OpenPass4Climate
NATURALLY ENGAGED

EVALUATION AND IMPACT SYSTEM (PR5)

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Stakeholder Consultation: Impact Measurement for Sustainability Open Badges

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Index

1. INTRODUCTION

In a context shaped by ecological urgency, digital transformation, and shifting labor market demands, open badges have emerged as promising tools for recognizing, valuing, and making visible competencies acquired across formal, non-formal, and informal learning settings. The OpenPass4Climate (OP4C) project explores the potential of these badges to support learning and engagement trajectories related to sustainability and climate activities.

This report is part of Project Result 5 (PR5) of the OP4C project, which aims to co-construct a framework for measuring the impact of sustainability open badges. This framework aims to be both methodologically sound and socially meaningful, aligned with the values of Open Education (accessibility, participation, transparency) and the principles of digital equity, ensuring inclusive recognition of diverse learners, learning contexts, and recognition systems.

The report is structured into three main sections:

1. The first section proposes an impact measurement framework grounded in Open Education principles, with a focus on transparency, informal learning recognition, participatory indicator design, and community engagement.

2. The second section presents a complementary digital equity perspective, introducing key axes such as accessibility, diversity of participation, ethical data use, interoperability, and environmental justice.

3. The third section details the stakeholder consultation methodology and provides an analysis of the survey results, revealing stakeholder perceptions, practices, expectations, and perceived challenges related to the adoption and impact of sustainability open badges.

The report aims to offer a context-sensitive, participatory, and operational foundation for evaluating the impact of open badges designed to support sustainable transitions in education, employment, and civic life.

2. Measuring impact through the lens of Open Education

The first axis of the proposed impact framework is grounded in the principles of Open Education, which emphasize accessibility, transparency, learner participation, the recognition of informal learning, and collective knowledge building (UNESCO, 2019; Ehlers, 2013). Within this perspective, open badges are not simply credentials — they are dynamic, learner-centered tools that can capture, represent, and value a wide spectrum of learning experiences, whether formal, non-formal, or informal. Measuring their impact, therefore, requires approaches that are both methodologically rigorous and socially attuned.

In this section, we propose a multidimensional evaluation framework that combines quantitative indicators (e.g., completion rates, number of badges issued) with qualitative evidence (e.g., learner stories, community narratives). The aim is to capture how open badges support not only learning outcomes, but also motivation, agency, community engagement, and the recognition of diverse learning paths.

2.1. Evaluation tools and practices

To remain consistent with Open Education principles, we propose an inclusive, mixed-method approach to impact evaluation. This approach integrates:

- Quantitative metrics such as the number of badges issued, completion rates of badge pathways, and participation data.
- Qualitative methods including participant testimonials, learner-generated content, reflective journals, and case studies that contextualize the learning experience.

Crucially, the evaluation process itself should be co-constructed with stakeholders. Facilitating participatory workshops and co-design sessions allows badge issuers, earners, educators, and community actors to define what impact means in their specific contexts (Ehlers, 2013). This participatory element increases the legitimacy, relevance, and trustworthiness of the framework.

In addition, triangulation mechanisms, such as open validation panels, community audits, and peer reviews, can ensure that qualitative insights are not anecdotal but collectively endorsed and reproducible. This methodology helps to move beyond individual-level data and assess the collective and systemic effects of open badge use.

2.2. Core dimensions and indicators

To evaluate the educational and social value of open badges, we identify five interconnected dimensions. These dimensions are not isolated; they interact and often reinforce one another.

2.2.1. Learning outcomes

A fundamental objective of open badges is to certify and communicate learning achievements in a meaningful, transferable way. Impact measurement must therefore begin by evaluating what kinds of skills, knowledge, and competences badge earners have actually developed.

In the context of sustainability education, Martín-Ramos et al. (2025) recently proposed a framework to operationalize the European GreenComp sustainability competence model. Their study identified and tested 40 learning outcomes aligned with the four dimensions of GreenComp: embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability. These learning outcomes were validated using both expert judgment and learner feedback, providing a robust basis for designing and assessing sustainability-focused learning pathways. Their findings support the feasibility of translating abstract sustainability competences into assessable, learner-centered outcomes, which can be effectively aligned with badge criteria and evidence requirements.

Suggested indicators for this dimension include:

- Completion of badge pathways explicitly mapped to GreenComp learning outcomes;
- Self- and peer-assessed progress on specific sustainability competences;
- Qualitative evidence submitted with badge applications, such as reflections, project outputs, or sustainability actions;
- External validation through endorsements or stakeholder feedback.

This approach reinforces the role of open badges in bridging the gap between competence frameworks and practical learning recognition, while providing a shared reference for comparability across countries and institutions.

2.2.2. Recognition of informal and non-formal learning

One of the most transformative potentials of open badges lies in their ability to recognize and validate learning outside of formal education systems. This includes learning acquired through volunteering, professional experience, community initiatives, peer-to-peer exchanges, or self-guided exploration — domains often excluded from traditional credentialing (Belshaw, 2016).

To measure the impact of badges in recognizing informal and non-formal learning, it is important to track not only how many badges are issued in these contexts, but also how learners narrate their experiences and how these credentials are used by actors beyond formal education (e.g., NGOs, youth organizations, employers in the social economy).

The key indicators may include:

- Proportion of badges specifically designed for non-formal or community-based learning contexts;
- Use of narratives, reflections, or portfolios as evidence submitted by badge earners;
- Engagement of civil society actors in badge design or endorsement;
- Degree of cross-sectoral recognition, for instance when badges earned in volunteer work are accepted in professional development contexts.

Furthermore, the badge metadata plays a key role in ensuring transparency and clarity around what has been learned and how it has been demonstrated. These metadata elements should not be treated as optional; rather, they serve as the semantic backbone that enables interoperability and trust (IMS Global, 2020). Ensuring that informal learning is captured meaningfully through these structures is essential to realizing the inclusive potential of open badges.

2.2.3. Learner motivation and autonomy

Open badges are increasingly recognized for their capacity to boost learner motivation by providing tangible milestones and a sense of progression through personalized learning journeys. Beyond extrinsic incentives, badges can also foster intrinsic motivation when learners feel ownership over their achievements and see their learning efforts validated in a meaningful way (Jovanovic & Devedzic, 2015).

In line with Open Education principles, impact measurement should focus not just on participation rates, but on how badges influence learners' agency, their willingness to engage in further

learning, and their perceived self-efficacy.

Relevant indicators may include:

- Changes in learner-reported motivation, before and after earning badges;
- The use of self-assessment tools or reflection prompts embedded in badge platforms;
- Evidence of learners setting their own goals, selecting pathways, and customizing their learning experience;
- Longitudinal data on whether badge earners pursue further learning, career advancement, or civic engagement following badge recognition.

Autonomy is particularly enhanced when learners can choose their evidence, contribute to badge design, or engage in peer validation, shifting the dynamic from passive recipient to active participant.

2.2.4. Open pedagogy engagement

Beyond measuring individual achievement, open badges can serve as tools to transform pedagogical relationships. Rooted in the philosophy of Open Pedagogy, this dimension assesses whether learners are being invited to co-create knowledge, shape learning environments, and contribute meaningfully to the educational process (Ehlers, 2013).

Indicators of open pedagogy engagement include:

- The number of badges co-designed with learners or created through participatory curriculum workshops;
- Inclusion of peer feedback mechanisms, learner-led assessment rubrics, or group-based badge creation;
- Instances where learners are involved in decision-making processes about which competencies are more valuable and how they should be demonstrated.

When badge systems enable such participatory dynamics, they go beyond recognition and become vehicles for democratic education, allowing learners to not only be assessed but also act as validators and designers of learning. Evaluation efforts should aim to capture this shift in power relations, documenting how badges contribute to more inclusive and learner-driven ecosystems.

2.2.5. Community and social learning

Open badges also have the potential to activate communities of practice by creating shared recognition systems, encouraging collaborative learning, and fostering social cohesion. Rather than focusing solely on individual progress, this dimension captures how badges contribute to collective identity-building, mutual support, and shared goals (Wenger, 1998).

The indicators may include:

- Number of badges issued for group-based or collective actions, such as sustainability projects, hackathons, or co-learning circles;
- Use of shared badge portfolios, community dashboards, or recognition events celebrating collective achievements;
- Integration of badges into local sustainability or social innovation initiatives, especially when they serve as a common language across actors (e.g., municipalities, schools, NGOs);
- Community testimonials and narratives that highlight social impact, inclusion, and empowerment as a result of badge use.

By documenting these forms of impact, evaluators can shift the focus from individual credentialing to networked learning and collective agency, which are key principles of both Open Education and Education for Sustainable Development (UNESCO, 2019).

3. Measuring impact through a digital equity perspective

The second pillar of this framework addresses the question of how open badges contribute to fair and inclusive access to digital recognition. While digital equity is often reduced to issues of infrastructure and connectivity, in the context of open badges it should be understood more broadly, encompassing access, participation, representation, usability, interoperability, and ethical data governance (World Bank, 2022; Open Recognition Alliance, 2022).

This dimension is especially critical in the context of Sustainability Open Badges, where social inclusion and climate justice intersect. It is not enough for badges to be technically available; they must be accessible, meaningful, and empowering for all learners, including those from marginalized communities and under-resourced environments.

The indicators proposed below are designed to help identify structural barriers, track progress toward inclusion, and guide the design of equity-sensitive badge systems. These indicators may be visualized using dashboards, supported by qualitative interviews with digitally excluded users, and enriched by badge metadata designed to surface equity dimensions.

3.1. Evaluation tools and practices

Evaluating the impact of open badges from a digital equity perspective requires more than simply measuring access or adoption. It calls for a layered and inclusive approach, capable of capturing both systemic disparities and individual lived experiences. The objective is not only to identify who uses badges, but to understand who is excluded, why, and under what conditions inclusion becomes meaningful.

A combination of automated data analysis and human-centered inquiry is essential to this process.

- Dashboards and data disaggregation: visual dashboards are valuable tools for monitoring disparities in participation and access across learner populations. When disaggregated by factors such as gender, region, disability status, age, or sector, these data can reveal important equity gaps. For example, a badge system may show high overall participation, but closer inspection might uncover that rural learners, migrants, or low-income groups are significantly underrepresented. Such dashboards should be dynamic and

customizable, enabling badge issuers, educators, and policymakers to track changes over time and identify areas where targeted interventions may be needed.

