

Projektkonsortium „REPAIR“  
Institut für partizipative Sozialforschung

REPORT

## **RESULTS OF PROTOTYPE TEST**

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# INHALTSVERZEICHNIS

|       |   |   |
|-------|---|---|
| 1     | Objectives of this document.....                                | 3   |
| 2     | Background .....  | 4   |
| 3     | Aim and Scope of the Prototype .....                            | 5   |
| 4     | Description of the Prototype .....                              | 5   |
| 5     | Methodology.....  | 7   |
| 5.1   | Prototype Set-Up and Design .....                               | 7   |
| 5.2   | Prototype Instructions .....                                    | 7   |
| 6     | Findings and RecommendationS.....                               | 8   |
| 6.1   | Experience and perceived potentials .....                       | 8   |
| 6.1.1 | LOCALIZING PRACTICES AND COMPETENCIES, RAISING VISIBILITY ..... | 8   |
| 6.1.2 | EXCHANGING EXPERIENCES, BUILDING COMMUNITIES OF PRACTICE        | 9   |
| 6.1.3 | PR AND MARKETING .....  | 10  |
| 6.1.4 | OTHER PURPOSES.....   | 11  |
| 6.2   | Requirements .....  | 11  |
| 6.2.1 | Organizational anchoring and broad knowledge of concept.....    | 11  |
| 6.2.2 | Right level of information .....                                | 12  |
| 6.2.3 | Organizational culture, cultural aspects .....                  | 12  |
| 6.2.4 | Level of use – as a company or as an individual .....           | 13  |
| 6.3   | OTHER CRITICAL REMARKS.....                                     | 13  |
| 6.3.1 | Lack of central validation.....                                 | 13  |
| 6.3.2 | Lack of sur-value compared to existing systems.....             | 13  |
| 6.3.3 | Dependence from an external platform .....                      | 13  |
| 6.3.4 | Informal character .....  | 14  |
| 7     | Conclusion and Outlook .....                                    | 15  |
| 8     | Sources.....  | 16  |
| 8.1   | Prinzipielle Überlegungen // to be discussed.....               | <b>Fehler! Textmarke nicht definiert.</b> |

## **I OBJECTIVES OF THIS DOCUMENT**

This document sums up the results of a prototype test within the Repair project. The aim of the prototype test was to find out what potentials do representatives of the railways sectors see in a platform that incorporates the principles of digital badges (like visibility, recognition, exchange, community building, etc.). The results of the document shall inform the further process of the Repair project of needs, requirements and important aspects for the development of an open recognition system.

## 2 BACKGROUND

Although the use of digital badges in its short history has been primarily in classical education and training, the use is also attractive for companies - both in their role as employers and in their self-image as a learning organization. The promises are as far-reaching as they are general: higher productivity of staff that is better trained and more intrinsically motivated; a better overview of existing knowledge, skills and/or potential of it, to name a few (Kato et al 2020). Speaking with Digital Badge enthusiasts today, one notices that the early visions of a total vocational skill revolution within the labour market and individual career development haven't lost their relevance at all: "...how e-portfolios and digital backpacks would allow for the collection and display of learners' digital badges, credentials, and degrees, ultimately allowing employers to have more precise understandings of these potential employees' specific skillsets and knowledge. Better yet, these badges and credentials could be collected from various formal or informal educational experiences, not just university classrooms." (Fanfarelli, McDaniel 2019) The impact of such practices ranges from a higher career mobility and employability of the individual to highly skilled workforces to agile companies to more humanized working conditions and social equity in general.

While all these promises seem highly convincing, the actual implementation of digital badge systems in companies seems underdeveloped. There are some from prominent frontrunners like IBM, and implementation seems to be picking up in companies (Auh, Sim 2018). Also, in regard of future virtualization of our society, digital credentials promise to become significantly more relevant, just like NFTs (Canorea 2022). Nevertheless, the concept of digital badges is still simply not known in many companies. In a recent study in which company recruiters were surveyed, 97 percent said they were unfamiliar with the concept of digital badges (Perkins, Pryor 2021). The authors diagnose a correspondingly poor state of research on digital badges in corporate use. In addition, there is a high level of skepticism about the concept of alternative credentials, from the question of who confirms or validates certain skills to the fear of an inflation of claimed or actual skills, in the flood of which the essential skills remain unrecognized.

