

STUDENT eID FRAMEWORK

Deliverable 2: On-line Market Research Survey

Report Date: 31st December 2019



**European Campus
Card Association**





Acknowledgement

I would like to express my sincere thanks and gratitude for the time and efforts given by the individuals representing HEIs, students, service providers and others (i.e. IT professionals, government departments) who have responded to this survey. Their contribution and willingness to share their views and opinions has resulted in valuable information being made available on the future needs and requirements of a European Student eID.

I would also like to thank our partner organisations, the European University Information Systems (EUNIS), the National Association of Campus Card Users (NACCU) and the eID Forum for their assistance in distributing the survey.

Finally, I would like to express my appreciation to all my colleagues on the ECCA Board for their assistance and support in the formulation, distribution and promotion of this survey.

Sinéad Nealon

Executive Director

DISCLAIMER

This Report is prepared by the European Campus Card Association (ECCA) as part of a Consultation Process on the Development of a Proposal for a Trusted Student Identification Framework (Student eID Project). The information, which is summarised herein is for general guidance only and is not professional advice and should not be considered such or relied or acted upon in this regard. Whilst the author has tried to ensure the accuracy and completeness of the contents of this document, ECCA cannot offer any undertaking or guarantee, either expressly or implicitly, including liability towards third parties, regarding how correct, complete or up to date the contents of the information provided in this report. ECCA accepts no liability for any loss or damage either direct or indirect arising out of the use of this information.

Contents

1. INTRODUCTION	3
1.1 Project Overview	3
1.2. Market Research Survey Overview	4
1.3. Survey Methodology	4
2. PRESENTATION OF RESULTS	5
2.1 Section A – General	5
2.2 Section B – Higher Education Institutions	6
2.3 Section C – Students	19
2.4 Section D – Service Providers / Others	28
3. DISCUSSION OF RESULTS	37
4. CONCLUSION	41
5. APPENDIX 1 – COUNTRIES	42

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) that will use internet technologies to support the provision of secure identification and authentication of students on a cross-border basis in Europe. The purpose of this Student eID Project is to obtain a consensus between European Higher Education Institutions (HEIs), service providers, students and the relevant stakeholders on the necessary structure, technologies and requirements that will facilitate the implementation of a common student eID throughout Europe. This project, supported by the Vietsch Foundation, is an essential first step in the consultation process on the ‘Development of a Proposal for a Trusted Student Identification Framework’.

The project activities will result in the following deliverable outcomes:

- Deliverable 1:** Researching the ‘State-of-the-Art’ (completed October 31st 2019).
- Deliverable 2:** Direct market research through an online survey.
- Deliverable 3:** Regional workshops.
- Deliverable 4:** Final Project Report.
- Deliverable 5:** Dissemination of Results.

This report focuses on the results from Deliverable 2.

Deliverable 2: Findings report from the market research survey carried out with HEIs, service providers, students and others to identify the necessary structure, technology and requirements for a student eID.

¹ <http://www.ecca.eu/>

1.2. Market Research Survey Overview

As part of this consultation process, an on-line survey was commissioned, in November 2019 (over a three-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 Europe, USA, Canada, and Asia, with a minimum of 150 target respondents. The total responses to the survey was 217 and the number of fully completed survey responses was 190 (completion rate 88%). For the purpose of the analysis of the results, only the fully completed 190 responses are included in this analysis.

1.3. Survey Methodology

The survey questionnaire was configured into the following sections;

1. Section A (Q1 – Q2): Generic Questions applicable to all respondents.
2. Section B (Q3 – Q18): Applicable to HEIs only.
3. Section C (Q19 – Q29): Applicable to the students sector only.
4. Section D (Q30 – Q40): Applicable to service providers / others group.
5. Section E (Q41): 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, with regards to the requirements and benefits of a European Student eID that will overcome the obstacles to the cross-border mutual recognition of students. The survey was divided into the various sections in order to be able to separately review and compare the various needs of the different stakeholders (HEIs, students, service providers / others).

2. PRESENTATION OF RESULTS

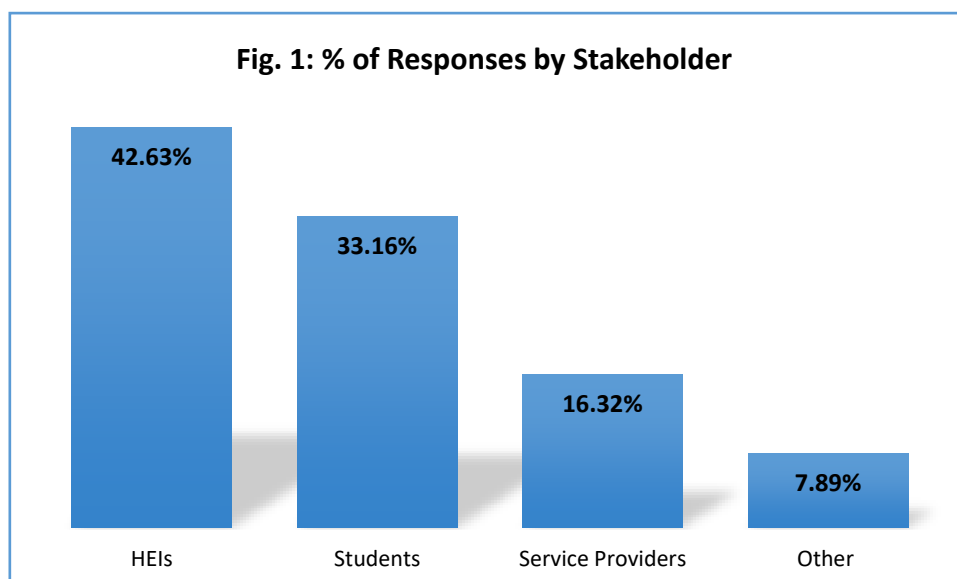
2.1 Section A – General

QUESTION 1: 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 190 fully completed responses from 28 different countries (Appendix 1- Countries).

QUESTION 2: 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 requirements. These stakeholder categories included HEIs, students, service providers and others, as outlined in Figure 1 below. From the 190 respondents, HEIs accounted for 42.63%, students 33.16%, service providers 16.32% and others 7.89% (namely IT professionals, Government departments).

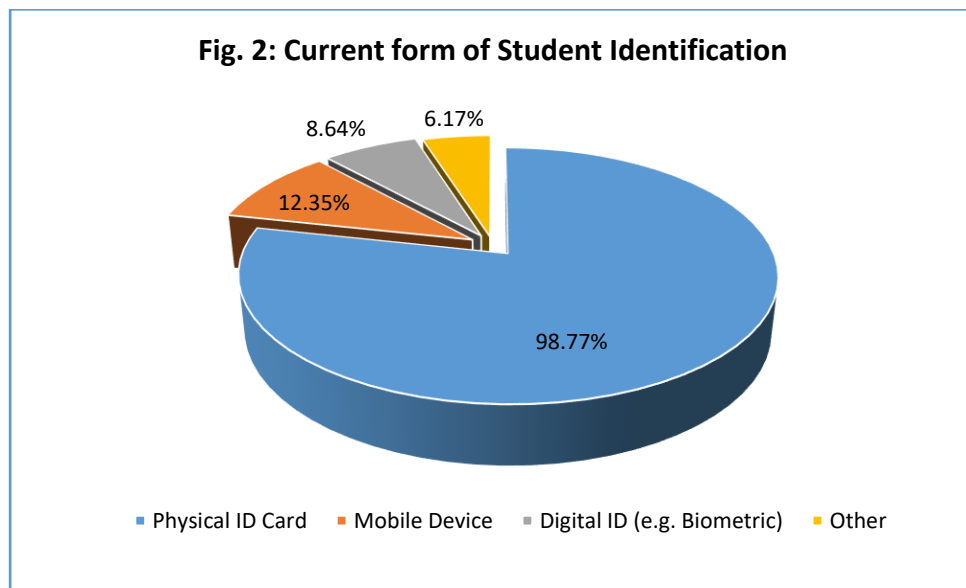


2.2 Section B – Higher Education Institutions (HEIs)

This section was specifically designed for HEIs. It comprised of 16 questions and respondents were required to answer all questions.

QUESTION 3: What is the current form of Student Identification at your campus? Select all that are applicable.

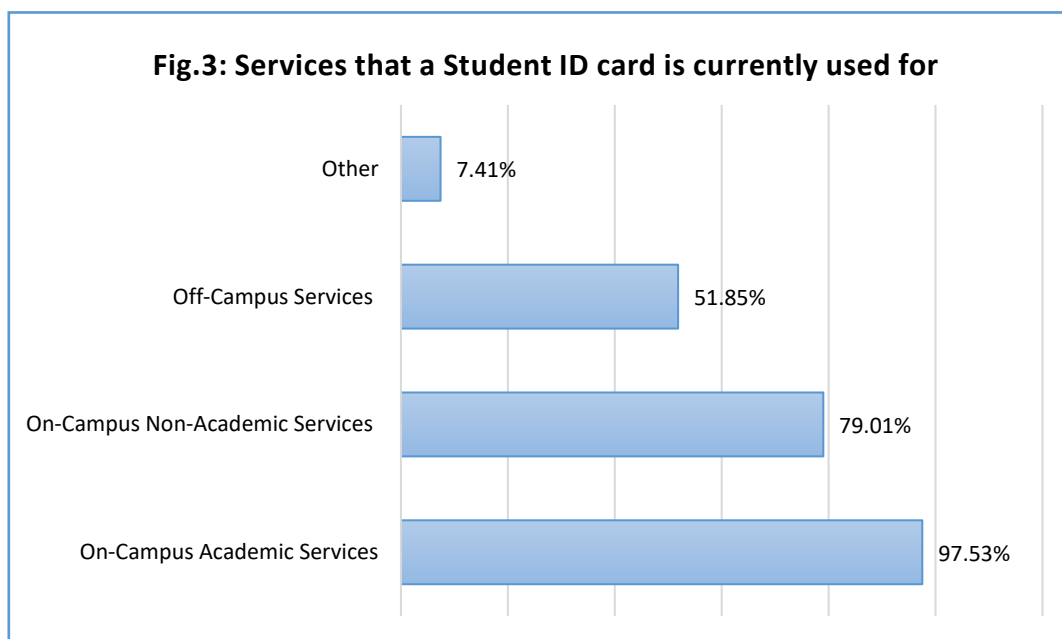
The rationale behind this question was to identify the current form of student ID on each campus, where applicable. It was also important to identify the various forms of ID that currently exist (where more than one system was used) in order to compare the variation in requirements needed for a European Student eID in the future. The respondents were required to select all options that were applicable. The most common form of student ID at present as shown in Figure 2 is the physical ID card (98.77%) followed by a mobile device (12.35%).



QUESTION 4: Please select the services your Student ID is currently used for.

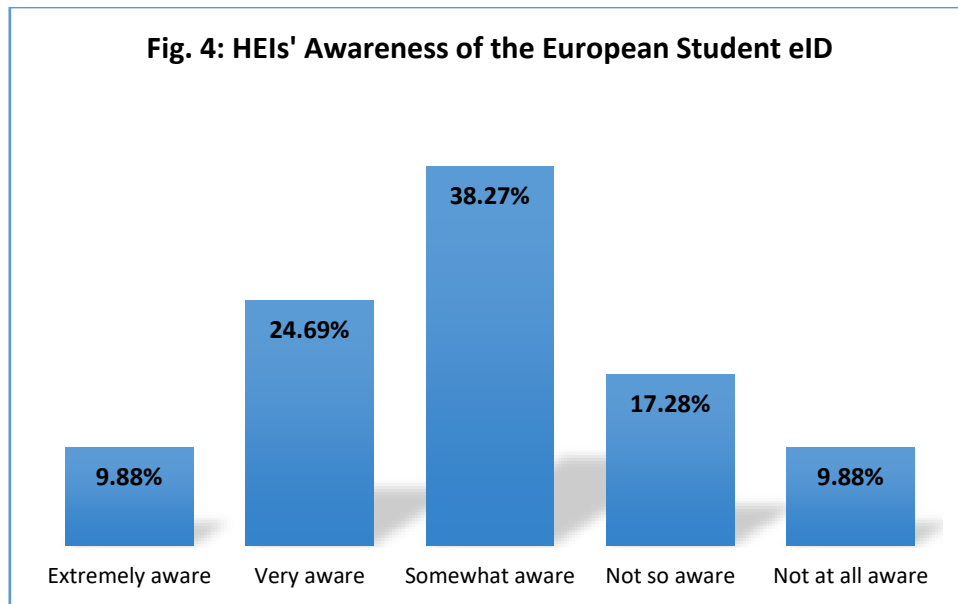
The objective of this question was to identify the current services the student ID is used for. This enables a comparison of the current requirements with the future requirements of a European Student eID.

The respondents were required to select all the alternatives that were relevant (there could be more than one). At present, On-Campus Academic Services (e.g. access to classrooms/labs, computer log-on, library services, exam ID, authentication, etc.) are the most common at 97.53%. On-Campus Non-Academic Services (e.g. printing, vending, car parking, payments, sports facilities, voting, etc.) are at 79.01%, Off-Campus Services (e.g. transportation, discounts, concessions, etc.) are at 51.85% and Others account for 7.41% (Other responses stated were a mix of on and off-campus services).



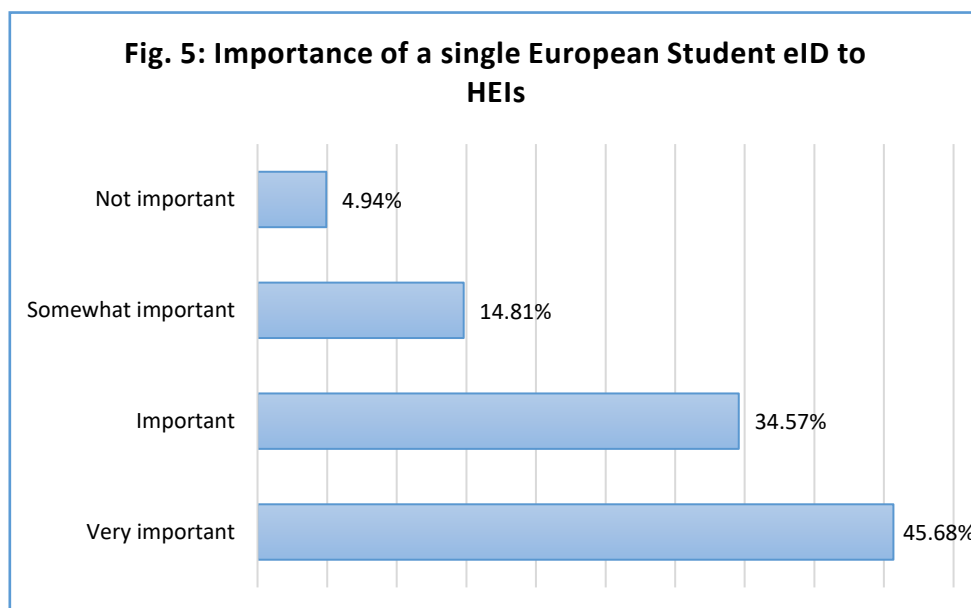
QUESTION 5: A European Student eID aims to provide a student with a single identifier that can be used at HEIs across Europe and provide access to services on a cross-border basis. Please indicate your level of awareness of the European Student eID.

