



# Final Report

## IO1

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**University of Urbino “Carlo Bo”**

One Block for Educational Credentials (OBEC)

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SISAČKO MOSLAVAČKE ŽUPANIJE



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*Lai-momo*



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# Summary

In the first phase of the project One Block for Educational Credentials (OBEC), all partners collaborated to gather information about the current European context concerning educational credentials and recognition of competences/abilities among different kinds of demographics. In particular, migrants (both intra and extra-European), exchange students, and people with alternative learning background have been interviewed in order to obtain their point of view on potential issues encountered when trying to acquire formal recognition of their competences. A second point of interest of this first phase was to understand how Blockchain technology could be used to enable recognition of competences and abilities and the potential issues that might arise with those uses. Such technologies were chosen as clear examples of transparent, safe, and useful tools that could be employed to certify competences across national borders. A final point of interest was to obtain a general assessment of the European legal and institutional stance on Blockchain technologies and formal certification of competences. This was mostly done to place the OBEC project inside an already existing context and, thus, to understand where improvements could be made.

As far as results are concerned, the major issues encountered by the target demographics when competence recognition is considered is that very few precise rules for cross-national recognition of titles are available. Even though the European Union worked in the past – and is still working – on standardised systems that could help the cross-national recognition of titles, this is mostly done at the intra-European level and people coming from countries that are outside the EU still encounter huge difficulties in having their competences recognised (assuming that they do indeed possess a certification for their competence, otherwise, as reported by many interviewees, obtaining recognition is almost impossible). A further issue, partially related to the one above is that even in cases in which there is a possibility of gaining recognition of a specific competence, the bureaucratic burden is extremely heavy, and people feel lost in the intricacies of the procedures they need to follow. This has also to be coupled with a huge disparity between the available tools and the ones that are known by the users. Indeed, what appears to be a major issue is that the persons in most need for the tools developed inside the European Union are also the ones with the least amount of information about those tools. This creates a big imbalance between issues that are perceived as relevant by the individuals in need and by the institutions that support those individuals and that seem to not perceive the barriers that those individuals face. All of this is further exacerbated by the fact that some of the rules that hold at European level are then adapted to the national setting of each country, thus creating differences inside the common frameworks, which further slow down the processes of recognition of competences and abilities.

Concerning the current European status of Blockchain technologies, it was reported that there are at least two separate issues. The first issue was technical in nature and had to do with the difficulty of having an omni-comprehensive system of educational credentials for all subjects. This is mostly due to the fact that some subjects do not lend well to proper objective evaluations and, thus, it is hard to certify them across different institutions (and countries). The second issue had to do with the perception of Blockchain technologies. This was an issue related to the fact that Blockchain technologies are

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commonly associated with cryptocurrencies and thus are perceived as volatile and unsecure, while the very opposite applies to the technology.

Those issues were thoroughly analysed in order to understand what kind of solutions could be devised in order to apply them in the second phase of the project, where testing on ways of teaching competences and having them recognised through digital certificates will be made.

# 1. Introduction

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In a world that is increasingly defined by transnational mobility in almost every level, overcoming obstacles deriving from distinctions in educational systems is key to facilitating processes of economic and social inclusion and to prompting the employability of all. However, processes of recognition of learning certificates and skills are obstacles still frequently encountered by people throughout the world. In this context, the project One Block for Educational Credentials (OBEC) primarily aims to explore the potential opportunities the innovative Blockchain (BC) technology may offer to revolutionize the educational field by simplifying and facilitating the issuing and validation of learning credentials across European countries in a unified and enforceable manner. Because BC creates an infrastructure in which certificates can be stored and issued while ensuring transparency, security, and verifiability, it has the ability to bring about positive effects especially for OBEC'S target group, composed of migrants, exchange students, and people with alternative learning backgrounds (e.g., VET schools, work experience, training programs, and volunteering).

Establishing a system that can guarantee trust, transparency, and reliability in a holistic manner in a transnational context is a challenge our societies must adequately address, as currently standardization of student records in Europe is still limited to institutions utilizing ECTS or ECVET. Consequently, “outdated credential systems limit our ability to create new pathways to education, in particular for those who lack access and need it most” (Joint Research Centre; Grech, A. and Camilleri, A. F., 2017).

Indeed, the favouring of evidence of skills and learning achievements earned through formal education over informal and non-formal learning experiences may harm people’s ability to enrol in high-education institutions or to assess the labour market. Additionally, due to differences among national educational systems, migrants are commonly faced with long and difficult processes to recognize their certifications and skills. Such obstacles lead to delays in their integration into the host country’s labour market, also possibly rendering unfeasible the possibilities of their practicing their professions. In fact, more than 40% of the employed highly educated third-country nationals work below their qualification levels in the EU (European Commission, n.d.) This failure in promoting a fast and full integration of migrants in the labour market consequently hinders their ability to fully utilize their skills and realize their economic potential to positively impact the EU economy and societies.

In this context, BC technology may offer a unique opportunity to overcome this issue of our current certification systems by creating revolutionary recognition tools in the EU. Emerging from the perception that such revolution is key to enabling people to move freely across countries while fulfilling their full economic and personal capabilities and aspirations, OBEC’s first Intellectual Output focused on research of knowledge gaps and the current state of economic and social integration of the target group (migrants, exchange students and people with alternative learning backgrounds).

The aim of this report is to explain thoroughly how this first phase was carried out and which results were obtained. In order to do so, the report is structured as follows: in section 2, the objectives of intellectual output 1 (IO1) will be introduced; in section 3, the contents of IO1 and the methodology followed to gather the data and how it was analysed will be indicated; in section 4, an initial quantitative evaluation of the results obtained will be provided; in section 5, a general qualitative evaluation of the results obtained will be provided; in section 6, the current legal and institutional status of Europe will be described. Conclusions will follow.

## 2. Objectives of Intellectual Output 1

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The first intellectual output focused on the assessment of the current state of the educational and working contexts, as well as on the current status of knowledge regarding Blockchain technology. Thus, such intellectual output was split into two distinct blocks, each dealing with 1) the needs of educational institutions, learners, employers and international job seekers in a holistic manner in each partner country and in the European contexts; 2) the contextual needs related to the use of Blockchain technology in each partner country and in the European context. The findings of these researches resulted in one national report per country (one produced in collaboration between the two Italian partners). These were then combined in the elaboration of a final comprehensive report (this report), which has the objective of informing the partners and the stakeholders about national-specific European needs. This report includes also information about standardized systems of educational credentials, as well as the legal, institutional, and technological barriers, regulations, and incentives to encourage the use of Blockchain technology in Europe.

This report has the potential of being utilized by decision and policy makers in Europe to identify issues around different educational systems and within the European context. Issues that could hinder the employability and professional integration of migrants, mobility students, and individuals with alternative learning backgrounds and, as a consequence, hinder their adequate social inclusion and economic prosperity. The identification of these obstacles plays a key role in setting the ground for the creation of a unified system of educational credentials beyond the commonly employed in higher-education.

### 3. IO1: Contents & Methodology

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In this chapter, the general methodology that has been followed in the first phase of the project will be presented. Moreover, it will be shown who was targeted for the interviews/analysis and how those interviews had to be done and which objectives were set.

## **Main Methodology**

The data has been collected through live interviews and online surveys. A common survey has been employed by all partners, while for live interview a general template with specific information to gather was provided. This data has been analysed through the use of desk-based analysis. While quantitative results have been provided where appropriate, the main aim of IO1 was to obtain a qualitative evaluation of the current European situation concerning educational credentials and Blockchain technologies. Thus, priority has been given to qualitative assessments rather than numerical analysis.

## **Procedure**

IO1 was divided into two subblocks. The first block (A1) focused on the current educational context, while the second block (A2) focused on Blockchain technologies. Each block has been dealt with separately, focusing on different target groups and elements. As a control mechanism, language certifications have been taken into consideration, making use of the current Common European Framework of Reference for Languages (CEFR) as a standard. The choice was dictated by the fact that such international standard of evaluation is considered a customary example of world-wide well-established form of ability/competence certification, thus could help determine potential differences in competence certification. For Blockchain technologies, no real standard was found in the initial phases, thus, there was no possibility of providing an equivalent control system that could be used as a comparison for the information obtained through the interviews.

## **Block A1 – Contents**

This part of the research included reaching out to educational institutions (including higher-education institutions, VET schools, and other training programs), as well as to individuals with migrant and non-formal educational background to obtain an overview of the main obstacles to validating educational credentials. In this effort, the partnership explored existing tools to validating educational credentials in their countries. Each partner was responsible for gathering data related to their own countries. Laimomo and UNIURB cooperated to collect information in the Italian context. UNIURB as the leader of this Intellectual Output and given their expertise in the educational field was responsible for gathering information related to the European context, including legal and institutional frameworks.

Particularly, this part of the research included:

- Obstacles commonly faced by migrants when trying to practice their professions when moving across countries.
- Obstacles commonly faced by exchange students to validate the credentials obtained abroad when returning to their home institutions.

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- Life-experiences and obstacles commonly faced by individuals with non-formal and informal learning backgrounds when trying to practice their professions or enrolling in high-education institutions.
  - Potential obstacles for the unification of formal, non-formal and informal learning credentials and for the standardization of different national educational systems.
  - Experiences of employers who employ migrants and/or persons with alternative learning backgrounds.
  - Opportunities and challenges in the legal and institutional European framework related to the system of educational credentials.

## Block A1 – Data Gathering

With reference to Block A1, the project had three target groups: i<sub>A1</sub>) migrants, ii<sub>A1</sub>) exchange students, and iii<sub>A1</sub>) Individuals with non-formal and/or informal backgrounds.

Interviews and surveys (Appendix A)<sup>1</sup> have been carried out with members of the three target groups and with institutions that provide support to/collaborate with those members. The target number of interviews/survey entries for this first block was 20 individuals and 3 supporting/collaborating institutions per partner. A further requirement of the data gathering was that at least 20% of the data had to be collected through live interviews (either online or in person)<sup>2</sup>, with the remaining 80% gathered through a predisposed online survey.

*The ideal individuals for target group (i<sub>A1</sub>) were:*

Extra-European migrants (entering Europe from countries outside Europe) and Intra-European migrants (moving from one European country to another). Focus shall be placed on the obstacles they faced when trying to practice their professions when moving across countries.

*The ideal institutions for target group (i<sub>A1</sub>) were:*

NGOs (ONGs) involved in the support and training of migrants and/or private companies who hired migrants as part of their staff.

*The ideal individuals for target group (ii<sub>A1</sub>) were:*

Outgoing exchange students (students enrolled in a university in the partner's country who studied abroad) and Incoming exchange students (students enrolled abroad who completed a visiting period in a university in the partner's country). Focus shall be placed on the obstacles they faced when trying to validate the credentials obtained abroad when returning to their home institutions.

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<sup>1</sup> From this point on, the term 'interview' will be employed for both interviews (carried out in presence) and surveys (carried out digitally). If, and where, the distinction is relevant, it will be specified if the interview was carried out in presence or digitally.

<sup>2</sup> The motive behind this choice was to obtain better refined data. Obviously, the partners were free to carry out more than 20% of the interviews live, given that this percentage was just a lower bound.

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*The ideal institutions for target group (ii<sub>A1</sub>) were:*

Erasmus administrative offices in higher-education institutions.

*The ideal individuals for target group (iii<sub>A1</sub>) were:*

Persons with non-formal and/or informal educational background (e.g., education based on community initiatives, governments' schemes and/or home schooling) who tried to access the job market and/or tried to access higher-education programs. Focus shall be placed on the obstacles they faced when trying to practice their professions or enrolling in high-education institutions.

*The ideal institutions for target group (iii<sub>A1</sub>) were:*

Enrolling offices in higher-education institutions who must evaluate the competence of new students with non-formal backgrounds enrolling to their institution and national job-seeking agencies that offer support to those individuals with non-formal backgrounds.

On top of the interviews carried out with the individuals and institutions members of the different target groups, a desk-based research about the current opportunities and challenges in the legal and institutional European framework related to the system of educational credentials has been done, identifying some criticalities at the European level.