Research work on digital badges is a complex, because usually interdisciplinary and transdisciplinary undertaking that integrates disciplines such as psychology, sociology, educational sciences, computer technology and design (McDaniel, Fanfarelli 2015). This implies a multitude of different dimensions of interesting questions as well as possible methods. Also in our research project, it became clear from the preliminary work in the course of this project

(design thinking workshop within the consortium, workshop with HR managers) that a "system of open recognition" provokes a multitude of different questions: psychological questions of the individual ("Do I brag if I show my badges?"), questions of organizational and corporate culture ("Why recognition via badges? Recognition shows on my paycheck."), sociological questions ("Who is able to deal with Digital Badges?"), functional questions ("Who validates a badge?") to questions in user-experience ("How do I ...?!"). Little experience meets endless opportunities – like "the Internet" itself in the 1990s. Due to its abstractness and infinite character, it became quite clear within the project that we need to work with a concrete and tangible prototype to spur the right quality of insights that enable us to draw conclusions for implementing Digital Badges in order to follow SDG goals.

### **3 AIM AND SCOPE OF THE PROTOTYPE**

In order to promote SDG-related activities in organizations or communities, existing practices should be made visible. Open Badges are one way to enhance the visibility of SDG-related practices. In combination with communication and mapping tools, so the hypothesis of the project, they have the potential to encourage individuals, groups, organizations or communities to increase the number of SDG related activities because they get more recognized, are imitated by others and integrated in groups, organizations or communities.

The aims of the first prototyping round of the REPAIR project were manifold. One was to find out what kind of Open Badge technologies are available and which of them can be used to improve the visibility of SDG-related practices in the railway sector.

Second, two key functions were to be tested if they corresponded with needs and desires of the target audience/test group:

- making SDG related practices visible
- building a Community of SDG-Supporting Practitioners

### **4 DESCRIPTION OF THE PROTOTYPE**

From a wide range of technologies three different systems were selected to start a first test-round. The first prototype is a combination of these three different systems.

- OpenBadge Passport (<https://openbadgepassport.com/app/social>)

- Gogocarto (<https://gogocarto.fr/projects>)
- Humhub (<https://www.humhub.com/de>)

Open Badge Passport is a platform Open Badges can be issued, claimed, saved and shared safely on diverse other Social Networks (Linkedin, Facebook, twitter etc.). For the purpose of the REPAIR Project the application was seen in the beginning of the most promising tool, because it seemed to be established and equipped with a lot of different features around creating and badges.

The intention of Gogocarto was to use it as a tool to give visibility to organizations working on SDGS. Gogocarto allows organization to issue badges, describe them and to verify the identity via email address. Furthermore the SDG related entries are made visible on a geographic map.



Figure 1: Creating and searching for Entries

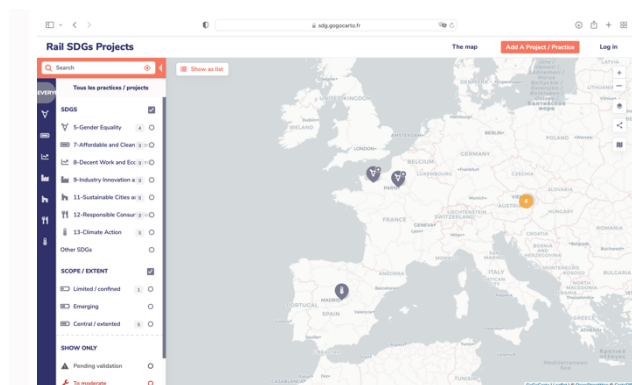


Figure 2: Mapping Entries

Using Gogocarto was the alternative to use the Open Badge Passport. In various pretests the use of the Open Badge Passport proved to be too complicated for the usage: *“It was too complicated to make it with open passport so that’s why we changed it to gogocarto! You fill out the formula and it will be on the map.... It is a positive experience how it can be very easy.”* In addition, users can also be curators of badges: They nominate organizations or individuals with SDG related activities and share practices they find interesting. With this functionality, the tool has the potential to support community building.

Humhub is a safe space for social networks, it could be used to create community spaces for SDG related activities. One advantage of HumHub over Wordpress is that the functionalities

here are better suited for social networks. The idea was to use this social network as a central place, where organizations and people, that are involved in SDGs, can be made visible and have a digital platform for communication.

## **5 METHODOLOGY**

### **5.1 Prototype Set-Up and Design**

For the design of the Prototype Test, we have made two critical decisions.