One of the aims of this project is to identify the stakeholder requirements for a European Student eID. The purpose of this question was therefore to establish the HEIs' level of awareness in relation to the European Student eID. As can be seen from Figure 4, only 9.88% were 'extremely aware', 24.69% 'very aware', 38.27% 'somewhat aware' and the remaining 27.16% were either 'not so aware' or 'not at all aware'.



QUESTION 6: Please rate the importance of a single European Student eID.

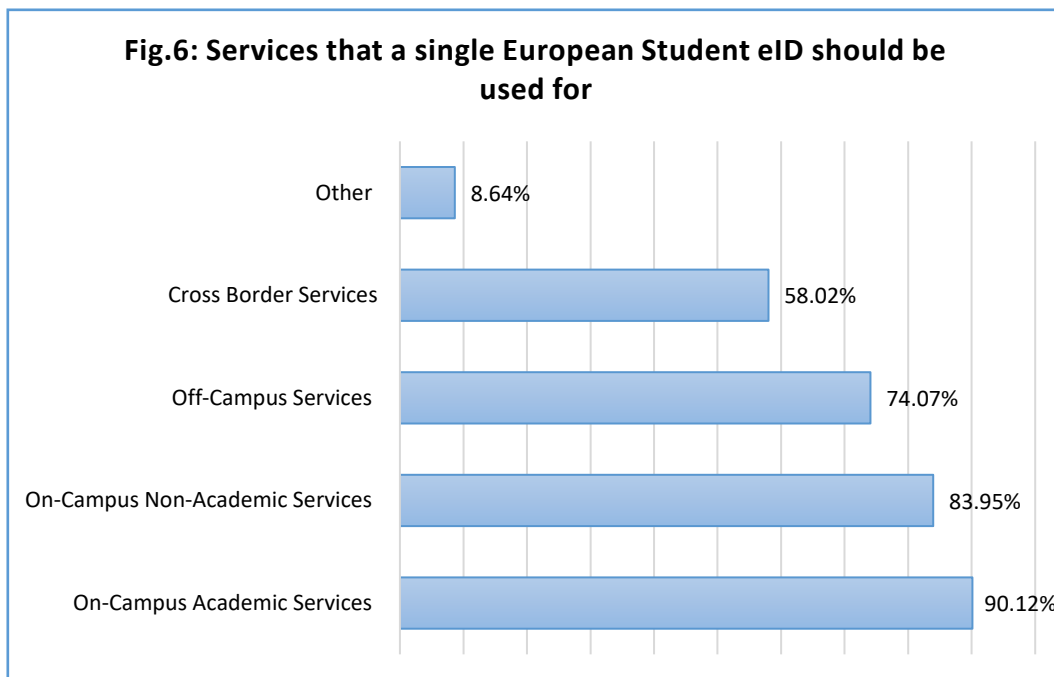
The purpose of this question was to establish how the HEIs rated the level of importance of a single European Student eID. This is particularly relevant as a ‘buy-in’ from the HEIs will be a key factor in the successful implementation of the European Student eID system. As indicated in Figure 5, HEIs, at 80.25%, rated it either ‘important’ or ‘very important’, 14.81% rated it ‘somewhat important’, while 4.94% stated it was ‘not important’.



QUESTION 7: Please select the services that a single European Student eID should be used for.

The purpose of this question was to identify the services that a single European Student eID should be used for, and furthermore to compare whether the requirements differed to the current services their ID is used for.

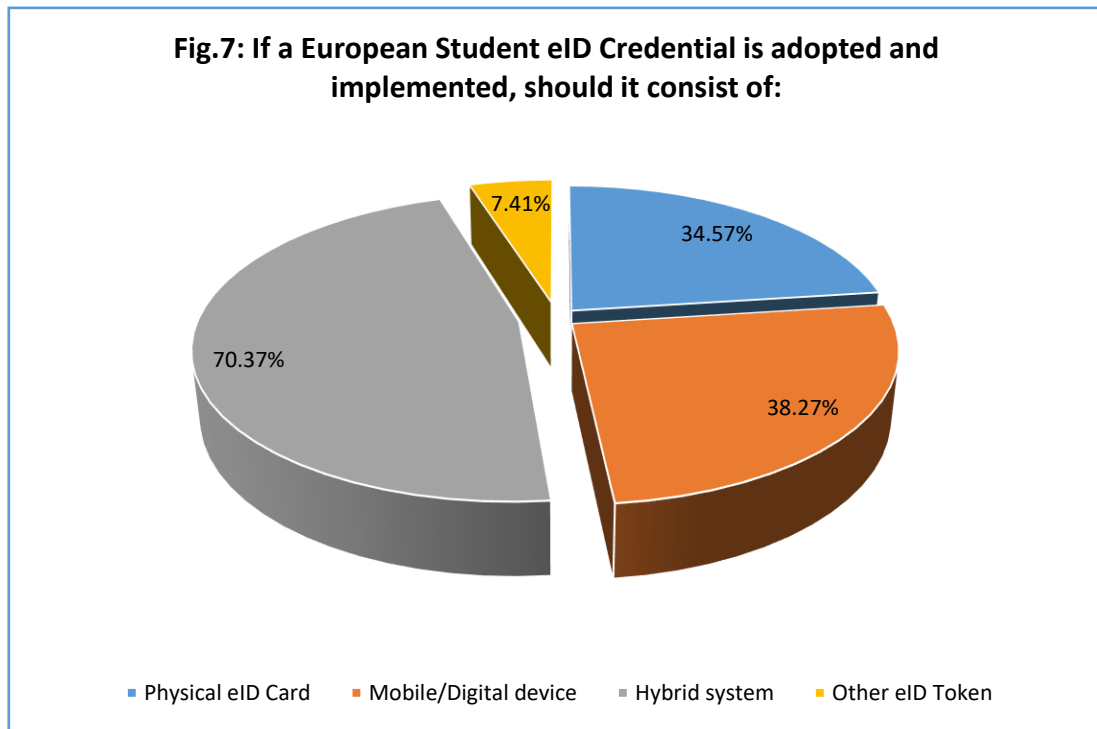
The respondents were required to select all options that were applicable. The results indicate that ‘On-Campus Academic Services’ (e.g. access to classrooms/labs, computer log-on, library services, exam ID, authentication, etc.) was the most common at 90.12%. This was followed by ‘On-Campus Non-Academic Services’ (e.g. printing, vending, car parking, payments, sports facilities, voting, etc.) at 83.95%, ‘Off-Campus Services’ (e.g. transportation, discounts, concessions, etc.) at 74.07%, ‘Cross Border Services’ at 58.02% and ‘Others’ at 8.64% (‘others’ responses stated were a mix of on and off campus services).



QUESTION 8: If a European Student eID Credential is adopted and implemented, should it consist of.

The purpose of this question was to identify the most favoured type of card, device or token for use in a European Student eID and to evaluate it with the current solution that is in place at present.

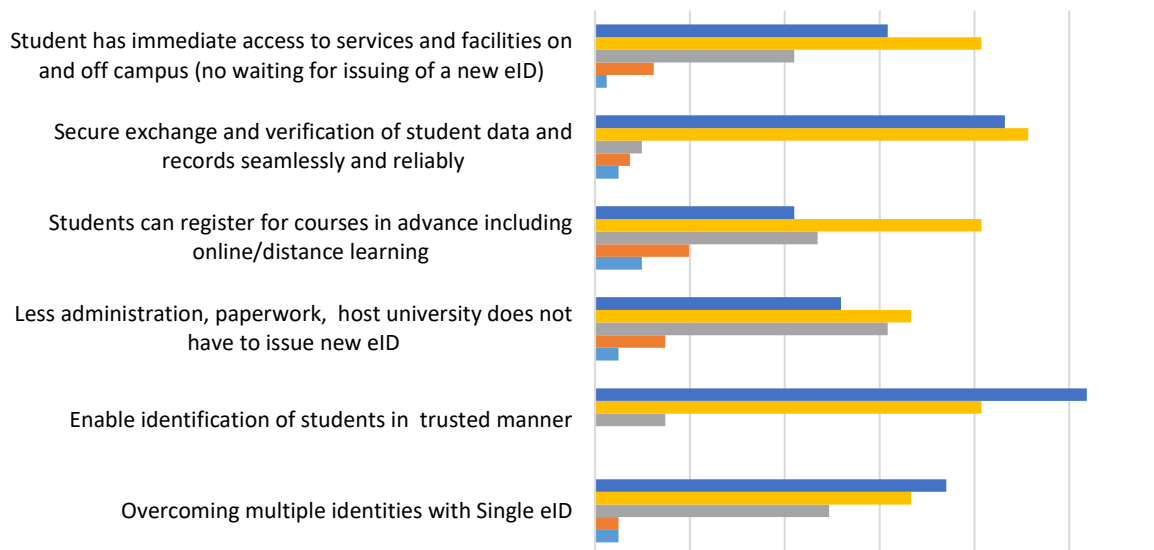
The respondents had the option to select more than one answer choice. As indicated in Figure 7, a ‘hybrid system’ is the most popular choice at 70.37%, followed by the mobile/digital device at 38.27% and physical ID at 34.57%. Other forms of an eID, which accounted for 7.41%, included a national ID, self-sovereign identity token and Fido U2F for strong two-factor authentication.



QUESTION 9: Below are six potential benefits of a single European Student eID. Please select the potential level of benefit associated with each.

The purpose of this question was to assess the potential benefits -from a HEI perspective- of a European Student eID. As indicated from the results shown in Figure 8, there are significant benefits; the most important benefits being the facility to enable identification of students in a trusted manner, together with the secure exchange and verification of student data.

Fig. 8: Six potential benefits of a single European Student eID.
Please select the potential level of benefit with each:



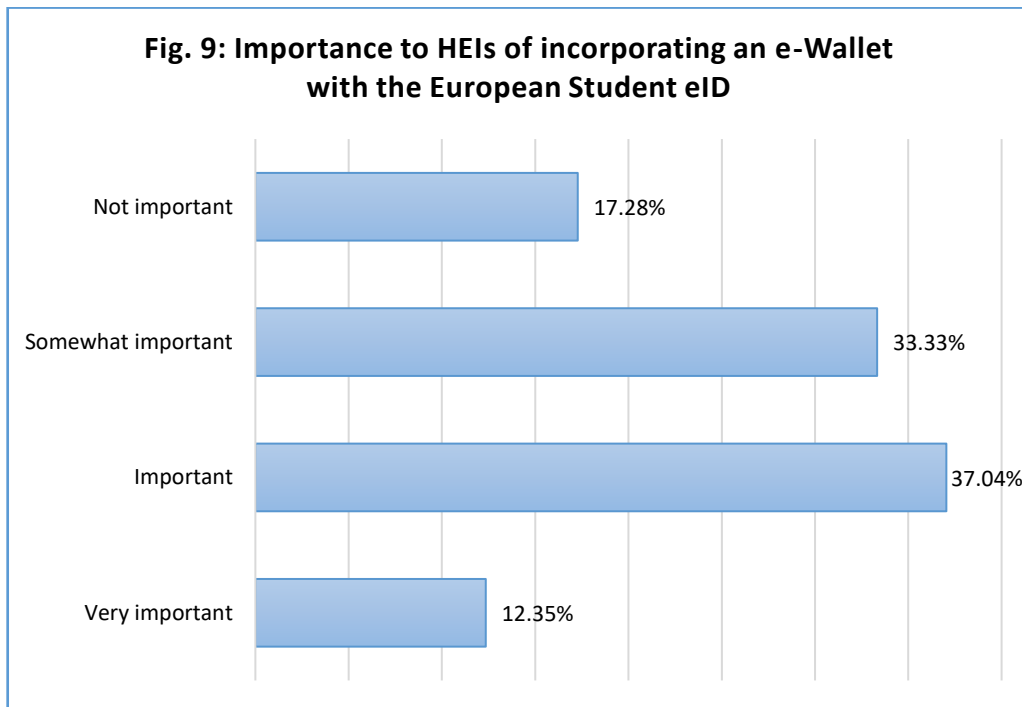
	Overcoming multiple identities with Single eID	Enable identification of students in trusted manner	Less administration, paperwork, host university does not have to issue new eID	Students can register for courses in advance including online/distance learning	Secure exchange and verification of student data and records seamlessly and reliably	Student has immediate access to services and facilities on and off campus (no waiting for issuing of a new eID)
■ Very High	37.04%	51.85%	25.93%	20.99%	43.21%	30.86%
■ High	33.33%	40.74%	33.33%	40.74%	45.68%	40.74%
■ Medium	24.69%	7.41%	30.86%	23.46%	4.94%	20.99%
■ Low	2.47%	0.00%	7.41%	9.88%	3.70%	6.17%
■ Very Low	2.47%	0.00%	2.47%	4.94%	2.47%	1.23%

■ Very High ■ High ■ Medium ■ Low ■ Very Low

QUESTION 10: A Digital Wallet, also known as an “e-Wallet”, refers to an electronic device or online service that allows an individual to make electronic transactions online or in-store. How important do you think it is to incorporate an e-Wallet with the European Student eID?

With the evolution and adoption of technology, digital wallets are becoming more prevalent. The purpose of this question was to determine the importance of incorporating an ‘e-wallet’ with the European Student eID.

There was no common trend from the results which indicated that the level of importance is quite varied among HEIs. The results in Figure 9 show that 49.39% of HEIs deemed it either ‘important’ or ‘very important’, 33.33% ‘somewhat important’, and 17.28% stating it was ‘not important’.



QUESTION 11: Listed below are seven possible challenges and obstacles in the implementation of a European Student eID. Please select the level of difficulty associated with each.

