

Triple Edge

TRIPLE E-DGE PROJECT

A study on digital badges

Entrepreneurship, enterprising and employability in a digital and gaming environment

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1. Introduction

This report on badges is one out of five outputs that were generated in the Triple E-dge project (“entrepreneurship, employability and enterprising in a digital and gaming environment”). The Triple E-dge project was a strategic development project funded by the Erasmus+ programme that ran from September 2017 until August 2020. The project was aimed to find solutions to improve vocational education as well as learning in the work place by enhancing four key skills related to enterprising, employability and entrepreneurship (communication, flexibility, leadership and problem-solving). Five partners from Greece, the United Kingdom, the Netherlands and Belgium developed videos, digital resources, (not so) serious online games, learning pathways and this report on badges. All results are related to digital and entrepreneurial skills and are meant to reinforce skills development in all sorts of educational and training contexts. All information on the project, the partners and the outputs can be found at <https://triple-e-dge.com/>.

The present report is a summary of the research that was conducted by the partnership of 5 European partners on the potential of badges, or online micro-credentials. All partners relate to educational or HR environments, and investigated the potential and possibilities to install a digital badge system on a larger scale. What are advantages and disadvantages? How can we enable optimal use, supported by various actors in the labour market? What tips and tricks can we bring to learners, teachers and companies to upscale the use of digital badges in a qualitative way? The result of the search for these answers is compiled in the present report.

2. Badges: Definition

Digital badges

Digital badges are micro-credentials that provide a visual representation of an achievement. Badges can be awarded for a range of both formal and informal achievements, from participation and attendance, through to demonstration of (or proficiency in) particular skills, behaviours or dispositions, as well as formal achievements such as degrees or certificates. The 'meta-data' in the badge includes information such as the activity the learner undertook to receive the badge, the evidence that supports the achievement, who issued the badge and how it was verified. By recognising latent skills and learning that is rarely captured normally, they provide a more holistic picture of people's abilities and talents.

Digital open badges

Open Badges are digital badges that follow open standards, which allow for greater acceptance and interoperability. Specifically, we can characterise [Open Badges](#) through these major distinctions:

- **Open Badges are not controlled by any one organization.** Instead they are free, open-source and accessible to the world-wide community.
- **Open Badges are evidence-based.** The information about who, why, and for what the badge was issued is hard-coded into it as metadata.
- **Open Badges are stackable.** Digital badges from different organizations can be built on top of each other, building a rich ecosystem.
- **Open Badges are transferable.** Badges earned in one environment can be shared in another.
- **Open Badges put the user in control.** Badges are private until they are published by the user.



3. Research on digital badges

The research carried out within the Triple E-dge project was divided into three steps: desk research, online surveying and in-depth interviewing some references in the field.

To start with, partners explored **the internet** in search of relevant knowledge about the use of digital badges. Questions that structured this desk research were 1) What systems exist that you know off; 2) What benefits would the badges system bring to your organization or target group(s); and 3) What appear to be the disadvantages? Apart from the benefits and challenges regarding the badges system, which will be commented on further below, partners learned a lot about ongoing projects and initiatives meant to professionalize and upscale the open badges or open recognition system, e.g. the Mirva¹ project, the Badges² project, Gentlestudent³, etc. as well as about organizations or platforms working on the theme such as Open Belgium⁴, Cities of Learning⁵, Cities and Guilds⁶, etc.

Next, the partnership conducted an **online survey** within their networks, directed employers on the one hand and students on the other. Externally spread towards the former via various social media and internally distributed to the latter within the educational institutions involved in the project, a Google form survey was completed by 20 respondents per target group. The questions focused on the current knowledge of the respondents on badges and went on to see how they perceived the benefits, disadvantages, and requirements of the system in order for them to work.

At the time of the survey being conducted, in 2019, very few respondents knew about digital badges. Whereas the badges system is only rarely embedded in HR or educational contexts, employers answered to actually see the value for human capital purposes and students indicated they would add badges to their online resumes. The most important conclusions, drawn by both target groups, was that credibility is important and that the value of a badge is only as great as the value of its issuer.

As a third step, partners developed several **in-depth interviews** with experts in the field of badging, micro-credentialing and open recognition systems. In the following, a summary can be found of these interviews and research activities conducted per partner country.

