidelines/laws to harmonise national laws that allows HEI to issue identity documents for the processing of a European Student eID.
4. Engagement with the HEI sector is required to deliver recommendations and guidelines that will determine how the specific law/regulations in each country can be implemented in compliance with European regulations.
5. Creation of specific educational qualified digital certificates should be considered. Depending on the needs (applying for work, grant, etc.), the student would require the issuance of a certificate where the student will share only the desired information. The certificate should therefore be valid and created in real-time.
6. Cross-border eID validation is essential. The validity of an eID issued in a country should be valid as student identification in any country. This interoperability will allow students to benefit from discounts, access to libraries, etc.

7. In spite of numerous legal issues and GDPR, the implementation of the Digital Covid Passport across EU should be analysed. With all its imperfections, there was an urgent need, so the implementation was done with the existing minimalist/effective technology and ready to grow (e.g. QR Codes linked to personal profiles and mobile phones/numbers).

Supporting European Strategy & Initiatives

1. The student eID must support the European Digital Education Action Plan in advancing student mobility and cooperation between HEIs and the acceleration of existing trends towards online and hybrid learning.
2. The European Student Card Initiative will enable every student to identify and register electronically at HEIs within Europe thus eliminating the need for onsite registration. It is part of the Digital Education Action Plan, and is aimed at improving student mobility. This initiative is linked to the EU's eIDAS regulations and will provide cross-border electronic exchange of student data based on the once-only-principle to facilitate access to online services in the hosting HEIs and countries.
3. The ESC-tension project aims to promote the adoption and roll-out of the European Student Card (ESC), the card management systems harmonisation, and the local students service systems. The purpose of ESC-tension is to facilitate the local and national adoption of the European Student Card, as a part of the wider vision of the European Student Card Initiative. This adoption is currently slowed down due to technological, administrative, and operational gaps: the main goal of the project is to fill these gaps, through a free, open-source, multilingual and multi-country platform, providing the results and guidelines.
4. The European Digital Student Service Infrastructure (EDSSI) project is part of the European Student Card initiative and is in line with the vision of the European Education Area by 2025. The aim of the research project is to develop a system which will allow HEIs to exchange and authenticate student data in a seamless and secure way. This initiative is the future of student mobility infrastructure and will provide a single point of entry to all academic and non-academic services across Europe. It will provide a simplified administration, faster processes, and better mobility experiences that will allow students to find all the information they need to experience a high-quality mobility experience abroad. There is a need to develop a structure to promote the values and benefits that may accrue to the stakeholders, which could be far-reaching and cost-effective for all stakeholders.

Engagement and Collaboration with the EU and Stakeholders

1. There is a need for more engagement between HEIs and support associations with the relevant department responsible for electronic identification of students in the EU to develop agreed regulations and guidelines for the issuing of a Pan-European student eID.
2. Knowledge and expertise in eID innovation continues to grow throughout Europe resulting from the successful outcomes of numerous research projects, however much of this has been done in isolation. There is a need to develop a structure of knowledge convergence and collaboration, the benefits of which could be far-reaching and cost-effective for all stakeholders.
3. There is significant support for the concept of a European Student eID from HEIs and Student particularly in a hybrid system. Both of these stakeholders express a strong view (ECCA Market Survey) that the concept could replace the existing student ID/campus card. Engagement and collaboration are required to promote this belief.
4. As part of this project we reviewed 13 past and on-going projects. We found it particularly difficult in many cases to source the relevant information and/or the project outcomes. It is recommended that a more transparent process be provided by the EU to facilitate easier access to this valuable research and information.

Marketing, Dissemination and Promotion of a European Student eID

1. Collaboration between the EU, HEIs and all Stakeholders to implement a marketing strategy to promote the acceptance of a European student eID that guarantees unambiguous identification of a student needs to be established.
2. In gaining end-user acceptance there is a need to determine what is the priority of a student for a European Student eID. Is it to provide secure identification and/or access to services? The needs of students as the end user are fundamental to the overall acceptance and use of a European Student eID. This includes both access to services on and off campus and as a physical identity for cross border use. Access to such services will also need to be carefully considered as they will include a mix of both academic and non-academic services in both online and offline modes, which will result in different levels of authentication requirements.
3. The ESC-tension – EU Student Card Extension and Adoption research project, promotes the services which represent the driver for the adoption of the European Student Card, which are digital services and physical services. This project is developing a multidimensional matrix, connecting cards with services, which will support the digitisation and standardisation of student mobility administration, enabling online authentication of students' identity across Europe. There needs to be a pan European approach to the dissemination of the outcomes from this project.
4. The student cohort is an important stakeholder in the successful implementation of a European Card/ eID. However in relation to a new eID solution, it has been identified that the awareness of this group is extremely low. This is an issue that needs to be addressed, as they are the end-user and an important stakeholder.
5. The research survey undertaken as part of this project (Section 2.4) has established that two out of every three students believe that that European Student eID can replace the traditional physical card and integrate with the relevant services. Initiatives should be developed to promote this positive trend.

