Open Badge Network
Discussion Paper on Open Badges for Individuals

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EXECUTIVE SUMMARY

The objective of this paper

The Open Badge Network (OBN) is an Erasmus+ project, which brings together organisations from across Europe to support the development of an Open Badge ecosystem, promoting the use of Open Badges to recognise non-formal and informal learning.

This paper is focusing on the discussion of the use of Open Badges from the point of view of individuals, as Open Badges users, recipients and consumers/readers, issuers and endorsers. It addresses all educational sectors, formal, informal and non-formal as well as the employment and social sectors. This paper uses the inputs from selected case studies and information collected mainly from internet sources (blogs, articles, videos, magazines) regarding Open Badges. Together with the complementary discussion paper on Open Badges for Organisations, it serves as a foundation to produce specific guidelines addressed to both individuals and organisations for the implementation of Open Badges.

The aim of this paper is to present an overview on the current opinions and points of view related to the hottest issues around Open Badges, with the hope to provide less experienced users with a useful introductory tool and to stimulate further discussions within the community of Open Badge practitioners.

This discussion paper tackles the topic starting from the point of view of individuals, and in particular, it will focus the discourse on the following key questions:

- What are the major challenges the learning and training system is facing?
- How can Open Badges address these challenges?
- How would the individuals benefit from the introduction of a valid system based on Open Badges?
- What are the risks involved in the introduction of a certification system based on Open Badges?
- What is the role of individuals in the process of legitimation of the Open Badge standard? Can individuals contribute, and in which way?
- How are Open Badges applied around the world? In what fields?

Who is this paper addressed to?

The paper addresses individuals and organisations, which are new to the Open Badges, members of the Open Badge Network and all those who are looking for support in application of Open Badges in their context.

This paper has evolved in collaboration with all the OBN project partners and has been posted on the OBN portal[1] in order to receive further contributions and comments from the whole community of associated partners and stakeholders.

Abstract and conclusions

The world is experiencing a major shift in the learning system. The previous forms of recognition of learning are becoming obsolete, and so are the referencing definitions and taxonomies related to education and training. Learners develop their skills and competences in a variety of learning environments, and not only in the context of formal education (for examples schools and universities). Economists of innovation recognise knowledge, and therefore learning, as the most important resource in today's society. However, the formal education system seems unable to cope with these rapid societal changes. Companies and institutions struggle to find the appropriate skills for their job vacancies, and at the same time individual learners lack tools for certifying the whole set of capacities and experiences that they own, very often gained outside the formal education and training system.

The Open Badge system tries to address these issues by providing a flexible and adaptive technology of certification of competences, which could be potentially applied to all learning environments.

However, in order for it to become widely recognised as a credible certification method, Open Badges must solve some critical issues, which still represent a source of debate among experts. These issues are related to the reliability, validity and quality of the credentialing with Open Badges. In the paper, we tackle these issues by presenting the opinions of the OB community, and by providing practical examples of applications of Open Badges, in order to assess, without preconceptions, what is the real "value" of Open Badges from the individuals' point of view, but also what are the "risks" implied in this technology.

Individual users may benefit from earning Open Badges in various ways, in their education, in their work life and in their leisure activities. The recognition of soft skills, prior learning and abilities developed in informal and non-formal environments may increase employability and acknowledgement of skills by the employers, while also facilitating introduction into new working places and positions. Students may add this set of credentials to their resumes at the end of a degree and be recognised for their extra-curricular activities. Open Badges may also help transform talents and passions into actual competences and therefore open new job opportunities.

Individuals can gain control over their education pathway and easily compose and display their digital resume on the web, collecting Open Badges they earned from different sources (schools, online courses, external organisation).

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[1] http://www.openbadgenetwork.com/

In the paper, we briefly present the dispute regarding the effect of gamification of the learning process, acknowledging the point of view according to which "external motivators", such as Open Badges, may have a detrimental effect on learning. However, we support the idea that rigorously designed Open Badges may improve learning performance and motivation during class and training.

Open Badges may find useful applications also in the context of promotion of citizenship and social integration, for example in the case of recognition of skills of migrant workers or academics. Citizens may be rewarded with Open Badges for the activities within their community, which would in return increase the group cohesion and their sense of belonging.

However, individuals will play an important role in the future of Open Badges also as designers and issuers. The Open Badges technology is free and relatively easy to access, which gives a chance to independent communities of learners to develop and award their own set of Open Badges, using their own criteria and competency frameworks. However, an opposite view argues that this could carry some risks.

Individual issuers can use Open Badges to provide organisations and institutions with suggestions and benchmark their needs. Innovative and responsive organisations will build systems of Open Badges that consider contributions from a grassroots level.

In general, the response of the final consumers of Open Badges is fundamental to reach the critical mass for the technology to be widely recognised. Beside this, in the paper, we discuss how the "value" of a single Open Badge is closely related to the users' perspective and to the establishment of networks of trust among Open Badge issuers, earners, companies, institutions and education providers. We discuss also how the "endorsement" feature contributes in achieving this result by enabling Open Badges to be peer-reviewed.

The future of Open Badge will depend on the engagement of the whole community, including individual users, in the construction of value and trust.

In the paper we support the idea that the education system could play a major role in this regard, by helping education providers and the community of learners to familiarise themselves with this tool and by providing the right indication for rigorous application of competency frameworks and evaluation methodologies. Institutions and organisations should facilitate the encounter between the expectation of the users and the intents of the issuers, while ensuring absolute freedom and the cost-free basis for everybody to design, issue and obtain an Open Badge, without imposing a common standard. They should provide Open Badge designers and issuers with appropriate guidelines and frameworks, to nurture the building of trust networks among issuers, earners and viewers and support individuals in the recognition of the right methodology to assess the quality and reliability of Open Badges.

1. HOW LEARNING OF INDIVIDUALS OCCURS IN THE NEW SOCIETAL ENVIRONMENT?

1.1 Societal major changes and the shift in the learning system

The industrialised world is currently facing the most severe crisis of the economic and productive system of the last 500 years: 90% of all the planet's resources, including knowledge, know-how and intellectual property, belong to 17% of its inhabitants. This system is falling apart. The symptom of this crisis and its impact on the labour and education sphere was already anticipated by the well know White Paper entitled: "Growth, competitiveness, employment. The challenges and ways forward into the 21st century"[2], but it is only from 2008 onwards, when it hit the richest industrialised countries, that the whole model of development, which excludes a large majority of population form access to knowledge has started to be questioned. There is a huge inequality in the distribution of knowledge, know-how, and in the abilities for the development and utilisation of individual and collective talents: the human capital.

Some key features, which characterise the present societal changes, have a major impact on the learning system and the role of individuals in it:

- A marked drop in birth rates and a fast and measurable ageing of population in developed countries;
- A huge historical migration of people, especially young people, from developing and countries in conflict towards the developed countries;
- An asymmetry between skills/abilities offered by youth entering the labour market and adult life, and those required by the extraordinary change in the geopolitical, technological and production system, at a global level.

The logic that postulated a linear relation between the development of human resources and formal education is more and more broadly challenged.

Life-long learning revolutionises the concept of environments and actors. There are no more distinctions between formal education (the scholastic institutions), the non-formal ones (organisations), and the informal (all the other scenarios of day-to-day life) and also the taxonomy universally accepted by specialists becomes more and more obsolete.

There are different views on what role the education and training institutions should play in the changing world

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[2] Bulletin of the European Communities Supplement 6/93. COM(93) 700 5 December 1993 Parts A and B

where formal learning loses its prima donna role! The authors of this paper very much support the position expressed by the "Report From The Education Council to the European Council on the Concrete Future Objectives of Education And Training Systems"[3], which recommend the opening up of education and training systems to the wider world.

> *"The future of the Union requires a solid contribution from the world of education and training. It requires that education and training systems can be adapted and developed so as to deliver the skills and competencies everyone needs in the knowledge society; to make lifelong learning attractive and rewarding; and to reach out to everyone in society, however far from education and training they may consider themselves, with ways of developing their skills and making the best use of them. (…)"*

Two major contributions could be mentioned, which could help deepen the understanding of the extension and paths characterising the role of individual learning in a fast and radically changing world.

Particularly meaningful is the OECD contribution to the understanding of the relation between major societal changes at a global level and the impact on Education and Training Systems as well as the way learning occurs in the new globalised world.