The choice of questions was carefully selected in order to properly identify the members of the various target groups. Question 1<sup>3</sup> distinguished between individuals and institutions. In case institutions were interviewed, the question that followed tried to identify which kind of individuals those institutions were helping. At that point, questions about the tools they employ to properly assist those individuals, which issues they are asked to solve, and their opinions about a standardized system of educational credentials followed. In case individuals were interviewed, the question that followed had the goal of selecting exchange students (target group ii<sub>A1</sub>) from all the rest of the interviewees. For such students, the questions that followed had to identify i) their background; ii) potential issues they faced while trying to pursue their life goals; iii) supporting tools they employed to solve their problems; iv) their opinion on standardized systems of educational credentials. For the rest of the interviewees, a further batch of questions (identifying the interviewees nationality and the country in which they were seeking a job or trying to enrol in an educational institution) followed in order to identify whether those individuals were migrants. In case they were, the questions that followed had to identify the same information (i) – (iv) that were collected for exchange students. For all those individuals who were neither exchange students nor migrants, a question about their educational background followed. Such question had the purpose of identifying whether those individuals followed an alternative educational background or a formal one. In the former case, again, questions followed that had to identify the same information (i) – (iv) as with exchange students and migrants. In the latter case, the individuals did not fall in any target group

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<sup>3</sup> The reader is referred to the appendixes for a complete overview of the questions submitted through the online survey. Interviews were easier to perform, since they allowed a better identification of the nature of the individuals interviewed and thus, there were less difficulties in the selection of questions.

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that the OBEC project was interested in. In this case some questions about their opinion on standardized systems for educational credentials followed.

## **Block A1 – Analysis Aims**

Following the general objectives of IO1 and the specific agents targeted in block A1, the interviews were structured in order to identify the following elements.

For individuals:

1. The status of the individuals: their background and aims.
2. Potential obstacles they faced while trying to achieve their aims.
3. The tools and/or institutions that they employed as support to try and overcome the obstacles.
4. Their opinions/suggestions about a potential standardized credential system.

For institutions:

1. The status of the institutions: their structure and aims.
2. The tools and frameworks they employ to evaluate the capacities/competences of the individuals they support (or employ in case of a private company).
3. The potential obstacles they faced while trying to evaluate the capacities/competences of the individuals they support (or employ in case of a private company).
4. Their opinions/suggestions about a potential standardized credential system.

## **Block A2 – Contents**

This part of IO1 included an in-depth research of current knowledge shortages in relation to the potentials and skills to use Blockchain among education leaders and institutions. UNIURB tried to understand what the informational needs and gaps were, as well as which skills could be further developed in order to prompt the use of Blockchain technology as a means to facilitating the validation of educational credentials. Each partner was responsible for gathering data related to their own countries. Lai-momo and UNIURB cooperated to collect information in the Italian context. UNIURB as the leader of this Intellectual Output and given their expertise in the educational field was responsible for gathering information related to the European context, including legal and institutional frameworks.

Particularly, this part of the research focused on:

- Universities and institutions which are resorting to Blockchain technology to issue their diplomas and certificates.
- Standardized credential systems that could inspire the drafting of the curriculum for the smart contracts.
- Companies working with innovative technologies that could help developing a system for unified educational credentials.
- The status and current knowledge shortages in relation to the potentials and skills to use Blockchain among education leaders and institutions.
- Opportunities and challenges in the technical, legal, and institutional European framework related to the use of Blockchain technology.

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## **Block A2 – Data Gathering**

With reference to Block A2, the project had three targets: i<sub>A2</sub>) universities and institutions which are resorting to Blockchain technology to issue their diplomas and certificates, ii<sub>A2</sub>) standardized credential systems that could inspire the drafting of the curriculum for the smart contracts; iii<sub>A2</sub>) companies working with innovative technologies that could help developing a system for unified educational credentials.

Interviews had been carried out with representatives of the targets (i<sub>A2</sub>) and (iii<sub>A2</sub>). Moreover, one credential system for each partner had been identified for target (ii<sub>A2</sub>).

On top of the interviews carried out with the targets of block A2, a desk-based research about the current opportunities and challenges in the technical, legal, and institutional European framework related to the use of Blockchain technologies has been done.

## **Block A2 – Analysis Aims**

Following the general objectives of IO1 and the specific agents targeted in block A2, the interviews were structured in order to identify the following elements.

For the interviews with the institutions (either educational institutions or private companies):

1. The way Blockchain was applied by the institutions.
2. Potential technical issues with the use of Blockchain technologies.
3. Potential perception issues with Blockchain technologies.

For the analysis of inspirational credential systems, an emphasis was placed on how the systems would evaluate competences and/or abilities and how easily was to implement those systems.

Finally, for the study about the current European status on Blockchain technologies, emphasis was placed on current and future initiatives brought forward by the European Union that involve such technologies.

## 4. IO1: The numbers

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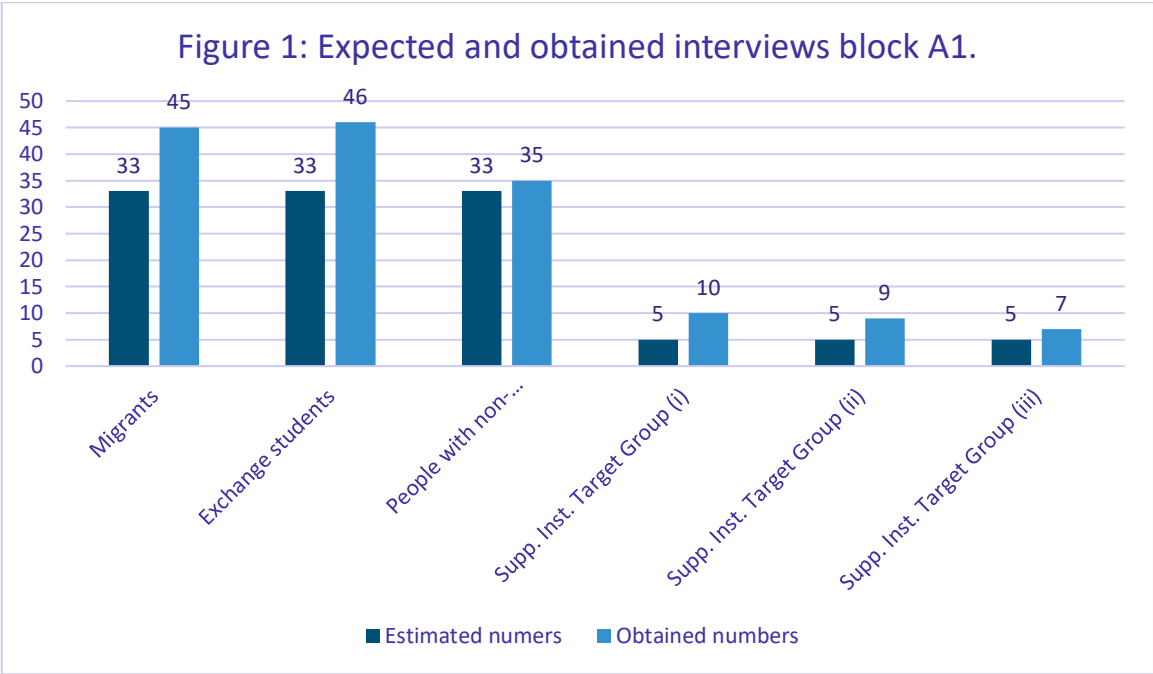


The main purpose of this chapter of the report is to provide an initial analysis of the numbers obtained during the first phase of the project. The exact number of interviews performed and some details on the characteristics of the interviewed agents will be provided. This shall clarify the starting point<sup>4</sup> from which the results presented in the next chapter are presented.

### Block A1 – Estimated and Obtained Numbers<sup>5</sup>

As far as block A1 is concerned, it was expected that each partner interviewed/surveyed at least 20 individuals and 3 supporting institutions. The interviews had also to be distributed evenly among the various target groups, meaning that, putting together all partners, at least 33 individuals for each target group and a total of 15 supporting institutions had to be interviewed/surveyed.

The expectancies have been reached for all target groups, with some exceeding those expectancies. As can be seen in figure 1, for target group (iii<sub>A1</sub>) the expected number of interviewees has been reached. For target group (i<sub>A1</sub>), ~45% more interviewees have been reached. Specifically, ~36% more individuals (migrants) and ~100% more supporting institutions have been interviewed. For target group (ii<sub>A1</sub>), ~45% more interviewees have been reached. Specifically, ~39% more individuals (exchange students) and ~80% more supporting institutions have been interviewed.



### Block A1 - Details about the Data

In this section, some quantitative information about the status of the individuals and institutions interviewed for block A1 will be provided. Those details are fundamental in order to understand whether

<sup>4</sup> The data is updated to the 15<sup>th</sup> of May 2021. The plan is to perform other interviews, in order to test whether the results extrapolated from the currently available data are indeed plausible.

<sup>5</sup> In this specific section no reference will be made to specific interviews and/or evaluation elements. Those sections have the sole purpose of providing an initial insight on the nature of the data gathered during IO1.

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the data collected is useful to draw general conclusions about the issues and the currently employed aiding tools. The main elements that have been explored for individuals are their nationality, their educational background, their field of study and, eventually (for exchange students), in which country they performed their exchange period. For institutions, the main elements analysed are the nature of the institution, trying to identify which characteristics of such institutions are relevant for the OBEC project.

### *Target Group (i<sub>A1</sub>)*

Individuals:

The interviewed individuals are originally from 23 different countries – Afghanistan; Albania; Brazil; Chile; Egypt; Estonia; Iran; Iraq; Ireland; Italy; Lebanon; Paraguay; Perú; Philippines; Poland; Romania; Senegal; Somalia; Spain; Syria; U.K.; U.S.A; Turkey.

More than half of the participants – 28 out of 45 (>62%) – had a Higher-Education Degree. At least one of them specifically indicated that s/he had a master's degree. Very few – 6 out of 45 (<14%) – explicitly reported to have no formal education at all. The rest either did not respond to the question or indicated that they have completed at least some form of formal education, even though not at the University level. The characteristics of the interviewees seem to suggest that the results obtained in this first phase of the OBEC project are broad enough (i.e., they include information about people that come from different backgrounds/countries) to be relevant. However, the results are relevant only for a specific subgroup of migrants, i.e., migrant with a higher-education background. This is due to the fact that almost all the interviewees have a higher-education degree, thus the non-educated migrants are not sufficiently represented in the study. This shall be taken into consideration when interpreting the results provided later in this final report.

Institutions:

The institutions interviewed are nicely split between NGOs involved in the support and training of migrants (4 interviews) and private companies who hired migrants as part of their staff (6 interviews). This suggests that the results obtained can provide a comprehensive picture of how different institutions deal with the employability and professional integration of migrants, as expected by the objectives of Intellectual Output 1.

### *Target Group (ii<sub>A1</sub>)*

Individuals:

The alma maters of the interviewees are located in 13 different countries – Armenia; Austria; Belgium; Brazil; Canada; Croatia; France; Germany; Italy; Poland; Spain; Sweden; U.S.A.

Those students completed an exchange study period in 16 different countries – Australia; Belgium; Bulgaria; Canada; Croatia; Czech Republic; France; Germany; Greece; Italy; Japan; Norway; Poland; Russia; Slovenia; Spain.

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The fields of study of those students were varied, including both humanistic and scientific topics<sup>6</sup>.

Given those details, it is fairly safe to assume that the results provided later in this report are representative of many different demographics.

Institutions:

The institutions interviewed are all Erasmus offices of officially recognized universities. Those universities are located in 4 different European countries – Belgium; Croatia; Italy; Sweden.

There is a heavy bias in the data, since 6 out of the 9 institutions interviewed (~66%) are based in Italy. This information shall be taken into consideration when interpreting the results provided later in this report.

### *Target Group (iii<sub>A1</sub>)*

Individuals:

Almost all the interviewed individuals (34 out of 35) performed some kind of non-formal course in order to boost their competences. Those courses were performed in different typologies of institutions – mainly private companies and/or nationally supported institutions (23 out of 35; ~65%); non-officially recognized educational institutions outside Europe (3 out of 35; ~9%); NGO organisations offering courses through their activities and/or Erasmus+ projects (8 out of 35; ~23%). One interviewee claimed to have acquired competences and abilities through labour.

The subjects of the courses were varied – Organisational skills; leadership and communication skills; aesthetician and/or fashion related skills; teaching skills; IT-directed skills; sport and performance skills; food and hospitality skills; language speaking skills.

Given the diversity of backgrounds and topic studied by the interviewees, it is safe to assume that the results provided later in the report are representative of the situation that individuals with a non-formal/informal background face in Europe.

Institutions:

Five different typologies of institutions have been interviewed – Universities' offices involved with the recognition of prior studies; a general umbrella organization involved with the reintroduction of unemployed people in the job market; a governmental institution that provides support to unemployed people; a job-finding company that helps matching the demand of private companies with the offers from unemployed people; educational institution that provides courses that provide competences that could be directly spent in the job market.