4. Project Summary

4 Project Summary

The main policies and strategies of the European Campus Card Association (ECCA) are dedicated to the implementation of student eID credentials in Higher Education Institutions (HEIs) that supports student mobility and the provision of trusted identification and secure access to services across European countries. ECCA strongly supports the EU policies in building a more inclusive European society which will help students recognise that they belong to a greater European community. In addition, enabling the seamless use of a student eID throughout the EU will create a positive feeling of trust and security with the student by providing unrestricted access to cross border services, both on and off campus.

This project "Consultation Process on the Development of a Proposal for a Trusted Student Identification Framework" (Student eID Framework) involved a process of networking knowledge sharing and research with the relevant stakeholders. It has provided an important resource for the establishment of a European student eID that will support the provision of secure identification and authentication on a cross-border basis in Europe. The development of a proposal for a Trusted Student Identification Framework is consistent with the policies, strategies, and activities of ECCA, which are focused on a process of networking and collaboration with its membership of European HEIs and Services Providers.

The primary purpose of this project was to assist in the process of generating knowledge and awareness of the benefits derived from a student eID credential, which supports the statutory activities of ECCA and EU policy, in particular, Regulation (EU) N°910/2014 on electronic identification and trust services for electronic transactions in the internal market[28]. The main goal of the student eID mutual recognition is to enable EU students to perform cross-border interaction with their own national eID (as per Regulation (EU) 2015/1502) that will support the concept of open education and networking with other institutions. Since each Member State has a separate system to manage electronic identities, a mechanism is needed to create comparability and interoperability between them.

To achieve this goal, it was essential to establish a process of real engagement and buy-in from all potential stakeholders, as their requirements together with their opinions and experience will be vital to a successful outcome of any proposed solution. Through fostering dialogue with stakeholders from the various Member States, the project facilitated a process of knowledge-sharing and cooperation on the challenges in establishing interoperability and security of student eID on a cross-border basis.

The "Student eID Framework" set out four over-arching objectives to initiate a process of direct collaboration, networking and knowledge sharing to provide a progression for joined up thinking on the needs and requirements of a student eID credential from the stakeholders' perspective..

Objective 1: focused on engagement in a process of dialogue with the relevant stakeholders to seek out their views and opinions on the needs and requirements of a trusted Student eID credential (eIDAS compliant) that supports cross-border services.

Objective 2: identified the barriers that exclude stakeholders from enjoying the full benefits of a trusted eID that will facilitate cross-border provision of student services (academic and non-academic) and enable access to these services using their mutually recognised national student eID.

Objective 3: established recommendations for the development of a proposal for a trusted student eID framework that will support the provision of secure identification and authentication on a cross-border basis in Europe.

Objective 4: promoted innovation and networking, particularly in the education, business and technological sectors, associated with the use of a cross-border student eID that supports student mobility and access to student services across Europe together with supporting active European citizenship and intercultural exchange programmes.

[28] https://eufordigital.eu/thematic-area/trust-and-security/

These objectives were achieved through a series of workshops, surveys, and collaboration with existing eID projects involving the various stakeholder - HEIs, Students, Service Providers and Policymakers. The cooperation of stakeholders was a key factor in enabling the exchange of information and the sharing of best practices in the process of determining a roadmap for the creation of a secure student eID credential. Combining their knowledge, opinions and requirements was an integral part of the Student eID Framework to ensure it complements and supports the objectives of both the educational and Service Providers requirements. In addition, it demonstrates to the stakeholders how a trusted student eID credential can be a key enabler for secure cross-border electronic transactions, which is central to the Digital Single Market policy. This also supports EU policies on student mobility enabling access to academic and non-academic services across Europe.

The outcomes from the Student eID Framework project provided an important foundation to enable the establishment of a European student eID. This will demonstrate to the stakeholders the key benefits of a European student eID and how it can be a key enabler for secure cross-border electronic transactions, which is central to the Digital Single Market policy. In addition, there is strong evidence of support for EU policies on student mobility enabling access to academic and non-academic services across Europe. The project has identified the stakeholders' basic requirements, potential barriers and provides a sequence of recommendations that are fundamental to the successful development and integration of a European student eID. Fostering a collaborative structure amongst the stakeholders will be an essential requirement in sharing best practices in determining a roadmap for the creation of a European student eID.

Recommendations resulting from the various activities of Student eID Framework project provide a sequence of important requirements for consideration and evaluation, so as to achieve a high level of acceptance, collaboration, and positivity from the stakeholders for the concept of a European student eID. For clarity purposes the recommendations were abridged into ten categories.