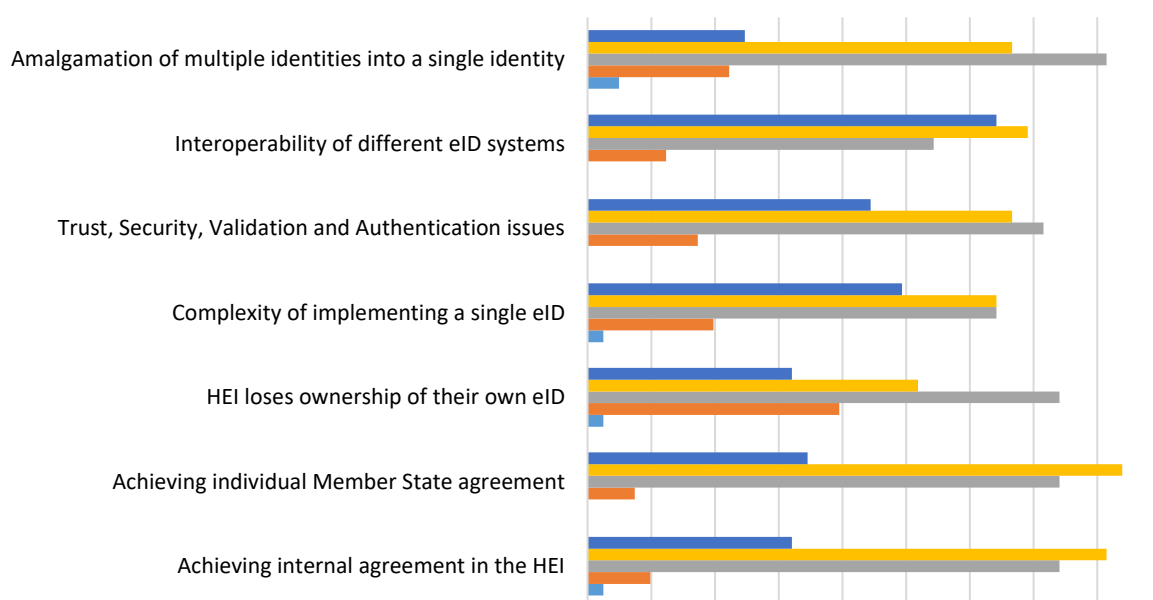
The implementation of a European Student eID will present many challenges and obstacles for HEIs. However, it is important to establish -from a HEI perspective- what they foresee these to be.

The level of difficulty ranged from ‘very low’ to ‘very high’ for each of the challenges and obstacles presented. There was no single challenge or obstacle identified as being more problematic than the others are. The results shown in Figure 10 clearly indicate that it will be important to address each of these challenges and obstacles as part of the implementation of the European Student eID.

For the purpose of further clarification, the results are also presented in table 1. The ‘Low’ category combines the results from the ‘very low’ and ‘low’ scores. The ‘High’ category combines the results from the ‘medium’, ‘high’ and ‘very high’ scores.

Table1: Possible Challenges & Obstacles	Low	High
Achieving internal agreement in the HEI	6.17%	93.83%
Achieving individual Member State agreement	3.70%	96.3%
HEI loses ownership of their own eID	20.98%	79.02%
Complexity of implementing a single eID	11.11%	88.89%
Trust, Security, Validation and Authentication issues	8.64%	91.35%
Interoperability of different eID systems	6.17%	93.83%
Amalgamation of multiple identities into a single identity	13.58%	86.42%

Fig. 10: Possible challenges and obstacles in the implementation of a European Student eID. Please select the level of difficulty with each:



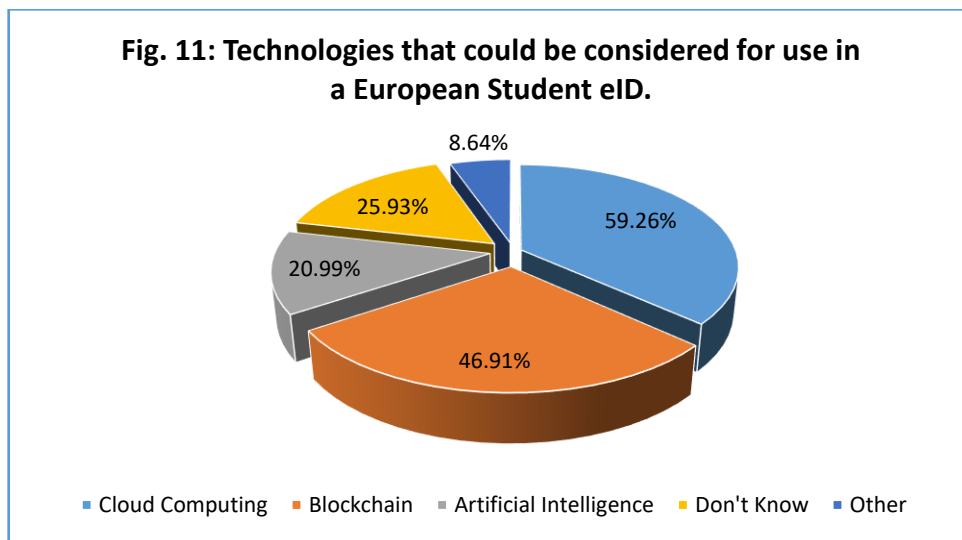
	Achieving internal agreement in the HEI	Achieving individual Member State agreement	HEI loses ownership of their own eID	Complexity of implementing a single eID	Trust, Security, Validation and Authentication issues	Interoperability of different eID systems	Amalgamation of multiple identities into a single identity
Very High	16.05%	17.28%	16.05%	24.69%	22.22%	32.10%	12.35%
High	40.74%	41.98%	25.93%	32.10%	33.33%	34.57%	33.33%
Medium	37.04%	37.04%	37.04%	32.10%	35.80%	27.16%	40.74%
Low	4.94%	3.70%	19.75%	9.88%	8.64%	6.17%	11.11%
Very Low	1.23%	0.00%	1.23%	1.23%	0.00%	0.00%	2.47%

Very High High Medium Low Very Low

QUESTION 12: Europe’s digital transformation is accelerating with the rapid advance of new and developing technologies. Please select the technologies that could be considered for use in a European Student eID.

The purpose of this question was to consider and evaluate new and advancing technologies for use in a European Student eID.

The respondents had the option to select more than one alternative answer. The results in Figure 11, show Cloud Computing is the most common at 59.26%, followed by Blockchain at 46.91%, Artificial Intelligence at 20.99% and ‘Don’t Know’ at 25.93%. The category of ‘Other’ (at 8.64%) included digital certificates, trust services (eIDAS), Single Sign On (SSO), cyber security, self-sovereign identity, personal ownership of own attributes (IRMA – ‘I reveal my attributes’), and IoT (‘internet of things’).

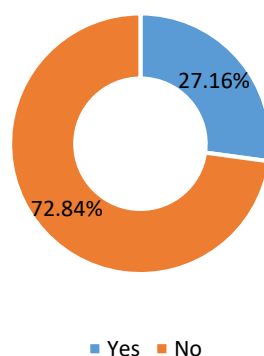


QUESTION 13: There are currently a number of research projects and initiatives being undertaken in relation to the development of a European Student eID. Are you aware of any of these?

Previous research (outlined in the Deliverable 1 report), reviewed ‘state-of-the-art’ systems, which identified past, present and on-going research projects, and focused on concepts for a European Student eID. Therefore, the purpose of this question was to establish, from a HEI perspective, their awareness in relation to research projects and initiatives on the development of a European Student eID.

As shown from the results in Figure 12 only 27.16% of HEIs were aware, with 72.84% having no knowledge of any such research projects or initiatives.

Fig. 12: HEIs' awareness of Research projects and initiatives in relation to a European Student eID

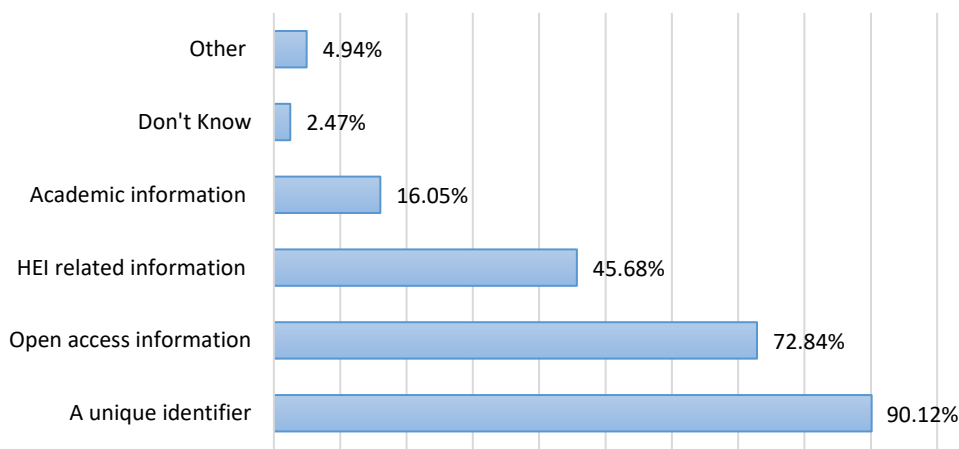


QUESTION 14: When considering the deployment of a standard European Student eID, it will be linked to the student profile. Which information do you consider should be included in the eID token?

A typical student eID will require data to identify and/or authenticate the student, which will be necessary to include in the eID card, mobile device or token. It was important to obtain, from a HEI viewpoint, the data that should be included in a student eID.

The respondents had the option to select more than one answer choice. The results in Figure 13 show that a 'unique student identifier' is the most favoured choice at 90.12%, followed by 'open access information' at 72.84%. 'HEI related information' was at 45.68% while 'academic information' was at 16.05%. Other responses (at 4.94%) included national ID, linking verifiable IDs.

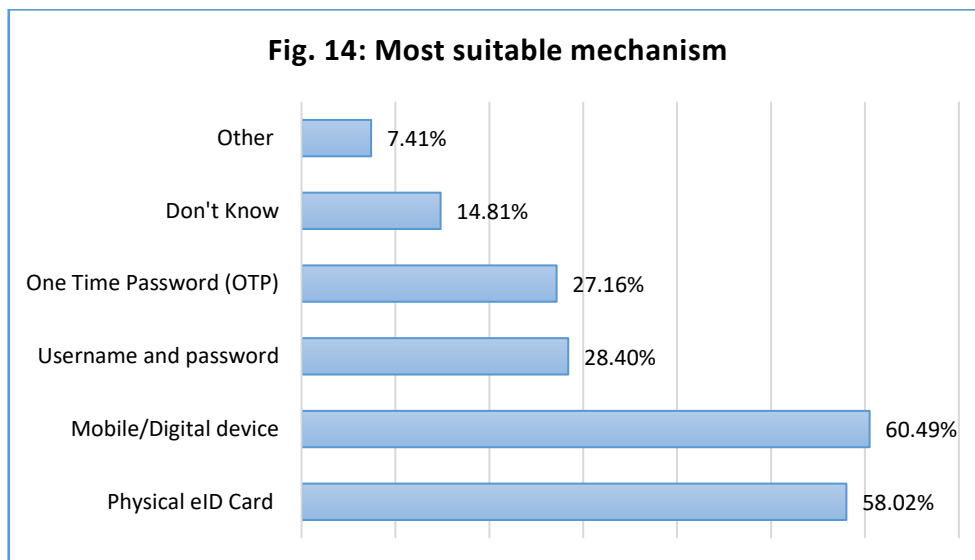
Fig.13: Information to be included in the eID token



QUESTION 15: A European Student eID that supports student mobility and the transfer of student data and records electronically will require the provision of trusted identification and authentication. Please select the most suitable mechanisms for this.

The protection of personal data is now an important regulation, requiring full compliance. The transfer of student data and records electronically will need to be protected through trusted identification and authentication.

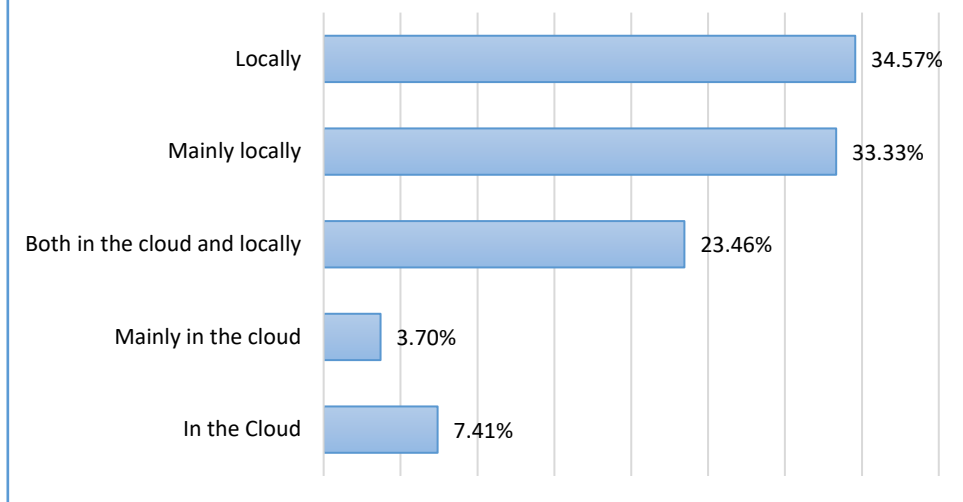
The respondents had the option to select more than one answer choice. Figure 14 illustrates the HEIs' opinion that the most suitable mechanism for this is the 'mobile/digital device' at 60.49%; this is followed by a 'Physical eID card' 58.02%, 'Username and password' 28.4%, 'One Time Password' 27.16%, 'Don't Know' 14.81%, and 'Others' 7.41% ('others' responses included national ID card, 2FA, verifiable attributes and eIDAS to build verifiable IDs, certification (e.g. eduroam)).



QUESTION 16: Where are your campus ID card services hosted today?

The purpose of this question was to establish where the campus ID card services are currently hosted. This is something that will require consideration in relation to a European Student eID. The most common choices of hosting services, as illustrated in Figure 15, is 'locally' 34.57%, 'mainly locally' 33.33% and the combination of 'cloud and local hosting' 23.46%. Much less popular choices for hosting such services were 'mainly in the cloud' at 3.70% and 'in the cloud' option at 7.41%.