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<sup>6</sup> The list is too varied to indicate all subjects studied without being cumbersome. The reader can refer to the national reports for finer-grained details about this topic. Wherever it was relevant in the analysis, reference to the specific course studied by the individual is made.

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The diversity of such institutions allowed to obtain a multi-faceted perspective on how individuals with non-formal/informal backgrounds are able to enter the job market, by having their competences recognized.

It must be noted that even though the partners did their best to select institutions that could be referenced to one of the target groups, some of those institutions operate across multiple demographics. This shall be kept in mind when interpreting the results reported later in this report, since this might influence some of the answers of the interviewed institutions. This is predominantly seen when dealing with institutions that work with unemployed people, that might fall both into the migrant category and the one for persons with an informal/non-formal background.

## **Block A2 – Estimated and Obtained Numbers**

As far as block A2 is concerned, it was expected that each partner provided contacts of at least 5 educational institutions/private companies that employed Blockchain. The University of Urbino had to perform all the interviews<sup>7</sup>, in order to maintain consistency along them and to obtain a precise picture of the current European situation about Blockchain technologies. The interviews had to be performed all live. Of the contacts provided, the expectancy was to interview at least 1 educational institution and 1 private company in order to have a mixed view on the potential applications of Blockchain technologies. This meant that the estimated number of interviews was 10 (5 educational institutions and 5 private companies). On top of those interviews, each partner had to provide an example of a standardized system of credentials that could be employed as inspirations for further phases of the project. This meant that the estimated number of examples obtained was 5.

The expectancies for all elements of block A2 have all been fulfilled. As can be seen in figure 2, for educational institutions, 80% more interviews have been carried out. For private companies, 60% more interviews have been carried out. Finally, 60% more examples of standardized systems of credentials have been provided. This means that the data gathered exceeded all the initial expectancies, providing a way finer-grained analysis of the European situation on Blockchain technologies.

## **Block A2 - Details about the Data**

In this section, some quantitative information about the elements interviewed/identified for block A2 will be provided. In particular, the focus was placed on the nature of the educational and private institutions/companies that have been interviewed, the country in which they are located and, for the credential systems taken as examples, what is the main use of such credential systems.

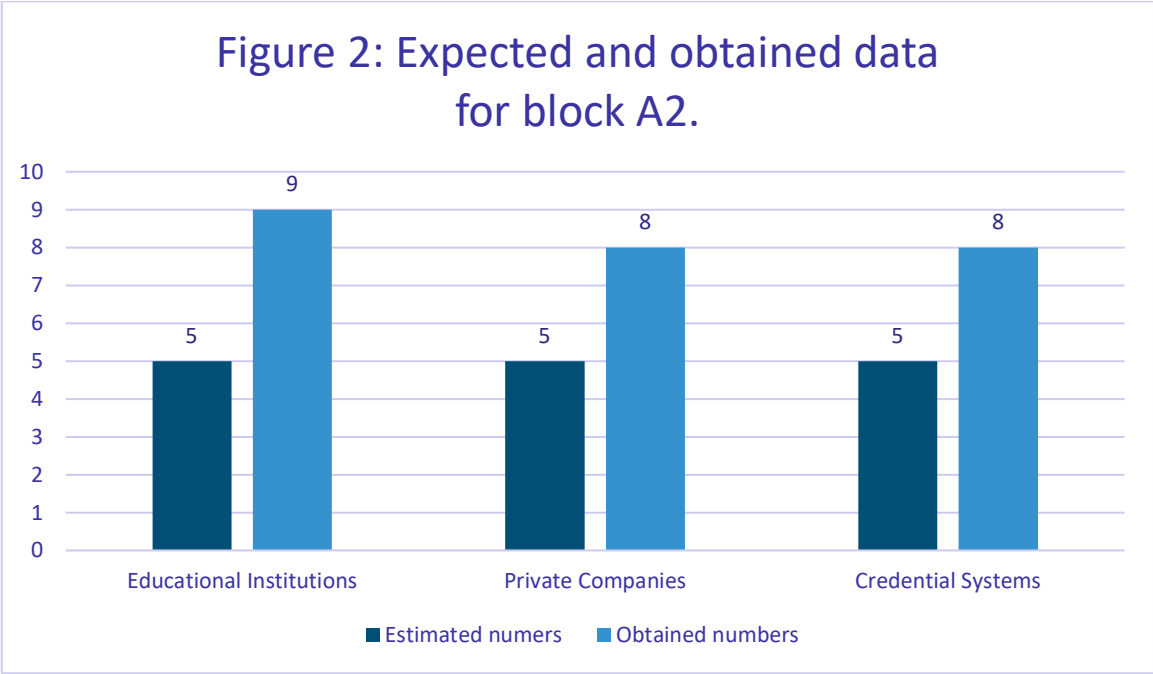
### *Educational Institutions*

Of the 9 educational institutions interviewed, 4 (44%) were public Universities employing Blockchain technologies to issue some of their degrees in the form of open badges. 2 (22%) were non-governmental

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<sup>7</sup> At the end, the University of Urbino did not manage to perform all the interviews and was aided in the process by the other partners.

educational institutions that provided courses to employees of private companies and that employed Blockchain technologies to issue digital versions of their certificates. The other 3 (33%) institutions were governmental bodies or publicly funded projects involved with higher-education and innovation technologies. In this case, Blockchain technologies were not employed directly, but were object of study in order to understand whether it was feasible to employ such technologies in the educational sector. 6 out of 9 (67%) of those institutions were Italian, making the end results heavily biased towards such country. Further interviews are planned in order to widen the results and get a better overall picture of the European situation concerning Blockchain as employed in educational institutions.



*Private Companies*

Of the 8 private companies interviewed, almost all (7 out of 8, 88%) have some ties with the development of IT systems. The other company interviewed is mainly involved with logistics. Of the IT companies 2 (25%) developed their-own Blockchain infrastructure, while the remaining ones (5, 63%) are focused on providing consultancies for the use of Blockchain technologies inside other companies. The type of consultancy provided are different and touch various topics – finance, education, IT-technologies, and digital infrastructure building. The headquarters of those companies are located in 5 different European countries – Belgium; Croatia; Italy; Switzerland; U.K. While there seems to be a heavy bias towards IT companies, this was to be expected given the topic analysed (i.e., the use, problems, and opportunities of Blockchain technologies). Thus, the end results that came from the analysis of those interviews shall be taken as indicative of the current state of Blockchain technologies in the private sectors.

*Credential Systems*

All the standardized credential systems that were chosen as inspiring systems are employed in the educational sector. All partners provided examples from their home country; therefore, those examples are actively employed in four different European countries – Belgium; Croatia; Italy; Sweden. All the

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systems were developed starting from already existing indications of similar standardized systems that are implemented at the European level. Thus, they all share some common features. The fact that those systems are employed in different countries helped in reaching the goal of analysing how easily are standardized system implemented inside the European context. However, since all of the systems dealt with educational contexts (often unspecified educational contexts), the results might not be applicable to private sectors, where competences and properties might be evaluated following different paths. It remains true that for the scope of IO1 of OBEC, i.e., naming the barriers inside the educational contexts, the results are perfectly applicable and therefore should be judged as appropriate.

## 5. IO1: The results

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In this chapter, the qualitative<sup>8</sup> results obtained during the analysis of the data gathered during phase one of the OBEC project will be presented. In particular, the results will be presented dividing them between the ones obtained for block A1 and those obtained for block A2. For block A1, a further division between individuals and supporting institutions will be made, concentrating on the three aims indicated in chapter 3, i.e., the potential issues faced, the tools employed to facilitate procedures and the opinions of the interviewees. For block A2, a further division between educational institutions and private companies will be made, concentrating on the two aims indicated in chapter 3, i.e., the potential technical issues and the potential perception issues of the use of Blockchain technology<sup>9</sup>. The analysis of the standard systems of credentials will be performed in a separate section. A synthesis of the results will be included in the end of the chapter. Those results will then guide the proposals made in the next chapter, where potential solutions to the problems raised will be presented.

## Block A1 – Individuals

In this section, the qualitative results obtained from the interviews with the members of the target groups of block A1 will be presented. The results of each target group will be presented in isolation, to gain a better picture of the current situation of the specific target group. The answers of the interviewees have been analysed with respect to competences and capacities developed through three distinct kind of activities: study, job experiences, and life experiences. Moreover, a language competence control parameter has also been included.

### *Migrants (Target Group $i_{A1}$ )*

~62% of the interviewees (28 out of 45) reported having issues when trying to get recognition of the competences they developed during their studies. Of those, ~57% (16 out of 28) reported that the issues were related to cross-national differences in the educational systems (15 out of 16 individuals had degrees from non-European countries, while the last had a degree obtained through a course held online). This meant that the educational institutions of the country in which they migrated could not convert their title into a comparable one that was legally recognized in such country. Among the other issues, ~11% (3 out of 28) reported having issues related to the impossibility of applying their specific knowledge to the context of the new country, mostly due to differences in the procedures between the country in which they graduated and the one in which they migrated – e.g., difficulties in applying the knowledge acquired during a degree in law, when the legal frameworks of the two countries differed. Other issues reported were mismatching between the study programs and the work capacities required by private companies (2 out of 28), misbeliefs about the actual possession of certain skills irrespective

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<sup>8</sup> It should be specified that when the term ‘qualitative’ is employed it means that the results provided are based on qualitative answers that are hard to count and therefore escape a proper quantitative analysis. However, some numerical analysis has still been made, but it must be taken into consideration that this numerical analysis has been performed using subjective interpretations of the data, e.g., when trying to identify the category to which a particular qualitative answer belongs to.

<sup>9</sup> Note that in chapter 3, 4 aims were indicated for block A1, and 3 aims were indicated for block A2. However, the elements that fulfil the first aim of each block have been presented in chapter 4.



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of the titles possessed (1 out of 28), and insufficiency of what the study programs provided to the individual when trying to apply for a specific job (1 out of 28).

~36% of the interviewees (16 out of 45) reported having issues when trying to get recognition of the competences they developed during their professional experiences. Of those, 50% (8 out of 16) reported that the issues were related to a lack of possession of formal recognition of the competences developed during the professional experiences they had. This meant that the private companies that wanted to hire them had no way to establish whether those competences were actually present. Another important issue reported (4 out of 16, 25%) was related to the differences in the social and cultural frameworks between their country of origin and the country they migrated to. This meant that some of the behaviours that were normal in their home country while working were considered inappropriate in the country they migrated to. Another issue that was reported (1 out of 16) was the difficulty of verbally expressing the competences that were acquired during the professional experiences.

~31% of the interviewees (14 out of 45) reported having issues when trying to get recognition of the competences they developed during life experiences. Of those, ~57% (8 out of 14) reported that the issues were related with difficulties in providing certifications for the competences they acquired during their life experiences. This meant that the individuals had no way to provide proofs of the possession of those competences. The issue has been reported as more relevant when the competences were also not quantifiable, meaning that the potential employer could not even test the competence during the job interview. ~29% (4 out of 14) of the interviewees reported that they had issues related to the differences in the social and cultural frameworks between their home country and the country they migrated to. Another issue reported (1 out of 14) was that the normative frameworks of some countries (Belgium in this case) were too complicated and cumbersome, and the individual found it difficult to get recognition for all the voluntary work s/he was performing in the country.

Finally, ~29% of the interviewees (13 out of 45) reported having issues when trying to get recognition for their language abilities. It should be noted, however, that the reported issues were related to lack of formal certifications for the language abilities, which lead to further examination of those abilities during job-interviews. Thus, it is fairly safe to assume that having a language certification helps reducing the numbers of issues faced by individuals related to the possession of language abilities while moving across European countries.

### *Exchange Students (Target Group ii<sub>A1</sub>)*

~78% (36 out of 46) of the interviewees completed some exams in the host University of the exchange program. Of those, ~67% (24 out of 36) reported having some issues when trying to get recognition for those exams when returning to their alma mater. All the issues reported are due to difficulties in comprehending the equivalences between exams taken in the host University and the ones that are available in the alma mater. The most common form of incomprehension (~67% of the issues reported; 16 out of 24) was produced by communication issues between the universities, which caused difficulties for the students to understand which courses they could take in the host university and how would they be marked as they returned to their alma mater. Many students (~67% of the issues reported; 16 out of 24) also stated that they had difficulties in obtaining recognition for the credits that their exams were

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worth. This was reported (1 out of 24 reported issues) also in instances in which ECTS credits were employed.