> *"(…) From a broader social perspective, knowledge, skills, and competencies are important because of their contributions outside the domain of economics and work. They contribute to increasing individual participation in democratic institutions; social cohesion and justice; and strengthening human rights and autonomy as counterweights to increasing global inequality of opportunities and increasing individual marginalization.*
>
> *The development and maintenance of human and social capital represents an important factor for societies to not only generate prosperity, social cohesion, and peace, but first and foremost to manage the challenges and tensions of an increasingly interdependent, changing, and conflictual world. (…) the new interest in outputs of education extends beyond educational attainment-measured in number of years of education or highest degree earned-to what individuals know and how much they can do, and to the relationship between these capabilities to the goals of education (i.e., the effectiveness of educational systems) and to the inputs to education (i.e., the efficiency of educational systems)."[4]*

In view of opening the horizon of exploration, it may also result in a great interest to explore the literature of the economists of innovation, often unknown by specialists of education and learning.

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[3] Council of the European Union (2001) *"The concrete future objectives of education and training systems".* Brussels, 14 February 2001 - 5980/01

[4] OECD (2005). *The Definition and Selection of Key Competences*. Retrieved on June 21st from: http://www.oecd.org/edu/skills-beyond-school/definitionandselectionofcompetenciesdeseco.htm

The studies conducted by the economists of innovation, especially at Aalborg University by *Bengt-Åke Lundvall*, the experts who supported the EU policy makers in the Lisbon Agenda Drafting and his research team, paid particular attention to studying the themes of industrial development and competitiveness from an alternative perspective to the traditional one: a perspective that puts interactive learning and innovation at the heart of the analysis of major industrial and societal changes.

The studies are developed around three theses:

1. the most important resource in a modern economy is knowledge
2. the most important process is learning
3. learning is a process in which the interaction between subjects is predominant; as a phenomenon, it is therefore structurally incorporated in the socio-relational fabric and cannot be understood without taking its institutional and cultural context into consideration.

Lundvall introduces various forms of learning (by producing, by using, by interacting, by exploring, by searching, etc.), which according to his model lead to growth in the stock of knowledge. When habits become generalised and common to groups of people, they generate different forms of routine behaviour and become norms, traditions, rules, laws. They can be informal – or *implicit* – as are many moral and social norms, or codified – *explicit*.

> *(…) The uncertainty involved in innovation and the importance of learning imply that the process calls for a complex communication between the parties involved. This will especially be the case when the knowledge exchanged is tacit and difficult to codify. (Bengt-Åke Lundvall, 1992)*

Learning is at the core of any fast changing economy and calls for an aware participatory role of all societal actors starting from the education systems.

In the contribution of these experts, we can identify the beginning of less superficial theory of life-long learning which could greatly contribute to the intellectual analytical efforts of specialist of education and learning.

In this changing scenario, the recognition of the various ways in which learning occurs is not an easy task and it needs a multidisciplinary and sound theoretical approach. The definitions of formal, informal and non-formal learning adopted by the specialists in education and learning could greatly profit from these theories, and they may contribute to reduce the gaps in the highly controversial perspectives of learning specialists [5].

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[5]One of the most accredited definition, in the community of VET specialist is the one provided by Cedefop, the European Centre for the Development of Vocational Training.

Formal learning = Learning that occurs in an organised and structured environment (such as in an education or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time or resources). Formal learning is intentional from the learner's point of view. It typically leads to certification. […] Informal learning = Learning resulting from daily activities related to work, family or leisure. It is not organised or structured in terms of objectives, time or

For the purpose of the OBN project, it would be of great value to open and lead a debate in order to review and eventually develop a more consistent definition adopting a multidisciplinary approach.

1.2. Which major impact occurs in the certification of individual competences in the labour market and the societal context?

The societal changes mentioned in the previous chapter make the construction of individuals' professional fabric more and more dependent from a large variety of learning environments.

The traditional portfolio of accredited achievements, such as degrees, diplomas and course certificates, is able to attest only a minor part of the whole set of talents and capacities that an individual can use in the working and more generally in the societal context. Nowadays, many employers look not only at formal education certificates and diplomas, but at range of extra curricular activities and interests.
The traditional certification models reveal major weaknesses:

1. The learning occurred in the formal education and training system neglects an important valuable set of capacities acquired through a large variety of learning experiences and environment and produces an underestimation of the individual capabilities in the labour market as well as more generally in the societal context;
2. The certification of curricula, which validates which education and training programmes were undergone by an individual, does not prove the real capabilities owned by the individual;
3. The certification of curricula makes a comparison among different cultural and national contexts very difficult.

Beside the major societal changes, an important shift is taking place in the certification models and a major focus is now on both input factors such as the duration, location and particular pedagogical method underpinning a qualification, and on what a learner knows and is able to do at the end of a learning process (learning outcomes)[6].

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learning support. Informal learning is in most cases unintentional from the learner's perspective. Comments: 1. Informal learning outcomes may be validated and certified; 2. Informal learning is also referred to as experiential or incidental/random learning. […] **Non-formal learning** = learning embedded in planned activities not explicitly designated as learning (in terms of learning objectives, learning time or learning support). Non-formal learning is intentional from the learner's point of view. Comments: 1. Non-formal learning outcomes may be validated and may lead to certification; 2. Non-formal learning is sometimes described as semistructured learning.[5]
(Cedefop (2014). *Terminology of European education and training policy – Second Edition. A selection of 130 terms.*Luxemburg: Publication Office of the European Union, 2014. Link: http://www.cedefop.europa.eu/EN/Files/4117_en.pdf)
[6] Cedefop (2008). *The Shift to Learning Outcomes*. Luxembourg: Office for Official Publications of the European Communities, 2008. Link: http://www.cedefop.europa.eu/node/11104

The European Qualification Framework is a good example of this major change undertaken by the formal Education and Training Institutions to define a European recognised model of certification, which both considers the inputs or processes (knowledge and experiences acquired, *curricula studiorum*) and the outputs (learning outcomes):

 - "learning outcomes" means statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence;

 - "knowledge" means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual;

 - "skills" means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);

 - "competence" means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy[7].

From many perspectives, the framework meets the need of a systemic approach to certification of both 'processes' and achievements, but does not solve a still open issue of univocal terminology.

One of the major difficulties concerns the concept of 'competence' or 'a competence' which still lacks a satisfactory unanimously shared definition. Even when restricted to its specialist professional context, a variety of radically different understandings of the term presents itself, ranging from something more or less synonymous with 'qualification', on the one hand, to 'performance' on the other. The problem is born largely of the fact that whilst the word exists in most European languages, its meaning is by no means uniform. The

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[7] European Commission "The European Qualifications Framework for Lifelong Learning (EQF)", Brussels 2008 - ISBN 978-92-79-08474-4. See Annex 1 p.11.

result is that even within a single text the word may assume a variety of different applications and ambiguity frequently results.

Here we propose three definitions, which could be considered:

(…) "competence" means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy (The European Qualifications Framework for Lifelong Learning (EQF)", p.1)

(..) A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context. For example, the ability to communicate effectively is a competency that may draw on an individual's knowledge of language, practical IT skills and attitudes towards those with whom he or she is communicating.[8](DeSeCo). (in Competency Framework – OECD, Paris 2005 p.4)

(…) We define competence as the proven capability to integrate (with a dynamic and systemic approach) all the values, attitudes, the skills and knowledge needed to achieve a professional activity goal. (Reattore delle Competenze in "Il modello di standard di qualità del lavoro e standard formativi", (Work & training quality standards) Talent Tree (2007). p.9)

Despite the important progress in the certification models adopted by the Education and Training Institutions, a *transparent* and *intelligible* certification system*, without national barriers*, which recognises individual achievements along the whole working life and irrespective from any learning environment and process, is still a challenge to be met. However, this is what the globalised labour market and the new societal challenges require.

1.3 Where are Open Badges collocated in the new system of recognition of learning achievements?

Open Badges have characteristics that make them different from standard methods of recognition of learning achievements. We need to focus on these characteristics to be able to understand their possible applications and assess their potential.

➢ Open Badges are digital, and have a graphic component
➢ Open Badges are not limited to certain kinds of applications, educations methods, thematic fields, nor objectives.