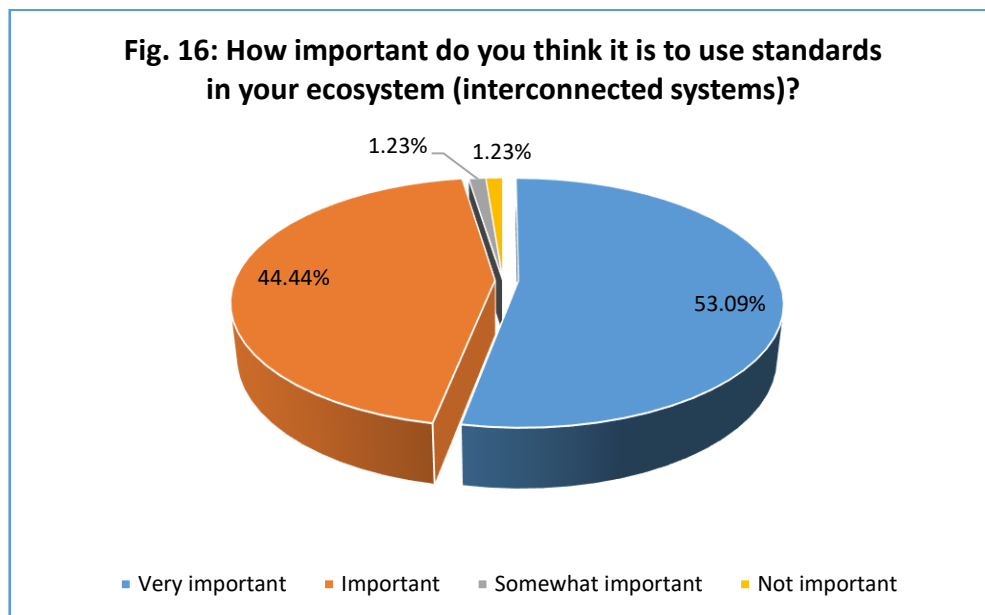
Fig.15: Where are your campus ID card services hosted today?



QUESTION17: A standard European Student eID may influence service providers to adapt their services. This will increase competence and avoid HEIs being dependent on a specific service provider or solution. How important do you think it is to use standards in your ecosystem (inter-connected systems)?

The purpose of this question was to establish the importance of standards for HEIs. Over 97.5% rated the use of standards as being ‘important’ or ‘very important’.

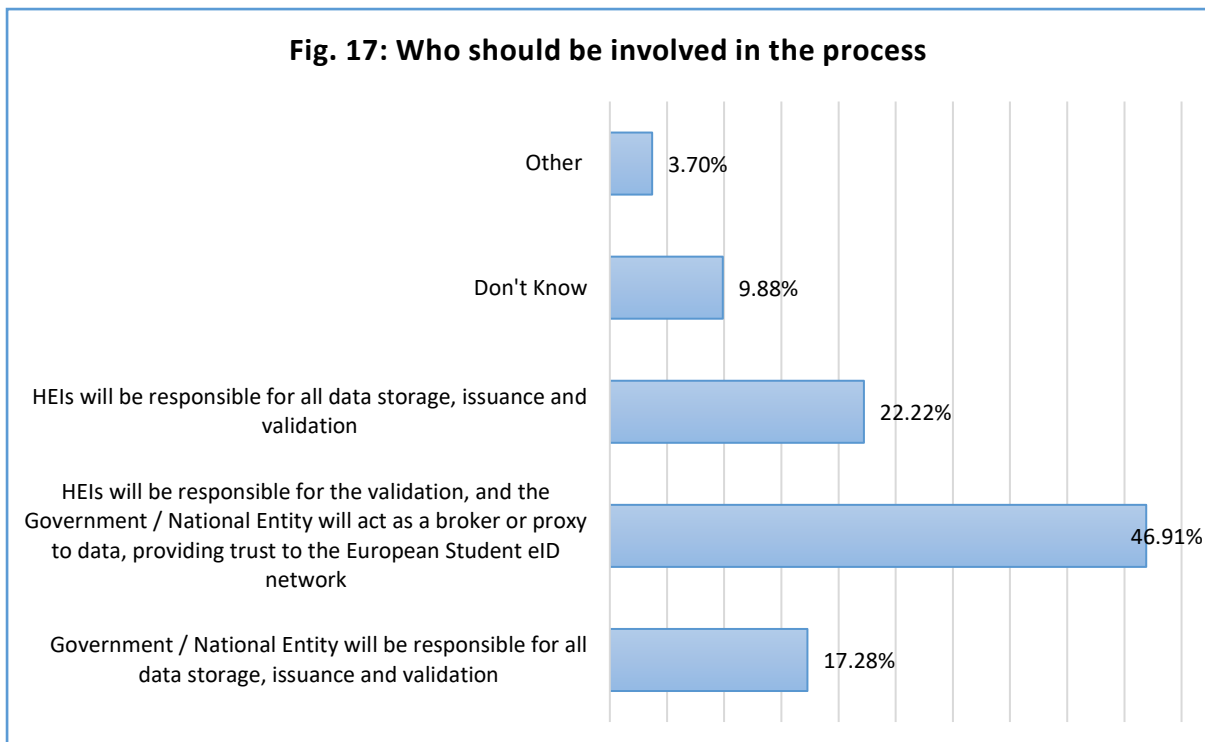
Fig. 16: How important do you think it is to use standards in your ecosystem (interconnected systems)?



QUESTION18: A European Student eID requires an infrastructure for its secure provisioning and validation, one that involves not only HEIs but also trusted third parties. Who do you think should be involved in the process?

The secure provisioning and validation of data will be a key requirement for the European Student eID. Also, where it is managed and hosted will be important factors to consider during its development and implementation.

As illustrated in Figure 17, HEIs' preference, at 46.91%, is that the HEI would be responsible for the validation, and the Government/National Entity will act as a broker or proxy to data, providing trust to the European Student eID network. The second preference at 22.22% is that the HEI would be responsible for all data storage, issuance and validation. The Government/National Entity to be responsible for all data storage, issuance and validation is the preference of 17.28% while 9.88% had 'no opinion'. 'Other' responses were 3.7%, which were a combination of the answer choices provided.

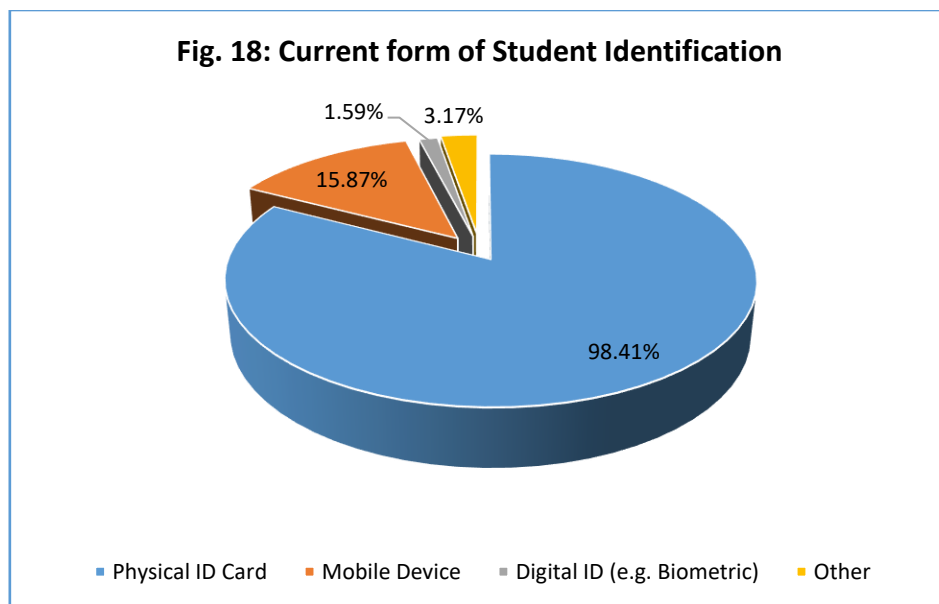


2.3 Section C – Students

This section was specifically designed for the student stakeholder/group. There were 11 questions in total in this section and respondents were required to answer all questions.

QUESTION19: What is the current form of Student Identification at your campus? Select all that are applicable.

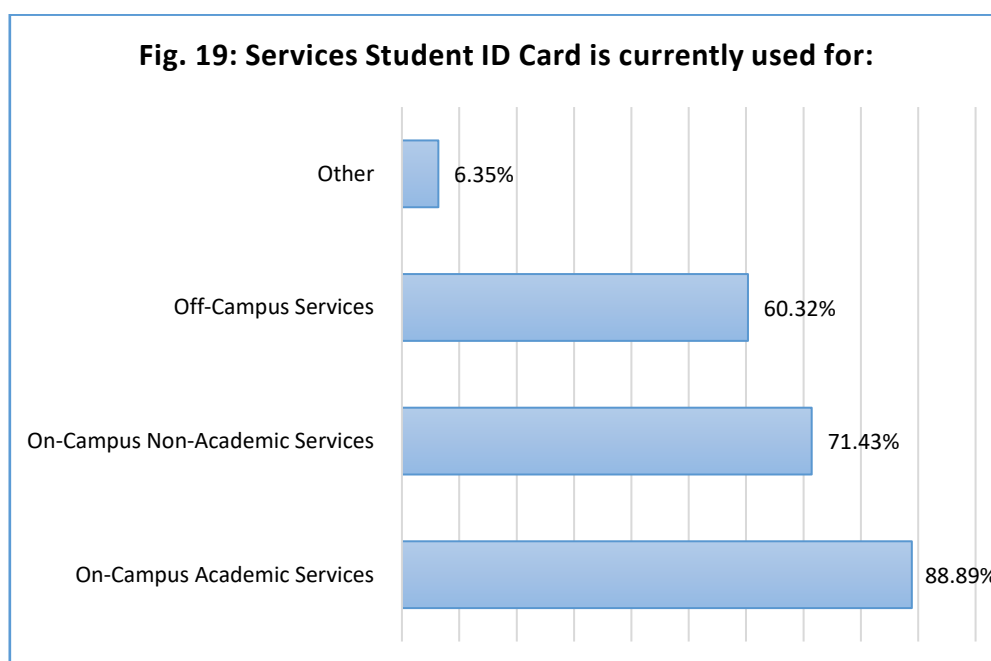
The rationale behind this question was to identify the current form of student ID on each campus, where applicable. It was also important to outline, the various forms of ID that currently exist (where more than one system was used) in order to compare the variation in requirements needed for a European Student eID in the future. The respondents were required to select all that were applicable at the present time. The most common form of student ID at present as shown in Figure 18 is the physical ID card (98.41%) followed by a mobile device (15.87%).



QUESTION 20: Please select the services your Student ID is currently used for.

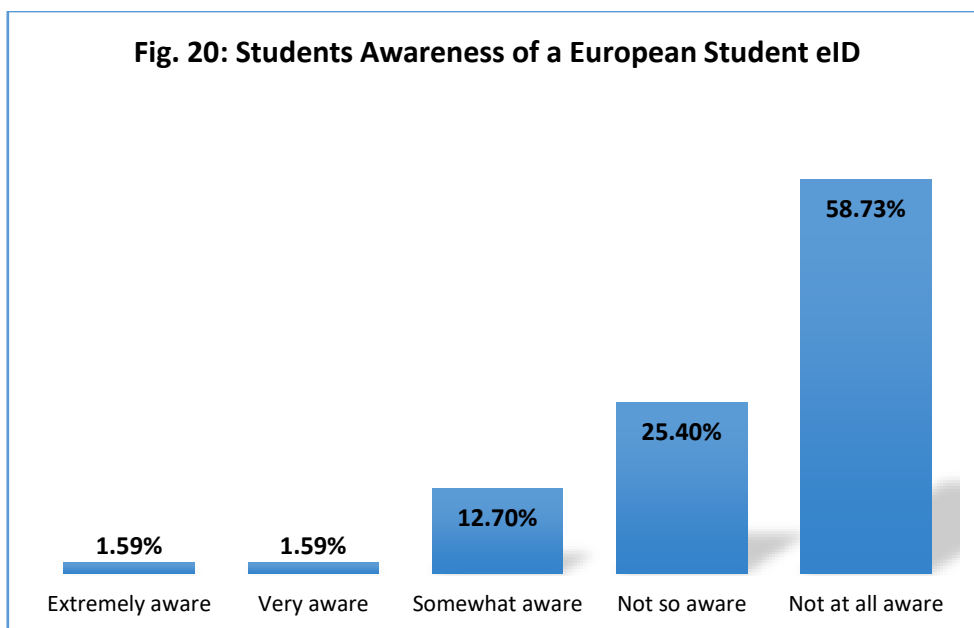
The reasoning underlying this question was to identify the current services the student ID is used for. This enables a comparison of the current requirements with the future requirements of a European Student eID.

The respondents were required to select all that were applicable at the present time. As illustrated in Figure 19 ‘On-Campus Academic Services’ (e.g. access to classrooms/labs, computer log-on, library services, exam ID, authentication, etc.) was the most common at 88.89%, then ‘On-Campus Non-Academic Services’(e.g. printing, vending, car parking, payments, sports facilities, voting, etc.) at 71.43%, ‘Off-Campus Services’ (e.g. transportation, discounts, concessions, etc.) are at 60.32% and ‘Other’ account for 6.35% (other responses were a mix of ‘on and off-campus services’).



QUESTION 21: A European Student eID aims to provide a student with a single identifier that can be used at HEIs across Europe and provide access to services on a cross border basis. Please indicate your level of awareness of the European Student eID.

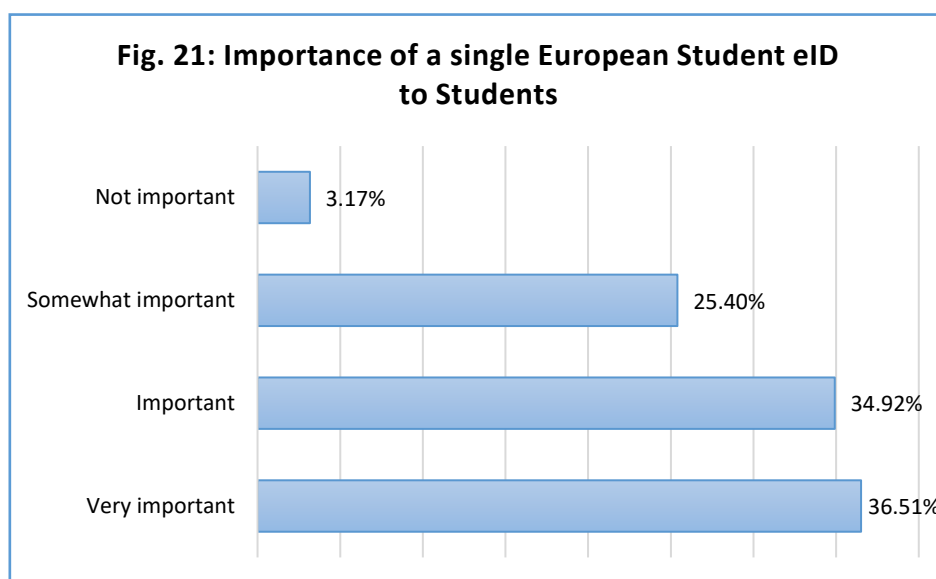
One of the aims of this project is to identify the stakeholder requirements for a European Student eID. The purpose of this question was therefore to establish the students’ level of awareness in relation to the European Student eID. As can be seen from Figure 20 only 1.59% were ‘extremely aware’, 1.59% ‘very aware’, 12.7% ‘somewhat aware’ and the remaining 84.13% were either ‘not so aware’ or ‘not at all aware’.