- Qualitative interviews and narrative inquiry: while dashboards are useful for identifying patterns, they cannot explain the underlying reasons for exclusion or unequal outcomes. For this, qualitative methods are essential. Interviews and focus groups with digitally excluded or under-connected learners can uncover barriers that quantitative tools miss, such as lack of confidence, fear of surveillance, linguistic barriers, or the absence of cultural relevance in badge design.
  Collecting narratives of experience helps humanize the data and ensures that learners are not reduced to statistical categories but understood as active agents in their learning journeys.

- Automated analytics with ethical design: automated analytics, such as usage logs, badge issuance patterns, or platform navigation behavior can provide valuable insights into learner engagement. These tools can be used to detect drop-offs in badge pathways, highlight bottlenecks in access, or map the journeys of different learner profiles.
  However, such data must be used ethically and interpreted with care. It is essential to avoid reinforcing existing biases or drawing conclusions without context. This is why automated analytics should always be supplemented with qualitative insights, ensuring a holistic and just interpretation of digital behavior.

- Embedding equity into metadata: one of the most promising yet underused tools for equity-sensitive evaluation is the badge metadata itself. When thoughtfully designed, badge metadata can include indicators related to accessibility, inclusiveness, language options, or community endorsement. This metadata can then be processed by automated systems to detect patterns or flag potential inequities. For instance, platforms could track how many badges are issued with multilingual descriptions, which badges are most endorsed by community partners, or how often inclusive design principles are used in badge creation.
  By embedding equity directly into the badge architecture, we move toward systems that are not only evaluable, but also equity-aware by design (Open Recognition Alliance, 2022).

3.2. Core axes and indicators

To evaluate how open badges contribute to digital equity, it is essential to consider a set of interrelated evaluation axes, each addressing a key aspect of inclusion, accessibility, and ethical digital participation. These axes help identify not only who has access to open badges, but how meaningful, empowering, and ethically sound that access is.

Each axis below proposes a specific area of focus, along with indicative metrics and evaluation methods that can be adapted to different institutional, geographical, or sectoral contexts.

3.2.1. Accessibility

Accessibility refers to the ability of all learners to access and use open badge systems, regardless of their physical, cognitive, linguistic, geographical, or technological constraints.

The key indicators are:

- Compliance with Web Content Accessibility Guidelines (WCAG);
- Availability of multilingual badge content and metadata;
- Mobile compatibility of badge platforms;
- Provision of alternative formats (audio descriptions, text-to-speech, screen reader compatibility).

Evaluation of accessibility should go beyond technical audits and include qualitative feedback from affected users, in order to surface hidden usability barriers and understand how design choices impact actual inclusion.

3.2.2. Participation diversity

A second axis focuses on who is participating in badge ecosystems and who is missing. Measuring the diversity of participation involves tracking both demographic data and sectoral representation, including groups historically underrepresented in formal education or digital systems.

Indicators may include:

- Distribution of badge earners by age, gender, geography, educational level, and socioeconomic background;

- Representation of different sectors (e.g., agriculture, informal work, NGOs, youth associations, social enterprises);
- Participation rates in non-dominant languages or among minority communities.

These metrics can be visualized through dashboards but should also be complemented by focus groups and interviews with underrepresented participants to interpret the data meaningfully and identify systemic barriers.

3.2.3. Digital capability development

Open badges do not just recognize learning: they can develop digital literacies in the process. This axis evaluates how badge use contributes to the learner's ability to navigate digital systems, manage digital identities, and produce or curate digital content.

While this may appear as an outcome evaluation, it is tightly linked to equity: learners with low digital confidence may be excluded unless badge systems are also empowering and skill-building.

Key indicators include:

- Learner-reported changes in digital confidence before and after engaging with badges;
- Integration of badge activities into digital learning environments (e.g. use of authoring tools, e-portfolios, metadata editing);
- Alignment with digital competence frameworks, such as DigComp, to map skill development trajectories (Redecker, 2019).

These indicators can be captured through before/after self-assessments, digital activity logs, and skill-mapping exercises.

3.2.4. Interoperability and portability

Badges only empower learners if they can be moved across platforms and contexts. This axis looks at the degree to which badge systems are open, connected, and learner-controlled.

The indicators include:

- Use of open technical standards, such as Open Badges 2.0 and Verifiable Credentials (IMS Global, 2020);
- Number of platforms (e.g., LMSs, CV tools, digital wallets) that issue or recognize badges;

- Actual use of badges in LinkedIn profiles, Open Badge Passport, CVs, job applications, or further education portfolios.

Evaluators should not only assess technical capacity, but also learner awareness of portability and support mechanisms provided to help them use their badges beyond the institution.

3.2.5. Data Privacy and Ethics

As badges are increasingly tied to personal data and learning records, ethical considerations around consent, surveillance, and data usage become central.

Key indicators are:

- Existence of clear consent procedures when badges are issued;
- Compliance with GDPR or equivalent frameworks;
- Use of anonymized or aggregated data for reporting purposes;
- Clarity and transparency of metadata who issued the badge, under what conditions, for which learning, and using what evidence.

These criteria are essential for ensuring that badge systems respect the rights and dignity of learners, especially those in vulnerable positions (e.g., minors, precarious workers).

3.2.6. Environmental and sustainability equity

In the specific case of Sustainability Open Badges, equity must also be understood in terms of access to green transitions. This axis assesses whether badges contribute to an equitable distribution of sustainability learning opportunities, and whether they reach communities most affected by environmental risks.

The indicators include:

- Geographic and socioeconomic spread of green skill badge earners;
- Alignment with UN Sustainable Development Goals (SDGs) in badge design;
- Uptake by workers in high-risk or low-infrastructure sectors, such as agriculture, construction, and extractive industries.

Evaluating this axis may require both quantitative badge distribution data and qualitative narratives from frontline communities, labor unions, or local development actors.

4. Stakeholder consultation

To define a shared, context-sensitive framework for measuring the impact of Sustainability Open Badges, stakeholders including impact investors and finance directors, NGOs, corporate social responsibility (CSR) leaders, communications & marketing departments, policymakers, etc. were invited to participate in this construction.

4.1. Methodology

The methodology consisted of a survey design followed by quantitative and qualitative analysis of responses validated by all partners and collected between June and August 2025 across Europe. Participants were asked a series of questions, which are detailed in the appendix at the end of this report.

General instructions for delivering the survey were as follows:

- Ensure the survey is contextually relevant, understandable, and appropriate for your local or institutional audience.
- Make sure all terms are culturally and professionally appropriate in your language context.
- Confirm relevance of all questions: All questions should be meaningful for your target respondents.
- Reach a diverse and relevant sample of respondents across education and professional sectors. Use an online survey tool (Google Forms, QR code)
- Share the survey via mailing lists, newsletters, LinkedIn groups, and relevant professional or academic events. (June -August 2025)

A poster explaining the objectives of the OP4C project and sharing the survey was presented at two events held at UniLaSalle: an Open Badges forum on June 5th and the Apprenticeship Day on June 12th.

The survey was also disseminated across five countries (France, Italy, Spain, Portugal, Belgium) through professional networks, institutional mailing lists, and thematic communities, including the GreenComp Community (over 340 participants), ICTO Community (99 members), French students (290 apprentices), their apprenticeship supervisors and external stakeholders (278 contacts), and the Spanish AgriEngineering Society (over 200 members). The Portuguese and Belgian partners each targeted approximately 50 contacts. The target audience for CSCI Novara's social media networks (Facebook, Instagram, and LinkedIn) consisted of approximately 250

individuals.

In total, the survey reached an estimated 1,557 individuals, resulting in a response rate of 4.7% (73 responses). While modest, this level of participation provided a diverse and relevant sample to inform the development of the PR5 impact framework.

4.2. Composition of participants

A total of 73 responses were collected from participants across 15 countries in Europe and the Mediterranean region. The largest shares came from France (26%), Portugal (19%), and Italy (16%), reflecting strong national engagement, particularly among consortium partners. Additional notable contributions came from Belgium and Spain (7% each), as well as Greece (5%) and Turkey (4%), indicating successful outreach across several project-affiliated countries.

Participation from Germany, Hungary, Ireland, Lithuania, the Netherlands, Romania, Slovakia, and Lebanon was more limited (1–3%), yet their inclusion contributes to a broader geographical and cultural diversity in the sample. Nonetheless, the lower response rates from Central, Eastern, and Northern Europe highlight the need for enhanced dissemination strategies in future phases to ensure greater regional balance and representativeness (Figure 1).

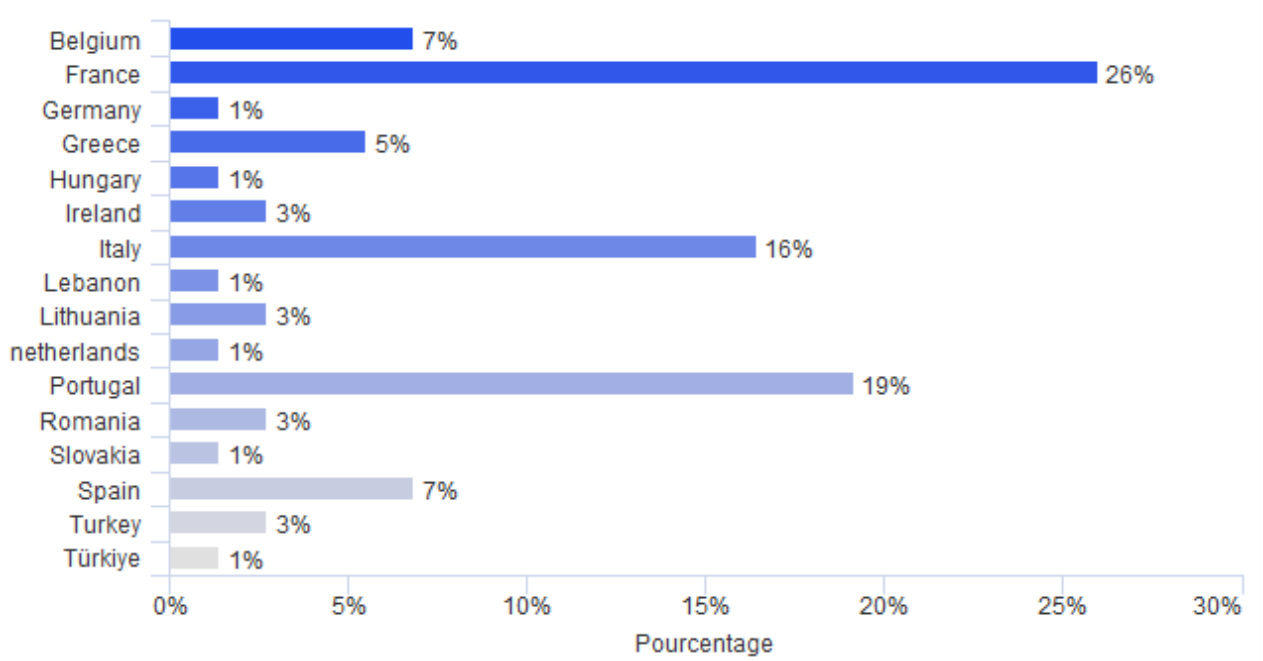

Figure 1. (Q0) What is your country of residence?