~52% (24 out of 46) of the interviewees completed some extra-curricular activities while performing their exchange study period. Of those, only ~17% (4 out of 24) reported having issues getting recognition for the competences they obtained while performing those extra-curricular activities. Those students all reported that the major issue was that they did not receive any official certification for the competences they acquired following those extra-curricular activities.

~48% (22 out of 46) of the interviewees completed some language activities during their exchange study period. Of those, no one reported having any issue having recognition for the language abilities they acquired during their exchange period. This was reported as being the case even in situations (3 out of 22; ~14%) in which no certification was provided once the language activity was completed.

### *People with non-formal/informal educational backgrounds (Target Group iii<sub>A1</sub>)*

~34% (12 out of 35) of the interviewees reported that they had some form of issue when trying to pursue their life goals. The most common form of issue arose when trying to get recognition for the competences they developed during previous job experiences (10 out of 12; ~83%). The explanation given for those issues was that it was often difficult to provide references for the previous jobs, thus, it was difficult to show to new potential employers that they indeed had such work experience.

The interviewees reported having issues when trying to get recognition for the competences they developed during life experiences (9 out of 12, 75%). In this case, the most common reason reported (8 out of 9 reports, ~89%) was that they lacked formal certificates that could assure the employer that they indeed possess the competence they claimed to have.

The interviewees reported that they had some issues having recognition for the knowledge they acquired during their alternative educational course (7 out of 12, ~58%). Again, the main reason reported is that they lacked formal certificates for the competences they acquired during their education. Concerning this last point, it should be reported, though, that the rest of the interviewees (28 out of 35, 80%), claimed that their informal/non-formal educational background actually helped them access the job market. The main reason reported is that the institutions that provided the educational content also helped them get in contact with potential employers, which trusted the institutions and therefore recognized their competences without problems.

Finally, only very few interviewees reported having problems getting recognition for their language abilities (3 out of 35, ~9%).

## **Block A1 – Institutions**

In this section, the qualitative results obtained from the interviews with institutions providing support to the individuals of the target groups identified in the OBEC project will be summarized and presented. The institutions will be split according to the target group they provide support to (even though, it must be restated that some of the interviewed institutions work across multiple target groups and therefore, might provide answers that are relevant for all the target groups they work with/provide support to).

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Reflections on the different perspective on issues between the institutions and the individuals will be provided in this section.

### *Target Group i<sub>A1</sub>*

Institutions providing support to and/or employing migrants (both extra and intra-European) reported a diversity of issues that the migrants face when trying to fulfil their life goals in the country they migrated to.

The most common issue that is reported is that of the language barrier. Those institutions claim that many migrants have difficulties to express them-selves in the language of the country they migrated to. This creates many issues when trying to communicate in order to solve other minor issues. This first issue seems to be the most subtle one since only one of the migrants interviewed during the first phase of the OBEC project reported having this issue. This seems to suggest that there is a lack of understanding from migrants that this is indeed an important issue that has to be worked on.

Another issue that is commonly reported is that there are instances in which migrants that are trying to get official recognition of their competences lack certificates for those competences, making it difficult to assess whether they possess them or not. This issue is further exacerbated by the fact that different countries (especially extra-European countries) have different educational systems and, thus, it is hard to provide equivalent qualifications for the ones that are possessed by the migrants – this often leads to the fact that those migrants are evaluated as possessing qualifications that are lower than the ones they actually possess. This second issue actually aligns perfectly with the results obtained when interviewing migrants. In fact, this target group seem to be absolutely aware that cross-national recognition of competences is problematic, especially when there is a lack of formal documentations about the competence.

A third issue that is reported (especially by employers) is that migrants might have different cultural backgrounds and might be unaware of social and/or cultural expected behaviours in given scenarios, making it difficult to place them in positions of relevance. This issue also aligns with the results that have been obtained when interviewing the migrants.

A final issue that was reported by a few supporting institutions is that there might be some monetary barriers in getting proper recognition of competences for those migrants. This is due to the fact that many of the procedures employed to provide such recognition are costly. This issue was never reported when interviewing migrants. However, this might be due to governmental support in covering those costs or because migrants that have no possibilities of covering the cost rely on different forms of support to achieve their life goals.

### *Target Group ii<sub>A1</sub>*

Institutions providing support to exchange students actually reported that they identified very few issues – 6 out of 9 (~67%) of those institutions reported that they saw no issues at all – when trying to provide support to the students that were trying to get recognition of their activities that they acquired during their exchange period. Of the few institutions that reported some issues, those that were reported are: difficulties in providing comparisons between non-EU based educational institutions and

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EU based ones. This was said to be relevant because it was difficult to provide equivalences between foreign evaluations systems and ECTS (European Credit Transfer and Accumulation System). Another issue reported is that student might be forced to face some complicated bureaucratic procedures during the recognition phase, which might slow down their educational path.

The fact that there is a big discrepancy between what is perceived by the exchange students and the supporting institutions is in itself a huge issue. All the issues faced by the exchange students seem to be completely missed by the supporting institutions. While it seems to be that there are specific procedures that could help exchange students to overcome their problems, either those students are not made aware of them, or they have issues accessing those procedures. Thus, there seems to be a need for a solution that could help students be more aware of the tools they have available and making access to them easier.

### *Target Group iii<sub>A1</sub>*

Institutions providing supports to people with alternative education backgrounds only reported two kinds of issues that those individuals face when trying to get recognition for the competences they developed during their lifetime.

The first issue reported was that those people often lacked formal certifications for the competences they developed. This issue was further exacerbated by the fact that those individuals had no ways to provide references and/or any kind of evidence that they performed certain courses. This issue was also reported by the individuals them-selves; therefore, it seems like it is an issue that is well known and should be dealt with.

The second issue reported was that the individuals had difficulties in expressing them-selves using the local language. This issue is similar in nature to the one faced by migrants and was not reported by the individuals them-selves. This is mostly due to the fact that (as previously stated) the institutions that provide support to people with an alternative educational background are also providing support to migrants and, thus, when answering the questions, they indicate issues that are relevant for both target groups. In this sense, it is important to make a distinction between people with an alternative educational background that are also migrants (and might not understand the local language well) and people with an alternative educational background that are born in the country in which they are seeking a job (who are likely to possess good knowledge of the local language).

## **Block A2 – Educational Institutions**

### *Technical Issues*

Of the educational institutions interviewed, most reported that there were no major issues in implementing Blockchain technologies for the production of open badges and digital certificates. Indeed, all those institutions employed digital certificates for some of their degrees and/or courses and had no issues in implementing them. However, a few of the institutions suggested that there might be scalability issues when trying to apply digital certificates to all activities pursued by a student – i.e., it was claimed that it is not clear whether the use of digital certificates can be applied to all the different disciplines that can be found in education. This is so because there are issues of evaluation, where some

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skills are hard to judge and measure and, thus, difficult to certificate for an institution. Therefore, even though digital certificates could be implemented, it would be difficult to understand whether a given student does indeed possess the competences required to acquire such certificate.

### *Perception Issues*

As with technical issues, also for perception issues, educational institutions indicated that there were no major issues with the use of Blockchain technologies for the production of certificates. The only minor issues that were reported were related to unresponsiveness by the students and/or generational gaps in the appreciation of the digital certificates. In the former case, it was noticed that some students simply did not care about the digital certificates (it is important to note that those students all received a paper copy of their degree along with the digital certificate) as could be seen by the fact that they never downloaded them. In the latter case, it was reported that older students were sceptical about those digital certificates and preferred to have an ordinary paper certificate for their degree. In the opinion of the educational institutions those issues might be solved with time and by gradually moving to scenarios where only digital copies of a certificate are provided.

## **Block A2 – Private Companies**

### *Technical Issues*

The private companies interviewed reported two classes of issues that are related with the use of Blockchain technologies. The first class has to do with the cost and sustainability of infrastructures based on Blockchain technologies, while the second class of problems has to do with privacy issues.

As far as the first class is concerned, the issue is related to the cost of registering operations over a blockchain infrastructure. This is due to the fact that, for some blockchains, the cost of a transaction on the blockchain could be really high. This is seen as a huge issue for blockchains that require numerous transactions in a small period of time. However, this issue seems to be irrelevant for educational institutions, since the number of transactions required is rather small and, thus, this issue does not seem to apply in the context of the OBEC project.

As far as the second class is concerned, the issue is related to the fact that employing Blockchain technologies require the insertion of sensible data in networks that are spread across the web. This might create some privacy issues if the individuals do not wish to have an online presence. This issue seems to be extremely relevant in the educational sector, where educational institutions might possess extremely sensible information about the students. Thus, it is necessary to pay attention to who can access the digital certificates that are assigned to a student and which kind of information is present in their digital portfolios of activities performed.

### *Perception Issues*

The private companies interviewed that there are two issues related to the perception of Blockchain technologies. The first issue has to do with the connection that has been created between Blockchain technologies and cryptocurrencies; the second issue has to do with the perception that Blockchain technologies are not well-regulated from a legal perspective.

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According to the first issue, the private companies noted that their clients conflated Blockchain technologies with cryptocurrencies, believing that they were one and the same thing. This meant that the poor reputation<sup>10</sup> of cryptocurrencies carried over to Blockchain technologies.

According to the second issue, the clients of the private companies interviewed had doubts about the legal validity of smart contracts and similar objects related to Blockchain technologies. They believed that in case of a breach of contract, it would be extremely difficult to bring the breaching party into court just employing a smart contract. It should be noted that the private companies reported that this perception issue was predominant in clients that were older in age, thus, it seems that this issue is similar in nature to the one reported by educational institutions, where there seems to be a generational gap in the perception of how technologies could be employed to increase the quality of daily endeavours.

## **Block A2 – Standard Credential Systems**

Of the standard credential systems that were analysed in the first phase of the OBEC project, most share some common features that are also present in the standard systems employed at the European level, e.g., diploma supplements<sup>11</sup>. Most notably, four elements that those systems almost always include are:

- The identity of the agent that will receive and use the certifications provided through the standardized system. It is fairly safe to assume that this is needed in order to avoid abuses in the use of those certifications (e.g., by using someone else's certification or false certifications).

*Indications:* The system tested by OBEC shall allow the identification of the agents that are receiving the certifications. It shall be pointed out, however, that the digital nature of the certifications that OBEC will focus on might cause some privacy issues (as reported in the previous section). Thus, attention must be placed on finding the right balance between allowing the identification of specific agents and respecting their privacy.

- The qualities of the agent that are certified by the standard credential system. This is the main purpose of having such standard credential systems and, thus, it seems reasonable that all such systems include sections where the qualities that are certified are explicitly specified. In some cases, those qualities are also presented with a reference to international terminology, in order to fulfil both national requirements and international ones.

*Indications:* Each certificate produced shall make explicit the qualities that are certified. It is advisable that those qualities are not simply indicated, but also put in reference to the skills and qualifications that are present in the ESCO system<sup>12</sup>. This shall facilitate the identification of specific jobs that can be performed by someone possessing the qualities that have been certified and, thus, allowing an easier access to the job market for those agents.

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<sup>10</sup> Currently, there has not been a serious study about the perception of cryptocurrencies. The claim contained in this report are based on the answers received during the interviews with the private companies.

<sup>11</sup> See chapter 6 for references.

<sup>12</sup> For more on the ESCO system, see chapter 6 of this report.

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- The evaluation system that was employed to assess the fulfilment of the desired characteristics that allowed the production of the certificates. In particular, such part should include the scales employed in the evaluation and the assessment procedure that can determine the overall end score for the specific agent. This seems to be needed in order to allow translations between different evaluation systems. In fact, only providing a specific scale of evaluation is useless if the evaluation criteria are not provided. Knowing that someone completed 30 university credits in a course has no meaning if there is no reference to how much work was required for such credits and how it was assessed that the student indeed put in that kind of work. Same goes with saying that a specific building falls into the A energetic efficiency class, if there is no reference to the scale of such classes and how the building was assessed.

*Indications:* Specific indications of the evaluation criteria and the scale employed to evaluate the agents shall always be provided. Scales could be as simple as Boolean scales (i.e., the agent fulfils the criteria needed to be certified the quality or s/he does not) and might be both numerical and/or word based. Evaluation criteria shall be as precise as possible and, moreover, objectively assessable, and unambiguous. This is needed in order to allow direct comparisons between the individuals that have the same certificates (if scales with more than two values are employed) and to avoid improper evaluations that might shed doubts on the quality of a given certificate.

- Direct comparisons to established European Standards. The main reason behind this element of the standard credential systems seems to be that having a *middleman* can speed up translations between national systems of credentials. This is so because different standard credential systems at the national level might already have direct comparisons to European standards and, thus, by having such comparisons, two distinct national standard credentials systems can be compared using transitivity.