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[8] http://www.oecd.org/edu/skills-beyond-school/definitionandselectionofcompetenciesdeseco.htm

➢ Open Badges contain metadata, defined by the *issuer,* which give information about the criteria used to award Open Badges themselves and the source from which they come from.
➢ They can be organised to form "pathways of competences"
➢ Open Badges can be easily shared on the internet.
➢ Open Badges have a *social* component, in the sense that they also depend on "trust" among users, and they could bring social value for the individual (see next section).

The following diagrams by Carla Casilli represents the positioning of Open Badges within the system of learning credentials, in the formal, informal and non-formal environment.

the open badges world : value propositions and potential equivalencies
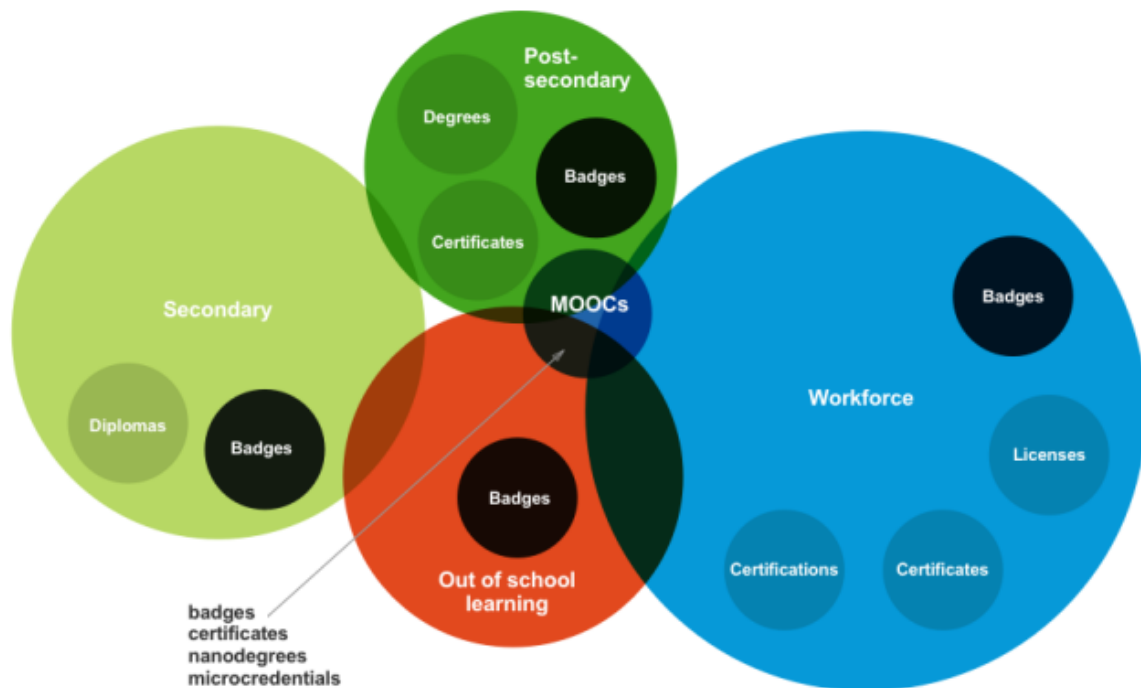
Figure 1 Open Badges in the education ecosystem by Carla Casilli[9]

The author describes Open Badges as the "chameleon(s)" of the credentialing world[10], due to their flexibility and pliability, which make them applicable in any learning environment, formal, informal and non-formal.[11] Here to follow we want to highlight some of the features that make them different from other forms of credentials:

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[9] Casilli, C. (2016). *Badges + credentials, another visual take.* Retrieved May 9, 2016, from https://medium.com/@carlacasilli/badges-credentials-another-visual-take-9a5350b8c1de#.6ufwbt4q6
[10] *Ibid.*
[11] Hastac (n.d.). *Digital Badges.* Retrieved May 16, 2016, from https://www.hastac.org/initiatives/digital-badges#projects

1. Compared to physical credentials (such as diplomas, degrees and standard certificates), Open Badges have the potential to describe individuals' competencies in a more "granular" way, which means they can represent even small specific achievements, skills, capabilities, experiences and so on.[12]
Open Badges are based on standardised technology, which makes them interoperable, and could enhance comparability[13]. This is a substantial difference from other forms of digital micro-credentials (such as the listing of competencies on LinkedIn, or other kinds of electronic certification of accomplishments awarded online).[14]

Open Badges could find useful applications in both formal education, in the sense that they can complement and enrich traditional credentials, and in informal and non-formal education, by certifying competencies achieved in all learning environments. The Open Badge System has the potential to meet all these challenging expectations, exactly because it is a fully open system of transparent definition and related accreditation of a personal wealth of capacities.[15] In chapter 4, we present examples of Open Badges in the context of education, work and civic life.

1.4 Can the OB system gain enough credibility to be recognised as the "new standard" for recognition of learning outcomes?

The traditional system of recognition of learning achievement relies on the standardisation of certificates. National or extra-national authorities define rules and methodologies, and education providers have to respect certain quality standards to issue these certificates. In this way, the traditional education system ensures that the reliability and validity[16] of certifications are widely recognised.

The system based on Open Badge is radically different, as this technology is made to be extremely open and flexible. An issuer do not need to be certified in order to award Open Badges, and neither it has to follow any

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[12] Casilli, C. (2016). *Badges + credentials, a venn diagram*. Retrieved May 9, 2016, from
https://carlacasilli.wordpress.com/2016/03/29/badges-credentials/
[13] Within the Competency Repository activity (O2A3) in the Open Badge Network Project, we are addressing the issue that Open Badge may not be comparable enough. Open Badges looks and metadata are comparable by humans, but, since issuers use different competency frameworks and taxonomies, it is still difficult to detect competencies behind an Open Badge and compare them in similarity, especially for "machines".
[14] Belshaw, D. (2015). *Taking Another Look at the Digital Credentials Landscape*. Retrieved May 9, 2016 from
http://dmlcentral.net/taking-another-look-at-the-digital-credentials-landscape/
[15] Wyles R. (2014, January). Open Badges and Education – Challenges in the 21st Century. *Inside Learning Technologies and Skills*, pp.81-83. Link: http://viewer.zmags.com/publication/38b45363#/38b45363/84
[16] Criteria of reliability and validity are fundamental components of an approach for competences evaluation. The reliability depends on the fact that the results of the evaluation are reproducible in occasion of other tests; the validity refers to the fact that the evaluation succeed in measuring the competence that was originally intended by the evaluators.

given criteria to design it. There is no single authority overseeing the OB system, but only a multitude of independent and autonomous individuals and organisations designing, issuing and using Open Badges.

Therefore, how could this system gain a wide credibility among users?

In our view the market will autonomously recognise the good offers of Open Badges and neglect those that are not reliable. We can expect that one or more standard currencies will progressively become the most appreciated and most widely used. This does not exclude the possibility to create, issue and earn a multitude of diversified Open Badges tailored and depending on the issuer.

This process of progressive expansion of certain Open Badge models will therefore depend more on the experimented reliability than on the authority of the issuers. This process of gradual acceptance of Open Badges as a reliable tool for validation of competencies is often defined as "trust-building". The issue of *trust* is central in the current debate around Open Badges, and it refers to the confidence of the users toward the tools and among themselves, the familiarity of the education institutions with the system, and its effectiveness for employers. The success of Open Badges depends not only on the fact that they become "trusted" as a valid and reliable method of certification, but also on the capacity of issuers and users to build trust relationships among each other.

However, we are at the very beginning of this adventure and there are still many different models to give "currency" to the individual's capacity to properly perform in the labour market as well as in the societal contexts and to ensure that the individual is respected and empowered without damaging the collective interest. So, how can we foster/accelerate this process of "trust building"?

The formal education and training institutions could play a major role in this process, but they should be able to do so, avoiding the imposition of schematic and rigid standards on other actors of the ecosystem, such as individuals and their representatives (for example trade unions, professional associations), employers, labour agencies. Formal education should enhance familiarisation with designing and issuing Open Badges and promote mutual learning among key actors on rigorous methodology to describe the achievements and their transferability as well as on the use of objective criteria and meaningful evidences to assess and certify them.

The philosophy that gave birth to the OB certification system, is the absolute freedom and the cost-free basis for everybody to design, issue and obtain Open Badge. To impose a common standard or to settle rules will mean to limit the range of possible applications of Open Badges and to reduce their potential. Moreover, it would be difficult (if not impossible) to think of a single authority which could design and apply rules to such a heterogeneous and multifaceted certification system, such as the one of Open Badges.