The physical ID card will continue to be required. However, the use of a physical ID card in a hybrid system together with mobile devices should be promoted, as this is the most favoured option with HEIs and students. European countries have different needs and requirements for a student eID; therefore, it will be challenging to develop an all-encompassing standardised European student eID as regulations/laws/systems in countries differ diversely as does the lifecycle of the campus card/eID. Implementing a pilot system between three or four countries on a phased basis would be a more feasible solution.

Mobile Devices are becoming an alternative to the traditional campus card, either on a stand-alone basis or part of a hybrid student eID solution. In North American universities, where the devices provide the eID credential, there is a positive reaction from the students to their introduction. There is a need for a coordinated approach to the use of mobile devices in a European context to take advantage of the opportunities that exists for campus applications and establish a common approach to achieving best practice.

Security, Trust and User Authentication are important and it is essential that in the convergence from physical to digital identify that a trusted infrastructure is established to provide reliable identity and the provision of interoperable validation of students. The use of Self-Sovereign Identity as a possible solution, together with the use of eIDAS for authentication of eID issuance should be considered. In addition to providing trusted student identification and authentication between HEIs, the verification process should also provide the required validation to allow access to relevant services both on and off-campus.

It is essential that in the convergence from physical to digital identify that a trusted infrastructure is established to provide reliable identity and the provision of interproerable validation of students. The use of Self-Sovereign Identity as a possible solution, together with the use of eIDAS for authentication of eID issuance should be considered. In addition to providing trusted student identification and authentication between HEIs, the verification process should also provide the required validation to allow access to relevant services both on and off-campus.

Compliance with eIDAS is an important requirement in providing a student eID with consistency and transparency, together with legal security for cross-border transactions. There is a need to focus on ecosystem development that is adaptable to HEIs.

eID solutions need to be future proofed and adaptable to the on-going changes in the technologies and requirements of HEIs. The implementation of standards is important in order to avoid the reliance on proprietary solutions. Supporting student mobility is a highly rated priority for the use of a European Student Card/eID. On a cross-border basis, access to host and guest HEIs services and availing of discounts to services is important to students. This should be a basic requirement of a Student Card/eID.

The student eID identifier and authentication process should be made generic to facilitate Service Providers' requirements. To provide services both on and off-campus the Service Provider will require a process that provides a trusted single student identity to facilitate access to the services.

Compliance with the legal aspect of personal data and GDPR regulations is a fundamental requirement of a European student eID. There is a need to collaborate with stakeholders on recommendations and guidelines to determine how the specific law/regulations in each country can be implemented in compliance with European regulations. The implementation of the Digital Covid Passport across EU should be analysed as this solution was implemented with the existing minimalist/effective technology.

The student eID must support the European Digital Education Action Plan in advancing student mobility and cooperation between HEIs and the acceleration of existing trends towards online and hybrid learning.

The European Student Card Initiative is focused on enabling students to identify and register electronically at HEIs within Europe, eliminating the need for on-site registration. It will provide cross-border electronic exchange of student data based on the once-only-principle to facilitate access to online services in the hosting HEIs and countries.

The ESC-tension project aims to promote the adoption and roll-out of the European Student Card. The purpose of this project is to facilitate local and national adoption of the European Student Card. This adoption is currently constrained due to technological, administrative, and operational deficiencies. The project will overcome the restrictions by providing a free, open-source, multilingual and a platform solution for European countries.

The European Digital Student Service Infrastructure (EDSSI) research project is focused on developing a system which will allow HEIs to exchange and authenticate student data in a seamless and secure manner. It supports student mobility and will provide a single point of entry to student services across Europe. It will provide a simplified administration, faster processes, and better mobility experiences that will allow students to experience a high-quality mobility experience abroad.

To achieve a successful implementation and a positive end-user acceptance of a European student eID, it is essential that there is constructive engagement and collaboration between all stakeholders throughout the research, development, and implementation process. There is a need to develop a structure of knowledge-sharing and partnerships, which will provide far reaching benefits and cost-effectiveness for all stakeholders.

Marketing, dissemination and promotion of a European Student eID is required. In gaining end-user acceptance there is a need to determine the priorities of a student for a European Student eID. The needs of students as the end-user are fundamental to the overall acceptance and use of a European Student eID. The ESC-tension project promotes the services which represent the driver for the adoption of the European Student Card, both digital and physical services. There needs to be a pan-European approach to the dissemination of this project's outcomes. Although the student cohort is an important stakeholder in the successful implementation of a European Card/eID, there is a low awareness within this group to the concept of a new European student eID. This is an issue that needs to be addressed as they are the end-user and an important stakeholder. Research undertaken by this project (Student eID Framework) has identified that two out of three students believe that a European Student eID can replace the traditional physical card and integrate with the relevant services. Initiatives should be developed to promote this positive trend.