3.1 Interview with Bert Jehoul, innovator and open recognition expert (Belgium)

¹ <https://eaea.org/our-work/projects/making-informal-recognition-visible-and-actionable-mirva-2/>

² <https://projectbadges.eu/>

³ <https://gentlestudent.gent/about>

⁴ <https://2020.openbelgium.be/>

⁵ <https://www.citiesoflearning.eu/what-are-open-badges/> & <https://www.thersa.org/cities-of-learning#>

⁶ <https://www.cityandguilds.com/digital-credentials>

Partners Winston Wolfe and Syntra West interviewed Bert Jehoul several times. Bert Jehoul is a board member of Open Knowledge Belgium, a platform dedicated to promoting open knowledge in all its forms, and one of the founders of the Be Badges platform at Selor (the Selection Office of the Belgian government).

A summary of the most important questions and relevant answers:

1. What is the added value for the badge-user regarding her/her personal and professional life?

The view/opinion of the community on this subject is found in the wiki below

WHY: https://badge.wiki/wiki/Why_Badges%3F

And also under FAQ below you can find the benefits of badges:

https://badge.wiki/wiki/FAQ#What_are_the_benefits_of_badges.3F

My personal view is that badges are an open recognition standard that can provide an answer to open education:

- If it is the case that learning is happening everywhere; being formal, non-formal and informal, then the recognition of this learning should also be possible everywhere.
- Recognition shouldn't be, as is the case now, institutionally closed in a system of diploma's, certificates and credentials. This training, and recognition model is now less open than what could be possible.
- For me, open badges are only one of the options for tools, this is why I have put my focus on open recognition as a more plural and all-inclusive concept.
- Furthermore, there is a current use of badges that is not in line with this concept of open recognition. This use rather copies the more formal credentialing process and merely puts a new (badge) coat over this closed model.

The reason why we should put the focus back on the original focus of the use of badges, and not only on the tool of badges, can be found in this blogpost:

<https://medium.com/@OpenRecBE/why-we-moved-from-open-badges-to-open-recognition-belgium-3fb2bebe7411>)

2. How can the value of a badge be substantiated? Who would be the ideal issuer? Is it possible to substantiate the value of a badge? Who would be the ideal issuer? And what information/value should be added when issuing a badge?

This is the million dollar question!

It is an ongoing discussion and because of the way open badges are designed (as open as possible and consisting of a number of possible uses cases) the future will hold which of these are successful and which aren't.

In the ongoing questions you can find a number of relevant questions that can be raised when discussing the value of a badge:

https://badge.wiki/wiki/FAQ#Ongoing_questions_under_consideration

My personal view:

- For me, the ideal open badges ecosystem is one where the difference between issuer and recipient is lost.
- This could be a peer-to-peer-system where everyone can issue badges to everyone. In this system organisations are limited to being one type of publisher or receiver or even just an endorser of existing badges.
- I also think that in this system the concepts of trust and the aspect of the network are essential (even more so than criteria or evidence).
- When we look at the informality of recognition or recommendations and how this works, this is mostly based on the trust between issuer, receiver and assessor of the recognition (e.g. if I am looking for a painter and my neighbour, whom i trust, says that painter A is the perfect painter for me then I will trust my neighbour and normally I won't request any additional formal references or degrees. Because I assume that what my neighbour says is in fact true.).
- At this moment we are working on a project that builds upon Open Badges (we've named it BitofTrust). In this project, we mainly focus on this: the digital network (or the networks of Open Recognition) who are built because of the trust that is for instance formalised in a badge.

3. What is the ideal digital platform for badges? Or is it possible to have a system with multiple platforms, as long as they remain accessible?

The most important aspect of open badges is that it is an Open Web Standard who has the same characteristics as the web itself:

- open
- decentral
- uses hyperlinks (& linked open data)

The best way to implement open badges is that each issuer hosts the data that is needed in order to verify a badge in his or her own domain (meaning that for instance the verification-data of the badges of the KU Leuven should be traced somewhere on the domain:

<https://www.kuleuven.be>). This insures that there is no need to trust a third domain, which would be in between, in order to verify.

The data of the badge is portable (just like an image is portable, since badge-data is removed in the metadata of .png or .svg picture files), however the possibility or the verification of the badge is determined by the file that must be traced back to the domain of the issuer.

The difficulty of this system lies within the technical knowledge and effort that must be applied. We have notices that most people that want to get started with open badges don't have the means to implement it in their own domain.

My current work that involves open badges focusses on this problem: we want to make the certification system portable as well, so that the requirement of the issuer to host is cancelled out.