*Indications:* The standardized system of credentials shall always provide a direct comparison with international standards for the qualities that the system certifies. It is preferable that those standards are European standards and that the comparisons are easy to understand and the apply. This shall help in having faster and better translations with national credential systems, allowing the agents to access the specific job markets quickly and without extra testing needed at the job-interview phase.

## 6. European Context

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This chapter is divided into two sections. In the first section, the current European situation concerning mobility and recognition of skills and competences will be presented. Particular attention will be paid to the regulations that could help the members of the target groups of the OBEC project. Then, in the second section, the current European situation concerning Blockchain technologies will be presented. Focus will be placed on the legal and institutions frameworks that have been built inside the European Union to foster the use of innovative technologies such as Blockchain.

## **Skill and Competence Recognition**

### *Professional Framework*

There are at least two important elements in the European strategy for the recognition of skills and competences: 1) The ESCO system, and 2) the Europass format for CVs. Both will be discussed in turn in order to understand their main characteristics and how they are employed to help individuals get recognition for their skills and competences.

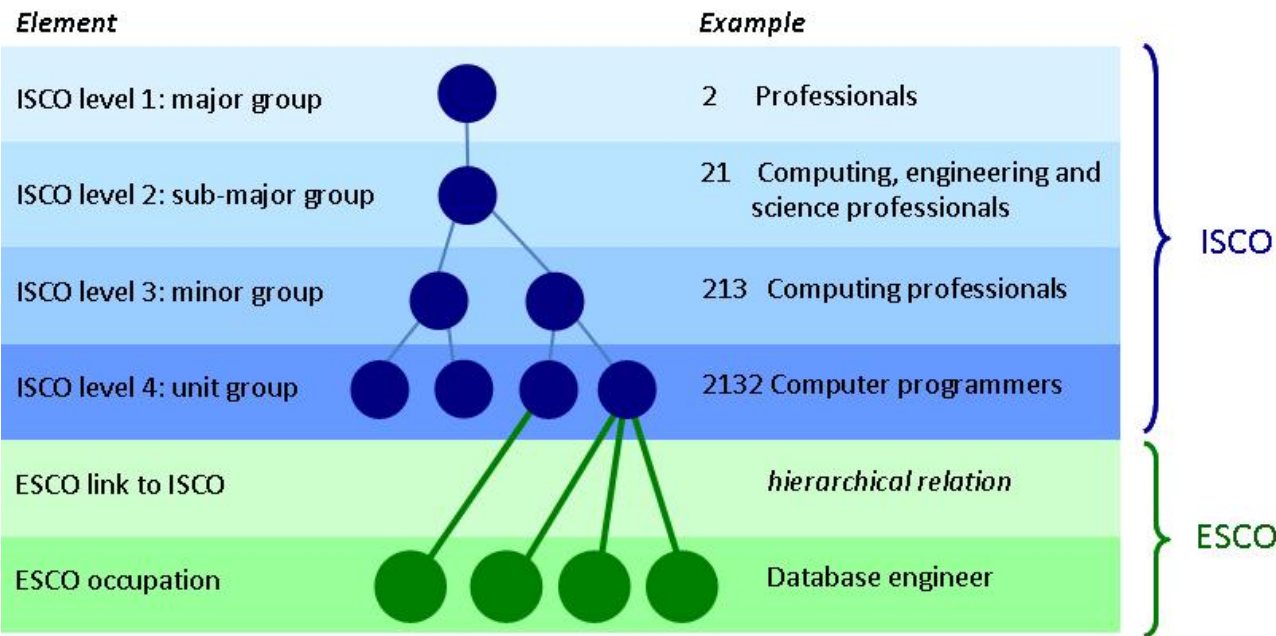
The main tool developed by the European Union (EU) with reference to the recognition of skills and qualifications is the ESCO (European Skills, Competences, Qualifications and Occupations) system. Such system is part of the Europe 2020 strategy and has the aim of providing a platform that put in contact jobseekers with potential employers, highlighting the skills and competences that are required by the former in order to fulfil the demands of the latter. The main advantage of the ESCO system is that it eliminates part of the language barriers that could affect the possibility of an individual to enter the job market of a foreign country. In particular, the ESCO system allows to provide more refined information about certain professional experiences that individuals could indicate in their CVs. What the ESCO system does is to break down a specific profession into skills, competences and qualifications that are characteristic of such profession, allowing employers to better understand the qualities of a potential employee. At the current state, ESCO can provide services in 27 different languages and can map almost 3000 occupations to more than 13000 different skills.

Concerning the occupations, those are classified employing the ISCO-08 codes. ISCO-08 is the International Standard Classification of Occupations. The ISCO-08 system provides a hierarchical structure to different professions, mapping together different major and subgroups of professions. ESCO then maps specific professions to ISCO-08 codes, in order to further refine the classification of a profession. In particular, as can be seen in figure 3, the ISCO-08 system provides the first four layers of classification of the professions, while the ESCO codes will always be found at the fifth level or lower. In ESCO, each occupation is mapped to exactly one ISCO-08 code, thus ESCO occupation concepts can be equal to or narrower than ISCO unit groups, but not broader. The result is a strictly mono-hierarchical structure where each element at level 2 or lower has exactly one parent.

Concerning the skills, in the ESCO system there is a distinction between i) skills/competence concepts and ii) knowledge concepts. It must be noted that in the ESCO system no distinction is made between skills and competences. As with occupations, also for skills a hierarchical structure is provided, starting from a general subdivision into 1) knowledge, 2) skills, 3) attitudes and values, and 4) language skills and knowledge. From this initial subdivision, further specifications for the concepts are provided, gradually offering a more refined description of specific skills that the individual might possess.

Finally, concerning the qualifications, ESCO provides a guide to understand what kind of skills are acquired by a given individual who can complete a specific examination. This is because the infrastructure offered by the ESCO system is flexible enough to offer mapping possibilities for various educational activities and, thus, can offer a proper evaluation of skills. This could aid different educational institutions to understand what must be examined and how to examine it, allowing the successful candidate to obtain recognition of specific skills that can then be employed in the labour market to connect with potential employers.

All of this, coupled with the fact that the ESCO system is open access and free of charge, makes it an incredible tool to foster mobility and networking across Europe for all the members of the target groups of OBEC.



**Figure 3: ISCO and ESCO hierarchical systems.**

Another important tool that helps in the recognition of competences and skills inside the European Union is the standardized European Curriculum Vitae (Europass). Europass offers a way to describe and organize the information about the competences and skills of an individual. Thanks to the Europass format, the individual will be able to identify the correct typologies of information and present them appropriately, without barriers caused by language and/or culture. For example, as soon as the individual recognizes a specific job s/he performed and/or skill s/he possesses, the Europass format allows him/her to select the specific information, taking care of further analysing the details through the tools previously described when the ESCO system was introduced. Moreover, the Europass format allows the individual to prepare standardized cover letters, helping them presenting them-selves to potential employers. Finally, it is possible to upload diploma supplements<sup>13</sup> (to provide proofs of possessed academical qualifications) and *certificate supplements*, which allows to showcase vocational qualifications acquired during internships and/or training courses carried out inside the EU.

<sup>13</sup> For further information about the diploma supplements, see the next section of this chapter.

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## Educational Framework

There are at least five important elements in the European strategy for the mobility of students and the recognition of knowledge across different national educational frameworks: 1) The Erasmus + project, 2) the Bologna Process, 3) the EQF system, 4) the introduction of the Dublin Descriptors, and 5) the introduction of the Diploma Supplements. All will be discussed in turn in order to understand their main characteristics and how they are employed to help individuals to move across different educational systems and get recognition for their knowledge.

The whole system of higher education has always been a key priority of the European Union (EU). One of the most relevant occurrences that shows the centrality of higher education inside the EU is the creation of the *Erasmus project* (which eventually evolved into the Erasmus+ project in 2014). The Erasmus project began in 1987 and its aims were extremely simple: to increase the magnitude and quality of student exchange study periods in universities outside their home country. Since its creation, the program had a great success. Even looking at just 2019, almost 940000 persons studied, trained or volunteered outside their home country through an Erasmus project, with numbers that are steadily growing through the years<sup>14</sup>.

A second important step in the direction of fostering a unified system of education came with the *Bologna Process*. Starting with the Sorbonne and Bologna declarations, the Bologna Process was a response to the demands of the national governments of the EHEA (European Higher Education Area) with respect to the mobility of students and graduates. Its aims were to create a convergence in the different national educational systems in order to promote mobility and facilitate translations between formal titles across Europe. The main take away from the Bologna process is the structuring of higher education into three distinct cycles which are specified in terms of learning outcomes, i.e., statements of what students know and can do on completing a specific degree. In particular, in describing the cycles, the qualification framework introduced through the Bologna process specifies the amounts of credits (as defined by the European Credits Transfer and Accumulation System, ECTS) that are required in order to complete a given cycle<sup>15</sup>: typically, 180–240 ECTS credits for a bachelor's degree, and 60–120 ECTS credits for a master's degree. The framework also includes a third cycle, corresponding to a Doctoral degree, which, however, does not specify the number of credits required.

This framework can also be put into comparison with another framework employed to specify the levels of qualification of individuals, i.e., the *European Qualification Framework* (EQF) system – figure 4. Inside the EQF there are eight different reference levels describing what a learner knows, understands and is able to do, i.e., their learning outcomes. The EQF system is more comprehensive compared the framework introduced by the Bologna process, since it includes also non-higher levels of formal education (e.g., secondary school diplomas). However, the last three levels of the EQF (6<sup>th</sup> through 8<sup>th</sup>) correspond exactly to the three cycles introduced by the Bologna process.

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<sup>14</sup> [https://ec.europa.eu/programmes/erasmus-plus/about/statistics\\_en](https://ec.europa.eu/programmes/erasmus-plus/about/statistics_en)

<sup>15</sup> There is no strict consensus on how much work corresponds to one ECTS credit. However, it is generally assumed that one ECTS credit corresponds to 25/30 hours of study, including class attendances.

A third important element in the recognition of skills and competences in the educational field are the *Dublin Descriptors*. The Dublin Descriptors offer generic statements of typical expectations of achievements and abilities associated with awards that represent the end of each of a (Bologna) cycle or level. The descriptors are phrased in terms of competence levels, not learning outcomes (thus they complement, rather than substitute the Bologna cycles), and they enable to distinguish in a broad and general manner between the different cycles. A level descriptor includes the following five components: i) Knowledge and understanding, ii) Applying knowledge and understanding, iii) Making judgements, iv) Communication, v) Lifelong learning skills.

Note that the Dublin descriptors are neither compulsory nor they represent minimal benchmarks. They simply indicate what kind of competences should a student acquire after completing a course inside a specific (Bologna) study cycle.

EQF LEVEL 8	ACADEMIC LEVEL	DOCTORATE	MAINTENANCE MANAGERS AND SUPERVISORS, VOCATIONAL TEACHERS
EQF LEVEL 7		MASTER	
EQF LEVEL 6	POST UPPER SECONDARY LEVEL	BACHELOR	
EQF LEVEL 5		HIGHER NATIONAL DIPLOMA	
EQF LEVEL 4	UPPER SECONDARY LEVEL	HIGHER NATIONAL CERTIFICATE, UPPER SECONDARY DIPLOMA	MAINTENANCE MECHANICS
EQF LEVEL 3	SECONDARY LEVEL	SECONDARY DIPLOMA OR VOCATIONAL DIPLOMA	
EQF LEVEL 2	PRIMARY LEVEL	SECONDARY SCHOOL WITH NO DIPLOMA	
EQF LEVEL 1		PRIMARY SCHOOL	

Figure 4: EQF reference system.

Finally, the last element which was implemented to facilitate the mobility of international students across Europe was the *Diploma Supplement*. The diploma supplement is a document accompanying a higher education diploma (certifying the completion of one of the Bologna cycles) providing a standardised description of the nature, level, content, and status of the studies completed by its holder. The diploma supplement is designed as an aid to support the recognition of academic qualifications and includes eight elements providing information about: i) the holder of the qualification, ii) the qualification type and its originating institution, iii) the qualification level, iv) the content of the course

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and results gained, v) function of the qualification, vi) certification of the supplement, vii) details of the national higher education system concerned (provided by the National Academic Recognition Information Centres (NARICs)), and, finally, viii) other relevant details.

All those elements give their contribution to the creation of a standardized system that can facilitate the transfer of competences and abilities across different European countries. Moreover, they make it easier to extra-European individuals to compare their national qualifications with the ones present in the different European countries, without having to perform the comparison each time they travel to a different European country.