QUESTION 22: Please rate the importance of a single European Student eID.

The objective of this question was to establish how students rated the level of importance of a single European Student eID. This is significant as a ‘buy-in’ from the individual student will be a key factor in its successful implementation.

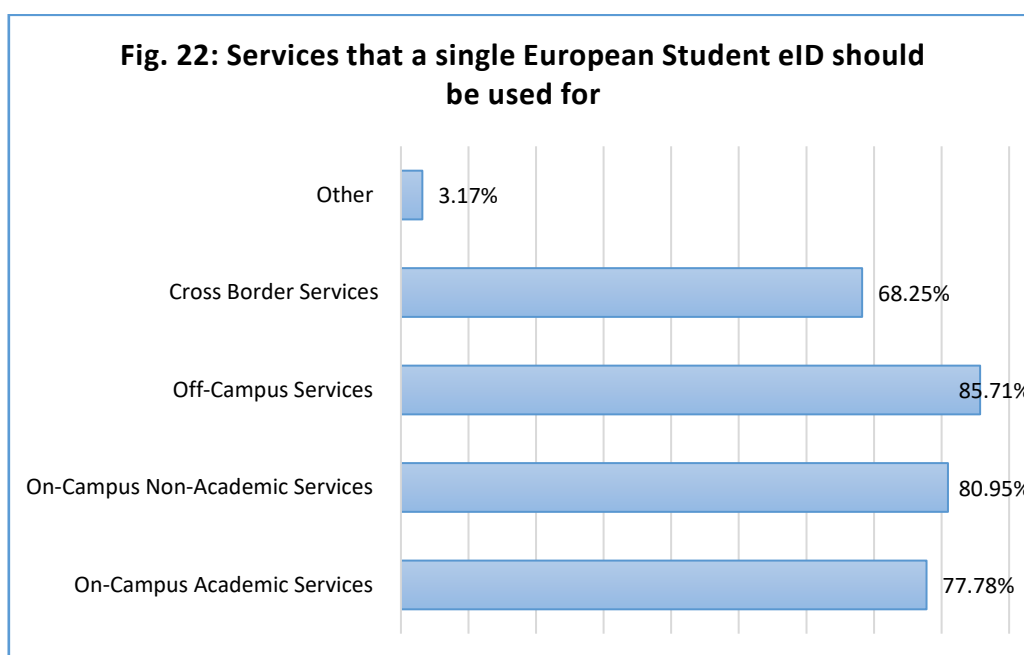
As indicated in Figure 21, 71.43% of students rated it either ‘important’ or ‘very important’, 25.4% rated it ‘somewhat important’, while 3.17% stating it was ‘not important’.



QUESTION 23: Please select the services that a single European Student eID should be used for.

The aim of this question was to identify the services that a single European Student eID should be used for and to make a comparison with the current services their ID is used for.

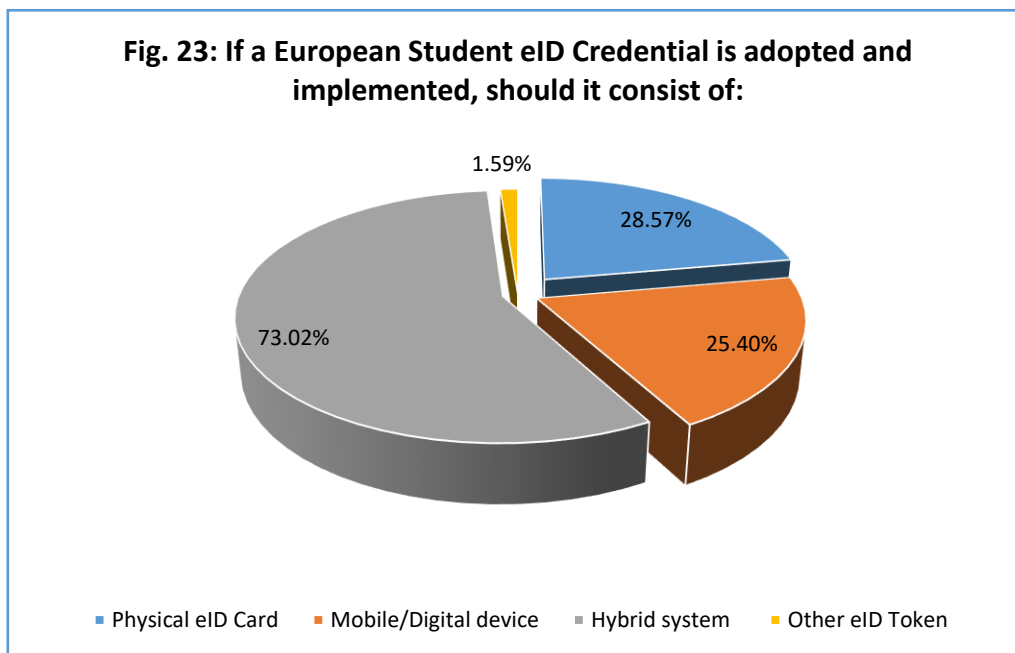
The respondents were required to select all of the services that were applicable. The results shown in Figure 22 indicate the following services preferences: ‘Off-Campus Services’ (e.g. transportation, discounts, concessions, etc.) comprise 85.71%, ‘On-Campus Non-Academic Services’ (e.g. printing, vending, car parking, payments, sports facilities, voting, etc.) at 80.95%, ‘On-Campus Academic Services’ (e.g. access to classrooms/labs, computer log-on, library services, exam ID, authentication, etc.) at 77.78%. ‘Cross Border Services’ amounted to 68.25% and ‘Other’ at 3.17% (other responses included a mix of on and off campus services).



QUESTION 24: If a European Student eID Credential is adopted and implemented, should it consist of.

The intent of this question was to identify the most favoured type of card, device or token for use in a European Student eID and to evaluate it with the current solution that is in place at present.

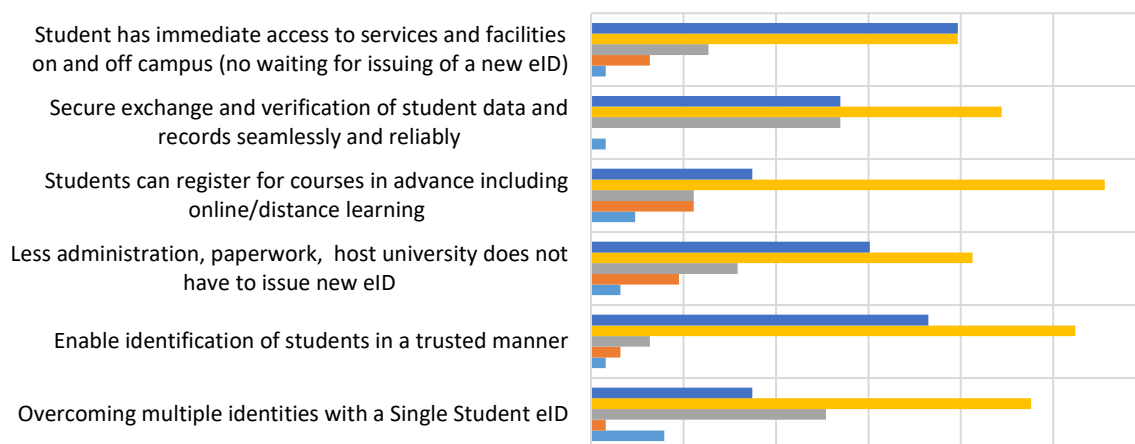
The respondents had the option to select more than one answer choice. As indicated in Figure 23, a ‘hybrid system’ is the most popular choice at 73.02%, followed by the mobile/digital device at 25.40% and physical ID at 28.57%. Other forms of an ID token only accounted for 1.59%.



QUESTION 25: Below are six potential benefits of a single European Student eID. Please select the potential level of benefit associated with each.

The aim of this question was to assess the potential benefits from a Student perspective for a European Student eID. As indicated from the results shown in Figure 24, there are significant benefits; the most important benefit being the facility to enable identification of students in a trusted manner, together with students having immediate access to services and facilities on an off-campus and being able to register for courses in advance.

**Fig. 24: Six potential benefits of a single European Student eID.
Please select the potential level of benefit with each:**



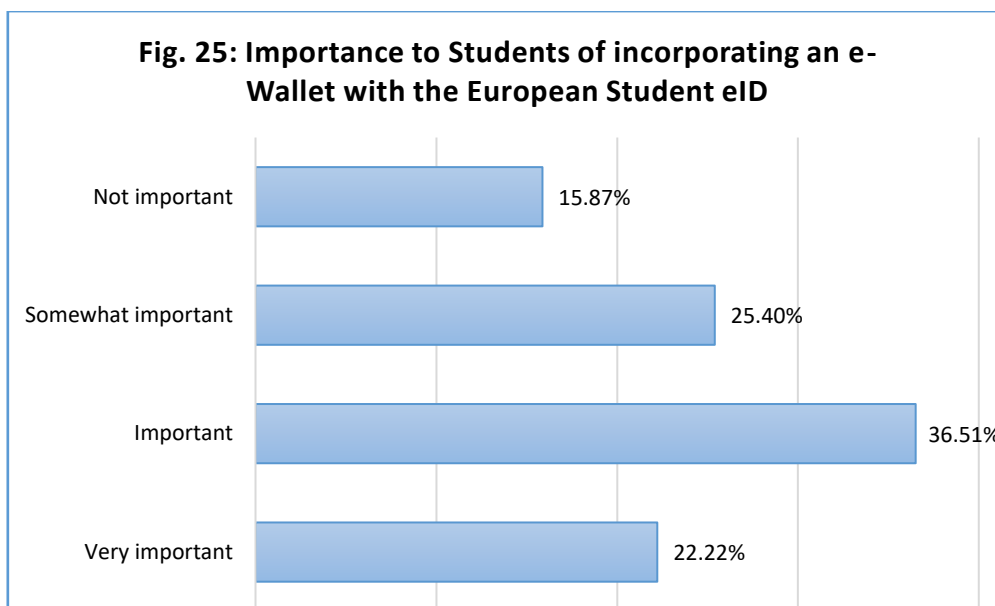
	Overcoming multiple identities with a Single Student eID	Enable identification of students in a trusted manner	Less administration, paperwork, host university does not have to issue new eID	Students can register for courses in advance including online/distance learning	Secure exchange and verification of student data and records seamlessly and reliably	Student has immediate access to services and facilities on and off campus (no waiting for issuing of a new eID)
Very High	17.46%	36.51%	30.16%	17.46%	26.98%	39.68%
High	47.62%	52.38%	41.27%	55.56%	44.44%	39.68%
Medium	25.40%	6.35%	15.87%	11.11%	26.98%	12.70%
Low	1.59%	3.17%	9.52%	11.11%	0.00%	6.35%
Very Low	7.94%	1.59%	3.17%	4.76%	1.59%	1.59%

Very High High Medium Low Very Low

QUESTION 26: A Digital Wallet, also known as an “e-Wallet”, refers to an electronic device or online service that allows an individual to make electronic transactions online or in store. How important do you think it is to incorporate an e-Wallet with the European Student eID?

With the evolution and adoption of technology, digital wallets are becoming more prevalent. The purpose of this question was to determine the importance for the Students of incorporating an ‘e-wallet’ with the European Student eID.

As illustrated in Figure 25, students rated this concept ‘very important’ or ‘important’ at 58.73%, ‘somewhat important’ at 25.40% and ‘not important’ at 15.87%.



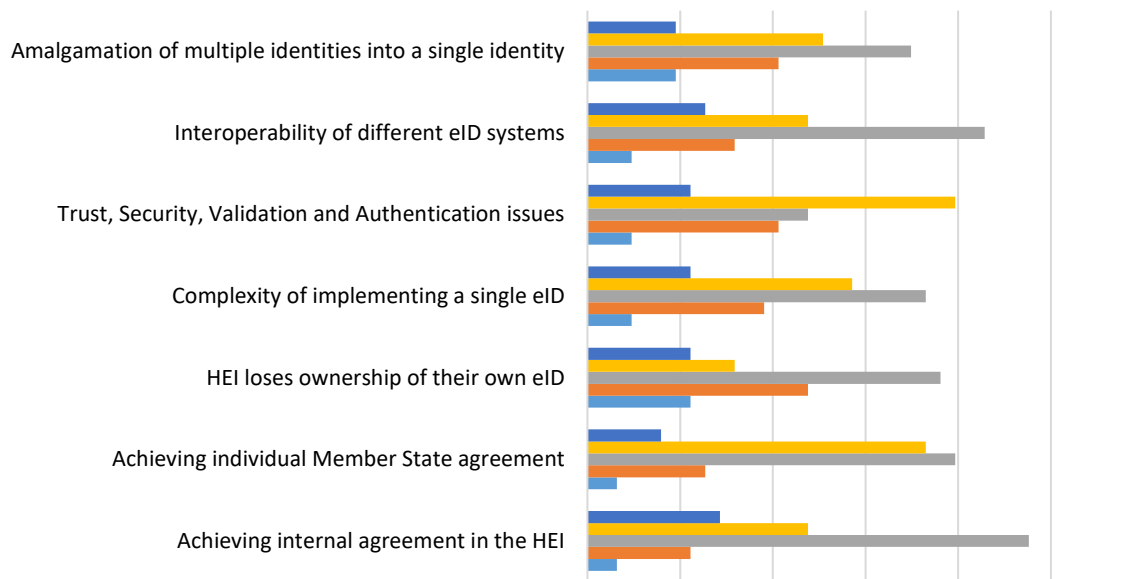
QUESTION 27: Listed below are seven possible challenges and obstacles in the implementation of a European Student eID. Please select the level of difficulty associated with each:

The implementation of a European Student eID will present many challenges and obstacles. However, it is important to establish, from a student perspective, what these future problems will be. The level of difficulty ranged from ‘very low’ to ‘very high’ for each of the challenges and obstacles presented. No single challenge or obstacle was identified as being more problematic than the others are and the results as shown in Figure 26 clearly indicate that it will be important to address each of these challenges and obstacles as part of the implementation of the European Student eID.