Until this is possible, for most users the most convenient way is to use platforms (in comparison to BeBadges which was also a platform).

Current existing platforms can be found here: https://badge.wiki/wiki/Badge_platforms. For me, at this moment, Badgr (<https://badgr.io/>) is the best platform. The fact that it is open source, plays an important factor in this. This allowed Surfnet in The Netherland for instance to launch their Edubadges (<https://www.surf.nl/geleerde-lessen-proof-of-concept-edubadges>) on a derivative of the Badgr platform.

All of the badges and users who were found in the original Mozilla Backpack application, are being transferred to Badgr, after permission of the users (since the Mozilla Backpack is no longer being developed and will disappear).

As is stated before, none of the existing platforms is perfect (which is also one of the reasons why I shifted my focus of maintaining BeBadges to evolving towards a more decentralised way of offering open badges, so that the need for platforms is no longer a necessity. Don't get me wrong: platforms will always exist, it is the necessity of them that should be reduces).

3.2 Research conducted by Pro Work (the Netherlands):

On the one hand, Pro Work contacted their well-known Belgian partner and university college Arteveldehogeschool as specialists in the open badge topic. In addition, Pro Work also contacted a Dutch organization called Bloom Foundation, also very experienced in the subject.

Artevelde hogeschool

Artevelde University College has expertise in working out online badges, via the 'Gentlestudent' project (see <https://gentlestudent.gent/>). Contact person of the interview was Lies Vanderbroele (Educational Bachelor of Secondary Education Department chair and Geography teacher Assignment holder Research and Services Researcher PWO "Colleagues make the bridge"). Through the Gentlestudent platform, Artevelde University College encourages its students to act professionally, to think critically and to become the person in the world they can and want to be, based on their confidence in their vigour, bringing students and citizens closer together through Ghent students.

Gentlestudent focuses on meaningful and in-depth learning and does so in continuous dialogue with the students and the initiatives in the city itself. With Gentlestudent, Arteveldehogeschool provides an online platform on which citizens of Ghent and university

students find each other through various learning opportunities, spread across the city. Residents and organisations in the neighbourhood can post very concrete ideas and needs on this platform.

This platform is an opportunity for (Gentle) students to make their social commitment visible. They can find ideas and needs and then offer and realize a creative solution or action. Students receive an Open Badge for their realized learning opportunity.

Bloom Foundation

Bloom Foundation is a foundation in Voorschoten (near The Hague, <http://bloomfoundation.eu>) and they are, among others, Partner in E + projects regarding Open Badges and also provided very valuable information for our project. We have spoken to Jorine van Egmond and Nathalie Feitsma (founders of the foundation and project managers of various projects the foundation carries out).

For example, they completed a project in 2019: Shared Responsibility, in which 4 countries worked together to develop badge templates (+/- 15 each) for, among other things, 4 skills; Entrepreneurship, Social Skills, Communication and Digital Skills. They gave a number of examples; badge for presence (scan QR code), Peer-to-peer badge (in a group, group members must rate the contribution of the person concerned on, for example, a certain (social skill) and a tasks badge, where 2-5 tasks are done had to be (provide WORD / PDF doc, a presentation, photo etc. as evidence) in order to obtain a certain badge - a teacher ticks this off in this case. Target group were 16+ young people. More information via <http://sharedresponsibility.eu>.

In addition, Bloom Foundation started a new project at the end of 2019 “Share the Badge”, in which they go even further and are developing a kind of handbook for badges, in which organisations can individually determine their own badges and standards within such a badge. This is focused on a wider target group; people with a distance to the labour market, (im)migrants, etc.

Finally, the foundation is involved in setting up <http://openbadges.nl>, the aim of which is to set up a knowledge centre for open badges.

All in all, therefore, a very interesting party to use in this project, where a number of tips were also given to take a look at; <https://www.badgecraft.eu/nl> and an app they use called badge wallet: <https://www.badgewallet.eu/nl/>.

3.3 Research result from England:

As a partner and digital badge issuer PCA has been working with Ed Hart from Real Ideas Organisation (RIO). RIO leads on the management of the Plymouth Cities of Learning initiative, funded by RSA and City and Guilds. Ian Hutchinson, project manager of the Triple E-dge project at PCA had the chance to ask Ed a few questions on the topic:

1. Where does the idea of (digital) badges stem from?

Competences or 'soft' learning outcomes that are difficult to capture in a diploma or certificate and / or that fall outside the formal education or training context, can be moulded into learning paths with validated learning outcomes, and badges are a great solution for this.