An important objective of this project is the dissemination of results. This process will now be done in a strategic and targeted way among stakeholders and other groups including policy makers. It will promote innovation and

networking, particularly in the education, business, and technological sectors, associated with the use of a cross-border student eID that supports student mobility and access to student services across Europe together with supporting active European citizenship and intercultural exchange programmes. Various forums will be used to exploit the project results groups through our partner organisations (i.e., NACCU, EUNIS, eID FORUM) and through the website portal, brochures, conferences, workshops, papers, newsletter, and other relevant platforms. Through this process we will enhance the promotion and awareness of a European student eID.

However, there are still many obstacles that need to be overcome in order to achieve the successful delivery of a European Student eCard and some of these include;

- The scope of EU Regulation N°910/2014 is unclear.
- The European Student Identifier (ESI) – is the solution to have one identifier as there are different profiles and they can be local to their own country/legislation?
- There is a demand for a hybrid system but no research project has addressed this.
- The use of Mobile devices requires standardisation and open APIs, promoting competence, broadening the catalog of solutions and therefore enhancing the future mobile eID ecosystem.
- Security issues – The card, the mobile phone or any security module hosted in the cloud are secure locations where the identification information (e.g. a certificate) is stored. We must enforce not only the technical means, but also the user concerns, to properly and seamlessly perform the authentication and authorization processes.
- The pandemic resulted in greater demand for online learning. This has resulted in a greater need for secure ID online.
- Local / Legacy systems that cannot be changed need to be considered.
- Lack of standards and data formats.
- Money / Funding investment is a factor as mobility is still a minority requirement.
- Language barrier / culture within the EU.

In conclusion, the project has established a strong collaborative partnership with the relevant stakeholders and has provided valuable knowledge and information on the needs and requirements of a European Student eID Credential that supports cross-border services. The outcomes from this partnership, through a knowledge-sharing process has identified many potential solutions to the obstacles that may be encountered in the task of implementing a student eID credential. This process involved 207 stakeholders from 25 countries, including HEIs, students, service providers and policy makers and other relevant groups. The networking and collaboration achieved throughout the project demonstrates a strong enthusiasm and commitment of support from the stakeholders to the concept and requirement for a European student eID. There is a need to exploit and build upon this cooperation, together with the significant expertise, research, and innovation available from existing eID research projects.

Finally, the concept of a European student ID card was first mooted with the foundation of the European Campus Card Association in 2002 (as per their constitution)[29]. Although it has been a 20-year journey, this concept is now a reality and will be an important requirement in the provision of trusted student identification and authentication, together with supporting mobility and facilitating access to services across European countries.

[29] https://ecca.eu/about-ecca/history-of-ecca/constitution-2004

5. Appendices

Appendix 1 – November 2020 Workshop Poster

A European Student eID

Defining identification and authentication

JOIN OUR ONLINE WORKSHOP

Tuesday
November 3rd
at **15.00** (CET)

Click Here
to **Register**

The European Campus Card Association is hosting an online workshop to discuss the future needs and requirements of a **European Student eID**. The panel of speakers will discuss the **Legal, Business, Operational issues, Standardisation,** and also the future use of **Mobile Devices** in **eID Credentials,** followed by an open discussion. Full agenda available on **www.eidproject.eu**

ECCA
Student eID Framework

With the support of the Erasmus+ Programme of the European Union

www.eidproject.eu | www.ecca.eu | info@ecca.eu

Appendix 2: May 2021 Workshop Poster

Appendix 3: May 2021 Event Proceedings Booklet

ECCA WORKSHOP 2021

A European Student eID

defining identification & authentication

Tuesday 25th May

@ 14:30 (CEST)

www.ecca.eu | www.eidproject.eu

With the support of the Erasmus+ Programme of the European Union

ECCA
Student eID Framework

Workshop Agenda *(14:30 – 17:30 CEST)*

14.30: Welcome & Introduction

Rene de Koster (President) & Sinead Nealon (Executive Director) European Campus Card Association

14.35: Keynote Session

'Innovate with a Purpose: The ID they want, when they want it'
By Jeff Staples, Consultant specialising in security, payments and identification

14.50: Session 1: eID of the Future, Research Projects & Advances in Online Learning

- 'From EWP to EDSSI – current developments'
  By João Bacelar, European University Foundation
- 'From the ESC to the ESC-tension project: how the ESC is an e-Id and why it is essential for students to accelerate its adoption throughout Europe'
  By Andrea Baldin, ENDISU, and Silvia Faloretti, EDUCatt and Fondazione ENDISU
- 'The use of Electronic Signatures in Higher Education'
  By Jacek Blahut, OPTeam
- 'Learn Anywhere'
  By Oscar van der Linden, EPSON Europe B.V

15.50: Break

16.00: Session 2: Migrating to Mobile & Virtual ID

- 'The convergence of physical and mobile credentials on a university campus'
  By Martin Hoff, Entrust Corporation
- 'Becoming a Mobile Campus'
  By Jeanine Brooks, University of Alabama

16.40: Session 3: Technology Innovation & Trends

- 'The Future of Access Control'
  By Iñaki Barettini, Infineon Technologies AG
- 'Level Up Your Card Issuance Process'
  By David O'Driscoll, HID Global