Nevertheless, this does not mean that there is not a way to ensure reliability and validity, that is that they meet the needs for which they have been created. For this purpose, it is necessary to provide Open Badge designers

and issuers with appropriate guidelines and frameworks, to nurture the building of trust networks among issuers, earners and viewers and support individuals in the recognition of the right methodology to assess the quality and reliability of Open Badges.

The validity and reliability should stay in the capacity to build trust among issuers and users because they facilitate the encounter between the expectation of the users and the intents of the issuers.

2. ADVANTAGES AND RISKS OF OPEN BADGES FROM THE INDIVIDUAL POINT OF VIEW

2.1 What is the value of Open Badges for Individuals?

The Open Badge technology has the potential to revolutionise the system of learning certifications. However, for the Open Badges to become actually "valuable", they must become recognised and accepted by all relevant stakeholders: companies, institutions and individuals.
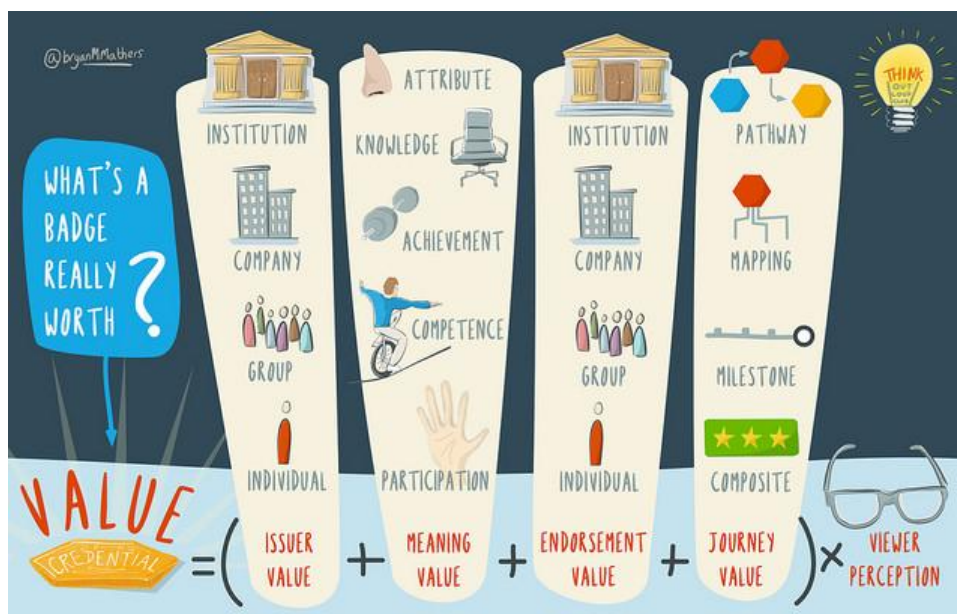

Figure 2 Bryan Mathers, CC BY-NC-SA 2.0 (https://www.flickr.com/photos/122135325@N06/)

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There are at least three major challenges that may prevent a wide adoption of Open Badges: reliability, trust and quality.[17] Unlike diplomas and degrees, Open Badges do not refer to the same quality standard. Every Open Badge uses its own assessment process, verification of earner's competences, methods of evidence submission and may refer to a different cluster of Open Badges or framework. All these factors determine the reliability and quality of an Open Badge, while its trustworthiness depends also on the consideration that the earner has of the issuer. The "value" of the Open Badge is decided by the judgement of the earner and perception of the viewers, based on all these inputs, rather than by an institution or a regulatory body via a traditional top-down model.

In order to help newcomers to distinguish the characteristics that make a "valuable" Open Badge, the Open Badge Network project is collecting the most compelling use cases that could give indication of the applications of Open Badges to various sectors. In the next sections, some of them will be analysed in specific context.

The Open Badge Network Project has also prepared a survey related to Quality of Open Badges, where both experts and novices (organisations and individuals), can express what makes an Open Badge "valuable" from their point of view: *https://www.surveymonkey.co.uk/r/OBN-QualityOpenBadges*.

The results of the survey, due to arrive in the early summer, will be considered to further improve this paragraph.

2.1.1 Can Open Badges empower individuals?

Digital credentials have been analysed in a multitude of psychology and educational studies. A number of studies indicate that Open Badges may have a positive effect on learning. The study by Davis & Klein (2015) in high school context shows that students recognise digital credentials as an empowering tool.[18] This issue is comprised in a wider discourse related to "gamification" of learning and organisation management, the process through which game-design and game-mechanics, such as quest accomplishments and rating, are included in a learning environment or within an organisation in order to improve the users' engagement, productivity, learning performance and to facilitate the review and comparability of results[19]. However, Open Badges may have other advantages from the point of view of individuals. A psychological study by Antin & Churchill (2011) suggests that Open Badges may act as motivational tools for learners, through the following means:

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[17] Belshaw, D. (2015). *Three biggest (perceived) problems with badges.* Retrieved May 4, from
http://dougbelshaw.com/blog/2015/04/16/three-biggest-problems-with-badges/

[18] Davis, K., & Klein, E. (2015). Investigating High School Students' Perceptions of Digital Badges in Afterschool Learning. *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* Pp. 4043-4046. ACM, New York, 2015. Link: http://dl.acm.org/citation.cfm?id=2702413&dl=ACM&coll=DL

[19]

1) **Goal Setting**: mark relevant accomplishments and the smaller steps to reach them
2) **Building Confidence**: help an individual understand what skills and capabilities they have and help them communicate them
3) **Instruction:** badges could be displayed to give the viewer specific knowledge of the learning offer within a certain environment
4) **Reputation:** especially in the social media context, badges could be useful tools to determine the trustworthiness and reliability of an individual or a content
5) **Status:** owning badges means also to affirm a status, an idea or a position about something, to display one's own accomplishments and therefore contribute to a person's self-esteem
6) **Group identification:** a badge may constitute a bond between people sharing the same experience, competence or passion. [20]

2.1.2 Can Open Badges reveal individual talents?

Open Badges are able to testify competencies or achievements that could not be recognised otherwise. They can be a tool for individuals to discover the possibilities of application of their own talents and vocations: Open Badges can enhance the formal credentials by adding the elements, which come from recognition of informal learning. By providing evidence of capabilities, an individual can illustrate to the potential employer the abilities that are not assessed as a result of formal education and training systems.[21] Open Badges add an insight into the extracurricular element of our lives, or personality or even a hobby or participation in social activities. They become a unique addition to our CVs, digital footprints of involvement in educational and social activities.

Examples of such activities could be the participation of a conference or a seminar, volunteering activities, but also achievements in sports, arts and crafts or "soft skills" recognised in the workplace and/or education environments.

2.1.3 Can Open Badges improve individual degree of freedom?

Some researchers see the Open Badges as a tool for individuals to gain control over the information regarding their own education and their career, and therefore, to some extent, their own profile. This would allow people to be more independent from the recognition of education institutions and colleges.

An individual may choose to earn and display the Open Badges that he/she consider more relevant for his/her own personal and professional recognition, highlighting skills and competencies that often remain hidden in

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[20] Antin, J., & Churchill E.F. (2011). *Badges in Social Media: A Social Psychological Perspective*. Copyright: BY-NC. Retrieved May 5, 2016, from https://www.scribd.com/doc/182342460/Badges-in-Social-Media-A-Social-Psychological-Perspective.

[21] Pearson (2013). *Open badges are unlocking the emerging jobs economy*. Retrieved Apr 5, from http://www.pearsonvue.com/sponsors/acclaim/open_badges_unlock_jobs.pdf

the standard credentials. Thus, on the one hand, Open Badges can be used to complete, personalise and complement one's academic certifications. On the other hand, for people who cannot afford tuition fees, or are for other reasons unable to attend full time courses in a traditional education institution, Open Badges can actually become in the future a valid alternative to standard credentials.