Respondents represented a wide range of professional roles relevant to the implementation of open badges, with a notable concentration in the fields of education and training. The largest group consisted of Trainers/Instructors (29%), followed by Training Managers or Learning and Development professionals (10%).

Management and strategic roles were also well represented, with Managing Directors/CEOs (10%), Assistant Managers (8%), and Corporate Social Responsibility (CSR) leaders (4%). Academic roles such as Professors (3%) and NGO members (3%) contributed additional insight from civil society and higher education.

A small proportion of respondents identified as Teachers or PhD Candidates (1%), Advisors/Technicians (1%), Co-founders and directors of innovation (1%), and Workers (1%), indicating some representation from grassroots and field-level actors as well.

This diversity of roles reflects an interdisciplinary and cross-sectoral sample, combining perspectives from formal education, training, management, sustainability, innovation, and civil society, a combination well-suited for assessing the multifaceted impact of Sustainability Open Badges (Figure 2).

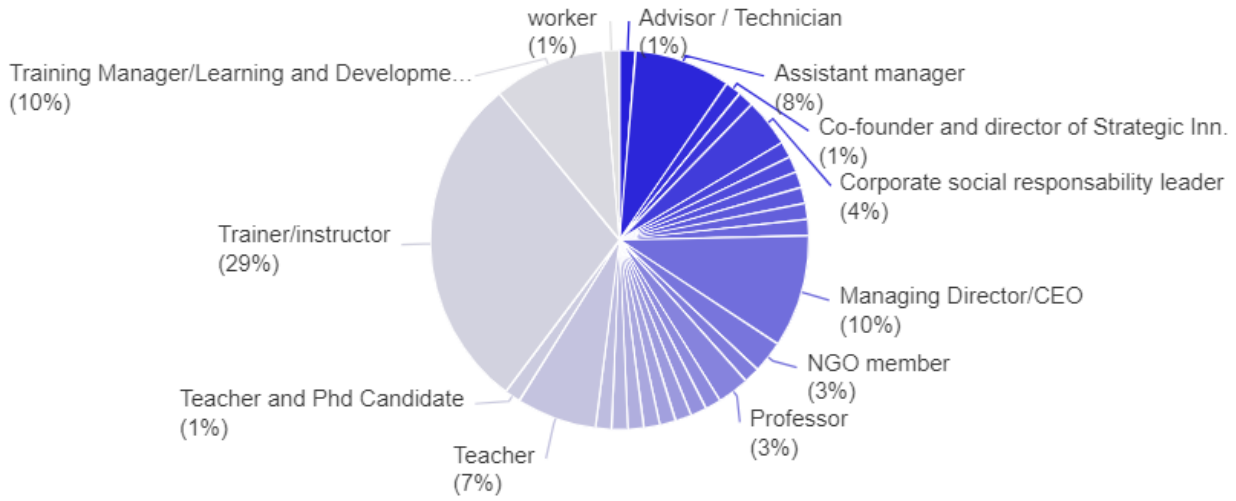

Figure 2. (Q1) Role in your company or institution

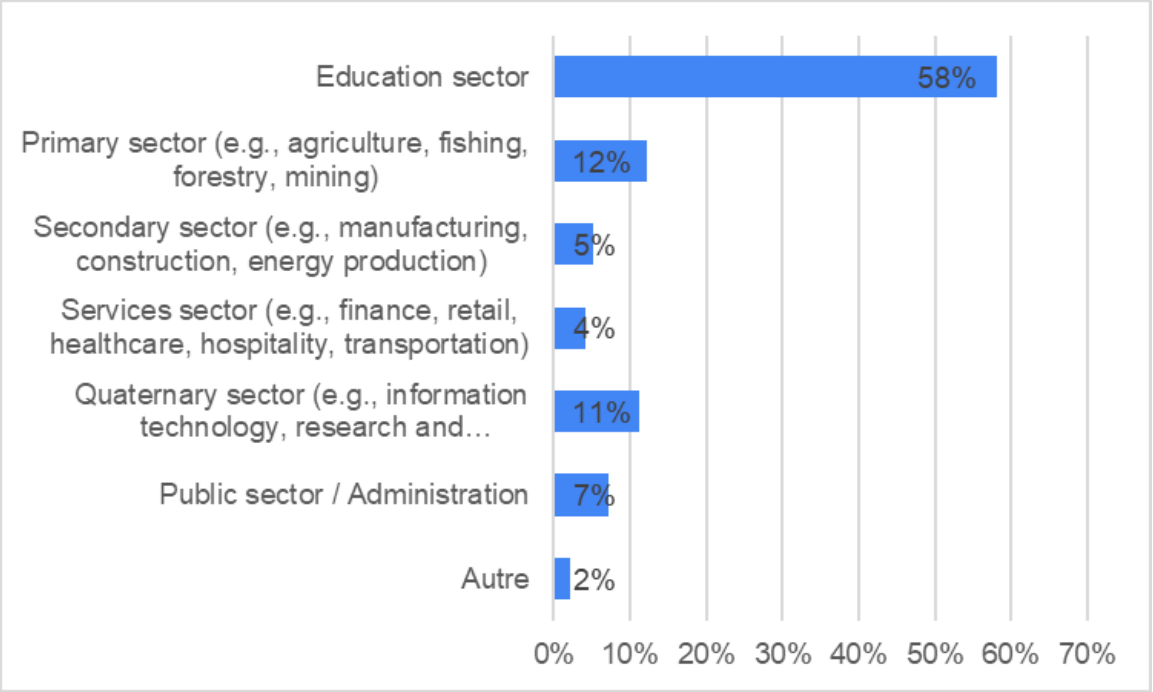

Figure 3. (Q2) Sector of activity

The education/training sector was by far the most represented among respondents, accounting for 58% of the total sample. This reflects both the relevance of open badges in learning contexts and the outreach of the consortium within academic and training institutions.

Other sectors were present to a lesser extent, with the primary sector (e.g., agriculture, forestry, fishing, mining) accounting for 12%, followed by the quaternary sector (e.g., information technology, research and development, consulting) at 11%. The public sector/administration accounted for 7%, while the secondary sector (e.g., manufacturing, construction, energy production) and the services sector (e.g., finance, retail, healthcare, hospitality) accounted for 5% and 4%, respectively.

Minimal representation came from social economy organizations and transitional education-to-business pathways (2%) (Figure 3). This distribution suggests that while the sample is strongly rooted in education and research, future dissemination efforts could benefit from targeted outreach toward the private sector, industry, and social innovation actors to diversify perspectives.

4.3. Summary of findings

4.3.1. Perceived relevance of open badges

Figure 4 illustrates respondents' self-declared familiarity with and use of Open Badges:

- The largest proportion, 42%, indicated that *they had heard of open badges but never used them*. This suggests a relatively high level of awareness across the sample, but also points to a gap between knowledge and practical engagement, leaving room for further adoption.
- 33% of respondents reported that *they had used open badges or microcredentials in a professional or academic setting*. This reflects growing adoption, particularly in education and training contexts, and likely includes users with experience in badge implementation, recognition processes, or learner engagement.
- 11% stated that *they use open badges regularly and consider them an important tool*. Although a smaller share, this group likely includes early adopters or institutional champions, whose insights could be pivotal for guiding implementation and advocacy.
- Finally, 14% indicated that *they had never heard of open badges*, revealing the continued need for awareness-raising efforts, particularly in sectors or regions where badges are still emerging or poorly understood.

These findings highlight a spectrum of familiarity, from complete unfamiliarity to regular usage, offering a valuable baseline for planning targeted communication, capacity building, and stakeholder engagement strategies.

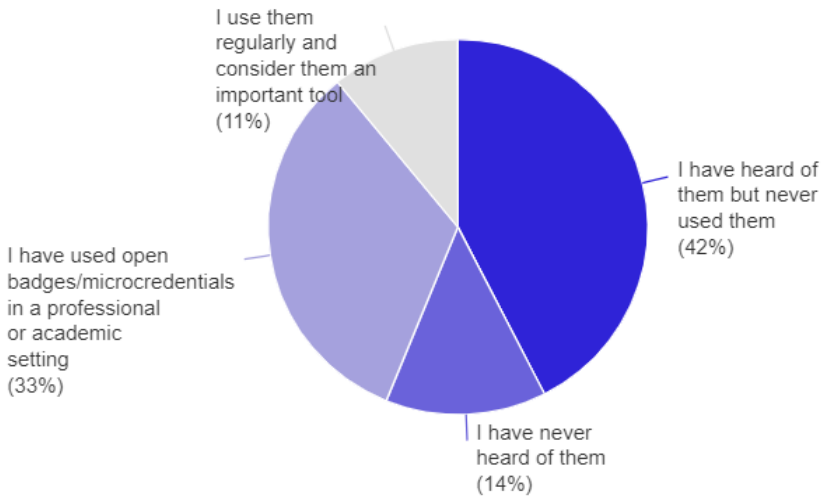

Figure 4. (Q3) Level of familiarity with the OBs

Concerning the statement "*Open badges can be used to recognize a broad range of learner skills, including informal and lifelong learning*", 85% agreed or strongly agreed with this statement (Figure 5), confirming that badges are widely seen as a flexible and inclusive tool capable of capturing learning beyond traditional academic settings. Only 4% expressed disagreement, and 11% remained neutral. These results highlight a strong level of confidence in the recognition function of open badges, particularly in valuing non-formal and experiential learning achievements.