17.20: General Discussion & Closing Session

European Campus Card Association Presentation Summary
(Abstracts & Speaker's Bios)

Keynote Session

Time:	**14.35 – 14.50**
Title:	**Innovate with a Purpose: The ID they want, when they want it**
Presenter(s):	**Mr. Jeff Staples, Consultant in security, payments and identification**

Abstract:

A generation of students has come to know the student ID as a capable piece of plastic, opening doors, purchasing food, washing their clothes, perhaps even getting them into the big match. While capable and cost effective, that card also has its drawbacks. Issuance can be time consuming for the operator and cardholder, first time read rates can vary, and lost cards add friction to the user experience in time, inconvenience and expense.

There is a better way, and it's taking place on university campuses today. Students provisioning their ID digitally, anytime time day or night, from their kitchen or as they walk across campus, then using that mobile credential for all the same use cases, with sub-second speed.

Join us for a discussion on how we got here, considerations and costs to enable this innovation on campus and hear feedback from program administrators and students alike.

Bio:

Jeff Staples is a consultant specializing in the areas of security, payments and identification. Most recently Jeff was responsible for the market development, strategy, and innovation practices for U.S.-based Transact Campus. Jeff also led the Transact innovation practice, and in doing so has helped architect and deliver some of the industry's most significant innovations, including the multi-year effort to deliver the first mobile credential in the world for Wallet on Apple iPhone, Apple Watch, and Google Pay.

Prior to Transact Campus, Jeff led the global business development efforts for Blackboard and its Transact division. Jeff previously cofounded and helped grow a leading identity and payment industry publication group including CR80News and Regarding ID Magazine. Earlier in Jeff's career, he was a founding member of the Card Application Technology Center at Florida State University and spent over fifteen years in the ID technology industry developing advanced ID products for the payment and security sectors in higher education.

Session 1: eID of the Future, Research Projects & Advances in Online Learning

Presentation 1:	**14.50 – 15.05**
Title:	**From EWP to EDSSI – current developments**
Presenter(s):	**Mr. João Bacelar, European University Foundation**

Abstract:

The European Student Card Initiative is a flagship policy initiative of the European Commission that aims to digitise and streamline the administration of student mobility across the continent; it combines elements of various EU funded projects such as EWP, OLA, ESC, Erasmus+ App and MyAcademicID. Over the years these tools have garnered a user base of several thousands of universities.

2021 marks the year that exchange of interoperable data will be gradually rolled-out at the heart of the new Erasmus+ programme, so a greater emphasis is now being put on the integration and articulation of the infrastructure noted above, which are combining their strengths to create the European Digital Student Service Infrastructure (EDSSI). The EDSSI is a key step towards supporting secure and seamless mobility data exchange and the presentation will explore the architectural challenges it is looking to tackle and anticipate some of the results its project team is working towards.

Bio:

João Bacelar is the Executive Manager of the European University Foundation (EUF), which is the largest and most influential network of universities looking to modernize the European Higher Education Area in general and student mobility in particular. The EUF works with universities, governments, European institutions and student organisations on a daily basis to improve EU policy, cooperation and innovation. João has been involved in higher education policy since the onset of the Bologna Process and joined the EUF in 2004.

Presentation 2: 15.05 – 15.20
Title: From the ESC to the ESC-tension project: how the ESC is an e-Id and why it is essential for students to accelerate its adoption throughout Europe
Presenter(s): Mr. Andrea Baldin, ENDISU, and Ms. Silvia Faloretti, EDUCatt and Fondazione ENDISU

Abstract:

The ESC can be seen as a set of identification and authentication standards that integrates the electronic identifier called ESI. The ESI is being proposed as a standard by the European Commission, thanks to the contributions of projects like MyAcademicID and EDSSI.
The actual impact that the ESC and the ESI can have is as high as the number and the quality of services they grant access to and, while the transition towards the digital transformation is becoming the norm, the on-campus services still represent a meaningful aspect of the students' life.
The ESC-tension project promotes the extension and the adoption of the ESC through innovative tools, such as the Multidimensional Matrix and the Profiling Tool, in compliance with the priorities of the European Student Card Initiative.

The project started in November 2020 and will end in October 2022, counting on seven partners from six different countries.

Bio(s):

Andrea Baldin is consulting as Project Manager for Italian HEIs and Student Services Organizations since 2009 and for ENDISU since 2015.

He has a Master's Degree in Electronic Engineering at Università degli Studi di Pavia and has been focusing his work on streamlining core processes through the adoption of new technologies and the integration of existing systems, helping the organizations' staff to increase the value of the services delivered to the students.
Back in 2016, he was part of the core team that set up and run the European Student Card project, and now he works for ENDISU as the ESC national coordinator for Italy. In MyAcademicID and EDSSI projects he has coordinated the communication team responsible for the design of the website and for the dissemination activities. In 2020, he started coordinating the consortium of seven European partners behind the ESC-Tension project.