## **Blockchain Technologies**

There are at least six elements of the European Blockchain strategy that are important for the aims of the OBEC project: 1) the European scheme for investment in Blockchain technologies, 2) the European Blockchain Service Infrastructure (EBSI), 3) the research on potential legal and regulatory framework for Blockchain, 4) the selection of Blockchain standards inside Europe, 5) the European Blockchain Partnership (EBP), and 6) the Blockchain Observatory and Forum. Each will be discussed in turn in order to understand their main characteristics and how they are employed to help fostering the use of innovative technology inside the EU.

### *European scheme for investment in Blockchain technologies*

The first element that has to be taken into consideration when discussing Blockchain inside the European context is the amount and typology of investments that are given for the development of Blockchain. The EU provides funding for blockchain research and innovation both through outright grants and by supporting investments. Grants are given through the Horizon programme. From 2016-2019, the Commission provided almost 180 million euros in grants through the Horizon 2020 program. Significant budget for further grants is expected in the follow-up Horizon programme, known as Horizon Europe. The European Commission supported (and supports) investments in different blockchain start-ups and projects through the new AI & Blockchain Investment fund<sup>16</sup>, which invests in venture capital funds targeting AI and blockchain start-ups and early-stage ventures<sup>17</sup>. Specifically, the investment program is structured in two phases. The first phase is centred around the Blockchain Investment Fund and Support Program. Inside such program, the European Commission has provided 100 million euros under the Horizon 2020 program and thanks to the leveraging of the European Fund for Strategic Investments (EFSI) and the European Investment Fund (EIF). Those investments have, in particular, two classes of goals, the first economical and the second one social.

As far as the economic goals are concerned the investments are believed to: i) enhance the access to finance, in particular in the form of equity, to innovative and higher risk AI and blockchain companies; ii) support the further development of new markets that focus on the development and adoption of

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<sup>16</sup> [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_20\\_1991](https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1991) .

<sup>17</sup> For a full picture of the projects which received funds in relation to Blockchain technologies, see <https://digital-strategy.ec.europa.eu/en/news/eu-funded-projects-blockchain-technology> .

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innovative AI and Blockchain technologies; iii) provide improved dedicated financial support to innovative start-ups and SMEs at all stages of their development (early stage and scale-up phases); iv) enhance focus on equity products, since most AI and Blockchain companies are either early stage or high-growth companies; v) provide financing to innovative start-ups and SMEs based on a broad geographic coverage in Europe, including less developed markets; vi) develop co-investment programs with Member States, in particular through National Promotional Banks.

As far as the social goals are concerned the investments are believed to: i) raise awareness among multiple stakeholders about the importance of increasing investments in AI/blockchain innovations; ii) carry out a series of market consultations with a broad range of stakeholders from governments, the private sector and investors; iii) support the portfolio development of technically and financially viable projects; iv) organize an AI/Blockchain Investment Summit that will facilitate the match-making between project promoters, innovative SMEs, start-ups and private investors.

Those investments should also help the transition to phase two of the investment strategy, which will be centred around the Investment program and advisory services under Invest EU (2021-2027) and whose goals will be to: i) develop the investment platform through the InvestEU program and a larger partnership with European Commission services, Member States (notably through National Promotional Banks), and possibly other public and private financial institutions; ii) include in the platform the development of key enabling services, such as (1) provision of advisory services to enhance the investment readiness of AI/Blockchain SMEs and companies; (2) support the portfolio development and (3) organise investor forums, matchmaking events between innovators and investors; (4) market consultations and other community building events. Finally, to iii) scale-up the investment fund to a fully developed investment platform with funding between 1 and 2 billion euros.

### *European Blockchain Service Infrastructure*

The first element that has to be taken into consideration when discussing Blockchain inside the European context is the European Blockchain Service Infrastructure (EBSI).

EBSI is an infrastructure that can create a Europe-based blockchain backbone for the public sector with the aim of creating interoperability with private sector platforms. EBSI consists of a peer-to-peer network of interconnected nodes running a blockchain-based services infrastructure. Each member of the European Blockchain Partnership (EBP)<sup>18</sup> – the 27 EU Member States, Norway, Liechtenstein, and the European Commission – will run at least one node<sup>19</sup>. As can be seen in figure 5, EBSI is made up of different layers including: i) a base layer containing the basic infrastructure, connectivity, the blockchain and necessary storage; ii) a core services layer that will enable all EBSI-based use cases and applications; iii) layers dedicated to use cases and specific applications. The aim is to allow public (and eventually also private) organizations to develop applications that connect to and make use of the EBSI infrastructure. In particular, it is thought that EBSI could help public administrations to protect against fraud, increase

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<sup>18</sup> More about EBP will be said later in this section.

<sup>19</sup> Currently, 25 nodes are already active and 11 are in the setup phase.

trust and security and make the verification of data authenticity easy and cost-efficient; it could also help businesses to effortlessly interact with government agencies and reduce friction and administrative/compliance costs; finally, it could help citizens to take control of their data, secure them and easily move with their own credentials across Europe. Another important aspect of EBSI is that, at the current state, the EBSI website offers educational content that could help to better understand Blockchain technologies and how they can be employed to shape the future of the European Union.

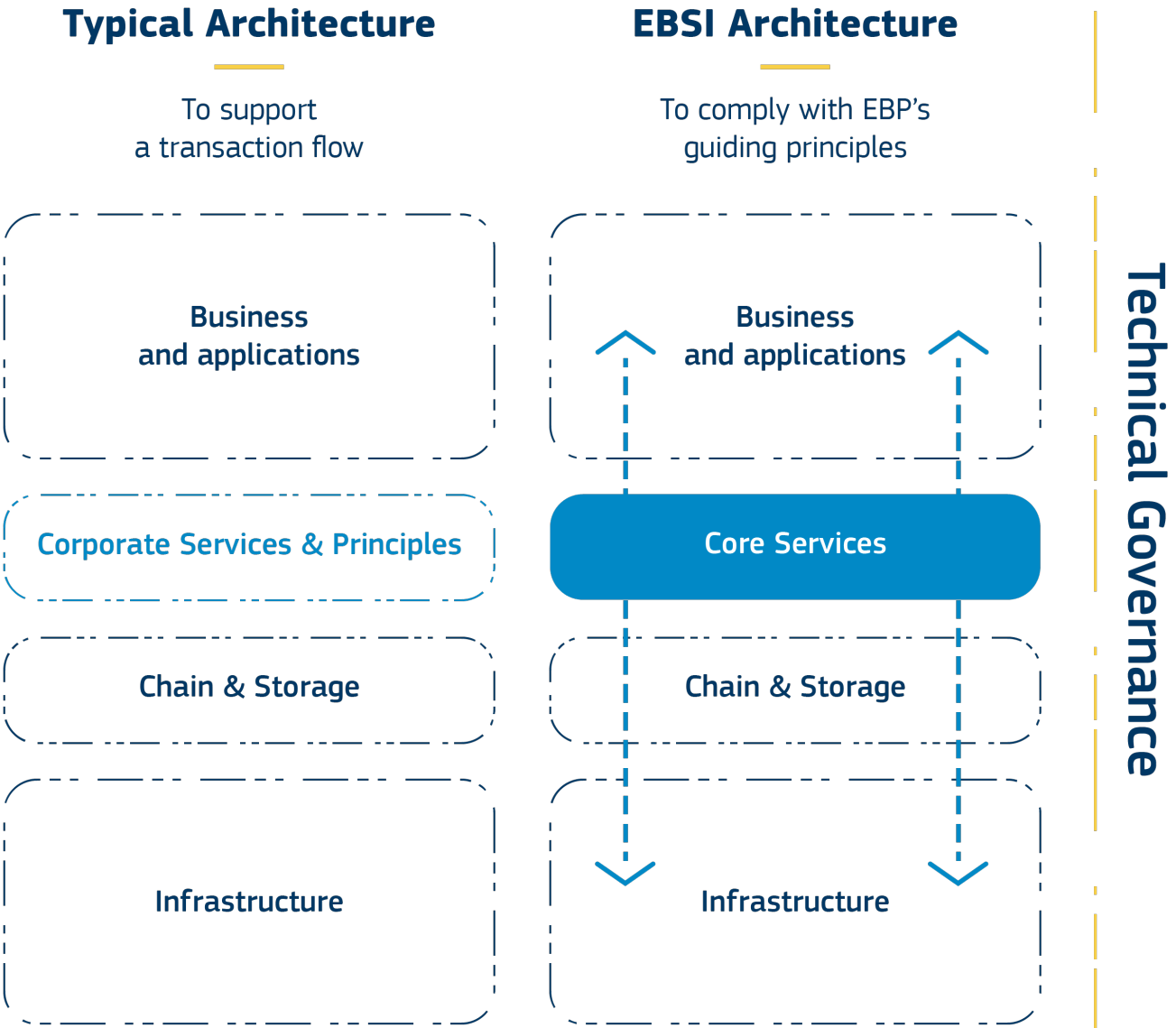


Figure 5: EBSI architecture.

*Potential Legal and Regulatory Framework*

As far as legal and regulatory frameworks, the direction taken by the EU is to develop a pan-European framework which could avoid legal and regulatory fragmentation between member states. With the view to increase investments and to ensure consumer and investor protection, the European Commission worked on regulations that could improve the use and understanding of crypto-assets and developed laws for regulatory sandboxes of financial supervisors in the EU for using blockchains in the trading and post trading of securities. In particular, “Crypto-assets qualifying as “financial instruments”

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under the Markets in Financial Instruments Directive (e.g.: tokenised equities or tokenised bonds) have already in the past been subject to EU securities markets legislation. However, these rules predated the emergence of crypto-assets and DLT. This could hamper innovation. On 24 September 2020 the Commission therefore proposed a pilot regime for market infrastructures that wish to try to trade and settle transactions in financial instruments in crypto-asset form. The PILOT regime allows for exemptions from existing rules and allows regulators and companies to test innovative solutions utilising blockchains. For other crypto-assets that do not qualify as “financial instruments” such as utility tokens or payment tokens, the Commission on 24 September proposed a specific new framework that would replace all other EU rules and national rules currently governing the issuance, trading and storing of such crypto assets. This Markets in Crypto-Assets Regulation - MiCA - will support innovation while protecting consumers and the integrity of crypto-currency exchanges (no insider trading, front running etc). The proposed regulation covers not only entities issuing crypto-assets but also firms providing services around these crypto-assets, and firms operating digital wallets, as well as cryptocurrency exchanges.”<sup>20</sup>

Over and above those regulations and proposed laws, the European Blockchain Partnership also planned to organize a pan-European regulatory sandbox in cooperation with the European Commission for use cases in the EBSI and outside of EBSI, including for data portability, B2B data spaces, smart contracts, and digital identity (Self-Sovereign Identity) in the health, environment, mobility, energy, educational, and other key sectors.

### *European Blockchain Standards*

In order to promote the establishment of internationally recognized standards for Blockchain technologies, the EU collaborates with a plethora of supra-national, national and industry organisations. Each of those provides its support to the EU to research, propose and evaluate different typologies of standards that should be applied across all different technologies that rely on Blockchains. Among the various collaborators, the main categories are:

1. StandICT: providing an ICT Standardisation Observatory (EUCOS) and a facility to support participation of European experts on international standardisation.
2. European Standardisation Organisations: important European standards organisations relevant to blockchain include the European Telecommunications Standards Institute (ETSI, in particular the ISG PDL), the European Committee for Standardisation (CEN), European Committee for Electrotechnical Standardization (CENELEC), in particular through their Joint Technical Committee 19 (JTC19).
3. Supra-national and industry organisations: important global organisations relevant to blockchain standards include ISO (in particular ISO TC307), ISO/IEC JTC1 and ITU-T.
4. National standards bodies: most national IT standards bodies also are or are expected to be working on blockchain topics.
5. Open Standards bodies: include IEEE, The Organisation for the Advancement of Structured Information Standards (OASIS) and the Internet Engineering Task Force (IETF).

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<sup>20</sup> [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_20\\_1684](https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1684) .



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6. INATBA: Through various of its working groups, the International Association of Trusted Blockchain Applications also contributes to the standards discussion on a European and global level.

Those institutions, all together, work in order to establish standards that could regulate the development of technologies that can fulfil the following characteristics:

- Interoperability: ensuring that the different blockchain and DLT protocols and platforms can exchange data and seamlessly communicate with each other.
- Identity: promoting a common identity framework and/or interoperable identity among different blockchain protocols and platforms.
- Security: ensuring a secure operation of the different nodes, networks, and services
- Smart contracts: supporting best practice and standards to ensure the safety and security of smart contract technologies.