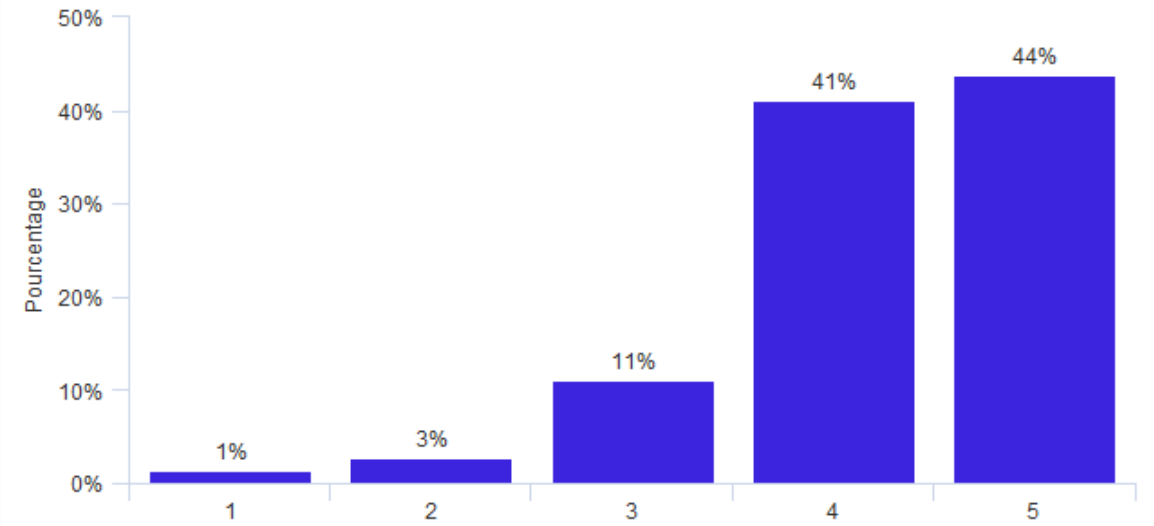

Figure 5. (Q4) Open badges can be used to recognize a broad range of learner skills, including informal and lifelong learning

Regarding the statement "*Open badges can improve learners' motivation and employability by making their competencies more visible*," a clear majority of respondents expressed agreement: 78% agreed or strongly agreed with the statement, with 42% selecting "strongly agree" and 36% "agree." This suggests that most participants perceive open badges as useful tools for increasing the learner motivation and visibility of skills, which may positively influence employability.

However, 19% selected a neutral response, indicating that a significant portion of respondents remained cautious or uncertain about the direct impact of badges on career outcomes or learner engagement. Only 2% disagreed or strongly disagreed (Figure 6).

This relative hesitancy points to the need for more concrete evidence and case studies demonstrate successful use of open badges in professional pathways and stronger integration of badge ecosystems within employer-recognized systems, platforms, and recruitment practices.

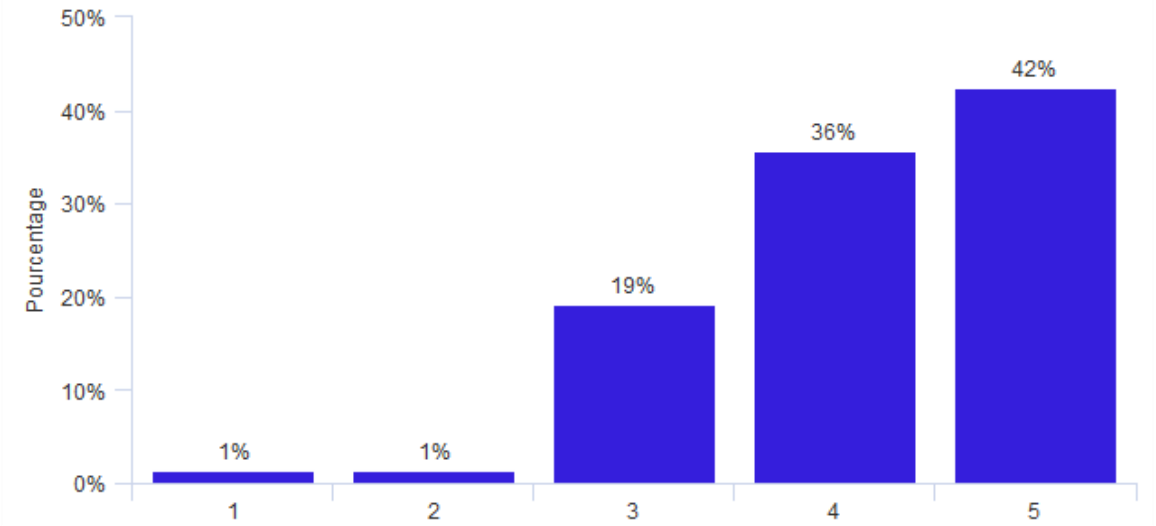

Figure 6. (Q5) Open badges can be used to improve learners' motivation and employability by making their competencies more visible

4.3.2. Learner engagement in competency development

Question 6 explored whether respondents believe open badges can support the development of key 21st-century and sustainability-related competencies.

The majority of respondents identified soft skills (77%), digital literacy (74%) and green/sustainability skills (71%), as the top competencies encouraged by open badge use (Figure 7). This reflects strong confidence in the ability of badges to foster transversal, future-oriented skills, particularly in areas closely tied to personal development and sustainability transitions.

Scientific and technical competencies were also acknowledged (53%), though to a lesser extent, suggesting that badges are perceived as slightly more relevant for broad, cross-cutting skills than for specialized disciplinary knowledge.

Other competencies that included "engagement and volunteerism," "all competences or abilities," and "mad skills", were rarely selected, indicating either limited relevance or a lack of clarity in those response options.

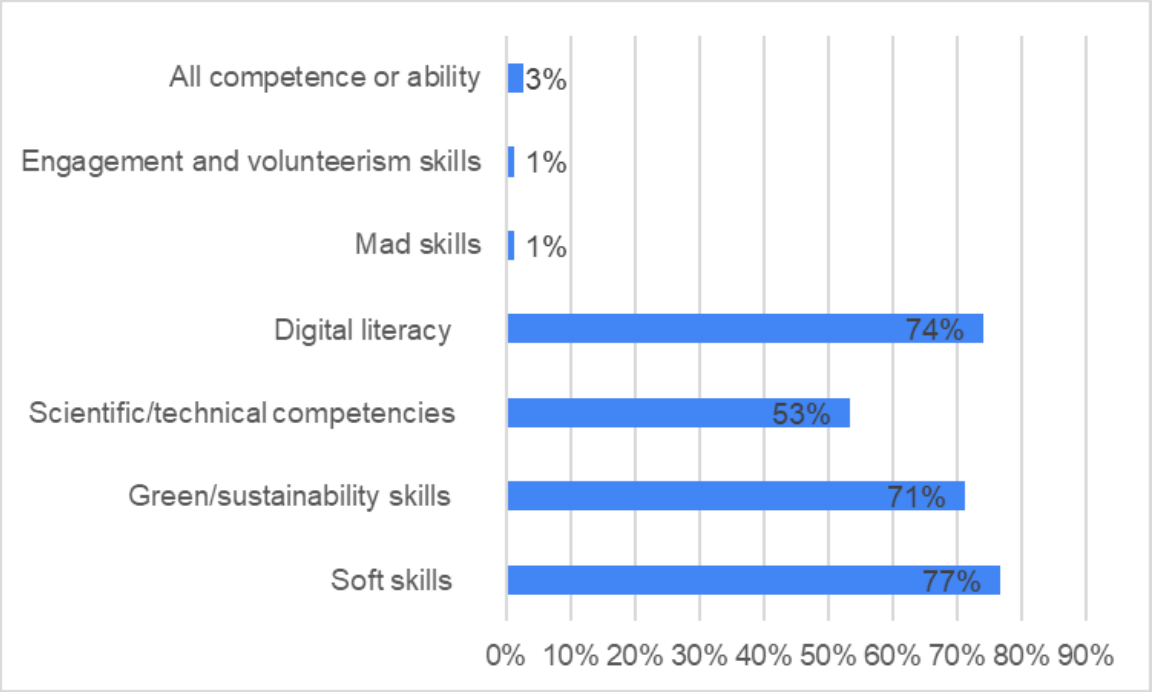

Figure 7. (Q6) Open badges can encourage learners to actively develop the following competencies

The strong support for soft and sustainability-related skills points to the value of linking open badges to transversal and societal competencies, which aligns with both Open Education values and sustainability agendas. Impact framework priorities

The following questions aimed to identify which dimensions and indicators of impact were, in the respondents' view, most relevant for evaluating the sustainability open badges' effectiveness.

Question 7 asked which impact dimensions should be prioritized in the open badge evaluation framework. Respondents were allowed to select multiple dimensions. The most frequently prioritized area was learning outcomes (66%), followed by career advancement (53%) and behavioral change (52%). Community influence (41%) and organizational integration (34%) received moderate support, while policy development (11%) and economic value (7%) were much less emphasized (Figure 8).

These results suggest a clear emphasis on human-centered impacts, with a strong preference for measuring outcomes related to individual learning, behavioral shifts, and social engagement. Respondents appeared less concerned with system-level indicators like policy or cost-benefit impact, which may reflect the priorities of educators, trainers, and community actors rather than policymakers or funders.