Massively Open Online Courses (MOOCs), online educational content and online degrees are experiencing a great expansion and are likely to have an important impact on the market of secondary education in the near future. Open Badges have the potential to become the adopted technical standard for organisations and institutions offering online education and training, thus giving individuals maximum freedom over their own educational path.[22]

Open Badge issuers can create systems of interconnected Open Badges, for example by introducing relations of dependence between Open Badges, putting them in the form of "collection" or structuring them as "constellations."[23] These Open Badge systems are called pathways and can be generally divided in two major groups: prescriptive and non-prescriptive. In the first case, the issuer decide a fixed sequence in which the Open Badges must be earned, which could not be changed by the users. In the second case, the issuer lets the users decide their own pathways. This last kind of pathway could be organised in many different ways, depending on the level of freedom the issuer is willing to leave to the users. For example, the user could be asked in advance to choose a sequence he/she wishes to pursue, and then follow it until the end of the pathway (contract pathway). Otherwise, an issuer could let Open Badge earners freely choose and earn Open Badges in a different order, performing leap-frog passages from one Open Badge to the other, and from one cluster of Open Badges to the next (desire pathway).[24] The different forms of pathways are represented in the following diagram by Carla Casilli.

[22] Carey K. (2015, March 5). Here's What Will Truly Change Higher Education: Online Degrees That Are Seen as Official. The New York Times. Retrieved APR 6 2016, from http://www.nytimes.com/2015/03/08/upshot/true-reform-in-higher-education-when-online-degrees-are-seen-as-official.html?_r=3.

[23] Think Out Loud Club (2016). *Why use badge pathways?* Retrieved in June 2016, from: http://badges.thinkoutloudclub.com/modules/why/do/#

[24] Casilli C. (2013). Badge pathways: part 2, the "quel". Retrieved June 18 from: https://carlacasilli.wordpress.com/2013/04/28/badge-pathways-part-2-the-quel/
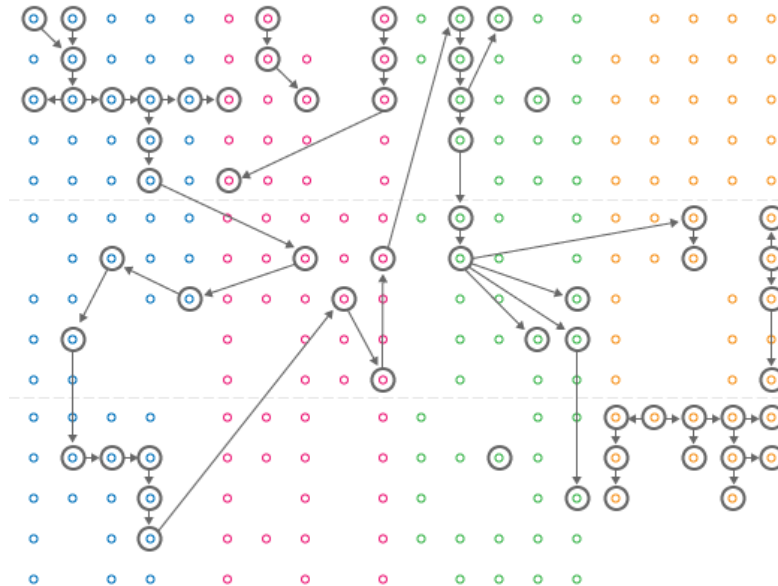
Figure 3 Carla Casilli representation of Open Badge pathways[25]

Even in the absence of pre-defined pathways, just by earning Open Badges from different sources, learners take control of designing their own specific learning route. Earners are free to construct their own educational and working profile in a flexible and original way, by mixing prescriptive and non-prescriptive pathways and individual Open Badges. Learners are free to follow their own specific itinerary and Open Badges may allow them to construct a narrative of their experiences, showing the steps they followed and the criteria behind their choices. To have a visual representation of one's learning trail, not only provides useful information to the external viewers (for examples employers and/or academic institutions), but also may have a value for the Open Badge earners themselves, as it helps them to critically reflect on their choices.[26]

2.2 What are the risks of Open Badges for individuals?

2.2.1 Are Open Badges a means to control individuals?

Some researchers see Open Badges as a disempowering tool for individuals. The key 4 points of concern about the role of digital credentials in education are the following:

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[25] Casilli, C. (2015). Badge pathways: part 1, the paraquel. Retrieved May 16 from
https://carlacasilli.wordpress.com/2013/03/25/badge-pathways-part-1-the-paraquel/

[26] Casilli C. (2013). Badge pathways: part 2, the "quel". Retrieved June 18 from:
https://carlacasilli.wordpress.com/2013/04/28/badge-pathways-part-2-the-quel/

1) Open Badges are not scalable and therefore it is unlikely that they will become a "valuable" and "recognised" tool. Open Badges were conceived and created also in hope of providing communities of engaged learners with a tool for designing and crafting their own competency frameworks. The Open Badges created by these communities, however, will face serious issues of credibility and recognisability outside those communities. Because of the problems of interpretability and comparability, it is likely that the Open Badges that become widely recognised by recruiters, will be the ones using standardised competencies and assessment methods.[27]

2) Open Badges are mostly used to recognise atomistic and grained sets of competencies. This tendency will push learners towards the acquisition of single useful competencies and skills, at the expense of general, theoretical and critical knowledge, which might be less useful in the job market, but also provide the learners with the intellectual tools to interpret and process societal, political and economic mechanisms. Hence digital credentials would be unlikely to attest "powerful" knowledge.[28]

3) Open Badges are the result of a more general trend of secondary and vocational education and training, which reflect the individualism, atomisation and consumerism of modern society. According to this view, Open Badges would represent a commodification of learning, which will ultimately promote economic and market value over social and pedagogical value and that will empower leading economic organisations over academic institutions and learners' communities.[29]

4) The last point is of economic nature. The value of the Open Badges in the credentialing market relies on their scarcity. If an Open Badge becomes too common, it will lose its value on the market.[30]

2.2.2 Do Open Badges have negative effect on learning?

Many scholars have questioned the usefulness of digital credentialing in education. While there are many examples that would suggest a positive effect on the learners' performances, some others indicate negative effects, such as motivation displacement. According to this view, external motivators, such as badges, tend to have a detrimental effect on individuals involved in learning activities: not only may they cause a lowering of performance levels, but also a decrease of interest and a diminishing of motivation for a given task in the future.[31]

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[27] Olneck M.R. (2015). *Whom Will Digital Badges Empower? Sociological Perspectives on Digital Badges.* Proceedings of the Open Badges in Education (OBIE 2015) Workshop, Poughkeepsie, New York, USA. Retrieved May 16 2016, from http://ceur-ws.org/Vol-1358/paper1.pdf.

[28] *Ibid.*

[29] *Ibib.*

[30] *Ibid.*

[31] Devedzic V. & Jovanovic J. (n.d.). *Developing Open Badges: a Comprehensive Approach.* University of Belgrade. Retrieved May 16, 2016, from https://docs.google.com/viewer?a=v&pid=forums&srcid=MDIzNzA4MDY0MDU1NzY5MDg2NjEBMTUwOTIzNTMwOTMyN TEwNDUwMzkBZUFVTUluRjNmVVlKATAuMQEBdjI

Considering that Open Badges can take as many forms as one could imagine, it would be indeed unreasonable to think that ALL Open Badges have per se a positive effect on learning. Certain Open Badges would be trivial, while others could have no pedagogical bases or use unclear criteria and assessment methods. On the other hand, certain quality standards and methodologies, may help conceiving Open Badges that enhance the individual inclination to learn[32]. The Open Badge community is attempting to develop a few tools to support the design of quality Open Badges. Examples are DigitalMe's Open Badge Design Canvas (http://www.digitalme.co.uk/assets/pdf/DigitalMe-Badge-Design-Canvas.pdf), OBN's Discussion Paper on Quality of Open Badges and Guidelines for Individuals and Organisations (to be published in 2016).

2.2.3 Risk of social exclusion

Another critical aspect of Open Badges is their applicability to marginal groups in the society. Open Badges have been conceived also with the intent of democratisation of learning, but some are concerned about Open Badge possible drifting from the creators' expectations.

Although the procedure for earning and displaying Open Badges is rather easy, people with low digital literacy might be still prevented from accessing this technology, or they might not be comfortable using it.

Researching, selecting, earning and displaying Open Badges requires a certain level of independence and self-awareness, which not everybody has, for example people with forms of mental or physical handicaps, or young children. Not only these groups, but also people who are just not acquainted with education and training standards, terms and methodologies, might find it difficult to choose the most valuable Open Badges.

Another access barrier could be the language, as most of the documentation, guides and Open Badges are still, only available in English.