Digital micro credentials such as badges are a currency for the future. They map and guard skills that have been acquired in any given context at any given point in time and are or should be validated by an issuer that has the authority to do so. In this way, badges do certainly not replace formal qualifications but they facilitate the acknowledgement of skills that are not recognised with formal qualifications.

2. Do badges help to define skills?

That is a difficult one! The answer is no, badges do not help to define skills. There is no universal language for skills. Every business or sector uses their own skills framework and language. Naming and defining is very difficult, and we should not try too hard to standardize the world of skills and soft outcomes. Better is to try to define what we find relevant and understandable for our own environments, and try to link our wording to the larger skills frameworks that are in use.

3. What should we pay attention to when developing open badges?

So apart from not focussing too much on a universal standard of defining the skills, it is recommendable to start developing step by step, e.g. start from one skill that you as an organisation find most relevant.

Be careful with the data that are gathered and with privacy constraints. The idea is that receivers of a badge own the information of their badges and decide when and to whom they make data available.


Important also is the platform you are going to use. Cities of Learning (<https://www.citiesoflearning.eu/>) was initiated by Cities and Guilds who is a strong advocate of Credly. The authentication and navigation of the chosen platform are important aspects. It is easy to work with a badging standard. E.g. Cities of learning provides a structure to communicate learning in a consistent way, making it easier to understand what people are doing, how it helps and where it could lead. The Cities of Learning Badging Standard is a scaffold to support coherent and aligned place-based learning.

4. Can you share some more on the Cities of Learning badging standard?

The Cities of Learning Badging Standard is based on the OECD's future of education and skills 2030 learning compass. The metaphor of a learning compass was adopted to emphasise the need for learners to learn to navigate along their own learning journey. So it links badging (credentialing) to the skills development pathway.

The badging standard ensures the Cities of Learning approach has at its heart a commitment to rigorous, future-focused and holistic learning. Rigorous, because learning needs structure. Future-focused, because we know the world is changing and learning & skills systems change with it. And holistic, because in today's world learners need a combination of knowledge, skills, attitudes & values to succeed wherever they're heading.

In the picture below, the Cities of Learning Badging Standard is presented, whereby each layer in the badge represents a different type of learning experience.

 CITIES OF LEARNING BADGING STANDARD			
Each Layer represents a different type of learning experience.			
 <p>ENGAGE LAYER</p>	 <p>PARTICIPATE LAYER</p>	 <p>DEMONSTRATE LAYER</p>	 <p>LEAD LAYER</p>
Information is given to learners to engage them with a topic and encourage them to undertake further learning opportunities in this area.	Learning is interactive and undertaken with other people to deepen knowledge of a subject. Activities have specific learning outcomes to help learners progress.	Learning is contextualised in a real world setting and learners are given the opportunity to present their work and receive feedback to help them grow.	Learners are given the opportunity to embed their knowledge in different contexts. Through their work they can show how they have inspired and influence others.
Examples: <ul style="list-style-type: none"> • Careers fairs • Exhibitions • Open days • Assemblies 	Examples: <ul style="list-style-type: none"> • Workshops • Training • Qualifications • Clubs 	Examples: <ul style="list-style-type: none"> • Competitions • Work experience • Awards programmes • Projects 	Examples: <ul style="list-style-type: none"> • Ambassador programmes • Leadership programmes.

More information: <https://www.citiesoflearning.eu/>

3.4 Research result from Greece

In Greece, a search was made for existing use of digital badges. The Photodentro project emerged as one of the relevant examples from practice.

Photodentro OER (Open Educational Resources) repositories have been co-financed by the European Union (ESF) and the Greek State in the context of the "Digital Educational Platform, Interactive Books, and Learning Object Repository" program (#296441) of the Greek National Strategic Reference Framework. All the learning pathways are free with the license of Creative Commons CC BY-NC-SA. Photodentro implements the national strategy for digital educational content and promotes the use of Open Educational Resources (OER) for schools. OERs are opportunities to use open education for improving the quality and accessibility of education. More information can be found through <http://photodentro.edu.gr/aggregator/?lang=en>.