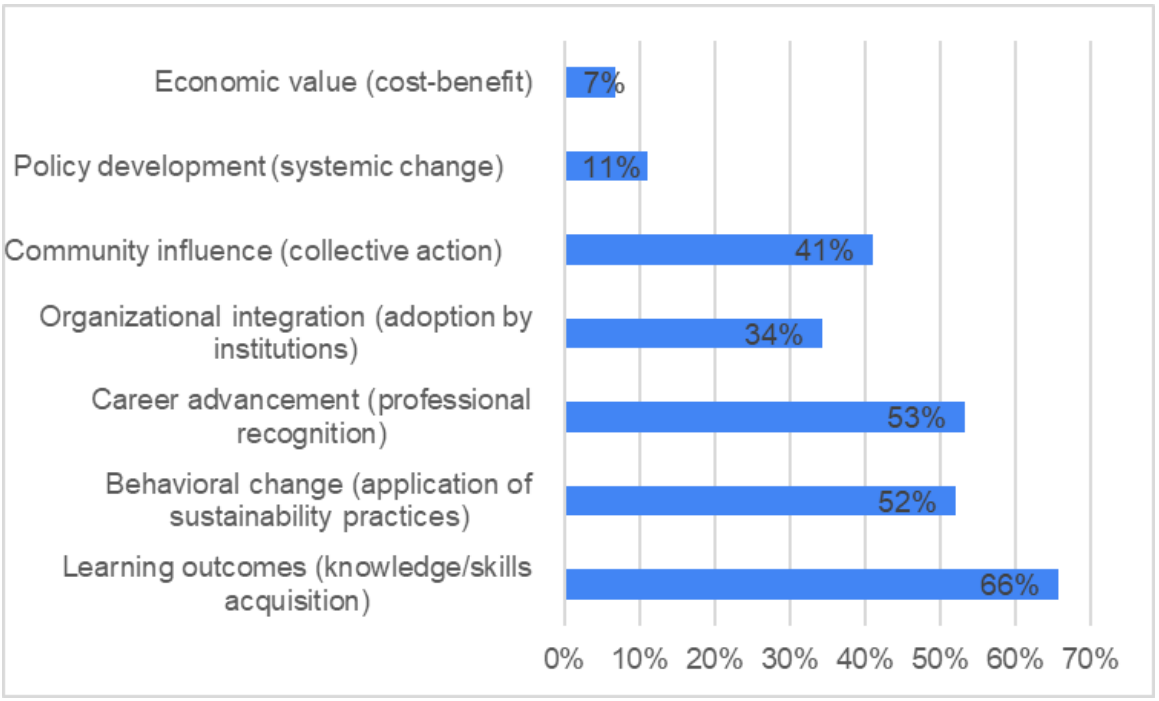

Figure 8. (Q7) Which impact dimensions should be prioritized in the open badge evaluation framework?

Three points should be noted when analyzing this graph (Figure 8):

- Personal and social-level impacts dominate: learning outcomes, behavioral change, and career advancement are perceived as more meaningful and relevant for evaluation.
- Systemic and economic metrics are underprioritized: this gap might call for audience-specific communication strategies, especially if the framework is to be used with funders, institutions, or decision-makers.
- The results align with a qualitative and participatory evaluation approach, placing value on learner stories, collective change, and educational transformation, rather than strictly quantitative or financial indicators.

Figure 9 illustrates which quantitative indicators stakeholders considered most useful for evaluating the effectiveness of open badges (Q8). Respondents were able to select multiple options. The most frequently selected metric was organizational adoption (71%), suggesting strong interest in tracking how widely open badges are recognized and adopted by institutions. This was followed by completion rates for learning pathways (48%), reflecting the importance of measuring learner progression, and employment outcomes for badge holders (36%), highlighting interest in real-world impact on careers. Integration with credentials (34%) and number of badges

issued (30%) were also chosen, though with less emphasis.

The demographic distribution of badge earners (8%) and badge display/sharing rate (25%) were the least prioritized indicators, suggesting that visibility and equity tracking are perceived as less critical or harder to operationalize in the current context.

Overall, stakeholders favored system-level and educationally structured metrics over those focused on visibility or volume. These findings support a measurement approach that emphasizes institutional recognition, learning progression, and employability, reinforcing the position of open badges as part of broader credentialing ecosystems rather than isolated tools.

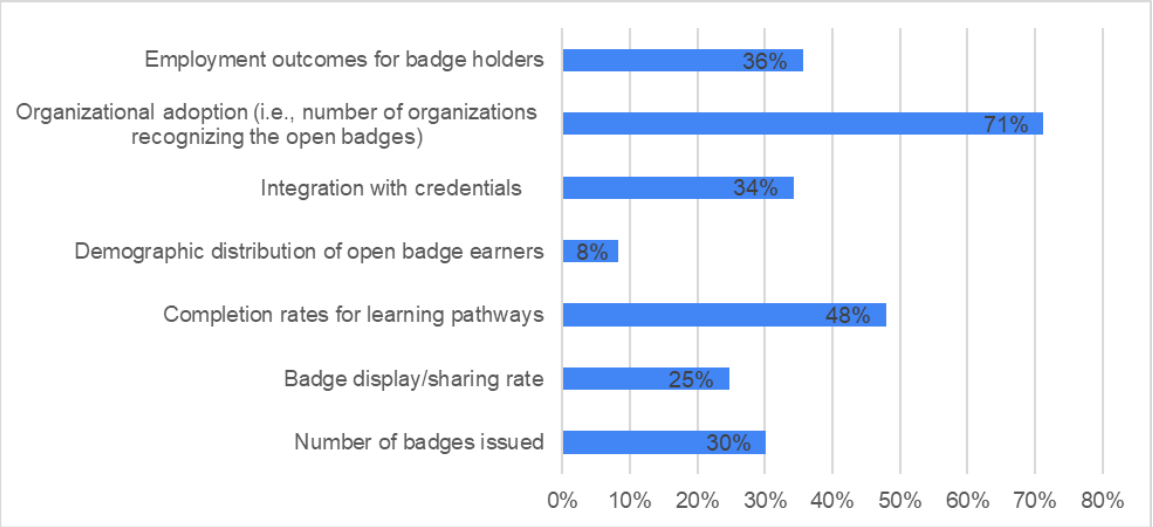

Figure 9. (Q8) Which quantitative metrics would be most useful to evaluate open badge effectiveness?

Figure 10 presents stakeholder preferences regarding qualitative methods for evaluating the impact of open badges. Respondents were allowed to select multiple options. The most frequently selected method was competency demonstrations (45%), followed closely by participant testimonials (42%), case studies of applied learning (42%), and organizational adoption stories (42%). This reveals a clear preference for experiential, narrative-driven, and learner-centered evaluation approaches.

Additional methods such as stakeholder perception surveys (41%) and community impact narratives (40%) were also valued, suggesting a desire to gather insights from a variety of actors involved in the badge ecosystem including learners, educators, institutions, and communities.

By contrast, social network analysis (14%) was selected far less often. While potentially useful for mapping influence and diffusion, it may be perceived as too technical, complex, or less actionable for practitioners.

Overall, the findings point to a strong inclination toward qualitative approaches that emphasize real-world impact, contextual application, and personal experience, rather than abstract or system-level data alone. Evaluators are encouraged to prioritize methods that make visible the lived effects of badge usage on learners, organizations, and communities.

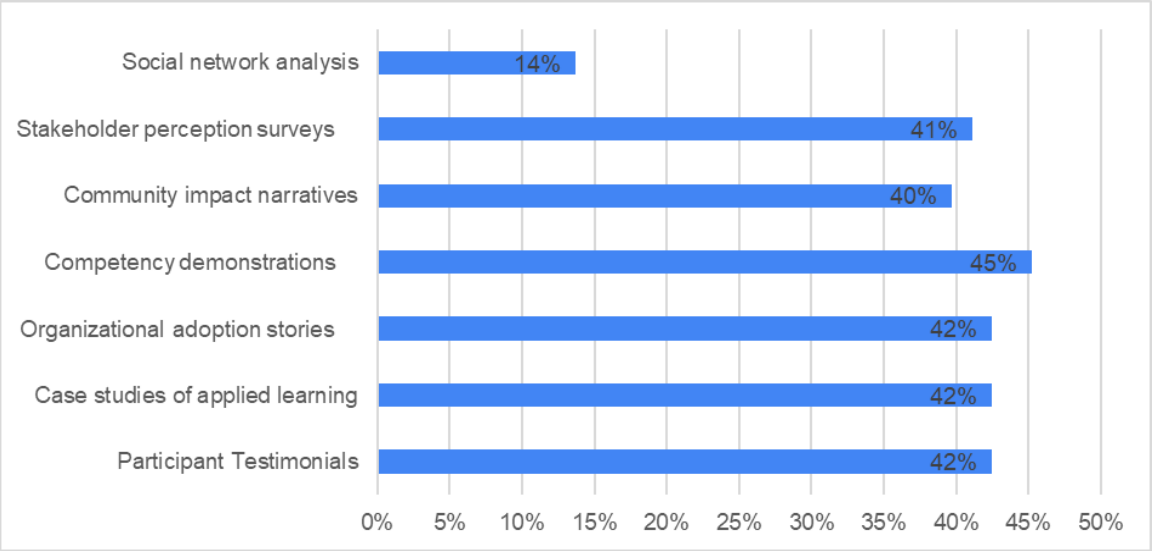

Figure 10. (Q9) Which qualitative methods would best assess open badge impact?

4.3.3. Methodological approach & validation

In this section of the survey, stakeholders shared their views on what would be the most feasible data collection and validation methods to ensure credible, inclusive, and practical impact measurement.

Question 10 assessed which data collection methods stakeholders considered practically feasible within their educational, organizational, or sectoral context. Respondents were able to select multiple options. The most frequently selected method was online surveys (74%), followed by interviews and focus groups (53%), and participant self-assessments (44%) (Figure 11). These results point to a clear preference for accessible, low-cost, and participatory approaches that can be adapted across different environments.

Organizational reporting (37%) was considered moderately feasible, suggesting that while some

institutions may have the infrastructure to support internal data collection, this is not universally the case. Social media tracking (14%) was the least selected option, likely due to concerns about privacy, data reliability, or limited technical capacity.

Overall, the findings emphasize the need for flexible and scalable data collection strategies, favoring methods that are simple to deploy, user-driven, and context-aware, especially in multi-stakeholder or cross-sectoral settings.