Silvia Faloretti has a Master's Degree in Foreign Languages and Literatures at Università Cattolica del Sacro Cuore in Milan. She works since 2016 for both EDUCatt and Fondazione ENDISU as a project coordinator for European Strategic Partnership in the field of innovation for Higher Education Institutions. Her skills range from the design of the project contents to the management of a partnership and the related administrative, including general communication activities and quality assurance.

Presentation 3:	**15.20 – 15.35**
Title:	**The use of Electronic Signatures in Higher Education**
Presenter(s):	**Mr. Jacek Blahut, OPTeam**

Abstract:

The presentation will focus on the eSignForStudy project which will develop a system for Higher Education Institutions (HEIs) that will enable the use of electronic signatures and electronic seals in line with eIDAS Regulation and standards (signature/seal creation and/or validation). Initially it will focus on enhancing document handling in Polish HEIs and on secure cross-border exchanges, but eventually will be used in small medium-sized enterprises.

Bio:

Jacek Blahut is Vice President of OPTeam, a company with a long tradition of building IT systems for universities. They are both card-based systems as well as general University management solutions. Jacek, on behalf of OPTeam, is the coordinator in the EU funded project 'eSignForStudy'.

Presentation 4:	**15.35 – 15.50**
Title:	**Learn Anywhere**
Presenter(s):	**Mr. Oscar van der Linden, EPSON Europe B.V**

Abstract:

This presentation will focus on delivering education remotely.
In today's times, education presents many new challenges. How can you ensure that wherever the student is, you can still guarantee the quality of the education? The collaboration of different vendors offers a solution to these challenges.
'Learn Anywhere' provides physical education (remotely), in combination with the Analogue/ Digital principles and is based on worry-free technology.

Bio:

Oscar van der Linden, is Sales Manager for EPSON Europe B.V. He started EPSON in the Netherlands and has been working for the company for 22 years. As part of his professional career he has a focus and ambition for the development of environmental products.

Session 2: Migrating to Mobile & Virtual ID

Presentation 5:	**16.00 – 16.20**
Title:	**The convergence of physical and mobile credentials on a university campus**
Presenter(s):	**Mr. Martin Hoff, Entrust Corporation**

Abstract:

Before March 2020, campus card and auxiliary services programs were on a trajectory toward more convenient, technology-driven experiences. Then a global pandemic hit and everyone's priorities shifted. Universities quickly transitioned to remote learning and work, and began planning for how and when to safely reopen campus. Technology moved to the forefront of plans to accommodate physical distancing, cleaner spaces, remote work, and self-service. In this presentation Entrust will focus on how you can issue student IDs in a safe and secure manner by enrolling and issuing cards from home or the office, delivering cards to students on campus, off campus, or at home, and giving your students a physical and mobile credential.

Bio:

Martin Hoff is the Product Marketing Manager for Instant ID Solutions at Entrust Corporation. Over his 20-year career, he has worked in a variety of Field and Corporate Marketing roles in both hardware and software companies: Sprint, Calabrio, and Patterson Dental. In his product marketing role, he's responsible for positioning

Presentation 6: 16.20 – 16.40
Title: Becoming a Mobile Campus
Presenter(s): Ms. Jeanine Brooks, University of Alabama

Abstract:

As universities strive to improve the student experience, identification and security of transactions, the migration of the traditional Student ID card on to mobile devices is now very much a reality.
The University of Alabama was one of the first universities in the U.S. to offer an innovative mobile credential program. Launched in 2018, the program created a long-term vision for mobile campus credentials supported on the Apple iPhone and Apple Watch, and on Android devices. This enabled faculty, staff, and students to add card functionality to these devices and provided a first-class user experience in a highly secure, easy-to-use solution.
This presentation will focus on the roadmap to "Becoming a Mobile First Campus" and provide an insight on how the right mobile credential strategy can enhance your university brand and increase student satisfaction in an inventive way.

The discussion topics will include:

- The main drivers behind the mobile credential project.
- Phased Implementation program and infrastructure.
- Planning for Multiple Credential Technology
- Main benefits of the Mobile Credential.
- User acceptance levels.
- Lessons learned – 3 years on.

Bio:

Jeanine Brooks serves as Director of Action Card for the University of Alabama. She has 34 years of experience in the university environment. Jeanine has served as a member of the NACCU Board, Conference Chair, Marketing Committee and NPI and SAGs faculty, as well as Chair of the NACAS Professional Development Committee and a member of the BbTransact President's Advisory Council. The Action Card program is a UA campus enterprise level system. The MyTickets online electronic student ticket management system, Online Photo Submittal application and ACT Card in Apple Wallet/ACT Card in Google Pay are examples of the innovative services provided to UA which have won technology awards from The University of Alabama, National Association of College Auxiliary Services (NACAS, NACAS South), National Association of Campus Card Users (NACCU), Transact, Southern Association of College and University Business Officers (SACUBO) and University Business (UB).