3.5 General conclusions from the research phase

When it comes to **benefits of digital badges and open recognition systems**, the following are cited frequently:

- Badges provide a simple and transparent way to recognize skills;
- Transversal competences shown in various contexts can be validated by as many actors;
- Uniform recognition of competences in different contexts improves coordination and understanding among different actors in a school and work context;
- Where a diploma is a snapshot, the lifelong collection and accumulation of badges gives the lifelong learning principle an important boost;
- Badges enable flexibility as well as exemptions within training programs;
- Badges can be a motivator for the (l)earner to keep gathering more badges and so keep boosting their competence development;
- Since they can be verified through metadata, open badges provide employers with a trustworthy credential;
- Through digital badges, achievements are easily shared;
- Digital badges are visible and can be shown off in a variety of ways such as LinkedIn and social media;
- Badges can make the learning provision visible to people with low literacy levels.

When we look at the **challenges of digital badges and open recognition systems**, the following were cited frequently:

- Whoever issues the badges largely determines the value of the badge, but that issuer cannot always be properly estimated by everyone;
- A flood of badges, particularly “lightweight” badges, can clutter the badging landscape;
- Whoever consults the badge must be able to rely on the badge to be secure, reliable and authentic;
- Especially in cases where the badge is issued in a closed environment, a permanent link of the digital badge to an online identity, also after termination or completion of the study or training can be an issue;
- The data security and privacy of the owner must be assured at all times;
- Badges must be stored in an openly accessible but secure place;
- There can be a struggle for digital badges to be recognised outside of their native badging ecosystem.

4. Triple E-dge project pilot on badges

The Triple E-dge partnership committed to investigating the badge system and, where possible, to run a pilot, to find out how the target groups of students and workers in their network would evaluate the concept.

As one of the other main project results, digital learning paths were developed via Google Sites (link project site) where numerous learning opportunities based on four skills (communication, flexibility, problem-solving and leadership) were offered. The project partners presented several of those learning moments linked to the skills to a selection of users. Based on the successful completion of a learning path, a digital badge was issued via the Badgr platform to reward the learner for their efforts. This gamified element was primarily intended to investigate the effect on the learner's motivation to complete the path.

Technical aspects

The steps the partnership undertook started with developing four digital pathways that presented online learning activities linked to four different skills to a selection of learners. As partners in most cases already made use of their own learning platforms, this presented a first challenge: How to link the activities on an internal platform to an external badging platform? Also, partners who did not make use of an LMS had to be able to run a pilot on badges, based on trackable learners' activities.

So the partnership searched for a **learning platform** that enabled the distribution of learning content and the link to a badging system. Criteria consisted of user friendliness, user interface and user experience. Many systems were examined (aNewSpring, CuratrLXP, Quve, Moodle, Google Classroom, Degreed, TalentLMS). They all have their benefits, and obviously differ in price, in being mobile-only or multi-platform, etc.

In the end, the option for Google Sites was chosen as a learning platform, since it comes free, is easy to adjust or copy and also easy to build even from scratch without any IT help – all being important aspects to potential stakeholders and future users. The sites can be published and made accessible to all or to the people ones opts to share them with. To see the examples from the Google Sites within the Triple E-dge project, see <https://triple-edge.com/training-packages/>.

Secondly, after the choice of the learning platform, a link had to be created to a badging platform. Many were examined and compared, in particular partners had a look at the systems Credly, Accredible and Badgr. All can be integrated in learning platforms. Also, badging systems that integrate in learning platforms exist, but the partnership did not examine this option.

- **Credly** appeared to be easy to integrate into learning platforms and with xAPI analytics dashboards. In addition, the system is working on blockchain use cases. It also comes with a price that in the context of the Triple E-dge project, was not an option.
- **Accredible** is easy to integrate into learning platforms and has a blockchain option. Also it comes with a price.
- **Badgr** has free pathways, and is integrated in the previously used Mozilla Backpack system. Getting to know the system requires some perseverance in the beginning, but is quite doable once you get the basics of it.