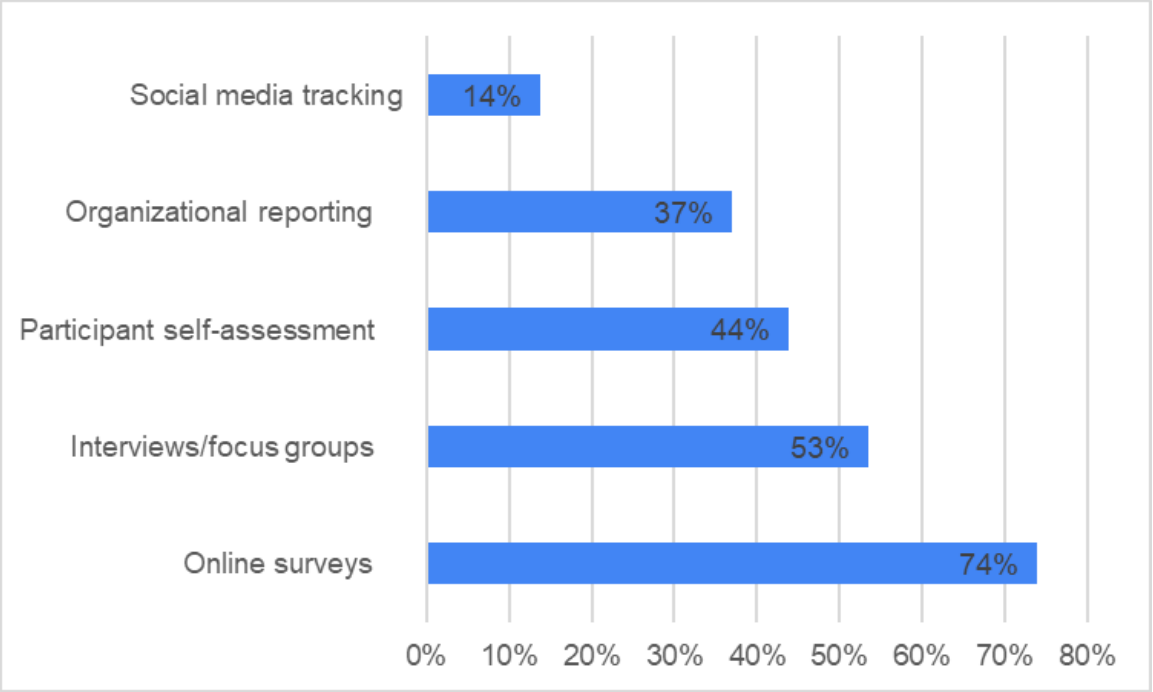

Figure 11. (Q10) Which data collection methods are feasible in your context?

Question 11 asked stakeholders to identify the most appropriate validation methods to ensure credibility and robustness of the impact measurement approach. Respondents were allowed to select multiple options. The two most frequently selected methods were comparative analysis (38%) and mixed-method validation (38%), indicating a strong preference for benchmarking across contexts and triangulation of qualitative and quantitative data.

Stakeholder workshops (34%) also received considerable support, highlighting the value placed on participatory approaches that engage multiple actors in the validation process.

By contrast, expert panel reviews (30%) and pilot testing (29%) were selected slightly less often. This may reflect a lower appetite for top-down or experimental validation models, with stakeholders favoring inclusive, dialogic, and data-rich strategies over isolated technical reviews.

Overall, the results point to a preference for multi-perspective and context-sensitive validation, combining rigor, relevance, and collaboration (Figure 12).

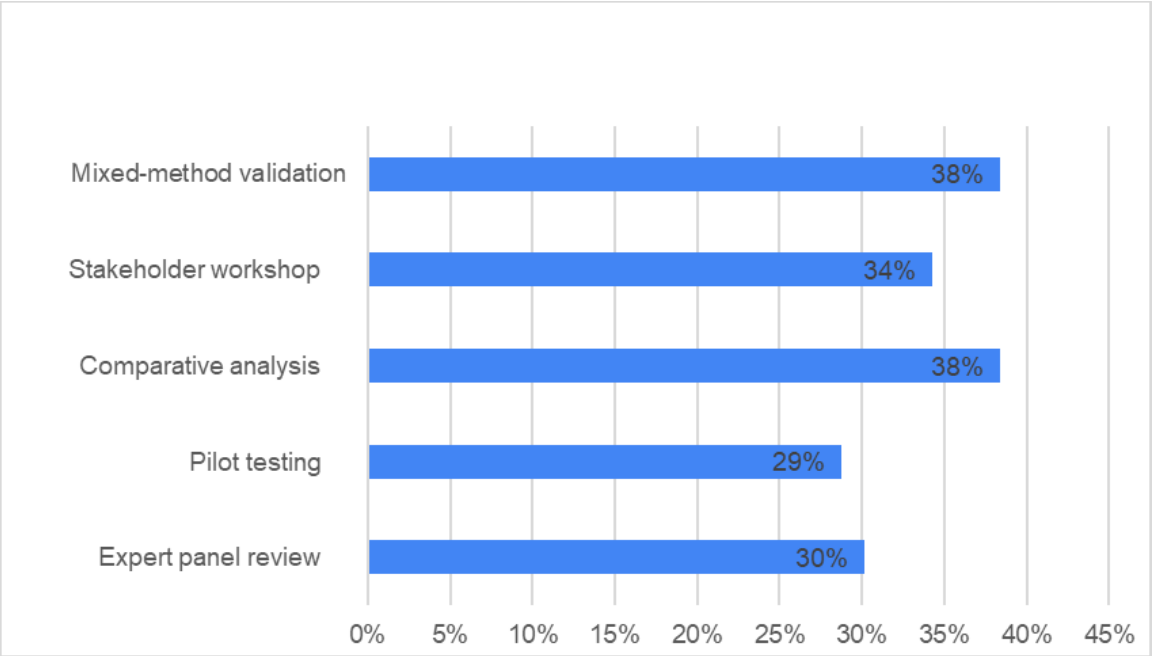

Figure 12. (Q11) Which validation approach would be best for the impact measurement methodology?

4.3.4. Open Education & Recognition integration

The following questions aimed to explore how to align the methodology with Open Education and Open Recognition systems, while anticipating implementation challenges.

Question 12 explored how stakeholders believe the impact measurement methodology for open badges should align with Open Education principles, which emphasize values such as equity, transparency, collaboration, and learner empowerment.

The most frequently selected priorities were recognition of informal learning (55%) and co-development of indicators (55%), highlighting strong support for learner-centered and participatory evaluation approaches. These results suggest that stakeholders want the methodology to acknowledge diverse learning experiences and involve users directly in shaping what counts as “impact.”

Other key principles included transparency (47%) and accessibility of data (40%), reinforcing the importance of making badge systems open, understandable, and usable across contexts.

In contrast, system interoperability (23%) and community ownership of evaluation (23%) were seen as lower priorities, possibly reflecting the more immediate need for practical and learner-facing improvements over technical or institutional infrastructure.

Only 4% of respondents expressed no opinion, indicating that most participants felt confident engaging with Open Education concepts in the context of badge evaluation (Figure 13).

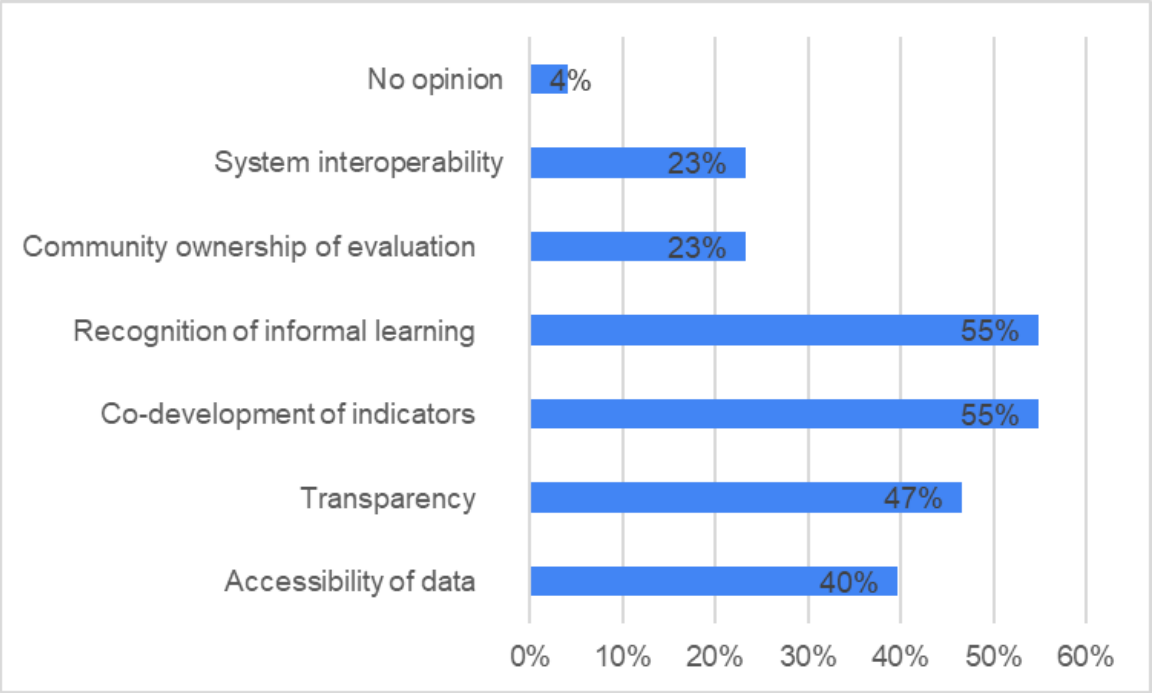

Figure 13. (Q12) How should our methodology connect with Open Education principles?

Question 13 explored stakeholders' preferred methods for embedding impact data into Open Recognition systems such as Open Badges. The most frequently selected option was badge metadata (56%), indicating strong support for integrating impact information directly within the badge itself. This approach supports transparency, verifiability, learner agency, and clear communication of achievement (Open Recognition Alliance, 2022).

Stakeholders also valued badge pathways (49%) and dashboards (45%), both of which offer ways to track learner progress and visualize impact across time or programs. These tools help contextualize the data, making it more meaningful for both earners and evaluators.

Community portfolios (34%) and interoperable data solutions (29%) were moderately selected, suggesting that while stakeholders recognize their potential, they may be viewed as more complex to implement or dependent on external systems.

Only 7% of respondents selected “I don’t know,” reflecting a high level of engagement and clarity among participants regarding the technical integration of impact data (Figure 14).