From these issues derives the need to set up proper methodologies and safety measures to ensure that socially and economically disadvantaged groups earn Open Badges the same way as the ones in better positions.

3. THE ROLE OF INDIVIDUALS IN THE OPEN BADGE ECOSYSTEM

3.1 What are the benefits of individuals designing Open Badges?

Individuals could benefit from the design of Open Badges in various ways:

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[32] Hickey, D.T., Otto, N., Itow, R., Schenke, K., Tran, C., Chow, C. (2014). *Badges Design Principles Documentation Project.* Interim Report - January 2014 Update. Center for Research on Learning and Technology Indiana University. Retrieved May 16 2016, from http://dpdproject.info/files/2014/05/DPD-interim-report-v4-january.pdf

- Individual teachers/educators can customise and design Open Badges in order to focus the attention of learners on topics they consider important and/or use the Open Badges to motivate students towards the adoption of certain attitudes and/or the accomplishment of side-activities. This could be done in integration/completion of normal activities, and does not require prior approval by the education institution.[33]
- Single learners and/or workers are able to design their own Open Badges, giving shape to their own objectives and perspectives. By establishing an alternative set of values and awards at a grassroots level, the learners/workers are on the one hand challenging the standard top-down methods for recognition of skills and competencies, and on the other hand acting as benchmark or influencer for the official system itself (see next sub-section).[34]
- The possibility of designing systems of Open Badges, should be seen as an incentive for individual Open Badge designers to connect one with another and make their results more shared, and therefore more valuable.[35]

3.2 What are the benefits of individuals issuing Open Badges?

Individual learners can design and issue Open Badges tailored to their needs and expectations. Communities of learners could use Open Badges to recognise competencies that would otherwise remain hidden. As mentioned in the chapter 2.2.4 (about risks), there is the possibility that these Open Badges would not gain a lot of value outside these communities. Even if we admit that it is true, we have to acknowledge that communities, especially in the digital world, could be huge. The communities of gamers and the communities of people sharing the same interests are already using internal credentials and other forms of hierarchies for internal recognition. Open Badges would allow these recognitions to be shared in a common language with the external world.

Moreover, Open Badges open the door to the possibility of introducing grass-roots inputs into corporate and institutional decision-making mechanisms. Individual issuers could provide useful information to organisations, education institutions and team-members. In this regard, Carla Casilli proposes a model divided into three components, in which individuals, teams and organisations all create, issue and earn Open Badges: (1) Company / organisation badges; (2) Team / product badges; (3) Individual / community badges.

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[33] Devedzic V. & Jovanovic J. (n.d.). *Developing Open Badges: a Comprehensive Approach.* University of Belgrade. Retrieved May 16, 2016, from https://docs.google.com/viewer?a=v&pid=forums&srcid=MDIzNzA4MDY0MDU1NzY5MDg2NjEBMTUwOTIzNTMwOTMyNTEwNDUwMzkBZUFVTUluRjNmVVlKATAuMQEBdjI
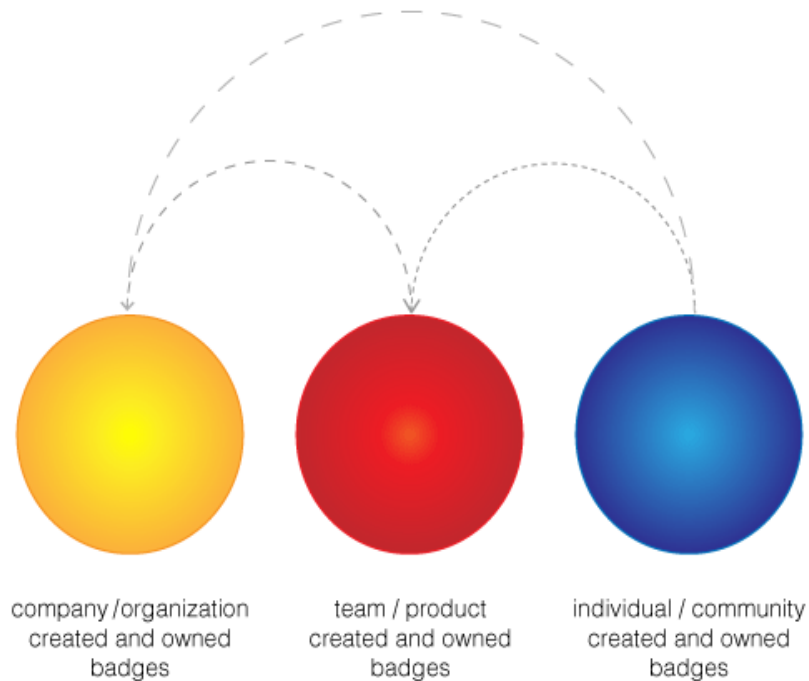
[34] *Ibid*.

[35] *Ibid*.

Figure 3 Image by Carla Casilli - The 3PBS model with different types of influence.[36]

The single components reflect the needs of the group but they also reciprocally influence each other, by providing benchmark and different points of view. e.g. An Open Badge developed by the Community without any control from the company/organisation could be adopted by the company (directly or through the review of the Team) and become "officially" issued by the company.[37]

3.3 What are the benefits of individuals earning Open Badges?

The most evident benefits of Open Badges from the individual's point of view is that can be earned everywhere in the world, following one's own schedule and desires and often for free. However, what is the value their bring to an individuals' life?

A number of researchers and practitioners, e.g. Braun & Calhoun (2012), have argued that Open Badges:

- Are an excellent way to document and demonstrate what someone knows and can do

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[36] Casilli, C. (2014). *A foundational badge system design.* Retrieved May 16, 2016 from
https://carlacasilli.wordpress.com/2014/03/17/a-foundational-badge-system-design/
[37] *Ibid.*

- Are a good way to build an index of learning biography
- Allow customisation of learning pathways
- Carry multimedia content and direct proofs of an individual's accomplishments and realisations
- Help individuals to communicate and articulate their skills
- Are useful to gain recognition for prior learning
- Carry their own learning data and transfer this across systems/borders
- Help individuals standout from the crowd in an increasingly competitive and fast-paced job market[38]

Gamified education based on systems of badges and rewards allow the learner to choose the sequence and the speed in which to accomplish the activities, be recognised with transversal competencies (such as speed, use of grammar, teamwork, etc.) by achieving "side-quests"[39], and gives the possibility to re-do tests until you get the desired grade or results.[40]

3.4 What is the value of endorsed or peer-reviewed Open Badges?

Recent updates to the Open Badges Specification mean that individual users and organisations can now "endorse" Open Badges, thus providing extra information to the Open Badge. This sort of audience-review makes the Open Badge further personalised and is useful to differentiate individual earners from the ones who have the same Open Badge. Any object of the Open Badge can be endorsed and the endorsement contains information on the sources they come from:

> Assertion (ex. "Monica has earned the Achiever Badge" ← "Monica really deserved that badge!"); Badge Class (ex. "Achiever Badge, by Friendly Org" ← "Friendly Org's is backed by quality assessments"); Issuer (ex. "Friendly Org issues nothing but high quality badges").[41]

Moreover, considering the interactions between individuals and organisations that might take place in an Open Badge ecosystem, we can think about the feedback effect that issuers could take from Open Badges' earners. By choosing a specific learning pathway (sequence of Open Badges), an individual gives precious information to

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[38] Braun, L., W., & Calhoun, T. (2012). *The Future of Badges, Resumes, and Professional Credentials*. Retrieved May 16, 2016, from http://yalsa.ala.org/blog/2012/08/21/the-future-of-badges-resumes-and-professional-credentials/

[39] A side quest could be for example "complete 5 quest in 5 days", or "complete a quest working with other people", or, again "make no grammar mistakes in submission of evidences". A student can obtain extra rewards by completing these objectives.

[40] Haskell, C. (2012). *3D GameLab from Student Perspective. Example of a quest-based learning platform*. Retrieved Apr 12, 2016 from: http://www.youtube.com/watch?v=wsen5rg7Lb0

[41] Otto, N. (2015). Endorsement feature presentation. Retrieved April 5, 2016 from https://docs.google.com/presentation/d/19uR_-zAd04SDTMNfI04vgGFS0zf0MN0nBjEhnUaM6YQ/edit#slide=id.g776612b14_0_25

the issuer on his perspectives. Organisations that are open to receive these kind of inputs by the grass-root level augment the flexibility and adaptability of their educational and training offer, making it more respondent to the individuals' aspirations and desires. Individuals could show organisations new possible pathways that were not initially intended or confirm which Open Badges, or pathways of Open Badges, are the most relevant and useful from their own point of view.[42] Organisations could then correct their Open Badge offers taking into account this benchmarking and establish cross-fertilisation mechanisms among Open Badge issuers and earners.