### *European Blockchain Partnership*

The European Blockchain Partnership (EBP) shall be considered the most relevant initiative in the landscape of Blockchain technologies inside the European Union. Born in 2018, EBP is a partnership putting together 30 different European countries. Its goals are to foster the use of Blockchain technologies and promote better understanding of such technologies. Its main activity is currently the development of the EBSI infrastructure. Moreover, EBP helps avoid fragmentation of the blockchain landscape by fostering close collaboration between the Member States. The Partnership supports interoperability and broad-based deployment of blockchain-based services. It also offers a regulatory-compliant environment in full compliance with EU laws and with clear governance structures models to help blockchain grown and flourish all across Europe. Thus, EBP can be seen both as a technological and as a regulatory sandbox, producing more informed regulations on Blockchain technology.

In general, most activities that have been described in the previous paragraphs are managed by EBP, which should be considered the main reference for Blockchain technology in Europe.

### *Blockchain Observatory and Forum*

The last initiative that is present in the EU to foster better understanding and use of Blockchain technologies is the Blockchain Observatory and Forum. Such initiative was created to foster communication between different stakeholders that are interested in Blockchain technologies. The Observatory and Forum aims are:

- To map key initiatives in Europe and beyond.
- To monitor developments, analyse trends and address emerging issues.
- To serve as a global knowledge hub on blockchain.
- To create an attractive and transparent forum for sharing expert information and opinions.
- To promote European actors while fostering engagement with the global blockchain community.

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- To represent a major communication opportunity for Europe to set out its vision and ambition on the international scene.
  - To inspire common actions based on specific use-cases.
  - To make recommendations on the role the EU could play in accelerating blockchain innovation and adoption.

This is done through the use of workshops, working groups, reports, and online forums. All those allow the different stakeholders to share ideas and proposals for the use of Blockchain technologies.

# Conclusions

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This report's aim was to present the results of the initial research phases of the One Block for Educational Credentials (OBEC) project. Such initial phase was meant to name the barriers faced by the different target groups of the project in having their competences and abilities being recognized while travelling across Europe. Moreover, in this initial phase, the Blockchain landscape was explored, in order to understand what the current European (and national) situation is concerning Blockchain technologies.

What has been noted is that there seems to be a divergence in the perception of issues among the members of the target groups and the supporting institutions that help those individuals. Often, different problems are perceived as relevant and, in some extreme cases, issues that are faced by the individuals are not even recognized as present by the supporting institutions. This seems to suggest that even though different supporting tools do exist, and they are well-thought to solve the issues that different individuals face, those same individuals are not aware of such tools and are unable to use them. Even if this does not inhibit the possibility of travelling across the European Union, it might still slow it down, forcing individuals to lose a lot of time going through bureaucracies and procedures. This calls for a simplified system that must allow individuals to travel more freely and without having to face complicated procedures to obtain recognition for their competences and abilities.

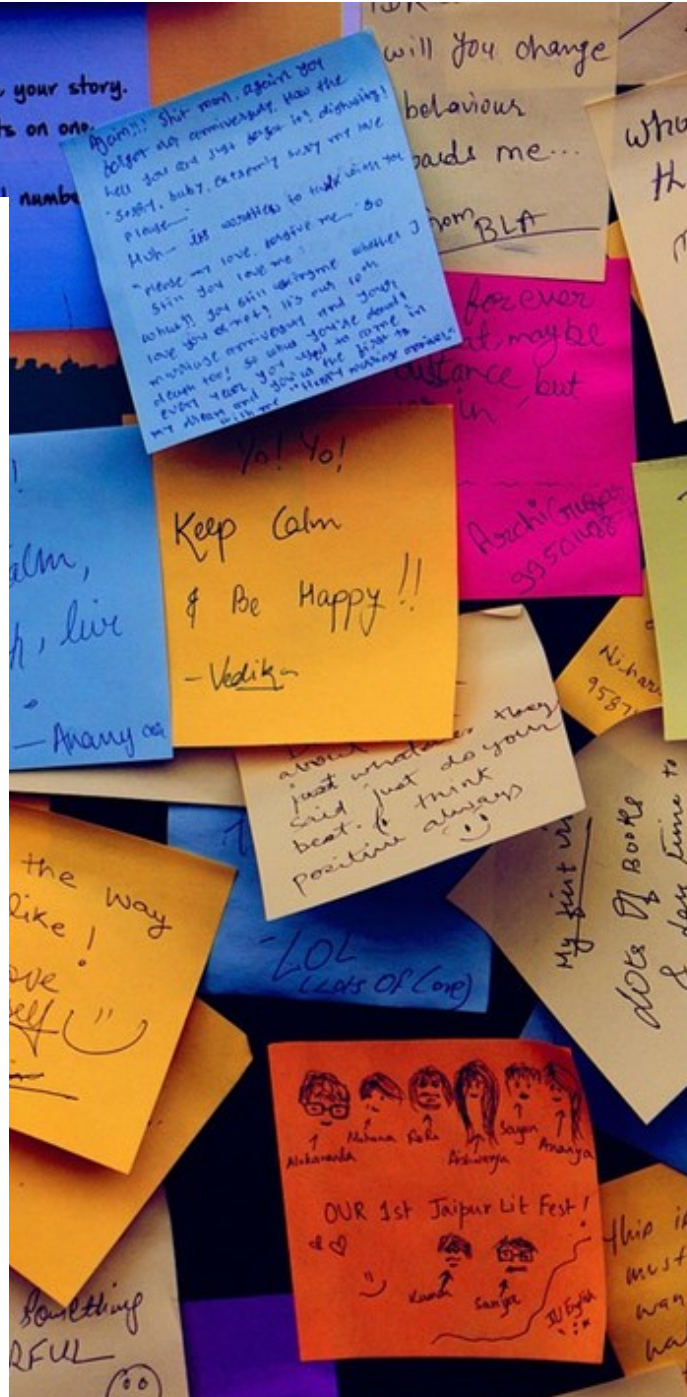
As far as Blockchain technologies are concerned, it is clear that the EU is highly involved and is fostering many positive initiatives that can improve the perception of and the ability to use such technologies. It has to be said, however, that most initiatives are quite recent and thus need time to produce results which can be felt by the general public.

To conclude, the second phase of the OBEC project should take into consideration all the different elements that are present in this report, both to improve the technical quality of the testing phases and to provide tools which directly tackle the problems that individuals perceive as relevant – which, in most cases, might simple be to point in the right direction as far as tools are considered.

Interestingly, almost all the interviewees believed that a standardized system of educational credentials would have benefitted them in the pursue of their life goals, with a minority of the interviewees expressing doubts on the feasibility (and not on the usefulness) of such an endeavour. Therefore, it seems natural to assume such a system would improve the perception of those individuals about the issues they might face while trying to pursue their life goals.

# References

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StandICT website: <https://standict.eu/>

EBP website: <https://digital-strategy.ec.europa.eu/en/policies/blockchain-partnership>

European Blockchain Observatory and Forum: <https://digital-strategy.ec.europa.eu/en/policies/eu-blockchain-observatory-and-forum>

# Appendixes

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# Survey - Transferring Study Records Across Countries

Dear participant,

This form seeks to assess which are the main obstacles individuals tend to face when moving across countries, either for work or study purposes, and when trying to enroll in a study program or find a job when having credentials/skills from non-formal or informal means (e.g., VET schools, volunteering opportunities). The main purpose is to identify the difficulties in validating educational credentials among different national, educational and work contexts. Please respond to the questions in relation to your experience. Please feel free to add additional inputs on the section "other comments". If you have any questions or concerns about the questionnaire or its purposes, feel free to contact our team at [julia.moreira@swideas.se](mailto:julia.moreira@swideas.se).

About the initiative:

This survey is part of the "One Block for Educational Credentials" (OBEC) project and it is being conducted in the partner organisations' countries: Sweden (SwIdeas AB), Italy (University of Urbino and Lai-Momo), Belgium (EURADA) and Croatia (SI-MO-RA). OBEC is a KA2 Strategic Partnership co-funded by the Erasmus + of the European Union. It is an innovative project that aims to explore the potentials of Blockchain technology to promote competency development and recognition of skills and qualifications by creating an innovative system to issue and validate learning credentials on a trial basis.

All your information will be kept confidential and only the responses will be used to shape the next stages of our OBEC project.

Thank you for your input and time!  
We appreciate your participation!

OBEC Team

\*Required

Identity



1. How do you identify yourself? \*

Mark only one oval.

- Individual. Skip to question 2
- Supporting institution representative. Skip to question 88

### Current Status

2. Which status best describes your situation? \*

Mark only one oval.

- Individual who participated into an exchange program abroad. Skip to question 3
- Individual trying to enroll into a higher-education course. Skip to question 59
- Individual looking for a job. Skip to question 28
- Other: \_\_\_\_\_

### Background (Exchange Student)

3. In which country is your home institution based? \*

\_\_\_\_\_

4. What is your field of study? \*

\_\_\_\_\_

5. In which country/countries did you perform your exchange program/s? \*

\_\_\_\_\_

### Abroad Exams

6. Did you complete any official exams during your exchange program/s? \*

Mark only one oval.

- Yes. Skip to question 7
- No. Skip to question 12
- I prefer not to answer. Skip to question 12

### Exams Information

7. What were the subjects of the exams you completed during your exchange program/s? \*

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8. Have you experienced any issues validating exams credentials obtained during the exchange program/s when returning to your home institution? \*

Mark only one oval.

- Yes. Skip to question 9
- No. Skip to question 12
- I prefer not to answer. Skip to question 12

### Exams Issues

9. What were the most relevant issues you faced when trying to validate exams credentials obtained during the exchange program/s when returning to your home institution? \*

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10. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to validate exams credentials obtained during the exchange program/s when returning to your home institution? \*

*Mark only one oval.*

- Yes. *Skip to question 11*
- No. *Skip to question 12*
- I prefer not to answer. *Skip to question 12*

### Exams Support

11. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Abroad Extra-Curricular Activity

12. Did you perform any extra-curricular activity during your exchange program/s (sport activities, voluntary work, etc.)? \*

Mark only one oval.

- Yes. Skip to question 13
- No. Skip to question 19
- I prefer not to answer. Skip to question 19

Extra-Curricular Activities Information

13. What kind of extra-curricular activities did you perform during your exchange program/s? \*

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14. What kind of capacities/competences do you think those extra-curricular activities allowed you to acquire? \*

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- 15. Have you experienced any issues obtaining recognition for the extra-curricular activities you performed during the exchange program/s when returning to your home institution? \*

Mark only one oval.

- Yes. Skip to question 16
- No. Skip to question 19
- I prefer not to answer. Skip to question 19

### Extra-Curricular Activities Issues

- 16. What were the most relevant issues you faced when trying to obtain recognition for the extra-curricular activities you performed during the exchange program/s when returning to your home institution? \*

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- 17. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition for the extra-curricular activities you performed during the exchange program/s when returning to your home institution? \*

Mark only one oval.

- Yes. Skip to question 18
- No. Skip to question 19
- I prefer not to answer. Skip to question 19

### Extra-Curricular Activities Support

18. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Abroad Language Activities

19. Did you do any language exam during your exchange program/s? \*

*Mark only one oval.*

- Yes. *Skip to question 20*
- No. *Skip to question 25*
- I prefer not to answer. *Skip to question 25*

### Language Activities Information

20. Did you acquire any official certificate for the language exam you completed during the exchange program/s? \*

*Mark only one oval.*

- Yes.
- No.
- I prefer not to answer.

- 21. Have you experienced any issues obtaining recognition for the language abilities you acquired during the exchange program/s when returning to your home institution? \*

Mark only one oval.

- Yes. Skip to question 22
- No. Skip to question 25
- I prefer not to answer. Skip to question 25

### Language Activities Issues

- 22. What were the most relevant issues you faced when trying to obtain recognition for the language abilities you acquired during the exchange program/s when returning to your home institution? \*

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- 23. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition for the language abilities you acquired during the exchange program/s when returning to your home institution? \*

Mark only one oval.

- Yes. Skip to question 24
- No. Skip to question 25
- I prefer not to answer. Skip to question 25

### Language Activities Issues Support

24. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Opinion

25. Do you think you would have benefitted in your life from a standardized system of credential that would have automatically certified your capacities/competences? \*

*Mark only one oval.*

- Yes.
- No.
- I have no opinion on the matter.
- I prefer not to answer.