For the purpose of further clarification, the results are also presented in table 2 below. The ‘Low’ category combines the results from the ‘very low’ and ‘low’ scores. The ‘High’ category combines the results from the ‘medium’, ‘high’ and ‘very high’ scores.

Table 2: Possible Challenges & Obstacles	Low	High
Achieving internal agreement in the HEI	14.28%	85.72%
Achieving individual Member State agreement	15.87%	84.13%
HEI loses ownership of their own eID	34.92%	65.08%
Complexity of implementing a single eID	23.81%	76.19%
Trust, Security, Validation and Authentication issues	25.39%	74.6%
Interoperability of different eID systems	20.63%	79.37%
Amalgamation of multiple identities into a single identity	30.15%	69.84%

Fig. 26: Possible challenges and obstacles in the implementation of a European Student eID. Please select the level of difficulty with each:



	Achieving internal agreement in the HEI	Achieving individual Member State agreement	HEI loses ownership of their own eID	Complexity of implementing a single eID	Trust, Security, Validation and Authentication issues	Interoperability of different eID systems	Amalgamation of multiple identities into a single identity
Very High	14.29%	7.94%	11.11%	11.11%	11.11%	12.70%	9.52%
High	23.81%	36.51%	15.87%	28.57%	39.68%	23.81%	25.40%
Medium	47.62%	39.68%	38.10%	36.51%	23.81%	42.86%	34.92%
Low	11.11%	12.70%	23.81%	19.05%	20.63%	15.87%	20.63%
Very Low	3.17%	3.17%	11.11%	4.76%	4.76%	4.76%	9.52%

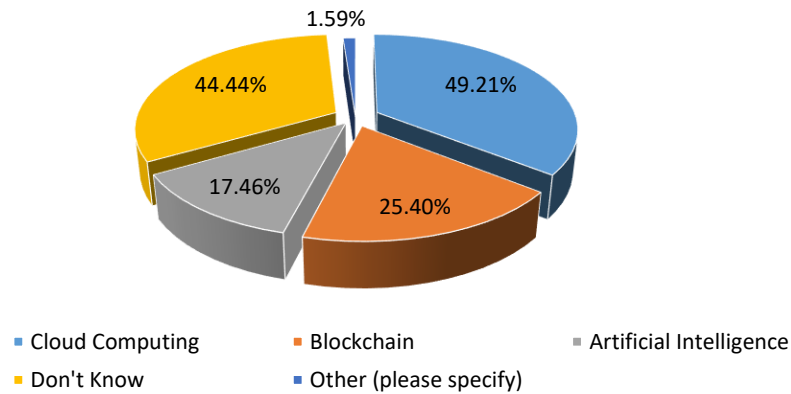
Very High High Medium Low Very Low

QUESTION 28: Europe’s digital transformation is accelerating with the rapid advance of new and developing technologies. Please select the technologies that could be considered for use in a European Student eID.

The purpose of this question was to consider and evaluate new and advancing technologies for use in a European Student eID.

The respondents had the option to select more than one answer choice. The results in Figure 27 show ‘Cloud computing’ is the most common at 49.21%, Blockchain at 25.40%, Artificial intelligence at 17.46% and ‘others’ at 1.59%. There was a high percentage, 44.44% that ‘Did not know’ what technologies should be considered.

Fig. 27: Technologies that could be considered for use in a European Student eID

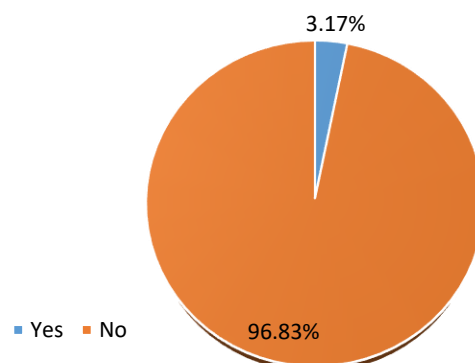


QUESTION 29: There are currently a number of research projects and initiatives being undertaken in relation to the development of a European Student eID. Are you aware of any of these?

Previous research (outlined in Deliverable 1), reviewed 'state of the art' systems, which identified past, present and on-going research projects, and focused on concepts for a European Student eID. Therefore, the purpose of this question was to establish, from a students' perspective, their awareness in relation to research projects and initiatives on the development of a European Student eID.

As shown from the results in Figure 28, only 3.17% of students were 'aware', with 96.83% not aware of any research projects or initiatives.

Fig. 28: Students awareness of Research projects and initiatives in relation to a European Student eID.

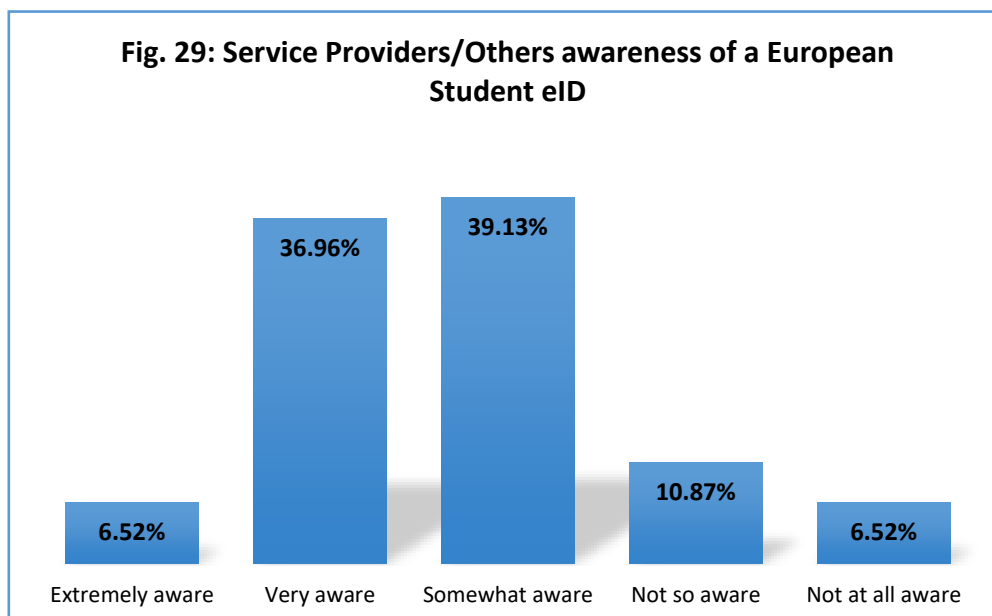


2.4 Section D – Service Providers / Others

This section was specifically designed for Service Providers and Others (others mainly consisting of IT professionals, Government personnel). There were 11 questions in total in this section and respondents were required to answer all questions.

QUESTION 30: A European Student eID aims to provide a student with a single identifier that can be used at HEIs across Europe and provide access to services on a cross- border basis. Please indicate your level of awareness of the European Student eID.

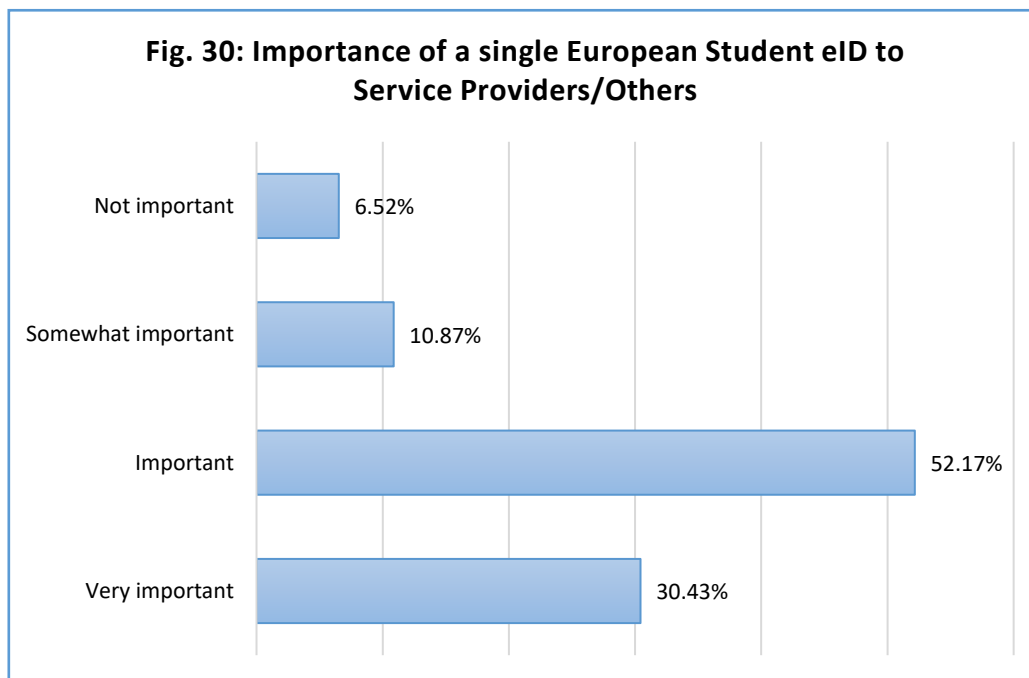
The purpose of this question was to establish the level of awareness among the Service Providers/Others group in relation to the European Student eID. As can be seen from Figure 29, compared to HEIs and students, a higher percentage of Service Providers/Others were ‘aware’; 6.52% were ‘extremely aware’, 36.96% ‘very aware’, 39.13% ‘somewhat aware’ and the remaining 17.39% were either ‘not so aware’ or ‘not at all aware’.



QUESTION 31: Please rate the importance of a single European Student eID.

The purpose of this question was to establish how the Service Providers/Others sector rated the level of importance of a single European Student eID.

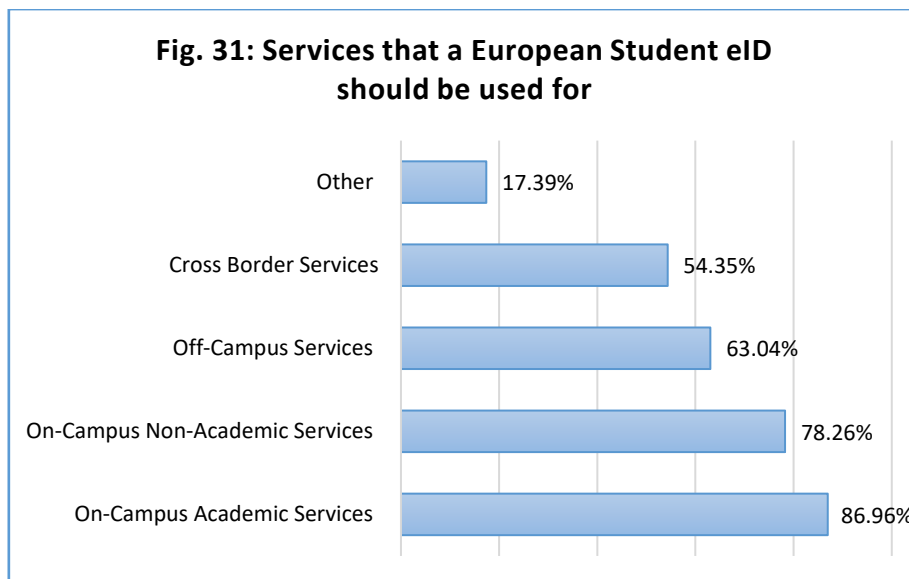
As indicated in Figure 30, Service Providers/Others stated that it was either ‘important’ or ‘very important’ at 82.50%, ‘somewhat important’ at 10.87%, and ‘not important’ at 6.52%. These ratings are similar to that of HEIs and the Students group.



QUESTION 32: Please select the services that a single European Student eID should be used for.

The purpose of this question was to identify the services that a single European Student eID should be used for and to establish if the requirements differed to the current services the ID is used for.

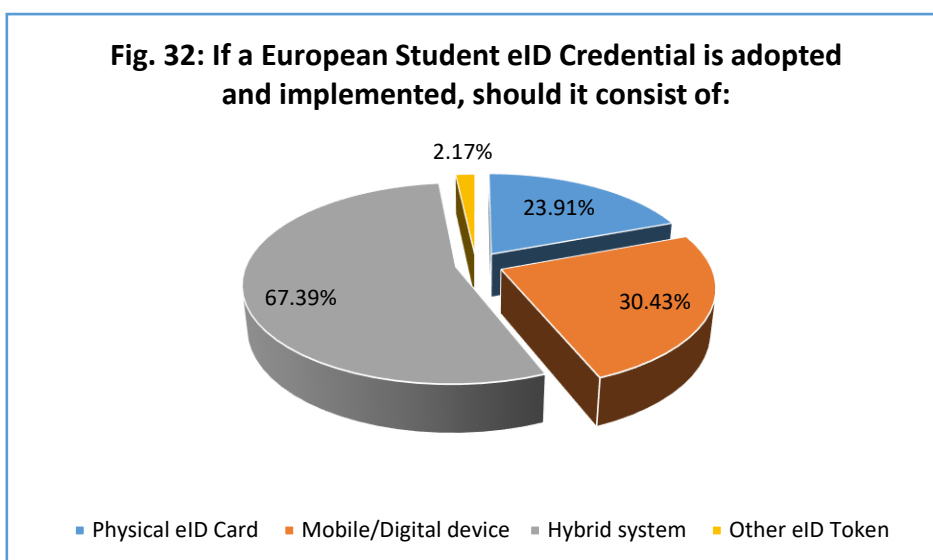
The respondents had the option to select more than one answer choice. The results shown in Figure 31 indicate the following service preferences: ‘On-Campus Academic Services’ (e.g. access to classrooms/labs, computer log-on, library services, exam ID, authentication, etc.) was the most common at 86.96%; ‘On-Campus Non-Academic Services’ (e.g. printing, vending, car parking, payments, sports facilities, voting, etc.) at 78.26%, ‘Off-Campus Services’ (e.g. transportation, discounts, concessions, etc.) are at 63.04%, ‘Cross Border Services’ at 54.35% and ‘Others’ at 17.39% (others responses include a mixture of ‘on and off-campus services’).



QUESTION 33: If a European Student eID Credential is adopted and implemented, should it consist of.