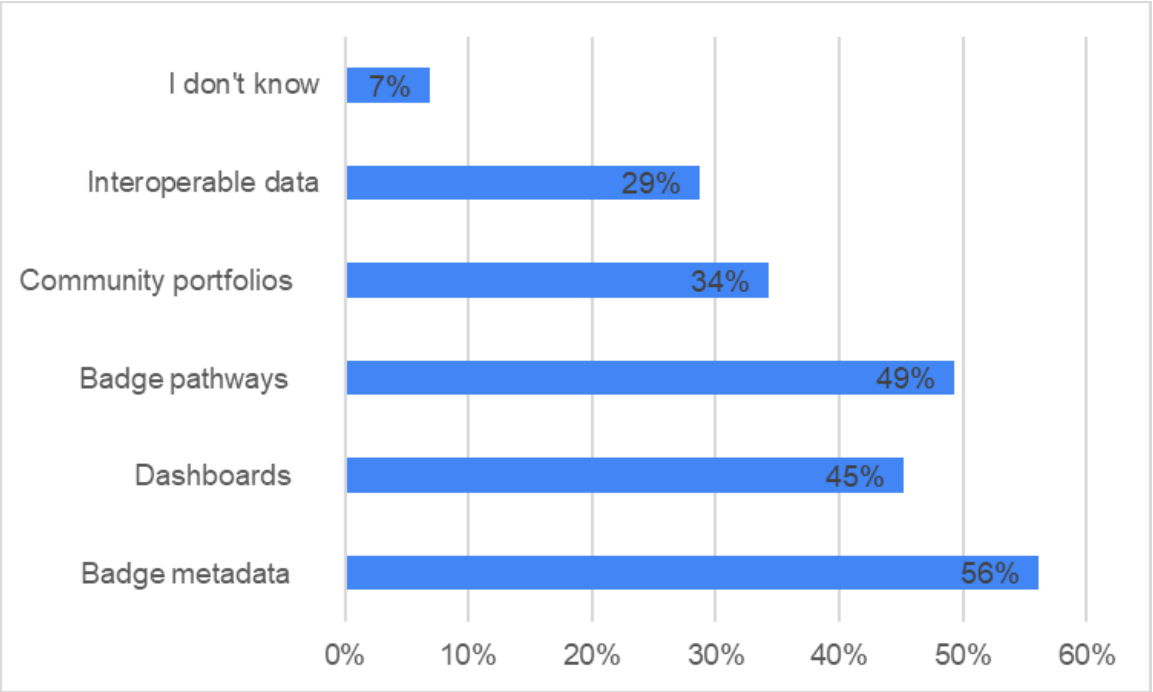

Figure 14. (Q13) How should impact data be integrated into Open Recognition systems?

Question 14 asked stakeholders to identify the most significant barriers to successfully implementing an impact measurement framework for open badges. The two most frequently cited challenges were stakeholder engagement (56%) and data collection (51%), underlining the need for inclusive, coordinated, and well-supported implementation strategies. Additional concerns included long-term sustainability (37%), as well as privacy (33%), methodological complexity (32%), and resource constraints (32%). These results highlight the importance of designing an impact framework that is not only methodologically robust, but also adaptable, secure, and realistic in terms of institutional capacity and resource availability.

Cultural diversity (22%) was considered less of an immediate barrier, though it remains relevant in multilingual, cross-border, and equity-sensitive contexts. Only 1% of respondents selected “I don’t know,” indicating that stakeholders had well-formed opinions about the practical challenges of implementing such a framework (Figure 15).

These findings should directly inform risk mitigation strategies and the development of targeted support measures to ensure the PR5 framework is both scalable and contextually grounded.

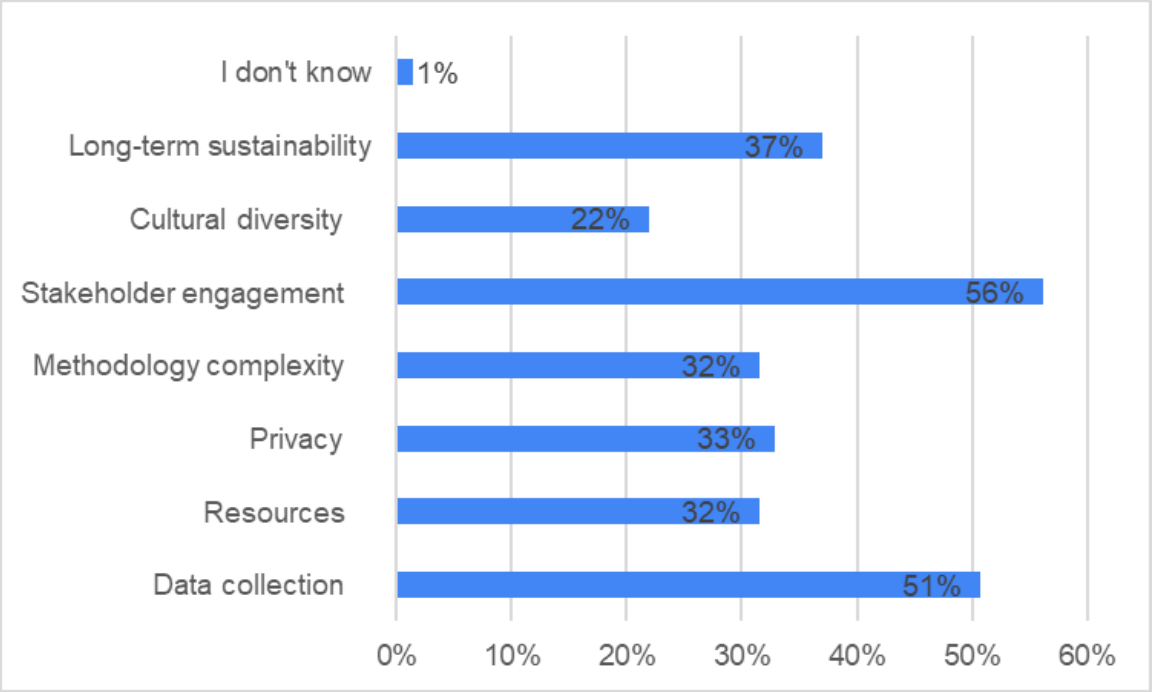

Figure 15. (Q14) What are the biggest challenges for implementing impact measurement?

4.3.5. Perceived barriers and opportunities for open badges adoption

In this subsection, the respondents were asked to elaborate on the perceived barriers and opportunities for open badges adoption.

Stakeholders identified a rich variety of perspectives on the potential and challenges of open badges. Despite the diversity of roles and countries represented, five key barriers and five main opportunities consistently emerged from the responses, providing a nuanced picture of the current perception of open badge systems in education and employment.

The main identified barriers to adoption were:

1. **Lack of recognition and legitimacy in formal systems**

   Many respondents pointed out that open badges still lack institutional and labor market credibility. Their unfamiliarity between recruiters, teachers, and accreditation bodies remains a major obstacle.

   "Badges are sometimes seen as informal or 'nice to have,' rather than as serious credentials." (NGO member, Education sector)

   "They cannot [be] known by sector." (Trainer, Education sector)

“Recruiters place little value on them, as there is limited communication about the quality of the teaching behind the awarding of open badges.” (Assistant manager, Quaternary sector)
“Low recognition among recruiters.” (Advisor, Quaternary sector)

2. Absence of standardization and quality assurance

The fragmentation of issuers and badge formats, combined with the absence of a unified quality framework, was frequently cited as a barrier to trust and scalability.
“There’s no unified framework or governance for issuing, verifying, and evaluating open badges.” (Managing Director/CEO, Education sector)
“Too many badge flavours and hard to tell what’s legit.” (Hiring manager, Quaternary sector)
“Gives priority to open badges from the same community, which could limit diversity within a professional environment.” (Advisor, Quaternary sector)
“Barriers: credibility due to lack of standardization.” (Training Manager/Learning and Development Manager, Primary sector)

3. Integration challenges (technical and structural)

Stakeholders emphasized the difficulty of integrating badge systems into existing institutional infrastructures, including HR software, LMS platforms, or national qualification frameworks.
“Time, money & integration with existing indicators.” (Trainer/Instructor, Education sector)
“Plugging badge-checks into our HR tools = extra dev tickets we don’t have time for.” (Hiring manager, Quaternary sector)
“The problem is how to issue them (knowledge, resources, standards) and ensure their recognition from third parties.” (Recruiter/Talent Acquisition Specialist, Primary sector)

4. Limited awareness and understanding

Several respondents noted that open badges remain largely unknown or misunderstood beyond niche circles, both in education and employment.
“Don't have enough information to answer.” (Sustainability officer, Public sector / Administration)
“Since they are not familiar with this system, I believe that the lack of awareness outside of 'informed' circles is one of the main obstacles.” (Research Engineer, Primary sector)
“The main barrier is the little understanding and the awareness of its advantages.” (Trainer/Instructor, Primary sector)
“Lack of awareness.” (Professor, Education sector)

5. **Perceived low value when disconnected from accreditation**

Badges not aligned with formal degrees or national frameworks were perceived by some as superficial or unreliable.

"Perceived low value without accreditation." (Managing Director/CEO, Education sector)

"I think this is counterproductive. It would be a certification that, at present, has no recognition." (Assistant manager, Primary sector)

In turn, the main opportunities identified by stakeholders were:

1. **Recognition of non-formal and informal learning**

Open badges were widely seen as a powerful means to valorize skills acquired outside formal education, such as through volunteering, work experience, or informal training.

"Open badges can validate skills and competencies gained outside formal education, such as online courses, workshops, or informal training." (Trainer/Instructor, Education sector)

"They can be used for the certification of the training that we provide at Farm Advisory Systems (FAS)." (Recruiter/Talent Acquisition Specialist, Primary sector)

"Recognition of skills acquired outside the formal curriculum, often sought after to stand out." (Advisor, Quaternary sector)

2. **Support for lifelong learning and career mobility**

Their modularity and flexibility were cited as key assets for upskilling, reskilling, and supporting personalized learning pathways.