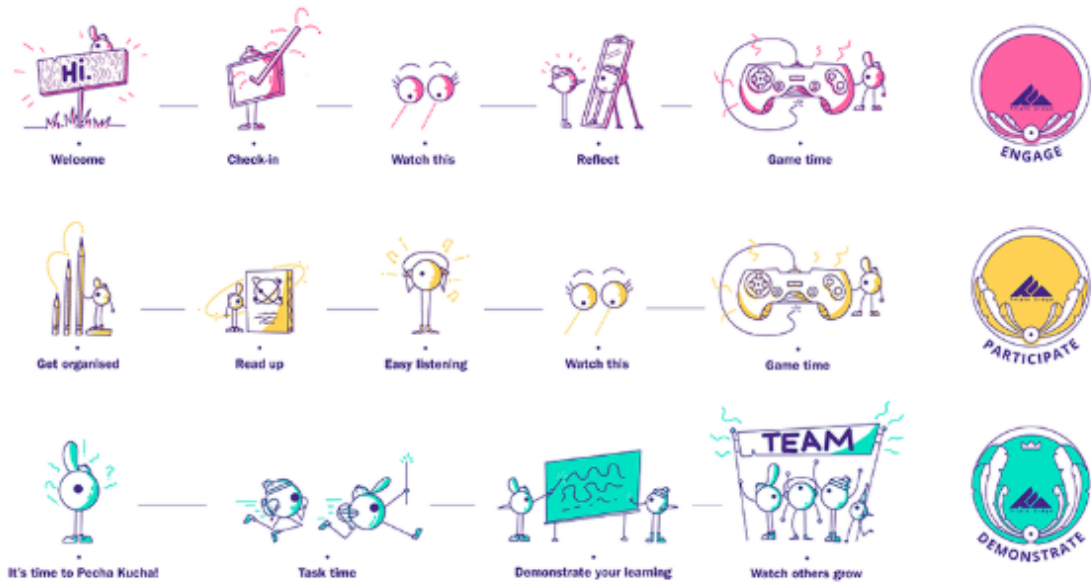
The partnership opted for [Badgr](https://badgr.com/public/issuers/d2XgCEbBQK-wBSteVPm2Dg/badges), to test the issuing of the badges based on completion of the learning path.



<https://badgr.com/public/issuers/d2XgCEbBQK-wBSteVPm2Dg/badges>

Basically, the learning paths are divided into three levels: first, the learner engages and embarks on a journey that will reinforce their chosen skill. Via a set of digestible learning snacks, they are invited to develop some awareness about the skill. Secondly, the learner participates. Being challenged to fulfil small assignments, solve questions and enter some quizzes, all based on knowledge that can be gained from presented videos, podcasts or games, the learner starts getting better at the chosen skill. Thirdly, he or she needs to demonstrate the extent to which the skill has been acquired by entering some reflection. Per phase, being it engage, participate or demonstrate, the learner can earn a badge. Each badge, or should we say each skill, can thus be built up step by step and stacked until fully gained.

Start here



Finish here

In fact, in between step 1 and 2 another step in-between remains rather uncommented here, namely the analytics. In theory, when implementing a learning management system, one will want to collect, measure and analyse data about learners' activities for the purpose of understanding and optimizing the learning. This step has been left out when opting for the Google sites. When choosing one of the paying systems, learning analytics are automatically included.

5. Conclusions and recommendations

What the Triple E-dge partnership undertook was not a large-scale, academically substantiated research. That was not the intention, nor the goal. The aim was to look at how competence acquisition could be validated in an innovative way, based on a project devoted to entrepreneurial skills and digital competences. A way that makes it possible for educational institutions and HR departments, but also individuals to convert small achievements into assets that have meaning in a learning career. Apart from this small-scale research, the partnership is more convinced than ever of the potential of micro-credentialing and skills validation in more flexible ways to boost the lifelong development of ever-changing and ever-gaining skills.

From the conducted desk research we learned that regarding knowledge and perception, the knowledge of both employers and students surveyed turned out to be still quite limited when it comes to badges. However, during the pilot run in the Triple E-dge project, both target groups indicated to be quite curious about the possibilities and identified a great potential added value in providing or obtaining badges, under the condition that these are issued in a transparent and reliable manner.

In short, badges offer plenty of opportunities to students, educational institutions, jobseekers, employees and their employers but also lead to a number of important ethical and technical questions: questions related to online evidence, trust, archiving and privacy. In addition, the architecture of a badges ecosystem is a point for further investigation. It is also important to consider standardizing the information that is made available through digital badges. The potential of open digital badges cannot be denied, and it is thanks to existing and future (project) initiatives that this potential will be realised to the fullest in the world of learning and development.

6. Resources and references

<https://www.surf.nl/files/2019-01/whitepaper-open-badges.pdf>

<https://openbadges.org/>

<https://teaching.uwo.ca/research/documents/open-badges-report.html>

<https://blogs.iadb.org/conocimiento-abierto/en/open-badges-can-help-showcase-recognized-professional-competencies-2/>

<http://www.groningendeclaration.org/wp-content/uploads/2019/05/UNESCO-Digital-credentialing-implications-for-the-recognition-of-learning-across-borders.pdf>

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