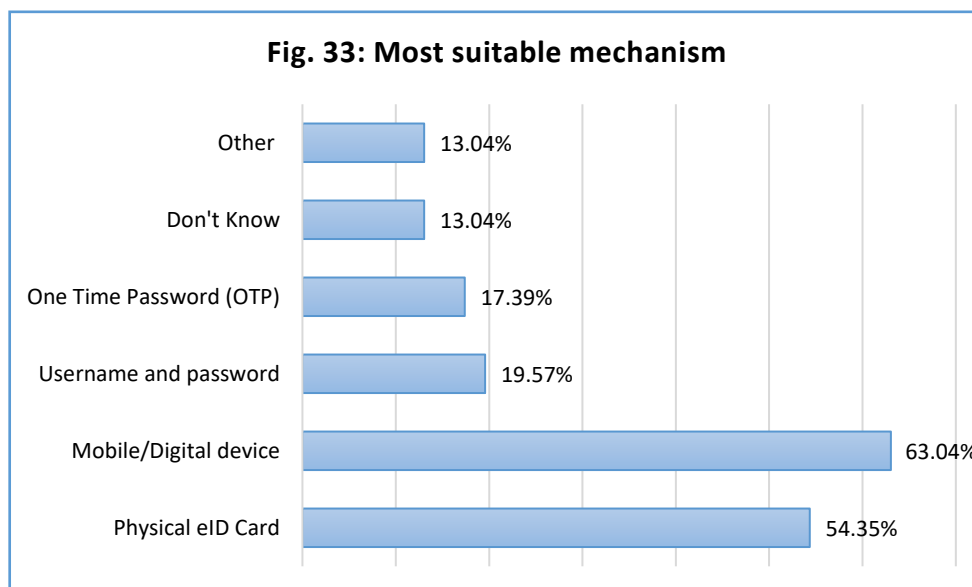
The purpose of this question was to identify the most favoured type of card, device or token for use in a European Student eID and to evaluate it in comparison to the current solution that is presently in place.

The respondents had the option to select more than one answer choice. As indicated in Figure 32 a ‘hybrid system’ is the most popular choice at 67.39% followed by the ‘mobile/digital device’ at 30.43% and ‘physical ID’ at 23.91%. ‘Other’ forms of eID token accounted for 2.17%, but the responses were not relevant to the question.



QUESTION 34: A European Student eID that supports student mobility and the transfer of student data and records electronically will require the provision of trusted identification and authentication. Please select the most suitable mechanisms for this.

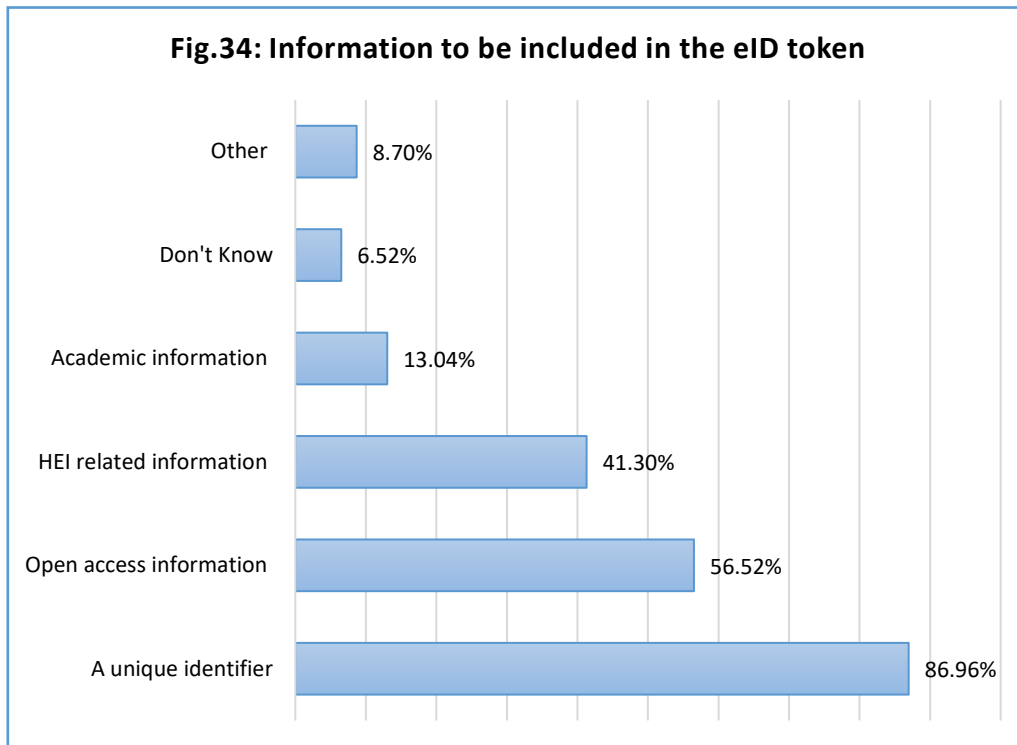
The protection of personal data is now an important regulation requiring full compliance. The transfer of student data and records electronically will need to be protected through trusted identification and authentication. Figure 33 illustrates the options of the Service Providers/Others sector: ‘mobile/digital device’ at 63.04%, ‘physical eID card’ at 54.35%, ‘username and password’ at 19.57%, ‘One Time Password’ at 17.39%, ‘Don’t Know’ at 13.04%, and ‘Others’ also at 13.04% (others’ responses included biometrics, mobile app with encrypted communication, use of multiple inscriptions, ISO 18013-5 compliance (adopting trusted mechanisms from the mobile driver licenses to other types of IDs, ensuring its interoperability), 3rd party cloud service authentication, digital signatures).



QUESTION 35: When considering the deployment of a standard European Student eID it will be linked to the student profile. Which information do you consider should be included in the eID token?

A typical student eID will require data to identify and/or authenticate the student, which will be necessary to include in the eID card, mobile device or token. It was important to obtain -from the perspective of Service Providers/Others group- the data that they consider should be included in a student eID.

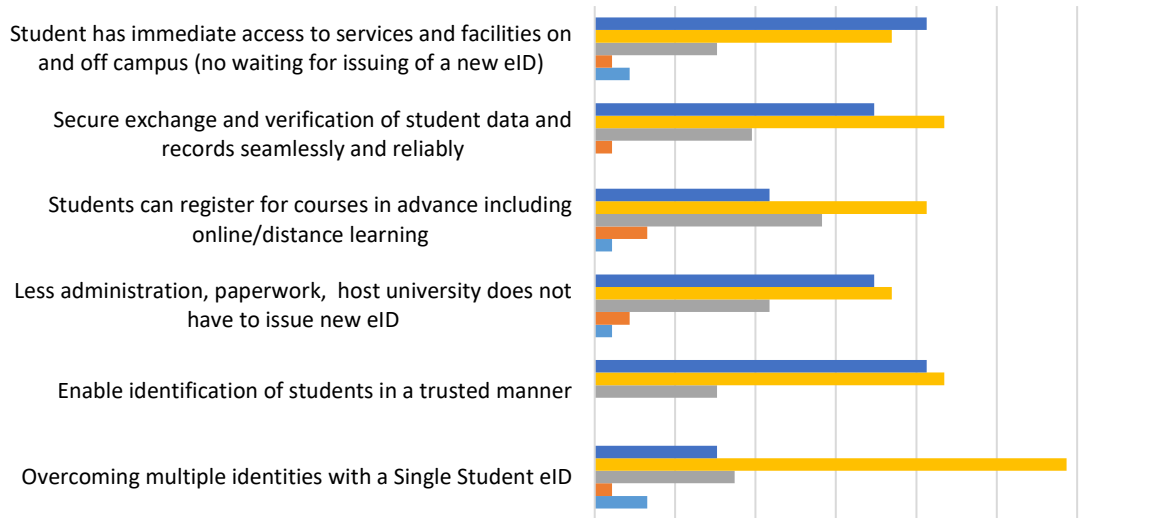
The respondents had the option to select more than one answer choice. The results in Figure 34 show that a ‘unique student identifier’ is the most favoured choice at 86.96%, followed by ‘open access information’ at 56.52%. ‘HEI related information’ was 41.3% while ‘academic information’ was not a popular choice. ‘Other’ responses at 8.7% included a mixture of the answer choices already given.



QUESTION 36: Below are six potential benefits of a single European Student eID. Please select the potential level of benefit with each.

The purpose of this question was to assess the potential benefits, from a Service Providers/Others perspective, of a European Student eID. As indicated from the results shown in Figure 35, there are significant benefits; the most important benefits being the facility to enable identification of students in a trusted manner, together with the secure exchange and verification of student data.

Fig. 35: Six potential benefits of a single European Student eID.
Please select the potential level of benefit with each

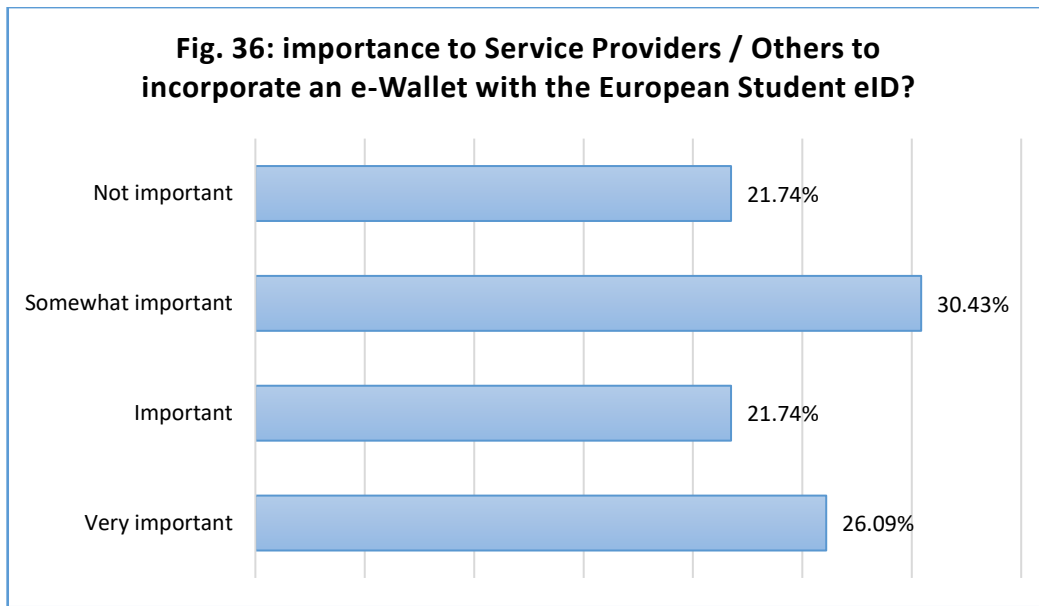


	Overcoming multiple identities with a Single Student eID	Enable identification of students in a trusted manner	Less administration, paperwork, host university does not have to issue new eID	Students can register for courses in advance including online/distance learning	Secure exchange and verification of student data and records seamlessly and reliably	Student has immediate access to services and facilities on and off campus (no waiting for issuing of a new eID)
Very High	15.22%	41.30%	34.78%	21.74%	34.78%	41.30%
High	58.70%	43.48%	36.96%	41.30%	43.48%	36.96%
Medium	17.39%	15.22%	21.74%	28.26%	19.57%	15.22%
Low	2.17%	0.00%	4.35%	6.52%	2.17%	2.17%
Very Low	6.52%	0.00%	2.17%	2.17%	0.00%	4.35%

Very High High Medium Low Very Low

QUESTION 37: A Digital Wallet, also known as an “e-Wallet”, refers to an electronic device or online service that allows an individual to make electronic transactions online or in store. How important do you think it is to incorporate an e-Wallet with the European Student eID?

With the evolution and adoption of technology, digital wallets are becoming more prevalent. The purpose of this question was to determine the importance for the Students of incorporating an ‘e-wallet’ with the European Student eID. As illustrated in Figure 36 the results on the importance of an e-wallet are quite varied and show no common trend regarding the Service Providers/Others sector. ‘Very important’ was rated at 26.09%, ‘important’ at 21.74%, ‘somewhat important’ at 30.43% and ‘not important’ at 21.74%.



QUESTION 38: Below are seven possible challenges and obstacles in the implementation of a European Student eID. Please select the level of difficulty with each:

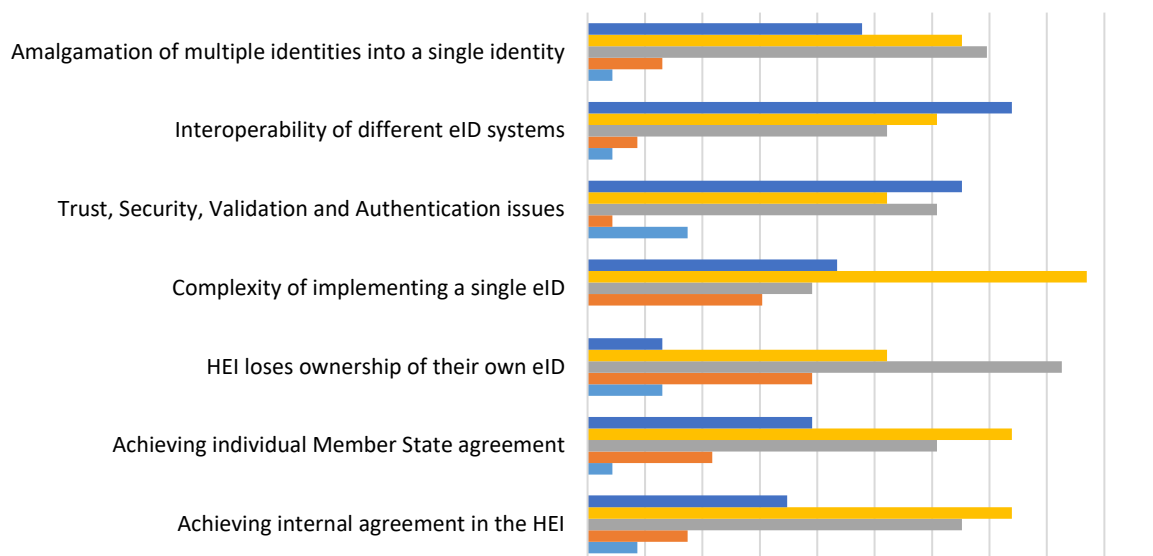
The implementation of a European Student eID will present many challenges and obstacles. However, it is important to establish from a Service Provider/Others perspective what they foresee these to be.

The level of difficulty ranged from ‘very low’ to ‘very high’ for each of the challenges and obstacles presented. Similar to the opinions of the HEI and student groups there was no single challenge or obstacle that stood out as being more problematic than any of the others are.

The results shown in Figure 37 clearly indicate that it will be important to address each of these challenges and obstacles as part of the implementation of the European Student eID. For the purpose of further clarification, the results are also presented in table 3 below. The ‘Low’ category combines the results from the ‘very low’ and ‘low’ scores. The ‘High’ category combines the results from the ‘medium’, ‘high’ and ‘very high’ scores.