First, we have chosen an Action Research approach for a single reason: Our test audience has not had extensive knowledge about the concept of digital badges or even claiming some badges. So, digital badges needed to be assumed as uncharted territory. With no experience also comes little imagination about what can be valuable or possible. However, as soon as information or training started, this would cause a bias towards selective topics and perceptions. So, we have chosen to use the prototype as a way to interact and experience selected possibilities. At the same time, the tester becomes more acquainted with the idea of digital badges. A broader imagination of further possibilities, use cases and other potentials is facilitated.

Second, we have chosen a “Wizard of Oz”-prototype (WOZ prototype). A WOZ prototype is designed in such way, that its functionality matches the selected prototype testing requests. This means, testers are required to fulfill certain tasks – and these tasks seem well-designed and fully functioning in the prototype, even if it’s only as a mock-up. Testers are hardly able to “fail” to conclude a task. Such a prototype is not made to test functionality or usability (this is where “failing” would be useful), but to open up the imagination of the user: “See, this works like that. What else do you think that you could achieve with a system like that?”

The basic functionalities to be tested were:

- claiming of a badge
- mapping of badges on a map tool
- connecting on a social platform

### **5.2 Prototype Instructions**

The prototype was tested with 7 test users who were all recruited from companies of the consortium. This allowed easy access and uncomplicated contacting. Participants received the invitation via email. This email also contained the directions to fulfil some basic tasks on the prototype. These instructions read as following:

- *“Create an account on <https://social.railtalent.org/> (access is open) and play with it (nothing will break!)*
- *If you have not added an entry on Gogocarto, please add one — you are welcome to add more.*
- *If you haven't created an account on Open Badge Passport, do so.*
- *Claim the Badge "SDGs Aware", accept it.*
- *All those who have claimed that badge, set its visibility to "public" so it will be visible outside Open Badge Passport, in particular on <https://social.railtalent.org/p/maps> where it should appear.”*

Shortly after, a face-to-face interview (via video conferencing) took place. Within the interview, the tasks were played through together on a shared screen. The test user was asked to “think aloud”. After the walk-through, the experience and possible potentials of the just experienced features were reflected. The interview was recorded and transcribed afterwards. Eventually, the content was analyzed by summing up essential insights.

## **6 FINDINGS AND RECOMMENDATIONS**

### **6.1 Experience and perceived potentials**

Along the intention of the approach of action research, test users were asked about how they experienced the use of the prototype and what ideas and thoughts on potentials they got while trying out the prototype. In the content analysis, the following potentials emerged as central:

#### **6.1.1 LOCALIZING PRACTICES AND COMPETENCIES, RAISING VISIBILITY**

The mapping feature was considered to be interesting to almost every test user. This was partly because of simple reasons of curiosity: *“It was interesting to see the badges that were registered in the different parts of the world.”* Others saw a concrete benefit of being able to localize certain SDG related engagements and practices for the purposes of knowledge exchange: *“[If I am looking for] someone who is related with SDGs, someone that is willing to contribute or has been*



*contributing for some time to the SDGs. I know that I can locate this person, who might want to share something, for example knowledge, to provide information. [This systems] provides a contact, probably an email or telephone number. This is very useful for me.”* Also, the possibility to filter and search for projects was noticed as something useful and valuable. Some test user appreciated the ease of availability of geographical information that came along with contact information: *“It has a high value, that expertise is mapped and localized, added with contact information and information about the expertise because it is easier to get in contact and to build up a community or network.”*

The simple act of making someone visible was perceived as positively and full of potential: *“It was about, that you give someone visibility, recognition to this badge. So it is powerful, it is valuable for the for the user. SDGs came to the project at some point of time, because it was a useful tool.”*

At the same time, the usefulness of geographical position of certain SDG related activities is helpful but not paramount: Asked for the concrete benefit of geographical positions, no clear answers were produced. A useful explanation could be that geographical position does also inform you about geographical proximity and therefore proximity in terms of culture, language, etc. So it might give you important hints about how easy or difficult it would be to contact someone. Or to check on activities in your own proximity – whether it was to check out like-minded people or the competition. It was noticeable that most of the test users first zoomed in on the map in the proximity of their own location (“Who’s near me?”), only later in some other places.

### **6.1.2 EXCHANGING EXPERIENCES, BUILDING COMMUNITIES OF PRACTICE**

So, to get to know “who is doing what and where” in the railway sector concerning SDGs was considered to be a true sur-value. This would facilitate to exchange “Good Practices” and to be inspired for own actions. Almost every test user replied with the purpose of exchanging knowledge, experiences or proven practices.