"Open badges offer great opportunities to recognize skills and lifelong learning in flexible ways." (Trainer/Instructor, Education sector)

"They help educators showcase specific competencies beyond traditional degrees." (Trainer/Instructor, Education sector)

"People can level-up and flash a badge in weeks, perfect for fast-moving tech." (Hiring manager, Quaternary sector)

3. **Alignment with European frameworks and initiatives**

Linking badges to European standards (e.g., EQF, Erasmus+, DigComp, GreenComp) was seen as a way to increase trust and cross-border recognition.

"Tying badges to Erasmus+ increases employer trust and visibility." (Trainer/Instructor, Education sector)

"Could be very convenient if supported by EU or national governments." (Training Manager/Learning and Development Manager, Primary sector)
"They can be used for the certification of the training that we provide at Farm Advisory Systems (FAS), in the Common Agricultural Policy framework." (Recruiter/Talent Acquisition Specialist, Primary sector)

4. Motivation, engagement, and learner empowerment

Badges were recognized for their role in boosting learner motivation, supporting goal-setting, and personalizing learning trajectories.
"Motivate the learner to acquire skills for transparent recognition in the labor market." (Advisor, Quaternary sector)
"They help learners engage and take ownership of their development." (Trainer/Instructor, Education sector)

5. Employer branding and CSR integration

In the private sector, badges were viewed as tools to support internal training, sustainability strategies, and transparent communication of competencies.
"A good way to show commitment to green competencies and transparency." (Managing Director/CEO, Education sector)
"Skills-based hiring as the main opportunity; equity in access." (Trainer/Instructor, Education sector)

From this expanded analysis, three strategic insights emerge:

- Trust is the hinge factor: whether in terms of badge content, issuer authority, or alignment with national or European systems, stakeholder trust determines adoption and perceived legitimacy.
- Clarity and coherence are essential: the ecosystem suffers from lack of standardization and too many disconnected initiatives. Clear design, transparent metadata, and shared frameworks are needed to simplify understanding and promote confidence.
- Strategic alignment enables scale: badges must be embedded within existing institutional, qualification, and labor market structures to move from marginal innovation to systemic recognition and use.

5. Conclusion

The proposed impact framework is structured around two complementary pillars:

- The first, inspired by Open Education values, emphasizes informal learning recognition, co-creation of indicators, community involvement, and transparency in badge systems.
- The second, grounded in digital equity principles, focuses on ensuring accessibility, interoperability, diversity in participation, and ethical data practices, especially for vulnerable or underrepresented groups.

Findings from the PR5 survey highlight the strong potential of open badges as tools for recognizing sustainability-related competencies and supporting lifelong learning. Respondents acknowledge badges' value in enhancing learner engagement, supporting the development of transversal skills (such as soft skills, green skills, and digital literacy), and making informal and non-formal learning visible and verifiable.

The consultation also revealed key methodological and structural challenges, notably:

- Mobilizing stakeholders consistently,
- Managing data collection processes,
- Navigating methodological complexity,
- Ensuring long-term sustainability of evaluation practices.

Despite these challenges, the responses demonstrate a collective commitment to advancing more open, inclusive, and interoperable credentialing ecosystems. Stakeholders seek frameworks that not only measure badge issuance but also capture meaningful learner outcomes, behavior changes, and community-level impact.

The PR5 framework may thus provide a flexible, co-constructed architecture ready for piloting and adaptation in future phases of the OP4C project. Beyond the boundaries of the project, it also holds significant potential for broader applicability across other sustainability-oriented microcredential initiatives, particularly those aiming to recognize transversal and green competences in both formal and non-formal learning contexts.

Initial feedback collected during events such as the Apprenticeship Day at UniLaSalle highlighted a clear interest from participants in using open badges to valorize their lifelong learning experiences, especially in non-traditional or experiential settings. Similarly, future engagement with employers and recruiters through targeted dissemination events may open pathways for

embedding open badges into human resource practices, for instance to recognize employee upskilling, informal learning, or sustainability competences.

In this sense, the PR5 framework contributes not only to OP4C's objectives, but also to the broader ecosystem of microcredentials, by offering a methodologically sound and socially grounded approach to measuring impact, aligned with the values of educational innovation, ecological transition, and social justice across diverse learning and employment ecosystems in Europe and beyond.

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7. Appendix

Questions
Section 1: Respondent Profile
What is your country of residence? ☐ Belgium ☐ France ☐ Italy ☐ Portugal ☐ Spain ☐ Other (please specify): _____
Q1. Your role in your company/institution: ☐ Managing Director/CEO ☐ ☐ Hiring Manager ☐ Recruiter/Talent Acquisition Specialist ☐ Training Manager/Learning and Development Manager ☐ Trainer/instructor ☐ Policymaker ☐ Corporate social responsibility leader

☐ Impact investor

☐ NGO member

☐ Other (please specify): _____

Q2. Your sector of activity:

☐ Primary sector (e.g., agriculture, fishing, forestry, mining)

☐ Secondary sector (e.g., manufacturing, construction, energy production)

☐ Services sector (e.g., finance, retail, healthcare, hospitality, transportation)

☐ Quaternary sector (e.g., information technology, research and development, consulting)

☐ Education sector

☐ Public sector/administration

☐ Other (please specify): _____

Q3. Your level of familiarity with the open badges/microcredentials system.

An open badge is a digital, verifiable certificate of achievement, often used to represent specific skills or accomplishments. Microcredentials are broader certifications, usually encompassing a wider range of learning experiences or achievements, and are often used to verify competency in a particular area.

Open badges are presented as images enriched with metadata, such as the issuing

organization, badge description, criteria, submitted evidence, standards, and endorsements, that allow the digital verification that a badge has been awarded to a specific recipient, and a clear understanding of the badge holder's actual skills and achievements.

☐ I have never heard of them

☐ I have heard of them but never used them

☐ I have used Open Badges in a professional or academic setting

☐ I use them regularly and consider them an important tool

Section 2: Recognizing & Motivating Learning

The following questions aim to assess the perceived relevance of open badges for skill recognition and learner motivation.

By "learner" we refer to an individual engaged in acquiring knowledge, skills, or understanding, regardless of context, age, or formal status. This includes employees developing skills through workplace training, upskilling, or professional certifications; trainees, apprentices, and individuals in skill-based programs; lifelong learners pursuing self-directed education for personal growth; students in traditional educational settings...

Q4. Open badges can be used to recognize a broad range of learner skills, including informal and lifelong learning.

Strongly disagree ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 Strongly agree

Q5. Open badges can be used to improve learners' motivation and employability by making their competencies more visible.

Strongly disagree ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 Strongly agree
Section 3: Learner Engagement in Competency Development The following question aims to determine whether, in your opinion, open badges can encourage learners to develop key 21st-century and sustainability-related competencies.
Q6. Open badges can encourage learners to actively develop the following competencies: (Select all that apply) ☐ Soft skills ☐ Green/sustainability skills ☐ Scientific/technical competencies ☐ Digital literacy ☐ Other: _____
Section 4: Impact Framework Priorities The following questions aim to identify which dimensions and indicators of impact are, in your view, most relevant for evaluating the sustainability open badges' effectiveness.
Q7. Which impact dimensions should be prioritized in the open badge evaluation framework? (Select up to 3) ☐ Learning outcomes (knowledge/skills acquisition)

☐ Behavioral change (application of sustainability practices)

☐ Career advancement (professional recognition)

☐ Organizational integration (adoption by institutions)

☐ Community influence (collective action)

☐ Policy development (systemic change)

☐ Economic value (cost-benefit)

☐ No opinion

Q8. Which quantitative metrics would be most useful to evaluate open badge effectiveness? (Select up to 3)

☐ Number of badges issued

☐ Badge display/sharing rate

☐ Completion rates for learning pathways

☐ Demographic distribution of open badge earners

☐ Integration with credentials

☐ Organizational adoption (i.e., number of organizations recognizing the open badges)

☐ Employment outcomes for badge holders

☐ Other: _____

Q9. Which qualitative methods would best assess open badge impact? (Select up to 3)

☐ Participant Testimonials

☐ Case studies of applied learning

☐ Organizational adoption stories

☐ Competency demonstrations

☐ Community impact narratives

☐ Stakeholder perception surveys

☐ Social network analysis

☐ Other: _____

Section 5: Methodological Approach & Validation

Please share your view on what would be the most feasible data collection and validation methods to ensure credible, inclusive, and practical impact measurement.

Q10. Which data collection methods are feasible in your context? (Select up to 3)

☐ Online surveys

☐ Interviews/focus groups

☐ Participant self-assessment

☐ Organizational reporting

☐ Social media tracking

☐ Other: _____

Q11. Which validation approach would be best for the impact measurement methodology? (Select one or two)

☐ Expert panel review

☐ Pilot testing

☐ Comparative analysis

☐ Stakeholder workshop

☐ Mixed-method validation

☐ Other: _____

Section 6: Open Education & Recognition Integration

The following questions aim to explore how to align the methodology with Open Education and Open Recognition systems, while anticipating implementation challenges.

Open Education refers to educational practices and resources that aim to make learning more accessible, inclusive, and collaborative. It includes the use of open educational resources (OER), open licensing, and learner-centered approaches that promote lifelong learning.

Open Recognition Systems refer to digital tools and frameworks, such as Open Badges, that make learners' skills, achievements, and contributions visible and verifiable, regardless of how or where they were acquired.

Q12. How should our methodology connect with Open Education principles? (Select up

to 3)

☐ Accessibility of data

☐ Transparency

☐ Co-development of indicators

☐ Recognition of informal learning

☐ Community ownership of evaluation

☐ System interoperability

☐ No opinion

Q13. How should impact data be integrated into Open Recognition systems? (Select all that apply)

☐ Badge metadata

☐ Dashboards

☐ Badge pathways

☐ Community portfolios

☐ Interoperable data

☐ Other: _____

Q14. What are the biggest challenges for implementing impact measurement? (Select up to 3)

☐ Data collection

☐ Resources ☐ Privacy ☐ Methodology complexity ☐ Stakeholder engagement ☐ Cultural diversity ☐ Long-term sustainability ☐ Other: _____
Section 7: Open Feedback The following open question aims to collect qualitative insights on the perceived barriers and opportunities for open badges adoption.
Q15. In your opinion, what are the main barriers and opportunities for integrating Open Badges into your sector and the broader labor market?