3.5 How can individuals contribute to building trust networks?

The issue of "trust" is closely related to the topic of "value" of Open Badges as discussed in chapter 1 and 2. In an Open Badge system, the value of Open Badges will be constantly negotiated among individual designers, issuers, users and organisations. The reliability of an Open Badge, and therefore its relevance, is likely to be greater when a network of trust is in place. For example, an organisation would be more confident about an Open Badge, when it is issued by an institution the organisation already knows and trusts.[43] On the other hand, since each user can assess in a straightforward way the quality of Open Badge components (assertion, source, criteria, and endorsements), Open Badges could actually facilitate the building of new trust networks among individuals, organisations and institutions.[44]

Trust networks are likely to arise from Open Badges issued by organisations and institutions, or by the cooperation among the two. However, individuals can play an important role in the building of trust networks. Individual users can act as peer-reviewers of Open Badges, as mentioned in the previous paragraphs. Their opinion represents an independent and personal point of view, which could be considered even more reliable by friends, acquaintances, or members of the same communities, compared to an "official approval stamp" by a governmental institution for instance. Thanks to digital technologies and connected communication, the basis of users reachable by an individual could also be extremely vast. Considering the increasing relevance of "influencers" of the social media in shaping public understandings and choices, one single Twitter account with a hundred thousands followers, could ultimately have a relevant impact on building trust around an Open Badge or in an Open Badge issuer.

[42] Casilli C. (2015). *Badge pathways: part 1, the paraquel*. Retrieved May 16 from
https://carlacasilli.wordpress.com/2013/03/25/badge-pathways-part-1-the-paraquel/
[43] Grant, S. (2014). What Counts as Learning: Open Digital Badges for New Opportunities. *Irvine, CA: Digital Media and Learning Research Hub.* Retrieved May 16 2016 from: http://dmlhub.net/wp-content/uploads/files/WhatCountsAsLearning_Grant.pdf
[44] Casilli, C. (2012). *Mozilla Open Badges: Building Trust Networks, Creating Value*. Retrieved May 16, 2016, from: https://carlacasilli.wordpress.com/2012/08/24/mozilla-open-badges-building-trust-networks-creating-value/

4. OPEN BADGE BEST PRACTICES

This sections aims to provide useful references to practical examples of Open Badges in various fields. The Open Badge Network is collecting use cases as they rise and it welcomes everyone's contributions. To submit an Open Badge use case, it is possible to fill in the online questionnaire, at the following link:
https://docs.google.com/forms/d/1cBsD0y0ZQDQjgC5CMkR6QSp5WscIVSWoPLRmN2E-2h8/viewform
The complete set of use cases is available on the website of OBN project:
http://www.openbadgenetwork.com/outputs/infrastructure/
Another source of useful examples of Open Badges was the webpage *Open Badges: Making Learning visible*[45], which constantly looks for good applications of Open Badges in Canada and around the world.

4.1 How do individuals use Open Badges in education?

Open Badges in formal and non-formal education could serve various purposes. It is possible to group the Open Badges in clusters, starting from the example of Open Badges already issued by education institutions, training centres and individual trainers and teachers, according to their core aim:

1- Make learning visible. Open Badges can represent those competencies and skills, acquired by the students along their school career, but that are not included in their diploma or degree.

2- Recognise prior learning. Institutes, universities and schools often struggle to recognise prior learning of students coming from the work life or from abroad. Open Badges could help those organisation verify precedent education and skills and incoming students to be introduced to their new learning environments.

3- Recognise teachers' skills. A Finnish school has designed 60 Open Badges to be issues to its teachers, each demonstrating a specific computer-skill. The same system could be applied to recognise teachers' soft skills or to visualise teachers' involvement in side activities in school.

4- Set goals and learning pathways. A system of Open Badges could be used to orientate the progresses of a class. As mentioned in Section 2, a system could be set with different possible pathways to earn

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[45] Presant, D. (n.d.). *Open Badges: Making Learning visible.* Retrieved May 9, 2016, from:
http://www.savvyfolio.net/user/don/open-badges-for-training-professional-development

the final goal (represented by a Milestone Badge), thus giving students the possibility to choose the itinerary that suits them best[46].

5- Reward and motivate students. As mentioned in Chapter 2, Open Badges can be used in gamified learning contexts.

6- Certify accomplishment of courses and nanodegrees offered online. More and more institutions are employing online education to offer high-level courses worldwide. The attendance could be for free or a subject of tuition.

The following examples show how Open Badges may be used in education:

A. The Tech Partnership, in the UK (www.thetechpartnership.com), brings together employers in the digital industry to offer schools, companies and students resources to develop and recognise digital skills. The partnership promotes training programmes in schools, apprenticeships and courses addressed to children, students, and workers, with the aim of inspiring talents, creating jobs and ensuring high standard skills in the digital sector for the years to come. Open Badges are designed by the Tech Partnership to directly respond to the need of the companies in the digital world and to be integrated into educational programmes.[47]

B. In Aurora Public School (http://aurorak12.org/category/digital-badges/) Open Badges are clustered in sectors and employers are called to give their endorsement, meaning that they accept the Open Badges as "useful" for future employment in their companies.

C. Madison Area Technical College (http://madisoncollege.edu/badges) uses Open Badges for continuing education.

D. Educase (http://www.educause.edu/badging), an IT consulting company for education organisation, developed a badging system to recognise engagement and expertise.

E. The University of Michigan (http://www.mblem.umich.edu/v/overview) uses Open Badges to recognise students' co-curricular learning experiences, gained within the University Campus.

F. The Colorado State University (http://www.online.colostate.edu/badges/) offers online master level courses, at the end of which you earn Open Badges.

G. Deakin University (http://www.deakin.edu.au/learning/designing-assessing-and-evaluating-learning/deakin-hallmarks) issues their Open Badges under the name "hallmarks" to undergraduates

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[46] Rousselle, E. (2016). *Open Badges in schools and higher education.* Open Badge Network O2A1 Collection of Use Cases, pp. 8-11. Retrieved May 16, 2016 from: http://www.openbadgenetwork.com/wp-content/uploads/2016/01/Use-Cases_for_OBN_portal.pdf

[47] DigitalMe (2015). TechFuture Badge Academy Launches on Open Badge Academy (OBA), retrieved May 16 2016, from https://www.youtube.com/watch?v=A61_uL6c8uY

and graduates demonstrating specific extra-curricular skills and for accomplishment of master degrees, organised in a granular way.

4.2 How do individuals use Open Badges in their career?

Open Badges have been used in different contexts with the aim of making soft skills easily verifiable by job recruiters and employers. Soft skills include critical thinking, innovative thinking, communication skills, team work, leadership, motivation, etc.

The ICT has been so far, quite predictably, the most receptive sector to the Open Badge technology. Leading companies like Microsoft, IBM[48] and Oracle have developed their own Open Badge Ecosystems and have started using Open Badges to reward employees for their soft skills.

The GRASS Project (Grading Soft Skills, https://sites.google.com/site/llpgrassproject/), financed by the EU in 2013, uses Open Badges as micro-credentials to validate soft skills of learners of different ages and in different contexts. The UK implemented a programme called iDEA (idea.org.uk/), which uses Open Badge technology to promote recognition of skills in digital media, with the aim of facilitating employment and carrier building.

Other sectors have also started applying Open Badges. In the humanitarian field, Disaster Ready (www.disasterready.org) provides aid workers and volunteers around the world, with training and professional development resources for free. Achievements are awarded with Open Badges that are recognised by many of the most important humanitarian organisations, such as Oxfam, Save the Children and UNHCR.

Other badges, such as the ones developed by Doctors without Borders (www.doctorswithoutborders.org), aimat two different objectives:

1) showing support and increasing awareness and commitment of the public
2) attesting particular experiences of staff, gained in the field

Individuals willing to enter the job market, may join one of the various platforms that have been developed to collect, search and display Open Badges.