It has become quite clear that the act of this exchange can and must not be understood as a technical giving-receiving transaction, but as a placeholder for other functionalities and desires. First, there is the desire to learn from somebody else who knows better or differently. Ideally, this someone is or has been in the same or a similar situation (which would be assured as the system is thought to be implemented for the railway sector). A test person puts it very clear: *“This is the biggest value – to participate and exchange Good Practices.”*

So, there is a dominant desire to exchange experiences. At the same time, the badge system conveys the right promise – as one respondent perceives it: *“On the map, people are made visible who are willing to share SDG related knowledge and experience.”* So, the map is also attractive because it shows a myriad of people, seemingly only waiting to be contacted to exchange their knowledge. Last, but not least, the desire for someone to exchange experiences with, also has the flavor of the desire for some community that can be turned to in need – for having an assured access to someone that I could talk to. This community building feature is very attractive to almost all of the respondents: *“If there are 100 people located interested in gender equality [...] you can put your issue and get some answers from experts. This would be very useful, so maybe we can relate this kind of tools or maybe one part of this ecosystem, that we are talking about to an expert playground where you can ask good questions and get answers from experts from people related with your issues”*.

A test-user identified the potential of using badges for internal sparring of projects and experiences: *“We could use the same system also within a company, to exchange views about internal projects.”*

One participant noted that knowing “Good Practice”-Companies could also lead to a exchange of employees who are learning practices (and earning badges) on their exchange: *“Also, it would enable us to exchange employees: Our employees get to experience another company working on the same goals.”*

### **6.1.3 PR AND MARKETING**

Some participants noted the importance for railway to be able to demonstrate “SDG compliance” for marketing purposes. And this is where a badging and mapping system could be helpful: *“For railways it’s important to show HOW they are contributing to SDGs. So, it would make it visible if they are contributing somewhere... It’s a kind of advertising what you are doing.”*

Also, this PR and marketing function could be implemented within a multi-company association like the UIC itself. Ideas uttered in the interviews included awards that are given for SDG activities and are being mapped.

Eventually, also the system was perceived as helpful when looking for an (equally) SDG oriented partner – be it a business looking for others to cooperate with or be it a consumer checking the SDG credentials of a product or service provider: *“The first thing that came to my mind: If you are a business who wants to invest – you come here and you can contact the companies that are*

*working on certain SDGs. [...] Or – if you are a responsible citizen and you want to make sure that certain companies contribute to climate action – you can see here, if they have claimed any badges.”*

#### **6.1.4 OTHER PURPOSES**

The collection of “Good Practice” or simple projects were considered to be useful as such also for other purposes:

- overview of UIC’s members’ activities
- database of SDG-related projects for research and scientific purposes

### **6.2 Requirements**

Apart from assessing potentials, test users were quick with defining certain pre-conditions and requirements for those potentials to be fulfilled.

#### **6.2.1 Organizational anchoring and broad knowledge of concept**

One of the central preconditions can be summed up as a kind of anchoring of a digital badge system in an organization. By this, we mean both the knowledge side as well as the cultural dimension. Knowledge-wise, there are resources and capacities needed within the organization that are able to implement the technical systems as well as setting the organizational standards (eg processes, reward systems, integration in training curricula, etc). With this comes the knowledge of the individual user on digital badges and how to use certain platforms to claim and show them. This comes – equally important – with the requirement of a knowledge of the value and purpose of digital badges by the individual: *“So what's a badge, what can I expect from a badge, what is the complete process to get this badge, how many steps I will need to fulfill.”*

Furthermore, the corporate culture needs to be integrated with the use and purpose of digital badges. The latter may be manifold, and the decision what purpose the organization is aiming at with the use of badges is crucial: An organization aiming at an open exchange culture of experiences with a badge system is probably very different from an organization which prioritizes a competition of knowledge and achievements among its staff by the use of the badge system. So, in the case of the Repair project, the purpose of using badges is to promote the SDGs. So, besides the knowledge of using badges, a knowledge of the purpose as such and about the value of the purpose is needed: *“First of all, they need to know what SDGs are, what their meaning is, their value for the organization and the employees.”*

In general, the introduction and implementation of a digital badge system aiming for the pushing forward of SDGs needs a lot of communication: *“We have tools regarding working on SDGs, energy saving, waste reduction, etc. We have all these systems already. We need more marketing on these systems. We need PR and marketing to be participating in these activities, so that people get familiar with the projects that we are working on.”*