Session 3: Technology Innovation & Trends

Presentation 7:	**16.40 – 17.00**
Title:	**The Future of Access Control**
Presenter(s):	**Mr. Iñaki Barettini, Infineon Technologies AG**

Abstract:

Traditionally a conservative a not very prone to changes, the Electronic Security Industry has been in deep transformation in recent times. From mechanical locks and drills to mobile credentials and cloud services, the industry has undergone big changes in the last 25 years. With a clear convergence with other industries like smart cities, IoT, payment or authentication systems, a bunch of new developments and exciting innovations are taking place now and for the next years to come.

Now the industry is booming with new trends and developments, being Mobile and Cloud the major drivers today. But also Smartlocks or Vehicle Access make the Industry to expand beyond its traditional boundaries as more security is required from the consumer market. Non-traditional players like Samsung or Amazon are stepping into the Industry with their own proposals around mobility and convergence as a variety of applications like Payment, Identification and Access merge together in multiple platforms, from e-wallets and smartphones to virtual credentials.

Do you want to know more about the industry and the developments expected in the next 5 years? In this presentation you may find all you want to know about the future of the Access Industry.

Bio:

Iñaki Barettini is a Senior Manager with more than 15 years of experience in Electronic Security, Software Applications, Cloud Computing, Mobile and Contactless Technology. He has held various Senior positions in Sales, Marketing and Business Development in some of the most renowned players in the industry like Ikusi-Velatia, dormakaba, BlueID or Infineon Technologies. Iñaki is multi-cultural character, with job experience in Europe, Asia and the Americas, able to work and understand different sensitivities both in the professional and in the personal field.

Currently Iñaki is Senior Manager Application Management at Infineon Technologies AG for Access and Identity Solutions covering various market segments like Smart Infrastructure, Cloud Security, Smart Cities and ID

Presentation 8: 17.00 – 17.20
Title: Level Up Your Card Issuance Process
Presenter(s): Mr. David O'Driscoll, HID Global

Abstract:

This academic year feels distinctly different than any other as we all navigate the challenges our new world and new era of work have brought us. The student card issuance process is not immune to these challenges, and higher education institutions are struggling with how to alter a card issuance process that was typically done in-person. On top of that, many found that the on-boarding process was complex, time consuming, and rigid prior to the pandemic but these seemingly minor struggles have now been magnified due to remote working and distance learning.
In this session we will share how the HID FARGO Connect cloud-based card personalization system, in partnership with leading campus card solutions, are leveling up the card issuance process to safely improving the day one experience for new and incoming students. The presentation will cover the following topics:

- Connected Experience – Issue directly from your campus card solution
- Issue from Anywhere – Send encrypted print jobs while in the card office or from the comfort of your couch, no print drivers needed!
- Secure Remote Issuance of Smart Cards – Enroll cards within seconds by reading contactless card data during the print process
- Real-Time Visibility of Entire Issuance System – Increase uptime by staying on top things while working remotely

Bio:

David O'Driscoll works for HID Global as Senior Director, Strategic Initiatives, Secure Issuance. David leads global initiatives in expanding the Secure Issuance business into new markets and with existing customers.

David has 20 years of industry experience and joined the HID team with the acquisition of Synercard in 2005. At Synercard, David served as Global Sales Manager, establishing global representation for Asure ID software. Prior to accepting the Strategic Initiatives position, David led the Secure Issuance sales efforts in the Eastern region of the United States and across Canada. David is based in Ottawa, Canada.


9:43

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www.eunis.org

HID

www.hidglobal.com

IDEMIA

www.idemia.com

ECCA Service Provider Members & Partners 2021

www.inepro.com

www.intercard.org

www.mecenat.com/se

www.naccu.org

www.onecard.ie

www.omnicardsolutions.nl

www.opteam.pl

www.polyright.com

www.saltosystems.com

www.ximedes.com

ECCA Conference 2022
Celebrating 20 Years

Hosted by University of Porto, Portugal, **May 2022**

Appendix 4 – Survey Questionnaire and Participating Countries

European Student eID Survey 2021

Commissioned by the European Campus Card Association

Introduction

The aim of this survey is to obtain the views and opinions of all stakeholders in relation to a European Student eID that will overcome the obstacles to the cross-border mutual recognition of students, thereby improving student mobility throughout Europe.

In the context of this survey;

The European Student eID, can be provided in a physical or virtual means. This can include a physical ID Card, Mobile Device, Biometric or Token. An example of this is the EU Student eCard, which the EU aims to make available to all students in Europe by 2025. For clarity purposes, in this survey the term 'European Student eID' can also refer to the EU Student eCard.