One example is the Open Badge Passport (https://openbadgepassport.com/), developed in Finland by Discendum Oy. It is a free service where issuers can publish and store their Open Badges. The users can select the Open Badges in which they are interested, upload evidence and create their own page, as a digital resume, including the Open Badges they earned. Potential employers can easily search and compare profiles and select the most suitable candidates.

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[48] *https://www-304.ibm.com/connections/blogs/IBMTraining/entry/open_badges_a_better_way_to_track_skills_and_accomplishments?lang=en_us*

The company Kion, in Italy, has recently developed another project called .Bestr (https://bestr.it/), with the declared aim to "bridge the gap between the learners, employers and trainers". It is an e-portfolio platform for searching, selecting and displaying Open Badges. Moreover, .Bestr provide consultancy to Open Badge issuers to design, issue and endorse Open Badges according to international standards for professional competencies, and gives assistance to education and assessment providers to publish and sell their courses and certification processes, again using Open Badges as credentials.

Training organisations such as City&Guilds (www.cityandguilds.com/), have adopted Open Badges to create skill development programmes in close cooperation with education providers and employers, in order to uncover their needs and facilitate young people's future employability.

4.3 How do Open Badges promote social inclusion?

There are many possibilities of application of Open Badges to facilitate integration of people considered at risk. Currently, although, many of the following initiatives are still in the conceptual phase.

For instance, Open Badges can be used for recognition and certification of competences of migrant skilled workers. While some trades and crafts are regulated and certifications are recognised worldwide (e.g. electricians, welders, truck drivers, airline pilots, etc.), most working skills cannot easily be recognised by employers from other countries because of comparability issues such as unintelligibility of language, differences in norms and regulations, unknown reputation of previous employers or education providers, divergences in attitudes and values. An Open Badge addressing the needs of migrant workers would require evidence and easily verifiable proofs of skills and capabilities against explicit criteria, which would be firstly evaluated by a critical assessor. Future employers can directly access multimedia content proving the level of mastery of the candidate in a specific field, and they would be likely to acknowledge the Open Badge due to the intermediation of a trusted third party issuing the Open Badge.

The Beuth University of Applied Sciences Berlin (https://www.beuth-hochschule.de/en/3001/) has started the the BeuthBons qualification program for enhancing career opportunities of migrant academics.[49] The project allows migrants to obtain certification of their professional degrees and/or valuable skills and find adequate employment.

Open Badges could support the reintroduction of offenders and their reintegration into the society, by recording prior learning and skills and social activities accomplished while in detention, as an integral part of a "new" identity and work-life placement.

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[49] Buchem I. (2015). *Open Badge Design at Beuth University in Berlin.* Retrieved 18 June 2016 from:
http://www.slideshare.net/ibuchem/open-badges-a-beuth-university-in-berlin?next_slideshow=1

Open Badges may be used by professionals working with disadvantaged groups (learners with special needs, school push/drop out, women back to work, unemployed, migrants, etc.), to improve participation and recognition of activities carried out. The Scottish Social Services Council (www.badges.sssc.uk.com/) has developed an Open Badge programme for raising standards in the country's social service workforce.

Organisations working in at risk communities may also use Open Badges to increase relevance of their initiatives for the attendants. Newport City Homes (www.newportcityhomes.com) is a public housing organisation, using Open Badges to facilitate the members of the community of residents to find new job positions and uplift their career.

4.4 How do Open Badges promote civic participation?

An individual may use Open Badges to visualise and represent his/her activities within a community. Chicago City of Learning (chicagocityoflearning.org/) is a great example of how Open Badges could be used for recognition of activities promoted by municipalities and institutions. The Open Badges developed by the City of Chicago addresses mainly the young people, and includes a vast set of activities and skills. In 2013, Chicago has realised a successful programme of summer training courses based on Open Badges for young people in collaboration with private and public organisation of the city[50].

Moreover, just like in case of physical badges, an individual can choose to earn and display an Open Badge not for certifying a certain ability or skill, but as a symbol representing a social, political or civic statement.

> *The badge criteria page doesn't tell about the criteria that should be fulfilled to get the badge, but is more like a manifest page, that tells about ideas, values and attitudes of the badge designer and persons and the organisation, which displays the badge. […] This kind of badge is used to communicate that the badge earner agrees and supports the ideas or values expressed by the badge. In this case, the badge earner (traditional terminology), is not really an earner but more a badge claimer or supporter. The badge designer / issuer does not reward him or her, but he or she just wants to get the badge to display it. […] Badges can be created for example to increase the impact of campaigns, for example campaigns about human rights, environmental questions, etc.[51]*

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[50] Chicago Mayor's Office (2013). *Chicago Summer of Learning*. Retrieved May 16, 2016, from:
https://www.youtube.com/watch?v=CXjHdZUTwMQ

[51] Rousselle, E. (2016). *Using badges as a way to express social or political statements.* Open Badge Network O2A1 Collection of Use Cases, pp. 6-8. Retrieved May 16, 2016 from: http://www.openbadgenetwork.com/wp-content/uploads/2016/01/Use-Cases_for_OBN_portal.pdf

5. FINAL RECOMMENDATIONS

5.1 How the community of experts and the institutions should facilitate the familiarisation and access to Open Badges by individuals?

In the new perspective opened by the structural changes of today's society, the system of formal education and training should radically reshape its institutional mission and consequently the range of competences and profile the employed. It must conceive its main role as the highest authority in setting basic rules, from a neutral perspective, and provide methods and tools, through a large investment in research and innovation. Not anymore as the mere provider of the formal education, it must become the ruler and supervisor of the lifelong learning in any context and forms it happens.

Concerning Open Badges, traditional education institutions should avoid the imposition of schematic and rigid standards on other actors of the ecosystem, such as individuals and their representatives (trade unions, professional associations), employers, labour agencies. On the contrary, they should enhance familiarisation with designing and issuing Open Badges and promote mutual learning among the key actors on rigorous methodology to describe the achievements and their transferability as well as on the use of objective criteria and meaningful evidence to assess and certify them.

The education system must promote research through public procurement initiatives and facilitate experimentation, dissemination and peer review. It should facilitate the encounter between the expectations of the users and the intents of the issuers while ensuring absolute freedom and the cost-free basis for everybody to design, issue and obtain an Open Badge, without imposing a common standard. It should provide Open Badge designers and issuers with appropriate guidelines and frameworks, to nurture the building of trust networks among issuers, earners and viewers and support individuals in the recognition of the right methodology to assess the quality and reliability of Open Badges.

5.2 What future scenarios can we expect for Open Badges? In what fields?

The Open Badge technology is constantly being improved with new features and it is far from reaching its full potential. In the near future, we can expect the Open Badge Standard 2.0 to be realised with new features, such as improved interoperability and geo-localisation.[52]

Beside that, the most critical issue that the community has to address, will be to ensure credibility and spread the use of the technology by a vast group of private organisations, public institutions, education providers and users.

In order to reach this objective, we can expect that the community will push for making Open Badges increasingly aligned with a set number of accredited frameworks of competencies, taxonomies and skills. [53] Certain Open Badges have already been adopted by an existing framework, such in the case of New Zealand's QualIT (http://www.qualit.co.nz/), which has aligned its Open Badge system for awarding employees for their IT skills, with the Skills Framework for the Information Age (SFIA).[54]

However, we need to facilitate the access and comparability of these frameworks by Open Badge designers and issuers. To this aim, the Open Badge Network is developing a tool for navigating, comparing definitions and taxonomies from different sources in an accessible way.

The other key critical point that will need to be tackled soon, is the need to establish trust networks among institutions, individuals and organisations around Open Badges. The most effective way, following the example of the City of Chicago, and other cities involved in the LRNG Programme (www.lrng.org/) will be to build Open Badge ecosystems at a regional level, engaging public and private actors in the development of Open Badges and connecting them to existing or brand new programmes for in-job training, continuous education, schools and civic activities.[55]

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[52] Presant, D. (2016). *6 Predictions for Open Badges in 2016*. Retrieved May 16 2016, from https://littoraly.wordpress.com/2016/01/01/6-predictions-for-open-badges-in-2016/
[53] OBN project is working in this direction in activity O2A3 (http://www.openbadgenetwork.com/outputs/infrastructure/), which aims a creating a technical platform for comparison of competency frameworks used by Open Badge issuers.
[54] *Ibid.*
[55] *Ibid.*

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