### Suggestions

26. Do you think it would be possible to create a standardized/unified system of credentials for academic/professional skills (such as the European language classification system (A1, A2, B1, B2, etc.))? \*

*Mark only one oval.*

- Yes.
- No.
- Maybe.
- I have no opinion on the matter.
- I prefer not to answer.



27. Do you have any suggestions on the matter?

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*Skip to question 94*

### Background (Job seeker)

28. What is your nationality? \*

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29. In which country are you seeking for a job? \*

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30. What kind of educational background do you have (Indicate only the one that best applies)? \*

*Mark only one oval.*

- High-school Diploma. *Skip to question 32*
- Higher-Education Degree (University Degree, Academy of Fine Arts Diploma, etc.)  
*Skip to question 31*
- VET school or Technical School Diploma. *Skip to question 32*
- Music Conservatory Diploma. *Skip to question 32*
- Home Schooled. *Skip to question 32*
- Not Applicable *Skip to question 36*
- I prefer not to answer. *Skip to question 32*
- Other: \_\_\_\_\_

### Educational Field

31. In which field did you graduate? \*

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### Educational Information

32. Have you experienced any issues obtaining recognition during job interviews for the knowledge you acquired during your studies? \*

*Mark only one oval.*

- Yes. *Skip to question 33*
- No. *Skip to question 36*
- I prefer not to answer. *Skip to question 36*

### Educational Issues

33. What were the most relevant issues you faced when trying to obtain recognition during job interviews for the knowledge you acquired during your studies? \*

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34. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during job interviews for the knowledge you acquired during your studies? \*

*Mark only one oval.*

- Yes. *Skip to question 35*
- No. *Skip to question 36*
- I prefer not to answer. *Skip to question 36*

### Educational Support

35. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Non-Formal Education

36. Have you ever followed an alternative educational course (individual courses - both inside and outside universities -, national job training programs, etc.)? \*

*Mark only one oval.*

- Yes. *Skip to question 37*
- No. *Skip to question 42*
- I prefer not to answer. *Skip to question 42*

### Non-Formal Education Information

37. What were the contents of the alternative educational course/courses?

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38. Have you experienced any issues obtaining recognition during job interviews for the knowledge you acquired during the alternative educational courses? \*

Mark only one oval.

- Yes. Skip to question 39
- No. Skip to question 42
- I prefer not to answer. Skip to question 42

### Non-Formal Education Issues

39. What were the most relevant issues you faced when trying to obtain recognition during job interviews for the knowledge you acquired during the alternative educational courses? \*

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40. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition for the knowledge you acquired during the alternative educational courses? \*

Mark only one oval.

- Yes. Skip to question 41
- No. Skip to question 42
- I prefer not to answer. Skip to question 42

### Non-Formal Education Support

41. Which tools and/or institutions have you employed as support to try and overcome the obstacles?

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Previous Job Experience

42. Did you ever have job experiences (either in your country or in the country you are seeking a job in)? \*

Mark only one oval.

- Yes. Skip to question 43
- No. Skip to question 48
- I prefer not to answer. Skip to question 48

Job Experience Information

43. What (if any) kind of capacities/competences you think you acquired during your job experiences? \*

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- 44. Have you ever experienced any issues obtaining recognition during job interviews for the capacities/competences you acquired during previous job experiences? \*

Mark only one oval.

- Yes. Skip to question 45
- No. Skip to question 48
- I prefer not to answer. Skip to question 48

### Job Experience Issues

- 45. What were the most relevant issues you faced when trying to obtain recognition during job interviews for the capacities/competences you acquired during previous job experiences? \*

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- 46. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during job interviews for the capacities/competences you acquired during previous job experiences? \*

Mark only one oval.

- Yes. Skip to question 47
- No. Skip to question 48
- I prefer not to answer. Skip to question 48

### Job Experience Support

47. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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Life Experiences Information

48. What (if any) kind of capacities/competences you think you acquired during your life experiences (voluntary work, sport activities, etc.)? \*

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49. Have you ever experienced any issues obtaining recognition during job interviews for the capacities/competences you acquired during your life experiences? \*

*Mark only one oval.*

- Yes. *Skip to question 50*
- No. *Skip to question 53*
- I prefer not to answer. *Skip to question 53*

Life Experiences Issues

50. What were the most relevant issues you faced when trying to obtain recognition during job interviews for the capacities/competences you acquired during previous job experiences? \*

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51. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during job interviews for the capacities/competences you acquired during previous job experiences? \*

*Mark only one oval.*

- Yes. *Skip to question 52*
- No. *Skip to question 53*
- I prefer not to answer. *Skip to question 53*

### Life Experiences Support

52. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Language Competence



53. Do you speak any other language besides your native language? \*

*Mark only one oval.*

- Yes. *Skip to question 54*
- No. *Skip to question 25*
- I prefer not to answer. *Skip to question 25*

### Language Competence Information

54. Do you possess any official document that certifies your competence in the non-native languages you speak? \*

*Mark only one oval.*

- Yes.
- No.
- I prefer not to answer.

55. Have you ever experienced any issues obtaining recognition during job interviews for your language expertise? \*

*Mark only one oval.*

- Yes. *Skip to question 56*
- No. *Skip to question 25*
- I prefer not to answer. *Skip to question 25*

### Language Competence Issues

56. What were the most relevant issues you faced when trying to obtain recognition during job interviews for your language expertise? \*

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57. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during job interviews for your language expertise? \*

*Mark only one oval.*

- Yes. *Skip to question 58*
- No. *Skip to question 25*
- I prefer not to answer. *Skip to question 25*

### Language Competence Support

58. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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*Skip to question 25*

### Background (Potential HE Student)

59. In what kind of course are you trying to enroll? \*

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60. What kind of educational background do you have (Indicate only the one that best applies)? \*

*Mark only one oval.*

- High-school Diploma.
- Higher-Education Degree (University Degree, Academy of Fine Arts Diploma, etc.)
- VET school or Technical School Diploma.
- Music Conservatory Diploma.
- Home Schooled.
- Not Applicable
- I prefer not to answer.
- Other: \_\_\_\_\_

### Educational Information

61. Have you experienced any issues obtaining recognition during the enrollment process for the knowledge you acquired during your studies? \*

*Mark only one oval.*

- Yes. *Skip to question 62*
- No. *Skip to question 65*
- I prefer not to answer. *Skip to question 65*

### Educational Issues

62. What were the most relevant issues you faced when trying to obtain recognition during the enrollment process for the knowledge you acquired during your studies? \*

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63. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during the enrollment process for the knowledge you acquired during your studies? \*

*Mark only one oval.*

- Yes. *Skip to question 64*
- No. *Skip to question 65*
- I prefer not to answer. *Skip to question 65*

### Educational Support

64. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Non-Formal Education

65. Have you ever followed an alternative educational course (individual courses - both inside and outside universities -, national job training programs, etc.)? \*

*Mark only one oval.*

- Yes. *Skip to question 66*
- No. *Skip to question 71*
- I prefer not to answer. *Skip to question 71*

### Non-Formal Education Information

66. What were the contents of the alternative educational course/courses?

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67. Have you experienced any issues obtaining recognition during the enrollment process for the knowledge you acquired during the alternative educational courses? \*

*Mark only one oval.*

- Yes. *Skip to question 68*
- No. *Skip to question 71*
- I prefer not to answer. *Skip to question 71*

**Non-Formal Education Issues**

68. What were the most relevant issues you faced when trying to obtain recognition during the enrollment process for the knowledge you acquired during the alternative educational courses? \*

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69. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition for the knowledge you acquired during the alternative educational courses? \*

Mark only one oval.

- Yes. Skip to question 70
- No. Skip to question 71
- I prefer not to answer. Skip to question 71

### Non-Formal Education Support

70. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Previous Job Experience

71. Did you ever have job experiences? \*

Mark only one oval.

- Yes. Skip to question 72
- No. Skip to question 77
- I prefer not to answer. Skip to question 77

### Job Experience Information

72. What (if any) kind of capacities/competences you think you acquired during your job experiences? \*

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73. Have you ever experienced any issues obtaining recognition during the enrollment process for the capacities/competences you acquired during previous job experiences? \*

*Mark only one oval.*

- Yes. *Skip to question 74*
- No. *Skip to question 77*
- I prefer not to answer. *Skip to question 77*

### Job Experience Issues

74. What were the most relevant issues you faced when trying to obtain recognition during the enrollment process for the capacities/competences you acquired during previous job experiences? \*

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75. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during the enrollment process for the capacities/competences you acquired during previous job experiences? \*

Mark only one oval.

- Yes. Skip to question 76
- No. Skip to question 77
- I prefer not to answer. Skip to question 77

### Job Experience Support

76. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Life Experiences Information

77. What (if any) kind of capacities/competences you think you acquired during your life experiences (voluntary work, sport activities, etc.)? \*

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78. Have you ever experienced any issues obtaining recognition during the enrollment process for the capacities/competences you acquired during your life experiences? \*

Mark only one oval.

- Yes. Skip to question 79
- No. Skip to question 82
- I prefer not to answer. Skip to question 82

### Life Experiences Issues

79. What were the most relevant issues you faced when trying to obtain recognition during the enrollment process for the capacities/competences you acquired during previous job experiences? \*

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80. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during the enrollment process for the capacities/competences you acquired during previous job experiences? \*

Mark only one oval.

- Yes. Skip to question 81
- No. Skip to question 82
- I prefer not to answer. Skip to question 82

### Life Experiences Support

81. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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### Language Competence

82. Do you speak any other language besides your native language? \*

*Mark only one oval.*

- Yes. *Skip to question 83*
- No. *Skip to question 25*
- I prefer not to answer. *Skip to question 25*

### Language Competence Information

83. Do you possess any official document that certifies your competence in the non-native languages you speak? \*

*Mark only one oval.*

- Yes.
- No.
- I prefer not to answer.

84. Have you ever experienced any issues obtaining recognition during the enrollment process for your language expertise? \*

Mark only one oval.

- Yes. Skip to question 85
- No. Skip to question 25
- I prefer not to answer. Skip to question 25

### Language Competence Issues

85. What were the most relevant issues you faced when trying to obtain recognition during the enrollment process for your language expertise? \*

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86. Did you employ any tool and/or support office to help you overcome the obstacles you faced when trying to obtain recognition during the enrollment process for your language expertise? \*

Mark only one oval.

- Yes. Skip to question 87
- No. Skip to question 25
- I prefer not to answer. Skip to question 25

### Language Competence Support

87. Which tools and/or institutions have you employed as support to try and overcome the obstacles? \*

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*Skip to question 25*

### Organization Information

88. What is the structure of your institution? \*

*Mark only one oval.*

- NGO.
- Non-Profit Organization.
- Informal/Non-formal Educational Institution (e.g., VET school, technical school, platform for education and learning).
- Formal educational institution (e.g., university).
- Governmental Institution.
- Small/Medium Enterprise.
- Larger Company.
- Student Association.
- Other: \_\_\_\_\_

89. What is the main goal your institution works for? \*

*Mark only one oval.*

- Integration of migrants in the labour market.
- Supporting exchange students.
- Development of language skills.
- Developing knowledge of students in different areas of studies.
- Developing skills for the labour market through informal/non-formal education.
- Other: \_\_\_\_\_

### Organization Support

90. Which tools and frameworks do you employ to evaluate the capacities/competences of the individuals you support or employ? \*

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91. Which obstacles have you faced while trying to evaluate the capacities/competences of the individuals you support or employ? \*

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### Suggestions

92. Do you think it would be possible to create a standardized/unified system of credentials for professional and academic skills (such as the European language classification system (A1, A2, B1, B2, etc.))? \*

Mark only one oval.

- Yes.
- No.
- Maybe.
- I have no opinion on the matter.
- I prefer not to answer.

93. Do you have any suggestions on the matter?

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Optional - Further Participation in the OBEC Project

Please answer to the questions below if you wish to further participate in the OBEC project and its activities, and/or if you want to hear more about it.  
The SwIdeas Team guarantees that all personal data will be safely stored and not advertised without the person's consent.

94. What is your email or contact information?

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95. For which purpose would you like to be contacted (select all that apply)?

*Tick all that apply.*

- Further information about OBEC and/or other projects of SwIdeas.
- Participate in other activities related to OBEC.
- Get updates on activities of OBEC and/or future projects.

Other:  \_\_\_\_\_

96. Your personal data will be processed according to your consent. Your participation in this questionnaire is completely voluntary. Your data will be used in accordance with the provisions of the European regulation on the protection of persons with regard to the processing of personal data and the free movement of data (GDPR). Do you give your consent? \*

*Mark only one oval.*

- Yes
- No

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