### **6.2.2 Right level of information**

In the prototype, information on SDG-related activities was found to be too little, too short and too superficial. As the USP of the tool was to be about SDG-related practices and to spur knowledge and experience exchange, there was too little actual content on these: *“We don’t see any more what they are actually doing. We only see the SDG. We don’t see any badges. This is too general.”* Another test user put it even more dramatically: *“The problem is, we are making things visible that is not interesting for anybody. If you make something visible that is interesting, that would be great. But, I don’t see that this is helpful.”* Another test user noticed the technical tonality used in texts. The tonality was found to be *“not very motivating”*. Another test user adds: *“The only purpose is to help find people to help you with learning about something. But [this] system is not set up to encourage something like this. [...] I also could make a google research for people who are contributing something to the SDGs.”*

Finding the right information, the right tonality and an adequate level of detail that a badge is giving, seems to be crucial. Obviously, it needs to be interesting and insightful. However, already at the level of detail, there are some major decisions: Should the badge give enough detail about a practice, so it makes it easy to copy? Or would this be too much and too sensitive – and rather scare people off? To answer this question, could be an issue in the further course of the project, as one test user puts it: *“What information makes sense to share? What information shouldn’t be shared? How do people feel with open profiles? We should try – what information can be openly shared?”*

### **6.2.3 Organizational culture, cultural aspects**

The decision for an adequate level of information needs to be informed by the purpose and goal of the system and by that by the organizations’ culture and values. The visibility of users and their information and the question of *“Who sees what?”* is not a trivial one, but a basic and fundamental one. And one, that there might be very different perspectives: While some are for a very open and transparent system (*“All participants should be visible to everyone. If you share your information with other people openly, you should also receive the information of all the*

other participants.”), others argue that the notion of privacy is critical for a broad acceptance without hesitation and fear: *“If you fulfill this document and finally you are credited, awarded with your badge, what information will be shown somewhere, what kind of information will be public? My email address will be shared with someone else? That it won't be used for spam reasons. But how can I be sure that my email is not going to be shared with anyone.”* Along with this, questions around identity and visibility emerge: *What interests and practices of mine do I want to show? What does the organization expect me to show? And eventually: What role am I expected to act in – purely as a professional or as a private person: “Should this be just something personal, or is it related with my professional profile instead of my personal profile?”* In other words: The private individual would make other things visible than the professional worker.

#### **6.2.4 Level of use – as a company or as an individual**

In the course of the prototype tests, it became evident that the nature of digital badges as being rewarded to individuals, not companies, needs to be communicated and practiced more clearly. In some cases, the misunderstanding was quite evident, eg: *“You can see what companies are involved in SDG projects, what SDGs are important to them, what companies have the same goals as we have – to find something in common for the future.”* One respondent has put his finger on the spot: *“Is it [Max], a worker of [organization], who is receiving the badge, or [organization]?”*

### **6.3 OTHER CRITICAL REMARKS**

#### **6.3.1 Lack of central validation**

The lack of a central validation of badge and claimed achievements, competencies and practices was criticized, once quite harshly: *“For me this has now value. Everybody can claim everything. And it is like an inflation. It is sooo random.”*

#### **6.3.2 Lack of sur-value compared to existing systems**

The lack of a clear sur-value compared to other social network sites that are already established was not clear: *“My first question is: Why are we doing this here? Why don't we use LinkedIn? What options do we have here that we don't have in LinkedIn?”*

#### **6.3.3 Dependence from an external platform**

Working with external platforms – like we did for the prototype – raised some skepticism due to dependence from commercial providers: *“Working with external platforms have the risk*

that you are dependent There is no influence how the data is saved and protected, there is no influence on the price policy or no guarantee, that the platform will exist in the next years. It is risky to invest a lot of work, time and resources in a platform that is not under your control.”

#### **6.3.4 Informal character**

A participant disliked the informal social-media-like character of the platform which was considered to be inadequate for the purpose of communication around SDGs: “*These networks are for fun purposes. ... SDGs require a more serious and committed style of communication.*” And: “*For me, SDGs are really serious. People who don’t have decent work – it’s a topic that makes me sad. Also, environmental catastrophes. SDGs are higher goals than having fun and exchanging stories. SDGs require a more serious and committed style of communication.*”

## **7 CONCLUSION AND OUTLOOK**

The prototype test has shown important and interesting potentials and preconditions. First, it is evident that the feature of making practices and experiences visible in order to exchange them and form a community of practice has a driving and motivating force. At the same time, it became evident, that there is a number of preconditions that need to be met in order to be able to set up a successful “exchange of experience” platform based on digital badges: Fundamentally, there are questions of organizational culture to be answered which also define the purpose, character and tonality of the system – and eventually the user experience of the system.

## 8 SOURCES

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