Further information is available on the following links:
https://eidproject.eu
https://ec.europa.eu/digital-single-market/en/eu-student-ecard
https://ec.europa.eu/education/education-in-the-eu/european-education-area_en

European Student eID Survey 2021

1. **Please state your country of residence.**

2. **Please tick the box that best represents you.**

- ○ Higher Education Staff
- ○ Student
- ○ Service Provider
- ○ Other (please specify)

3. **The European Student eID, to be implemented by 2025, will enable every student to easily register electronically at the host educational institution and thus have access to cross-border online student services when moving abroad.**

Please indicate your level of awareness of this.

- ○ Not aware
- ○ Somewhat aware
- ○ Very aware

4. **The goal of the EU is to make the European Student eID available to all students in Europe by 2025. Do you think the majority of HEIs will agree on a solution that will meet this goal?**

- ○ Yes
- ○ No

If No, please state why.

5. **In which format should the new European Student eID be in?**

- ○ Physical eID Card (smart card)
- ○ Mobile/Digital device
- ○ Hybrid system (combination of two or more formats)
- ○ Other Format (please specify)

6. **Each Student currently receives their eID/Campus Card from their own HEI.**
How important do you think it is for students to also have a unique European Student eID that provides access to services in other campuses both in their home country and on a cross border basis?

- ○ Very important
- ○ Important
- ○ Somewhat important
- ○ Not important

7. **Do you think the European Student eID can replace the existing student ID/Campus Card and integrate with the relevant services (e.g. library, access control, etc.)?**

- ○ Yes
- ○ No
- ○ Don't Know

8. **In terms of the European Student eID, do you think the eID should be?**

- ○ Focused only on the secure identification and authentication of a student between HEIs
- ○ Or, in addition also access to relevant services (e.g. both academic and non-academic services)

9. **There are many potential benefits of the European Student eID. Please rate the potential level of benefit for each:**

	Low	Medium	High
A Single Student Identity	○	○	○
Access to services both on and off campus and on a cross border basis	○	○	○
Less administration/paperwork for HEIs	○	○	○
Enabling identification of students in a trusted manner	○	○	○
Enable the secure transfer of student data/records	○	○	○

10. **Discounts can fulfill an important function for Students. What types of off-campus services would a student most benefit from with the European Student eID? Please rate on a scale of 1 to 5 (1 being the lowest, 5 being the highest).**

	1	2	3	4	5
Personal Finance	○	○	○	○	○
Health	○	○	○	○	○
Entertainment	○	○	○	○	○
Clothing & Beauty	○	○	○	○	○
Literature	○	○	○	○	○
Technology & Mobile Phones	○	○	○	○	○
Travel	○	○	○	○	○
Food	○	○	○	○	○

Other (please specify)

11. **An electronic signature is a legal way to get consent or approval on electronic documents, which can replace handwritten signatures. Please rate the importance of having the student electronic signature (personal certificate) linked to the European Student eID.**

- ○ Very important
- ○ Important
- ○ Somewhat important
- ○ Not important

12. **In addition to a Physical ID Card, the Student ID/Campus card could also be integrated in a mobile application.**

Is your HEI using mobile applications for the purpose of student identification?

- ○ Yes
- ○ No

If Yes, please specify if other functionalities/applications are also included in the App.

13. **There is an increasing use of Biometric technology on mobile phones/devices.**
Do you think the European Student eID should use biometric technology to provide digital identity of a student?

- ○ Yes
- ○ No

14. **With the advancement of banking technology in e-payments (e.g. tap and go), is there still a need for the European Student eID/Campus Card to also have an electronic purse, allowing payments both on and off campus?**

- ○ Yes
- ○ No

15. **Having now completed the previous questions, it may have increased your knowledge of the European Student eID. Do you think there are other methods that can be used to promote and disseminate its rollout?**

- ○ Yes
- ○ No

If Yes, please specify what these methods could be.

Conclusion:

Thank you for taking the time to complete our survey. The results will be available in April 2021.

The survey findings report will be available at **https://www.eidproject.eu**

If you provide your name and email address a copy of the report will be emailed to you directly. In compliance with data protection legislation your personal details (name and email) and the name of your HEI/Company will remain confidential and will NOT be distributed or used in the survey report.

Contact Information (Optional)

Name	
HEI/Company	
Country	
Email Address	

Participating Countries

The following are the 25 countries represented by the 207 respondents;

No.	Country Name
1	Austria
2	Belgium
3	Canada
4	Croatia
5	Czech Republic
6	England
7	Estonia
8	France
9	Germany
10	Greenland
11	Hungary
12	Iceland
13	Iran
14	Ireland
15	Italy
16	Latvia
17	Lebanon
18	Netherlands
19	Poland
20	Portugal
21	Scotland
22	Spain
23	Sweden
24	Switzerland
25	United States of America

European Campus Card Association

Student eID Framework

ECCA
Student eID Framework

With the support of the Erasmus+ Programme of the European Union

www.eidproject.eu | www.ecca.eu | info@ecca.eu