Table 3: Possible Challenges & Obstacles	Low	High
Achieving internal agreement in the HEI	13.04%	86.96%
Achieving individual Member State agreement	13.04%	86.96%
HEI loses ownership of their own eID	26.09%	73.91%
Complexity of implementing a single eID	15.22%	84.79%
Trust, Security, Validation and Authentication issues	10.87%	89.13%
Interoperability of different eID systems	6.52%	93.48%
Amalgamation of multiple identities into a single identity	8.69%	91.3%

Fig. 37: Possible challenges and obstacles in the implementation of a European Student eID. Please select the level of difficulty with each



	Achieving internal agreement in the HEI	Achieving individual Member State agreement	HEI loses ownership of their own eID	Complexity of implementing a single eID	Trust, Security, Validation and Authentication issues	Interoperability of different eID systems	Amalgamation of multiple identities into a single identity
■ Very High	17.39%	19.57%	6.52%	21.74%	32.61%	36.96%	23.91%
■ High	36.96%	36.96%	26.09%	43.48%	26.09%	30.43%	32.61%
■ Medium	32.61%	30.43%	41.30%	19.57%	30.43%	26.09%	34.78%
■ Low	8.70%	10.87%	19.57%	15.22%	2.17%	4.35%	6.52%
■ Very Low	4.35%	2.17%	6.52%	0.00%	8.70%	2.17%	2.17%

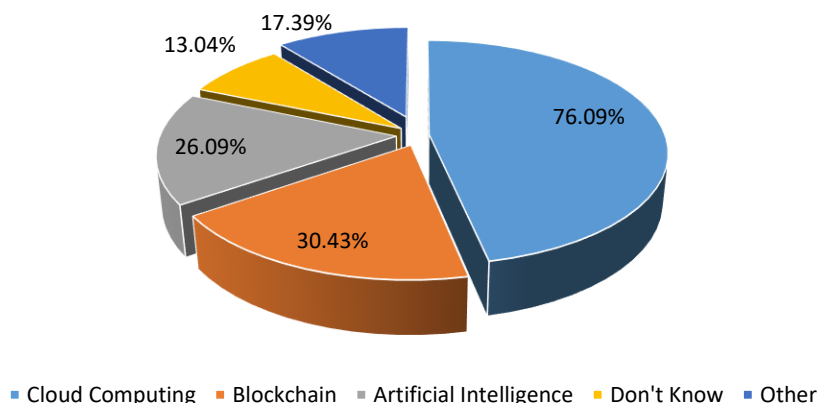
■ Very High ■ High ■ Medium ■ Low ■ Very Low

QUESTION 39: Europe’s digital transformation is accelerating with the rapid advance of new and developing technologies. Please select the technologies that could be considered for use in a European Student eID.

The purpose of this question was to consider and evaluate new and advancing technologies for use in a European Student eID.

The respondents had the option to select more than one answer choice. The results in Figure 38 show ‘Cloud computing’ is the most common at 76.09%, Blockchain at 30.43%, ‘Artificial intelligence’ at 26.09% and ‘Don’t Know’ at 13.04%. ‘Other’ responses at 17.39% included PKI, federated authentication, smart cards and digital signatures.

Fig. 38: Technologies that could be considered for use in a European Student eID

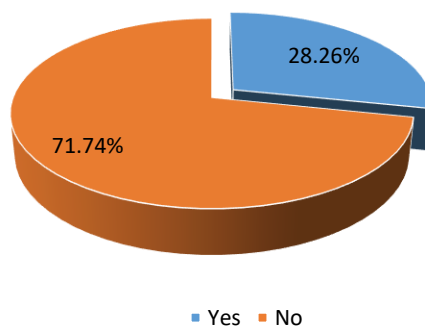


QUESTION 40: There are currently a number of research projects and initiatives being undertaken in relation to the development of a European Student eID. Are you aware of any of these?

Previous research (as outlined in Deliverable 1), reviewed ‘state of the art’ systems, which identified past, present and on-going research projects, and focused on concepts for a European Student eID. Therefore, the purpose of this question was to establish, from a Service Provider/Others viewpoint, their awareness in relation to research projects and initiatives on the development of a European Student eID.

As shown from the results in Figure 39, only 28.26% of Service Provider/Others were ‘aware’, with 71.74% not having knowledge of any research projects or initiatives.

Fig. 39: Service Providers / Others awareness of Research projects and initiatives in relation to a European Student eID.



3. DISCUSSION OF RESULTS

The geographical spread of participants in the survey from 28 countries throughout Europe, USA, Canada and Asia resulting in the accumulation of 190 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.

Over 98% of the HEIs and students’ sectors confirmed that currently the physical ID card is the most common form of student identification on campus. However, over 70% of all the stakeholders confirmed that in relation a European Student eID their preferred choice would be a hybrid system consisting of a physical ID card and mobile / digital device. This is not surprising considering the advancement in mobile and digital technology in recent times.

In terms of the services that the student ID is presently used for, both the HEIs and the student’s groups, confirmed it was mainly used for both on-campus academic and non-academic services but also used for off-campus services. When all stakeholders were asked about the services that the European Student eID should be used for, again as expected, on-campus academic and non-academic services were prevalent but there was a significant demand for off-campus service use. In addition, over 60% of all the stakeholders stated it should be used for cross-border services and this was highest among the students’ sector. This is a significant result as the student will be the end user of the system.

The main aim of a European Student eID is to provide students with a single secure identifier that can be used at HEIs across Europe and provide access to services on a cross-border basis. This is part of the digital single market policy². However, awareness among the stakeholders varied. The highest level of awareness was with the Service Providers/Others grouping at 82.61% and HEIs at 72.84%. The awareness of the Students sector was only 15.88%.

However, in terms of its importance, over 95% of all stakeholders rated the European Student eID as being ‘somewhat important’ to ‘very important’. While the results clearly demonstrate its level of importance to all stakeholders, the level of awareness by the student group, who will be the end user of the system, is low and is a concerning issue. This is something that needs to be addressed in the future.

There are many benefits to a single European Student eID. Six of these potential benefits were specified in a survey question. The responses to this question clearly reveal that the stakeholders do realise the

² <https://ec.europa.eu/digital-single-market/en/trust-services-and-eid>

benefits with most of the benefits scoring highly. There was a consensus among all the stakeholders that the most important benefit was enabling the identification of students in a trusted manner. The secure exchange and verification of student data and records seamlessly and reliably was also ranked a high benefit for both the HEIs and Service Providers/Other groups in particular. Moreover, the students group stated that having immediate access to services and facilities on and off-campus and being able to register for courses in advance was an important benefit for them.

Technology is advancing at a rapid pace and is now part of our everyday lives. A digital wallet, also known as an "e-Wallet", is becoming more prevalent. It refers to an electronic device or online service that allows an individual to make electronic transactions. This can include purchasing items on-line with a computer or using a smartphone to purchase something in a shop. As part of the survey, it was important to determine the significance of incorporating an e-Wallet with the European Student eID. 51.98% of all the stakeholders felt it was either 'important' or 'very important'. It ranked the highest among students at 58.73%. There was also a significant number at 18.29% that felt it was 'not important'.

The implementation of a European Student eID will present many challenges and obstacles. In this survey a number of these concerns were outlined, and the respondents were asked to indicate the level of difficulty associated with each. The results indicate that all the challenges and obstacles will need to be addressed, as there was no single one that was considered more difficult than the others. For the purpose of reviewing the data, the 'low category' includes the results from the 'very low' and 'low' scores and the 'high category' includes the results from the 'medium', 'high' and 'very high' scores.

Achieving internal agreement in the HEI was rated as a difficulty level of 'high' by 88.83% of the stakeholders with HEIs rating it the highest at 93.83%. This would be expected as they would understand the internal issues that need to be addressed within the HEI.

Achieving individual Member state agreement was rated as a difficulty level of 'high' by 89.13% of the stakeholders, with HEIs rating it the highest at 96.3%.

Regarding HEIs losing ownership of their own eID, this was rated a 'high' difficulty by 72.67% of the stakeholders. However, of all the difficulties presented in the 'high' range, this issue is ranked the lowest, even among the HEIs.

The complexity of implementing a single eID was given a difficulty level of 'high' by 83.29% of the respondents with the HEI grouping rating it the highest at 88.89%. This would be anticipated as HEIs would be more familiar with the complexities of developing, integrating and implementing systems on campus.

Trust, security, validation and authentication issues were given a difficulty level of 'high' by 85.02% of the stakeholders and the ratings were similar among the HEIs, Students and Services Providers/Others.

Interoperability of different systems was given a difficulty level of 'high' by 88.89% of the respondents with HEIs and Service Providers/Others group very similar at 93%, with students rating it 79%.

Amalgamation of multiple identities into a single identity was given a difficulty level of 'high' by 82.5% of the stakeholders with Service Providers/Others rating it the highest at 91.3%.

Of all the obstacles and challenges presented, they all scored a difficulty level above 82%, with the exception of HEIs losing ownership of their own eID scoring 72.6%.

As confirmed by 67.9% of HEIs their ID card services are currently hosted locally or mainly locally. This is something that might change with the advancement of digital technology. Europe's digital transformation is accelerating due to the rapid advance of these new and developing technologies. The European Student eID will require the use of various digital technology. Digital transformation is the use of new, fast and frequently changing digital technology to solve problems. In terms of digital technologies, Cloud Computing was the most popular answer choice by all stakeholders at 61.52%, scoring highest with Service Providers/Others at 76.09%. Blockchain was the next most popular at 34.24%. A considerable percentage of the stakeholders 'did not know' what technologies should be considered at 27.8%. In terms of other responses provided, these included digital certificates, digital signatures, trust services (eIDAS), federated authentication, SSO, cyber security, PKI, smart card.

As part of this project we reviewed the 'state of the art' in the Deliverable 1 report, and outlined the various projects and initiatives being undertaken in relation to the European Student eID. It was important to establish the stakeholders' level of awareness in relation to these. Overall 80.47% were not aware of the projects, the highest being the Students group at 96.86%. Those that were aware stated the projects included Erasmus Without Paper, Emrex, Europass, MyAcademicID, European Student Card, eID4U, ESMO, eIDAS, SEAL, EECS. This is an issue that needs to be addressed; a more effective method of information dissemination is required. This would be particularly important if a European Student eID is to be successfully implemented.

The deployment of a European Student eID will require a connection to the student profile. The unique identifier is the most popular at 88.54%, followed by Open Access information (name, photo, email etc.) at 64.68%, HEI related information (e.g. student role and status, current course, sports facilities access, etc.) at 43.49%. It is important to note from the results that HEIs only require information that is public in the card. Also, the use of the ID to store non-public information could lead to data protection problems

if not treated appropriately. This will be important information to consider in the development of the European Student eID and data protection issues will be a key factor in this regard.

The European Student eID will be an important enabler in supporting student mobility and the provision of trusted identification and secure access to services across European countries. The transfer of student data and records electronically will require the provision of trusted identification and authentication. Both the HEIs and Service Providers/Other groups were asked to select the most suitable mechanism for this. The preferred option was the mobile/digital device at 61.76%, followed by a physical eID card 56.18%. The username and password were rated at 23.98%, One Time Password at 22.27% and 'don't know' at 13.94%. Other options at 10.22% included trusted certificates, national ID card, biometrics, digital signatures, cloud services authentication, ISO standard 18013-5 compliance. The mechanism adopted will be important as there is a consensus among all the stakeholders that the most important benefit was enabling the identification of students in a trusted manner, but trust, security, validation and authentication issues also scored high in terms of difficulty level.

Standards will be an important requirement for the European Student eID. 97.5% of HEIs rated it as being 'important' or 'very important'. Standards in the ecosystem will assist in protecting HEIs being dependent on a specific service provider or solution. This will be an important consideration that should be addressed in the development of the European Student eID system.

In addition, what needs to be considered is the infrastructure for the secure provisioning and validation of data and who should be responsible for this. For the survey we asked the HEIs who should be involved in this process with 46.91% stating the HEIs should be responsible for the validation, and the Government / National Entity will act as the broker to the data, providing trust to the European Student eID and 22.22% stated the HEIs should be responsible for all data storage, issuance and validation. It is important to note from the results that a significant percentage of HEIs don't necessarily want everything under their control. Their preference is to have one entry point that will provide the interoperability.

This data collection process brought together the needs and requirements of the relevant stakeholders. It has provided a good insight from each of their perspectives. It has established a process of dialogue and knowledge sharing which will be beneficial for the establishment of a European Student eID.

4. CONCLUSION

The main objective of the questionnaire survey was to establish the state-of-the-art of the current student eID. In addition, it engaged 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 that supports cross-border services.

Analysis of the results from the 190 stakeholders', from over 28 countries, has identified much opportunity, commitment and potential for establishing a European student eID. This is evident from the responses provided by the stakeholders. Clearly, there are significant benefits to all the stakeholders, but challenges and obstacles do exist for each of them in the evolution from the traditional student ID card to a European student eID.

The gathering of data in the survey on the current state-of-the-art has provided a broad understanding of the infrastructure that currently supports existing student ID systems. In addition, this data will make a valuable contribution towards establishing a methodology on the needs and requirements for a common student eID throughout Europe.

There was a very good and positive response from the stakeholders to the survey. However, the level of awareness among the stakeholders on European student eID initiatives is quite low, particularly among students. There was also little knowledge among the stakeholders on the various Student eID research projects. This needs to be addressed by establishing an effective process of information dissemination and timely feedback from the stakeholders.

A striking feature of the survey results was the number of stakeholders from USA, Asia and Canada who generously shared their knowledge and experience on the state-of-the-art and the concept of a European student eID. Despite their geographical location, the views expressed by them are much similar to that of their European counterparts.

In summary, the outcome from Deliverable 2; Direct market research through an on-line survey, has provided an important first step in the consultation process (*'The Development of a Proposal for a Trusted Student Identification Framework'*). It has fostered a process of dialogue with the relevant stakeholders and has established an important knowledge base on the current state-of-the-art. In addition, it has identified a high level of interest and support from the stakeholders for the concept of a European student eID. This research provides the ideal foundation to proceed with the next phase, which is to establish the future state-of-the-art and achieve the ultimate goal of enabling secure identification and authentication of students across borders with their European student eID.

5. APPENDIX 1 – COUNTRIES

The following are the countries represented by the 190 respondents;

No.	Country Name
1	Austria
2	Belgium
3	Canada
4	Croatia
5	Czech Republic
6	Estonia
7	Finland
8	France
9	Germany
10	Hungary
11	Iceland
12	India
13	Ireland
14	Italy
15	Lebanon
16	Malta
17	Moldova
18	Netherlands
19	Norway
20	Poland
21	Portugal
22	Russia
23	Slovakia
24	Spain
25	Sweden
26	Switzerland
27	United Kingdom
28	United State of America